

Re-understanding Change: a decolonial pedagogy for empowering people to think from the margins

Author

Yadeun De Antunano, Monica

Published

2019-10-21

Thesis Type

Thesis (PhD Doctorate)

School

School Educ & Professional St

DOI

[10.25904/1912/1427](https://doi.org/10.25904/1912/1427)

Downloaded from

<http://hdl.handle.net/10072/388978>

Griffith Research Online

<https://research-repository.griffith.edu.au>

Re-understanding Change: a decolonial pedagogy for empowering
people to think *from* the margins

Monica Yadeun de Antuñano

MVZ, M.C.

School of Education and Professional Studies
Education & Law
Griffith University

Submitted in fulfilment of the requirements of the degree of
Doctor of Philosophy
February 2019

Abstract

This study seeks to contribute to the unfinished project of decolonisation (Fanon, 2001) by questioning the Eurocentric knowledges we have inherited through Western academic institutions, and that stand as the only pathway for bringing about socio-environmental justice. In this dissertation I argue that the current socio-environmental crisis is, in reality, a crisis of knowledge. The universal way of thinking and understanding the world is a legacy of a global colonial history that started with the colonisation of the Americas and that led to the imposition of Western knowledge as the only lens from which to look at reality (Grosfoguel, 2015). This lens has naturalised the exploitation of Nature and people from the periphery, making it impossible to transform society's thinking from the hegemony of Western knowledge, as it perpetuates the unequal colonial relationships that led to the crisis in the first place.

It is in this context that the original contribution of my research sits, as it addresses the research problem of decolonising the knowledge sphere by bringing light to the hidden Indigenous knowledges present in Latin America. In addressing this research problem, I designed a decolonial pedagogy (Walsh, 2013) that enables scientists and social scientists to recognise the coloniality of knowledges framing their thinking, and discover the possibilities of creating change by thinking *from* the margins of Western knowledge. It is from the margins of knowledges, the place in which Western and non-Eurocentric knowledges meet, where other ways of understanding, thinking, being and acting can be imagined to transform society (Escobar, 2014).

As a study that sits on the margins of Western knowledge, this thesis does not follow traditional academic frameworks, but it is an exercise of epistemic disobedience (Mignolo, 2011) that shifts the place of enunciation of knowledge from Western academic institutions to that of epistemological fights led by Indigenous peoples. To empower scientists and social scientists to think *from* the margins, I embarked on a journey to un-learn the Eurocentric narratives that have shaped our understanding of reality, to then re-learn from another place. To re-learn, I developed a partnership with the Nahuatl Indigenous peoples of Cuetzalan (Mexico), a community that is actively defending their lands from extractivist projects, through a series of yarns. This experience taught me a different way in which to understand our relationship with Nature and other people.

Following the activity-centred analysis and design framework (ACAD) (Goodyear & Carvalho, 2014), I designed a decolonial pedagogy that could guide participants in their decolonial journey to recognise the existence of colonial structures behind the socio-environmental crisis, and could recognise the viable pathway for creating change that sits in the margins. The ACAD framework recognises learning cannot be designed; it is emergent. As such, the design process was focused on the design of the task given to the participants (epistemic), the design of the place in which learning occurs (set) and the design of the support for participants' and facilitators' engagement (social). The design decisions were informed primarily by Freire's critical pedagogy, Fanon's perceptions of decoloniality and Indigenous pedagogies.

A pilot program of the decolonial pedagogy presented in this thesis was conducted in June 2018 in the City of Cuetzalan with four participants: three scientists and one social scientist. The findings from the pilot program illustrate how the participants, initially unaware of the colonial structures behind the socio-environmental crisis, were feeling negative emotions related to the lack of pathways available for creating change. After participating in the tasks designed and co-facilitated by myself and members of the Nahua community, the participants reported moving from an inadvertently oppressed position to an empowered one from which they could see a clear pathway to bring change.

An unexpected finding of the pilot program was that the four participants expressed their desire to become facilitators of the pedagogy. As such, this thesis has been written as a pedagogical tool to help prepare the participants to become facilitators and with it, widen the crack this study has created in the coloniality of knowledges. This thesis – a product of research, design, learning and teaching - represents a theoretical-practical contribution that brings light to the Indigenous alternatives to the modernity paradigm emerging from Mexico, and shows the power of this alternatives for empowering scientists and social scientists to create change. As such, the decolonial pedagogy designed for this study has implications for decolonial educators as well as for professionals seeking to transform society, as it shows a clear pathway to do this important work from the margins.

Statement of originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself. I certify that the intellectual content of this thesis is the product of my own work and that all the sources consulted for preparing this thesis have been acknowledged.

Signed

A solid black rectangular box redacting the signature of the author.

Monica Yadeun de Antuñano

“El pensamiento no sirve para luchar, sino que él mismo es lucha”

López Petit, (2009).

To Daniel, Sofía, Marce and Julio for believing in this decolonial pedagogy
and for wanting to take it further.

Acknowledgments

The dissertation is the culmination of a long and eventful journey. I feel deeply grateful for having had the opportunity to conduct most of my research in the land of the Yugarabul, Yuggera, Jagera and Turrbal peoples, the traditional owners of the land in which I spent my candidacy. Conducting my research here for almost four years allowed me to experience my most significant personal and intellectual growth yet, in one of the most beautiful landscapes I have ever seen. During these years I met several amazing people without whom this dissertation would not have become a reality.

First and foremost, I would like to express the deepest appreciation and gratitude to my principal supervisor Dr. Kate Thompson for her guidance, availability, support and kind advice throughout my PhD research. Finding a supervisor willing to accompany me in my transition to a decolonial space little known in Australia was not easy. I am eternally grateful for her encouragement to pursue my ideas even when they were still blurry, and for giving me the opportunity to find my own voice as a researcher. My gratitude extends to Dr. Cheryl Desha, my assistant supervisor, whose feedback helped me immensely to structure my thesis to better communicate my ideas.

I deeply appreciated the continuous support of Dr. Sarah Baker and Dr. Gerry Docherty. The submission of this thesis is in big part thanks to you. I would also like to thank Kathryn Edgeworth for her editorial advice on the completed draft of this work, and to Yaritza Andrade for creating the beautiful illustrations informing this thesis.

I am deeply grateful to the Nahua people of Cuetzalan. I do not have words to thank you enough for your generosity, hospitality, time, talks and for sharing with me your perspective of what it means to live a good life. Special mention to Roque and his family, with whom I spend some of the funniest afternoons, and to Octavio, who always shares very interesting perspective. Roque and Octavio, if more people had half of commitment you have for taking care of your land the world would be a better place.

My deepest appreciation goes to Daniel, Sofía, Marce and Julio for stopping their life for a week to participate in the pilot program of the decolonial pedagogy. Thank you for the dedication, passion and commitment you showed over those days, and for your continuous support. Thank you for believing in this project and for wanting to take it further and that

way, allow it to grow. Your commitment and hard work to make the world a better place inspires me every day.

I am deeply grateful to the academics that helped me widen and deepen my understanding of Indigenous knowledges: Dr. Monica Seini, Dr. Tasha Riley and Dr. Sue Monk. Thank you for sharing your knowledge with me. I would also like to thank Dr. Sol Rojas-Lizana for suggesting key decolonial thinking literature that immensely helped me with my project.

To Marinus, for being the most amazing partner one could ever ask for. The completion of this dissertation would have never been possible without you. Words are not enough to thank you. I am deeply grateful for your patience and support throughout this journey. Thank you for understanding how important this project was for me and for always challenging my arguments so that I could strengthen them and move forward. I love you so much.

To the Minnie Waters friends who became my Australian family. Thank you Roxana for providing me with key literature, for listening to my rambling shapeless ideas and offer insightful feedback and for bringing me food while I was writing this thesis. Thank you Leticia for always being there for giving me advice in both exciting and difficult times. Thank you Leticia and Greta for being my writing partners and making the process of writing this thesis nicer. Thank you Jan for constantly helping me to think of ways in which to better translate terms that lost its meaning in English. Thank you Jan and Katharine for listening to my project and help me capture the sentiments behind it. Thank you Mel for lending me your office to “improve” my productivity, and thank you Diego for helping me understand economic concepts necessary to my arguments. I will always be grateful for the amazing times we spend together. You will always have a special place in my heart.

In the other side of the Pacific, I am deeply grateful for my mom, for her optimistic speculation that I would complete this thesis no matter what and for her certainty that I will one day achieve the social transformation I am looking for. Thank you for teaching me to believe in myself. Porque madre sólo hay una. I love you Topillo.

I am profoundly grateful to the rest of my family, who have always believed in me and supported me to follow my dreams. Heartfelt thanks to my aunts and uncles Pichus, Irene, Paty, Sandra, Manzur, Liz, Alejandro, Yoya, Judy; and to my cousins Espe, Mariana, Maria Ana, Sofia, Patricio, Ximena, Alito, Roberto, Checho, Andrea, Rubén, Dani, Caro and

Maribel. I could not have asked for a more amazing family. Thank you for your continuous support I do not know what I would do without you. In memoriam of my Abuelín and el tío Mamer who saw the beginning of this adventure but unfortunately could not see the end. I hope you are proud of me wherever you are.

The best at the end: I am deeply grateful for my friends in Mexico who spent hours talking with me about my project and became excited listening to my ideas: Emiliano, Marien y Luis. My life without you would be empty. To Emiliano, Marien, Luis, Oscar, Tlaka, Jon and Juanito thank you for inspiring me through your committed to transform society. To Camila, Ana Gaby, Fabiola, Fer y Fachas, thank you for always believing in me. I love you tons and miss you everyday. To Blondie, Sarah, Julio and Kathy, words cannot explain my infinite gratitude for all the work you put into our dream of changing the world (or at least a part in Cuajis), los amo, I cannot wait to work side by side again. Last but not least, I wanted to make it clear that all of the people mentioned in this paragraph told me they would visit me in Australia and I am still waiting. Gracias amigos.

I am please to acknowledge the financial support of the Griffith Graduate Research School (GU International Postgraduate Research Scholarship, GU Postgraduate Research Scholarship and CAPRS).

Table of Contents

| | |
|---|--------------|
| Abstract | ii |
| Statement of originality | iv |
| “El pensamiento no sirve para luchar, sino que él mismo es lucha” | v |
| Acknowledgments | vi |
| List of Figures | xiv |
| List of tables | xvii |
| List of appendices | xviii |
| PART I. POSITIONING MYSELF | 1 |
| Chapter one: Introduction | 2 |
| Positioning myself in the study | 2 |
| The research problem | 5 |
| Research aim and approach | 10 |
| Step I: Positioning myself | 12 |
| Step II: Learning to un-learn | 12 |
| Step III: Learning to re-learn..... | 13 |
| Step IV: Empowerment | 14 |
| Significance | 14 |
| Structure of the thesis | 15 |
| Chapter two: Philosophical position and theoretical framework | 18 |
| Introduction | 18 |
| Philosophical position: Decolonial thinking | 18 |
| Epistemic disobedience: the implications of conducting a decolonial thinking study | 19 |
| Displacing the origin of modernity from Europe to the colonisation of the Americas..... | 22 |
| Acknowledging the hegemony of Western knowledge as a system of domination | 22 |
| Acknowledging the task of decolonisation remains an urgent and unfinished project | 24 |
| The decolonial turn | 25 |
| Decolonial thinking as a political project in contemporary times | 26 |
| Theoretical framework: decolonial pedagogies | 27 |
| Decolonial pedagogies: the origin | 28 |
| Influential works that contributed to the development of the concept | 29 |
| Decolonial pedagogies and the cracks in the modernity paradigm | 31 |
| Positioning this study within the decolonial thinking and decolonial pedagogies literature..... | 32 |
| Research design | 34 |
| Step I: Learning to un-learn..... | 36 |
| Step II: Learning to re-learn..... | 37 |
| Step III: Empowerment..... | 42 |
| Conclusion | 45 |
| PART II. LEARNING TO UN-LEARN | 47 |
| Chapter three: Socio-environmental crisis - Epistemic roots | 48 |
| Introduction | 48 |

| | |
|--|-------------------|
| Section I: ‘Discovery’ and colonisation of the Americas: the beginning of modernity..... | 50 |
| Christian identity: the beginning of epistemic violence | 50 |
| The new world capitalist economy: a system underpinned by anthropocentrism, racism and the notion of progress..... | 53 |
| Section II: The scientific revolution | 55 |
| Bacon and the idea of progress..... | 55 |
| Descartes and ‘objective’ knowledge..... | 56 |
| Section III: Eurocentrism: Europe as the centre and motor of civilization. | 59 |
| Kant and the link between true knowledge and race | 60 |
| Comte and the evolution of the human mind..... | 61 |
| Hegel and the construction of European history as universal history..... | 61 |
| Marx and the evolution of the socio-economic system | 63 |
| Bringing modernity to the world..... | 63 |
| Section IV: Modernity and the new imperialism..... | 64 |
| The white man’s burden | 66 |
| Section V: Development..... | 70 |
| Section VI: Globalisation | 72 |
| Sustainable Development | 76 |
| The Brundtland Report: development | 78 |
| Agenda 21 and Agenda 2030: globalisation | 79 |
| The One-World World | 80 |
| Conclusion | 82 |
| <i>Chapter four: Socio-environmental costs of modernity.....</i> | <i>83</i> |
| Introduction..... | 83 |
| A history of natural-resource based economic growth in Latin America | 84 |
| Mining and agriculture | 86 |
| Globalisation and inequality..... | 88 |
| Environmental Costs: Exploring the tension between GDP and Nature..... | 90 |
| Direct environmental impacts..... | 91 |
| Indirect environmental impacts – global warming and climate change | 93 |
| Social Costs: Exploring the tension between GDP and well-being | 96 |
| Uneven access to land..... | 96 |
| Uneven access to a healthy environment | 98 |
| Epistemicides..... | 99 |
| Sustainable development: Exploring infinite economic growth as the source of the solution. .101 | 101 |
| Decoupling economic growth from its environmental impact..... | 102 |
| Increasing participation of the industrial sector | 102 |
| Commodification of Nature..... | 103 |
| Knowledge flowing from centre to periphery | 104 |
| Small room for creating change | 106 |
| Conclusion | 108 |
| <i>Chapter five: Alternatives from the periphery.....</i> | <i>109</i> |
| Introduction..... | 109 |
| The emergence of Latin American transitioning discourses | 109 |
| Sumak kawsay: the Kichwa paradigm | 112 |
| Sumak Kawsay: the transitioning discourse | 114 |
| Other knowledges informing the Pluriverse | 118 |

| | |
|--|------------|
| Possibilities from Mexico | 119 |
| Cultural diversity: the cultural zones..... | 120 |
| Cultural diversity: ecosystems diversity | 122 |
| Indigenous knowledge systems..... | 124 |
| Alternatives emerging from Indigenous epistemologies in Mexico | 125 |
| The coloniality of knowledges..... | 128 |
| Non-Indigenous Mexican perceptions of Indigenous knowledge systems (IKS) | 130 |
| Conclusion | 133 |
| PART III: LEARNING TO RE-LEARN | 135 |
| Chapter six: Re-learning from the epistemologies of the Nahuatl people of Cuetzalan | 137 |
| Introduction..... | 137 |
| Context: extractivism and the Sierra Norte | 138 |
| Learning to re-learn | 141 |
| Yarnings | 142 |
| Participants and their locations..... | 143 |
| The yarnings and the corn..... | 147 |
| The Origin of the Corn according to the Nahuatl of Cuetzalan | 149 |
| The current role of corn for the Nahuatl of Cuetzalan..... | 152 |
| Kuojtakiloyan: the forest where the corn grows..... | 156 |
| Interrelation and cooperation: elements that underpin the milpa..... | 159 |
| Cooperation between humans and the harvested species | 160 |
| Cooperation between humans and humans | 162 |
| Cooperation between humans and Nature:..... | 163 |
| Conclusion | 164 |
| Chapter seven: Understanding a pathway ‘other’ to bring change: Yeknemilis, the Nahuatl proposal for living a good life | 166 |
| Introduction..... | 166 |
| The native bees of Cuetzalan | 167 |
| Yeknemilis | 170 |
| The bees and individuals | 171 |
| The bees and the community..... | 173 |
| The bees and Nature and useful species..... | 175 |
| Providing a good living for the bees | 175 |
| Cooperation, the heart of yeknemilis..... | 176 |
| Yeknemilis and resilience..... | 178 |
| Yeknemilis and recent stressful events | 179 |
| Yeknemilis and extractivism..... | 181 |
| The meliponary school | 184 |
| Tosepan pislnekmej..... | 186 |
| The resistance movement | 191 |
| Elements of a transitioning discourse..... | 191 |
| Conclusion | 195 |
| PART IV: EMPOWERMENT..... | 197 |
| Chapter eight: Design for learning..... | 198 |
| Introduction..... | 198 |

| | |
|--|-------------------|
| The ACAD framework | 199 |
| I. Design of the Epistemic..... | 201 |
| Finding your voice | 205 |
| Learning to un-learn..... | 205 |
| Learning to re-learn..... | 206 |
| Bringing change | 206 |
| II. Design of the Set..... | 207 |
| The place | 209 |
| The space..... | 209 |
| Resources | 210 |
| Stationary items | 212 |
| Vehicle..... | 212 |
| Documentation | 212 |
| III. Design of the Social | 213 |
| The participants..... | 213 |
| Social interactions within the participants and facilitators | 215 |
| Interactions within the group..... | 215 |
| Dialogue | 216 |
| IV. Bringing the set, the social and the epistemic aspects of the design together | 217 |
| Designing for learning | 218 |
| Anticipating the participants' reactions to adjusting the design..... | 219 |
| Activities calendar | 220 |
| Conclusion | 221 |
| <i>Chapter nine: co-design and co-configuration of the decolonial pedagogy.....</i> | <i>223</i> |
| Introduction..... | 223 |
| The pilot program | 224 |
| Co-design and co-configuration: Finding your voice | 225 |
| Co-design and co-configuration: learning to un-learn | 232 |
| Co-design and co-configuration: learning to re-learn | 244 |
| Co-design and co-configuration: creating change..... | 259 |
| The unexpected..... | 263 |
| Reflections of the participants of the pedagogy | 266 |
| The thesis as a pedagogical tool | 269 |
| Conclusions..... | 271 |
| <i>Chapter ten: conclusions.....</i> | <i>273</i> |
| Introduction..... | 273 |
| Re-understanding change: a decolonial pedagogy for bringing about change..... | 275 |
| Yarnings: establishing a partnership with the Nahua people | 277 |
| ACAD: activity-centred analysis and design framework..... | 277 |
| The four steps of re-understanding change | 278 |
| The pilot | 280 |
| The unexpected..... | 282 |
| The thesis as a pedagogical tool | 282 |
| Significant contributions of this study | 284 |
| Limitations..... | 286 |

| | |
|-----------------------------|------------|
| Future steps..... | 288 |
| REFERENCE LIST | 291 |
| Appendices..... | 334 |

List of Figures

| | |
|---|-----|
| Figure 1 An illustration of the activity-centred analysis and design (ACAD) framework. Source: for this thesis, based on the design by Goodyear & Carvalho (2014). | 44 |
| Figure 2 Diagram of the six time periods that inform this literature review. These time periods correspond to the significant events that led to the coloniality of knowledges. | 49 |
| Figure 3 World GDP since the year 1 to 2015. Based on Roser, (2018)..... | 73 |
| Figure 4 Global Total natural resources rents. Based on World Bank Open data (World Bank, 2018) | 75 |
| Figure 5 Export trends in Latin America | 85 |
| Figure 6 Percentage of GDP that corresponds to exports of raw materials in different countries of Latin America. | 86 |
| Figure 7 Inequality in different regions of the world based on the Gini index..... | 89 |
| Figure 8 Vulnerability of the Americas to climate change. Figure produced for this thesis based on the ND-Gain Index (2018). | 95 |
| Figure 9 Distribution of endangered languages in Latin America. Figure produced for this thesis based on the Endangered languages initiative. | 100 |
| Figure 10 Distribution of Mesoamerica, Aridoamerica and Oasisamerica in what is now called Mexico..... | 120 |
| Figure 11 Current distribution of IP in Mexico. | 122 |
| Figure 12 Distribution of the ecosystems present in the country | 123 |
| Figure 13 Photograph of a mural on the wall of an Autonomous Zapatistas Rebel School . | 128 |
| Figure 14 Map of the localisation of Cuetzalan in the Sierra Norte. Figure elaborated for this thesis based on Beaucage & Taller de Tradición oral (2012)..... | 138 |
| Figure 15 Map of the localities of Cuetzalan visited for conducting yarnings with the Nahuas. | 142 |
| Figure 16 Agricultural cycle of the kuojtakiloyan | 158 |
| Figure 17 Inter-relationships between the different elements that compose the kuojtakiloyan | 160 |
| Figure 18 Top left: representations of native stingless bees, ceramic pots for beekeeping and beekeepers in Aztec codes. Top right: Nursery section of the colony. The queen bee can be | |

| | |
|---|-----|
| seen in the second level of the nursery from top down. Bottom: meliponary in Cuetzalan. | 168 |
| Figure 19 Boxes for harvesting the honey of the Australian native stingless bee..... | 170 |
| Figure 20 Interrelationships between the wellbeing of the Nahua people and the wellbeing of the elements of the kuojtakiloyan | 177 |
| Figure 21 system of interrelations that underpins the yeknemilis..... | 179 |
| Figure 22 Political propaganda of the independent candidate for the municipality of Cuetzalan | 190 |
| Figure 23 sustainable development and yeknemilis models..... | 192 |
| Figure 24 An illustration of the activity-centred analysis and design (ACAD) framework. Source: Produced by the author of this thesis, based on the design by Goodyear & Carvalho (2014). | 200 |
| Figure 25 Steps that inform the decolonial pedagogy 're-understanding change' Source: Produced by the author of this thesis. | 204 |
| Figure 26 Shows the design process for the "your story" activity. Source: Produced by the author of this thesis, based on the process designed by Thompson et al. (2016) and Alhadad & Thompson (2017), which combines the ACAD framework with the conjecture mapping of Sandoval, (2014)..... | 218 |
| Figure 27 Calendar of learning situations designed for the proposed decolonial pedagogy. | 220 |
| Figure 28. The participants in the pilot program..... | 224 |
| Figure 29. Summary of the tasks presented to the participants for the step of finding your voice. | 225 |
| Figure 30 Participants reflecting on their personal journey | 226 |
| Figure 31 Participants drawing their ideal world. | 228 |
| Figure 32 Ideal world drawing made by participants and the same image displayed on a wall. | 229 |
| Figure 33 List of the elements that compose the participant's ideal world and translated text to English. | 230 |
| Figure 34 Summary of the tasks presented to the participants for the step of learning to un- learn. | 233 |

| | |
|--|-----|
| Figure 35 Participants preparing to present the topic they selected to the rest of the group. | 235 |
| Figure 36 Poster made by participants detailing the insights gained through the step of learning to un-learn..... | 238 |
| Figure 37 Classification of cards given to participants according to their ability to recognise the names and events shown on the cards..... | 240 |
| Figure 38 Summary of the tasks presented to the participants for the step learning to re-learn. | 245 |
| Figure 39 One of the participants holding Aracely's nephew..... | 247 |
| Figure 40 The participants learning to re-learn from Roque and his family..... | 249 |
| Figure 41 Commute in the car between the learning situations designed for learning to re-learn. | 251 |
| Figure 42 A slide of presentation given by Octavio about the Tosepan..... | 252 |
| Figure 43 A slide in the presentation given by Octavio about the Tosepan..... | 253 |
| Figure 44 Summary of the tasks presented to the participants for the step of creating change. | 259 |
| Figure 45 Axes that inform the participants ideal world. | 260 |
| Figure 46 Participants enjoying one last corn-based breakfast while discussing the insights gained through the learning situations that inform the step of creating change. | 263 |

List of tables

| | |
|--|-----|
| Table 1 Steps that inform the construction of the proposed decolonial pedagogy | 35 |
| Table 2 Examples of surviving Indigenous understandings of the relationship between Nature and people..... | 68 |
| Table 3 UN anthropocentric and instrumental rationale informing sustainable development goals 13, 14 and 15..... | 103 |
| Table 4 The four levels of the UN’s Lazy Person Guide to Saving the World with examples of the document. | 106 |
| Table 5 Localities visited for the yarnning sessions, and the initiatives they participated in and the participants. | 143 |
| Table 6 Description of the Cooperatives of the Union of Cooperatives Tosepan based on information gathered from yarnning sessions with Octavio, and from De Jesús-Amayo & Sánchez-Ramírez (2017) and Unión de Cooperativas Tosepan (2016)..... | 187 |
| Table 7 Comparison of Agenda 2030: transforming the world and the yeknemilis proposal of the Nahua people of Cuetzalan | 194 |
| Table 8 Feelings reported by the participants during their journey to create change and improve the socio-environmental situation in Mexico | 227 |
| Table 9 Evolution of the participants after the stage of finding your voice | 231 |
| Table 10 Evolution of the participants after the stage of learning to un-learn..... | 244 |
| Table 11 Topics of the yarnnings conducted between the participants and Roque and his family..... | 250 |
| Table 12 Insights gained by the participants from learning to re-learn from Roque and Octavio | 255 |
| Table 13 Evolution of the participants after finishing the step of learning to re-learn..... | 258 |
| Table 14 Evolution of the participants after finishing the stage of creating change..... | 266 |

List of appendices

| | |
|---|-----|
| Appendix A Contact sheet in accordance with protocol number HUM/2016/867/HREC. | 334 |
| Appendix B Information Sheet in accordance with protocol number HUM/2016/867/HREC. | 336 |
| Appendix C Consent sheet in accordance with protocol number HUM/2016/867/HREC.... | 338 |
| Appendix D Contact sheet in accordance with protocol number HUM/2018/592/HREC.... | 339 |
| Appendix E Information sheet in accordance with protocol number HUM/2018/592/HREC. | 341 |
| Appendix F Consent sheet in accordance with protocol number HUM/2018/592/HREC.... | 343 |
| Appendix G Consent for pictures sheet in accordance with protocol number HUM/2018/592/HREC. | 344 |
| Appendix H Questions for interview of the participants of the pedagogy | 344 |

PART I. POSITIONING MYSELF

This study is positioned within the field of decolonial thinking. It recognises that research is always influenced by the geo-political location from which the subject speaks, that is, its locus of enunciation. About this, Mignolo (2003) argues “scholarly discourses acquire their meaning on the grounds of ... the locus of enunciation from which one ‘speaks’ and, by speaking, contribute to changing or maintaining systems of values and beliefs” (p.5). As a study that speaks from the subaltern, this research challenges current systems of values and beliefs held by the hegemony of Western knowledge. It is not aligned with traditional academic frameworks, but follows Fals Borda’s (1999) call for ‘decolonising scholarship’ to make colonial difference visible in the Anglo-speaking world. Through this study, I bring visibility to ways of thinking developed in what is now Latin America – local knowledges, evidence and expertise that have been silenced over the past five centuries due to a Eurocentric monopoly on knowledge production. This study is a claim about the re-existence of other ways of knowing, being, feeling and understanding the world. It starts with an explanation of the place from which I write as a scholar. This place of ‘knowing’ (myself) is as important as what I have to say about decolonial knowledge production.

Part I: positioning myself, is informed by two chapters. Chapter one: introduction, introduces the reader to my position as a researcher. I share my personal loci of enunciation as a researcher from Mexico. I then explain the research problem that underpins the research from the perspective of the subaltern. This chapter explores the aim, approach, significance of the research and the structure of the thesis. Chapter two: research design, discusses the philosophical and theoretical framework in which the study is positioned: decolonial thinking and decolonial pedagogies, respectively. The research design is presented to highlight the theoretical-practical rationale of the study, which is employed to constitute an emancipatory tool for advancing the decolonisation of the knowledge sphere.

Chapter one: Introduction

The great transformations do not begin from the top, or with monumental and epic occurrences, but with small movements that seem irrelevant for the politicians and the analysts from the centre. History is transformed...from the organised consciousness of groups and collectives that know and recognise each other ...and bring change.

My translation, Subcomandante Marcos,
former spokesman of the Zapatista Army (2007).

Positioning myself in the study

I was nine years old when the Zapatista Army of National Liberation, composed of Indigenous peoples (IPs), announced that they had taken arms against the Federal government of Mexico. In 1994 on the first of January, the Zapatistas had risen up so as not to 'starve to death'. In contrast to most kids in Mexico City, I was directly affected by the it. I was in Disney World when all of a sudden, my father rushed to pack up his things, saying urgently: "I have to go to back to Mexico! It's an emergency! The Indigenous peoples have taken the pyramid hostage!" I did not want my father to leave. My mother did not want him to leave, let alone go directly to a dangerous conflict zone.

My father is an archaeologist and the Mayan ruins that he had studied for decades, along with his home, are in the heart of the Zapatistas territories in the state of Chiapas, Mexico. Chiapas has one of the largest Indigenous populations in Mexico and is economically the poorest state in the country. Between the ages of 12 and 19, I travelled regularly during the holidays from Mexico City to visit my father for long periods of time. Or at least, this is how I remember it. This allowed me to navigate two seemingly different, opposing worlds. In one, my only responsibility – and privilege – was to attend classes in Mexico City. In the other, children my age had to fight in order to have their basic human rights met. I had friends in both worlds. Occasionally, I would share stories with migrants from Central America who had no money to continue chasing their American dream and were stuck in Chiapas, away from their home, away from their dream.

Experiencing inequality first hand is not the only thing that Chiapas gave me. My

yearly trips to the guerrilla zone also gave me the opportunity to experience Nature in a way that few other children from Mexico City (a city of 20 million people) had the chance to. Chiapas is the poorest state in terms of economic wealth, but it is also the state with the highest levels of biodiversity. As an only child, I spent many hours by myself wandering in the lush rainforests and lying on the ground looking at the stars. I swam in clear blue waterfalls, hiked in majestic mountain forests and visited research campsites in remote locations. I hid in Mayan temples waiting for wildlife to appear. I saw 'strange' animals and enjoyed finding out what species they were. In Mexico City, you learn that a species exists, and if you are lucky, later in life you get the opportunity to see and meet it. The reverse was true in Chiapas. While my friends in Mexico City had never seen a cow, I had a baby vulture as a pet. His name was Zopi and he liked eating frogs.

But my amazing childhood and teenage experiences in Chiapas proved problematic when choosing a career path. Very problematic. I was extremely interested in social justice and in wildlife conservation. They were my passion. But it felt like selecting one path meant saying goodbye to another. I had learnt – internalised the idea – that humans and Nature belonged to unconnected and irreconcilable knowledge spheres. It seemed you had to choose either social sciences or biological sciences. But how, I wondered, could they be separate if they coexisted in the same geographical location?

Trying to bring both fields together, and answer this question, I enrolled in a bachelor's degree in political science. I found myself reading the biography of Thomas Jefferson and learning complicated calculus models. The curriculum was so far removed from offering clear guidance about how to contribute to either social or environmental justice that I decided to change career paths and study veterinary medicine instead. Surprisingly, in vet school I learned more about the realities of rural communities in Mexico than if I had stayed in political science. More than learning about wildlife, vet school gave me the opportunity to deepen my understanding of the persistent and vast inequalities of my country. In Mexico City, I saw horses worth millions of dollars, while in the countryside I saw families struggling because their two sheep (and only source of income) were not gaining weight. But more importantly, I learned to learn from the 'campesinos' (people that live in rural areas and sustain themselves by working the land), regardless of education level or income. I started to appreciate the different forms of knowledge that exist outside of university.

Yet, as a veterinarian I could not find a clear way to bring about the change I saw as necessary. Rehabilitating individual animals was never going to impact overall declining wildlife population trends. Witnessing the suffering of animals as their habitat was destroyed while not knowing how to make things better, was disheartening. In order to influence decision makers in the protection of habitats, I enrolled in a master's degree and started to generate scientific evidence about the negative effects of environmental pollutants. Although my research revealed how entire wildlife populations were facing extremely difficult conditions, I quickly realised it was not going to make any difference. The problem was systemic, and as an environmental toxicologist investigating the damaging effects of a lucrative industry, I had little to no chance to create lasting and impactful change, I felt.

After completing my master's degree, I turned to environmental education to bring awareness to the systemic problems causing wildlife populations to decline. Designing educational programs offered me an opportunity to inform and make people care about these problems. It also gave me a platform to bring together environmental and social justice issues. What was missing were the 'other knowledges' about the land that I encountered during my vet school years in the rural areas of Mexico. Seeking to bring together Western and Indigenous knowledge systems, I moved to Australia to begin a doctoral candidature.

I spent the first years of my candidature learning from the literature produced in developed countries. The more I read, the more I realised these ideas were not adequate to address the specific needs of the Mexican context. Looking to understand the perspective of people in Latin America, I found a rich body of work in decolonial thinking. What I thought was another period of learning became a process of *un-learning* and *re-learning*. In order to understand the root causes of socio-environmental crisis, I had to un-learn what I thought I knew and re-learn from a new perspective. This exercise allowed me to recognise the links between a colonial heritage and current patterns of social and environmental exploitation. Un-learning Eurocentric narratives and re-learning from the Nahuatl epistemologies of Cuetzalan empowered me to find my voice which, in turn, now enables me to guide other people to recognise and fight ongoing epistemic colonial oppression and create change.

The research problem

When people understand environmental crisis as a product of accelerated industrialisation, or fossil fuel dependency, or the current socio-economic system or consumerism, they fail to grasp the ‘big picture’ facing the planet. Instead, from a decolonial perspective, in this dissertation I argue that the current environmental crisis is, in reality, a crisis of knowledge. Furthermore, from a decolonial perspective, it can be seen as a consequence of the imposition of Eurocentric knowledge on thinking systems – as the only way to understand the world and its problems – whereby the hegemony of this way of thinking, doing and being prevails as a lens from which to (re)solve issues. Universal thinking in modern societies around the globe today about ‘reality’ is a legacy of a global colonial history – a history that first started with the colonisation of the Americas.

Prior to the arrival of European colonisers, the Americas was a continent inhabited by a wide diversity of cultures. Each culture had its own knowledge systems, founded on detailed observations of local natural cycles over long periods of time. These knowledge systems were interwoven with spiritual explanations, where humans were understood as part of Nature. As a result, most of the socio-economic systems that emerged from these knowledges were based on a respect for Nature (Cajete, 1994). By way of contrast, on the other side of the Atlantic, a European identity was starting to emerge as a homogeneous, Christian identity. Europe felt a moral obligation to expand their religion to the rest of the globe. They positioned themselves at the ‘centre’, from where Christianity would start to radiate to the periphery, as they described it to the rest of the world (Dussel, 1997; Ramón Grosfoguel, 2013; Quijano, 2013).

When the Spanish, Portuguese, Dutch, French and British empires colonised the Americas, they brought Christian missionaries to evangelise the native population. In so doing, this colonisation process not only resulted in the genocide of most of the cultures of the Americas, but also in the destruction – or epistemicide – of their knowledge systems, which were perceived as ‘not Christian’ (Ramón Grosfoguel, 2013; W. D. Mignolo, 2011b; Sousa Santos, 2007). The written codex of the ‘New World’ civilizations were burned, and the surviving Indigenous peoples (IPs) were forced to replace their lores and convert to Catholicism. Under these new ways, Nature was emptied of its spiritual value and became a commodity for European empires (Polanyi, 2001). Local IPs and Black slaves brought from Africa were dehumanised and used as forced labour; considered for most of the

colonisation process to lack a soul (Fanon, 2001; Ramón Grosfoguel, 2015; Maldonado-Torres, 2007).

The religious argument that invalidated the knowledge systems of the Americas and justified the exploitation of Nature and non-Europeans was soon to change to a scientific one. Crucial to this transition were the ideas of Rene Descartes (Castro-Gómez, 2010). Descartes was interested in finding what could be known 'for certain'. The French philosopher believed in a 'divorce' between the mind and body, suggesting the senses perceived by the body can be misleading, whereas knowledge produced by the mind is 'always' objective, he argued. This phenomenon of dissociating the subject from its environment enabled Eurocentric 'modern' knowledge to position itself as 'the only' objective knowledge and, therefore, the only 'true' knowledge (Castro-Gómez, 2007a; Castro-Gómez & Grosfoguel, 2007; Dussel, 1994; Ramón Grosfoguel, 2013; C. Walsh & Castro-Gómez, 2002).

The advances brought about by Western science provided the technological platform needed for industrialisation, leading to Europe becoming 'modern' and entering modernity. The world was then divided into 'modern' and 'traditional' societies (Dussel, 2013). Modern societies were organised based on Western knowledge and were considered the most advanced. Societies that continued to live their daily activities based on traditional knowledges were considered inferior. As Christianity once radiated from the 'centre' to the periphery, now modernity started to radiate in the same direction (Dussel, 2013; Grosfoguel 2006). Under the pretence of bringing modernity to the 'non-advanced' and 'stagnant' societies on the periphery, Europe, the United States and Japan embarked on an imperial race to colonise the majority of overseas territories. By the mid-20th Century, the entire globe was colonised or claimed, including Antarctica (Michalopolus et al., 2011).

The eco-centric and communal knowledge systems of Indigenous communities in Africa, Asia and Oceania were almost entirely exterminated and replaced with Western knowledge (Lander, 2000). With it, the anthropocentric and racist logic of modernity was introduced to the rest of the globe. In order to reach modernity, the exploitation of Nature and the peoples of the new colonies needed to develop and leave traditional societies behind. As such, modernity is, in reality, a 'modernity/colonial project', as modernity cannot be sustained without the exploitation of the people and natural environments of the colonies (Maldonado-Torres, 2011; Grosfoguel, 2006; Quijano, 1992, 2001, 2013).

The political and juridical independence of the colonies did not eliminate the notion of superiority attached to Western knowledge. The independent colonies organised themselves as independent states, mimicking Eurocentric political ways of organising. This moved them away from how societies were traditionally organised before colonisation. After most colonies gained independence after World War 2, Eurocentric and American ways of living were still aspired to, and this thinking largely went unquestioned. This logic continued to guide the thinking and being of those in the 'periphery' (Castro-Gómez & Grosfoguel, 2007). Western education was declared a human right and the children of the world stopped learning their local knowledges in order to learn Western knowledge – the 'universal' knowledge (Battiste & Henderson, 2018).

Under neoliberal globalisation, the colonial project, started by Europe 500 years ago, became universalised. Infinite economic growth was implemented as the new world paradigm, with the purpose of reproducing the conditions that characterised the supposedly more advanced societies at the centre (Escobar, 1998, 2011). To grow their economies, the once culturally diverse periphery adopted the homogeneous values and principles of modernity. With this change, Western understandings of the world became the 'only way' of understanding the world. The world became a 'One-World World' (Escobar, 2015).

The One-World World perpetuates the exploitation of Nature and people from the periphery in order to satisfy the demands of the centre. While the centre had the necessary infrastructure to grow their economy through the transformation of raw materials and the provision of services, the periphery adopted economic development based on 'extractivism'. Extractivism is defined as the process of extracting enormous volumes of natural resources from the Earth to sell on the world market (Acosta, 2011; Gudynas, 2011c). The exploitation of Nature in the periphery not only affects the wellbeing of Nature, but also has a consequence for the people who provide the invisible workforce necessary to maintain extractivist models. Extractivism relies on the expropriation of lands from Indigenous and rural communities who can, then, no longer practice subsistence agriculture or access basic human rights, such as water (Svampa, 2015).

Although the transition from colonisation to development changed the forms of domination used by the imperial powers, the structure of relations between the centre and the periphery remain intact. Western knowledge systems continue to be considered

universal, naturalising the exploitation of Nature and people in the pursuit of becoming modern. The result is a 'coloniality of knowledge'. That is, a structural and persisting asymmetry of power relationships between knowledges, imposed during the colonisation process, endures today. In this coloniality, the non-Eurocentric knowledge systems that understand reality from a different perspective are invisible. They appear non-existent (Sousa Santos, 2010; Grosfoguel, 2007; Lander, 2000).

The coloniality of knowledge causes Eurocentric logic to be the only way to understand the world. Its anthropocentric and racist logic underpins the global socio-economic systems that is causing the Earth to collapse and the people on the periphery to suffer greatly. More importantly, the coloniality of knowledge is keeping researchers from finding solutions to the socio-environmental crisis that do not further perpetuate the exploitation of Nature and people from the periphery. An example of this is sustainable development (Banerjee, 2003).

Sustainable development is an alternative Western model of thinking that has gained popularity globally as it has been able to permeate all spheres of society. Engrained in the economic development paradigm and underpinned by the logic of modernity, sustainable development does not shy away from infinite economic growth. What it offers is a solution to the socio-environmental crisis that supports economic growth and technology to remediate and prevent further damage. The current development agenda promoted by the United Nations advances sustained global economic growth, and it does not discourage the extractivist practices that are deeply harming the periphery. The solutions offered by Western knowledge systems reproduce an anthropocentric and racist Eurocentric logic that is the root cause of the current crisis. This research argues that following this pathway will only exacerbate problems at both the centre and periphery (Fletcher and Rammelt, 2017; Banerjee, 2003; Escobar 1998, 1994).

Alternative pathways are being constructed from Indigenous knowledge systems which conceive of Nature and people in a different way. These alternatives do not separate mind, soul and body and are based on cooperative relationships between people. For IPs, Nature is a spiritual space in which every being is alive. Nothing is regarded as mere animal, plant or food. Everything has a spirit and is part of a larger family, of which humans are a part. In order to satisfy needs, IPs are organised as a series of cooperative relationships where every member is responsible for the wellbeing of the entire community (Escobar,

2014, 2011; Acosta, 2013; Walsh, 2010; Boff 2009).

It is from these non-dualistic knowledges that radical alternatives, needed to deviate from Eurocentric paradigms of thought, are emerging. An example of one of these powerful alternatives is the Sumak Kawsay of the Quechua people of Ecuador. Sumak Kawsay can be translated as 'good living'. For the Quechua people, having a good life means a life in which both humans and Nature enjoy fulfillment. It involves caring for all in the community and not taking more than you need. The Sumak Kawsay is not a utopia, but a current practice the Quechua communities live by. Tired of the dispossession and destruction of their lands to extractivist projects, the Sumak Kawsay imagined a different reality for their entire country (Acosta, 2013, Gudynas, 2011). A collaborative process between the Quechua people and non-Indigenous academics led to the incorporation of the Sumak Kawsay into the Ecuadorian constitution in 2008. The Ecuadorian Constitution (Asamblea Nacional Constituyente, 2008) states, "we have decided to construct, a new form of coexistent citizenship, in diversity and in harmony with Nature, to achieve the good life, the sumak kawsay" (p. 15).

To encourage the transition to a society lead by Sumak Kawsay principles, the Ecuadorian Constitution went further and recognised the intrinsic value of Nature, and granted it rights, Nature or 'Pachamama', where life is reproduced and carried out, has the right to have its existence fully respected, including the maintenance and regeneration of its life cycles, structure, functions and evolutionary processes.

The incorporation of Sumak Kawsay in the Ecuadorian constitution gave the peoples of the world the opportunity to imagine a different relationship between humans and Nature. Before 2008, it was impossible to imagine Nature could have rights, as legal protections were perceived as something pertaining only to human beings. This new conception of the law was possible because they were considered as 'outside' the boundaries of Eurocentrism, where Nature is not perceived as a commodity. After 2008, countries in both the periphery and the centre started looking for legal protection of their natural spaces, opening possibilities for spaces like mountains, rivers and forests across the world to sue corporations (Marínez et al., 2017; Acosta and Martínez, 2009).

Toledo (2011) and Escobar (2018) claim that in Latin America, there are thousands of viable alternatives to the modernity/coloniality paradigm that have emerged from Indigenous knowledge systems. Most of these remain invisible under the hegemony of

Western knowledge. The success of these alternatives depends on their capacity to become visible outside of the local contexts where they originate. New ways of imagining the future need to be shared with a wider audience. In this sense, the socio-environmental crisis is, at its core, an epistemic crisis, and the only way out of it is the decolonisation of knowledge. As Souza Santos (2005) explains, “there is no global social [and environmental] justice without global cognitive justice”(my translation, p.21). Accordingly, Escobar (2018) and Walsh (2013, 2017) argue that in order to bring about change and impact the socio-environmental crisis, it is necessary to decolonise the sphere of knowledges in which Western knowledge remains as the only ‘valid’ knowledge.

It is in this context that the original contribution of my research sits, addressing the research problem of ***decolonising the knowledge sphere to liberate local knowledge, to imagine and build different worlds that move away from the current exploitation of Nature and of people of the periphery.***

Research aim and approach

In addressing this research problem, I sought to develop a decolonial pedagogy to enable people to recognise the coloniality of knowledges framing their thinking, and discover the possibilities of creating change by thinking *from* the margins of Western knowledge (i.e. from the places in which their internalised ways of knowing interact with other knowledge systems):

To design a decolonial pedagogy directed at people who are actively working to find solutions to the current socio-environmental crisis and empower them to find solutions outside of the epistemic borders imposed by Western knowledge.

Within this overarching aim, the long and complex process of enquiry involved multiple objectives:

- To design a decolonial pedagogy for people who are actively working to find solutions to the socio-environmental crisis by introducing them to the coloniality of knowledges and epistemologies from the periphery;
- To empower these same people to find solutions outside of the epistemic borders imposed by Western knowledge;
- To generate new ways of thinking about Nature, people and change that sit outside the epistemic borders imposed by Western knowledge;

- To effect change in local, sustainable environmental practices so that new ways of thinking, doing and being promoted and embodied through the project will be adopted, for example, by conservationists, environmentalists, people in education, public policy and design to bring about real, lasting and long-term change in broader, global contexts.

To respond to these aims, this project builds on decolonial thinking and decolonial pedagogies. Decolonial thinking, a field that emerged in Latin America, argues that modernity has a hidden colonial side that continues to shape the world after the juridical-political independence of the colonies. Inherited colonial structures are sustained by the 'superiority' of Western knowledge systems, which remains a 'universal' knowledge system due to its 'hidden' neutral and objective point of view. Decolonial thinkers argue knowledge can never be neutral as it always speaks from a location influenced by power. By claiming objectivity, Western knowledge systems hide the colonial context in which they have emerged and naturalise asymmetrical relations between people and Nature at the centre and the periphery. Western epistemic hegemony, then, causes Eurocentric colonial logic to dominate politics, society and culture. Decolonial thinking argues it is necessary to decolonise this epistemic matrix of power in order to transition to an environmentally and socially just society.

Decolonial pedagogies were proposed by Walsh (2013) as political-pedagogical practices that emerge from resistance struggles, and as tools that can aid the colonial project. Decolonial pedagogies de-link from Western understandings of pedagogy and recognise the capacity of social movements for generating knowledge that can inform decolonisation processes. Most of the social movements resisting coloniality are led by Indigenous peoples who are proposing alternatives founded in their knowledge systems (Toledo, 2011; Ouviaña, 2017). Decolonial pedagogies seek to transgress coloniality to transform society. The role of the educator is never to transmit content, but to guide participants to discover invisible colonial structures that exert oppression and to challenge the global authority of Western knowledge as the only way to understand the world. Once coloniality is recognised, the educator guides the participants to detach from the modernity/coloniality logic and free themselves from the borders imposed by Western knowledge systems. Decolonial pedagogies are characterised by a strong sense of hope and possibility, which has always accompanied Latin American social movements (Walsh, 2013).

There is no standard formula for the design of decolonial pedagogies, as they must be flexible enough to accommodate the specific social transformation that is being sought. Most decolonial pedagogies are directed to re-humanise the most oppressed sectors of society: Indigenous people, Black people and women. There is virtually no literature documenting decolonial pedagogies designed to empower non-Indigenous people to decolonise the sphere of knowledges and address the current socio-environmental crisis.

I organised the design of the pedagogy in four steps. These steps inform the structure of this thesis, which is divided into four parts: positioning myself, learning to un-learn, learning to re-learn and empowerment. A brief explanation of each step, along with the research sub-questions that guide each part of the thesis, is presented below.

Step I: Positioning myself

This research, situated within the field of decolonial thinking, recognises there is no such thing as objective knowledge as knowledge is always influenced by the geo-political location from which the subject speaks. As such, I acknowledge that my research is not neutral, but influenced by my experience as a Latin American. I started this research by positioning myself within the study, acknowledging my subjectivity as a researcher. This step sets the tone for what is a thesis written in a more personal way than what traditional academic protocols allow, as it shares with the reader the geo-political space from which I think and act. It is not 'objective', as objectivity perpetuates the idea of Western knowledge being universal and, with it, its colonial logic. To guide the positioning of myself and my study, I formulated two research questions.

1. How does my 'locus of enunciation' influence the production of knowledge in this research?
2. How can my study contribute to the decolonial turn?

Step II: Learning to un-learn

The step of learning to un-learn involved un-learning the epistemic hierarchy imposed by the modernity/coloniality project and understanding that there are many ways to understand reality. The insights gained are presented in the form of three counter-

narratives that investigate the historical events that led to the colonality of knowledges, the impact they are having in Latin America, and the possibilities that arise from the epistemologies that have been denied in Latin America. These counternarratives were guided by three research questions.

1. How did Eurocentric knowledge hegemony shape the way humans understand their relationship with Nature and how did this lead to the current global socio-environmental crisis?
2. What is the current impact that Eurocentric epistemic logic hegemony is having on Nature and the people of Latin America?
3. Are the marginalised knowledge systems present in Latin America capable of offering viable solutions to the socio-environmental crisis?

Step III: Learning to re-learn

The step of learning to re-learn involves relearning from outside the Eurocentric hegemony. For re-learning, I approached the Nahuatl people in Cuetzalan, Puebla, an Indigenous community that has been successful in finding legal ways to shield themselves from development and extractivism. Through yarning, I was able to immerse myself in the way the Nahuas understand their relationship with Nature and with the rest of the community. Our yarning exchange led us to establish a partnership for sharing their knowledge to empower non-Indigenous people to have an impact in addressing the socio-environmental crisis. Through yarning, I was able to formulate and answer to two research questions.

1. How does the Nahuas knowledge system describe its relationship with Nature and with the rest of the community?
2. How do Nahuatl epistemologies inform the alternatives that are being proposed by the Nahuatl for escaping a modernity logic?

Step IV: Empowerment

Empowering is the horizon of decolonial thinking (Mignolo, 2011) as it transforms individuals by freeing them from oppression. It allows people to imagine and construct emancipatory ways of knowing, being and feeling to those oppressed by colonial power.

To empower people, I designed a decolonial pedagogy using an activity-centred analysis and design (ACAD) framework. The ACAD framework was conceived to support complex learning situations. This step brings together the previous three steps. The proposed pedagogy involves acknowledging the locus of enunciation of the participants, un-learning the Eurocentric narratives that perpetuate coloniality and re-learning from the Nahua epistemologies of Cuetzalan. To guide the design of the pedagogy, I formulated the following research question.

1. What elements of the learning design need to be considered in order to build a decolonial pedagogy with the following aims:
 - a) That the participants can become conscious of the existence of the coloniality of knowledges; and
 - b) That the participants understanding that thinking from the margins opens a viable pathway for creating change.

Significance

This thesis is informed by *pensar-hacer* (to think and to do), the theoretical and practical rationale behind the works of Freire (1977, 1986, 1993) and Fanon (2001, 2008), which are the foundation of decolonial pedagogies. As a study informed by a theoretical-practical rationale, this study offers both practical and theoretical original contributions. The novel contributions contained in this thesis include:

- a) the synthesis and transformation of complex decolonial thinking arguments into simpler concised arguments that can guide the decolonising journey of people with no previous exposure to the field.

- b) Insights about the process undertaken for establishing a partnership with Indigenous communities involved in epistemological fights that seek to defend their land and their ways of being.
- c) The modification of the activity-centered analysis and design framework (ACAD) to accommodate for learning situations immersed in Indigenous movements to resist extractivist enterprises.
- d) The design of a decolonial pedagogy directed at the oppressors, so that they can recognise the coloniality of knowledges as the roots of the socio-environmental crisis, and start to work towards an epistemic openness.
- e) Theoretical insights that stem from the analysis of the practical aspect of decolonial pedagogies, and that suggest future directions for advancing the decolonial turn.

Structure of the thesis

This thesis does not follow a traditional thesis structure as its organisation follows the process needed to build a decolonial pedagogy. As such, the thesis is accommodated by four parts, according to the four steps introduced in the previous section: **Part I.** Positioning myself; **Part II.** Learning to un-learn; **Part III.** Learning to re-learn; and **Part IV.** Empowerment.

In this thesis, '**Part I. Positioning myself**', introduces the reader to the position from where I speak, which directly influences the shape of the decolonial pedagogy presented in the research. Part I contains two chapters. **Chapter one** (the current chapter), addresses my locus of enunciation, showing my position within the study, providing an overview of the research project. **Chapter two** introduces the reader to the study's philosophical position, the theoretical framework and the research design that inform the study. This chapter further analyses the rationale behind the four steps in which the thesis is grounded.

'**Part II. Learning to un-learn**', focuses on un-learning the Eurocentric narratives that present Western knowledge as an objective knowledge, and on un-learning modernity is the only pathway available for humanity. Part II is divided into three chapters. **Chapter three** offers a chronological narrative of the crucial events that led to the current colonisation of knowledges, focusing on how these events shaped the way Nature and people from the periphery are conceived today. **Chapter four** offers an analysis of the social and

environmental impacts a Eurocentric global socio-economic model is having in Latin America. It also analyses how sustainable development, the Western solution to the socio-environmental crisis, reproduces the colonial logic that is causing the crisis in the first place. **Chapter five** offers a review of the invisibilised alternatives coming from the Indigenous epistemologies of Latin America. The counter-narratives that inform Part II provide the literature review needed for designing the learning activities outlined in this thesis.

'Part III. Learning to re-learn', contains the insights I gained from re-learning from outside the coloniality of knowledges. This section is informed by the yarnings I conducted with Nahua members of Cuetzalan during my three visits to the community. My learnings from this hidden epistemology inform two chapters: **Chapter six** presents the logic that informs the Nahua ways of knowing and being, focusing on the way this population understand their relationship with Nature and with other members of the community. **Chapter seven** explores how the logic that underpins the Nahua epistemologies of Cuetzalan guides alternatives to modernity that are being proposed by the community in order to live a 'good life'. This chapter also analyses the Nahua notion of living a good life and compares it with discourses of sustainable development.

'Part IV. Empowerment', brings together steps two and three and builds a decolonial pedagogy that seeks to empower people to think from the margins of knowledge to create change. Part IV understands empowerment as a process by which individuals become aware of the existence of colonial structures sustained by the hegemony of Western knowledge. It argues that the way to bring socio-environmental justice is by pursuing the decolonization of this sphere of knowledge. This section is informed by three chapters: **Chapter eight** describes the process conducted to design the learning activities that inform the proposed decolonial pedagogy, a process guided by the activity-centred analysis and design framework (ACAD). **Chapter nine** describes the process of co-design and co-configuration of the learning activities designed, which was undergone by the participants during the pilot version of the proposed decolonial pedagogy. Through the participation in the pilot program, the participants became conscious of the coloniality of knowledges they hold, and became empowered to create change through re-learning from the Nahua epistemologies and understandings of the power of non-Eurocentric epistemologies of change.

Chapter ten is the last chapter of the thesis, which comprises the conclusion to this

study. It emphasises on how the proposed decolonial pedagogy has already generated a crack in the hard veneer that sustains the hegemony of Eurocentric knowledge; as well as on how the proposed decolonial pedagogy can continue to expand and generate new cracks. Limitations and future possibilities for research are also discussed.

Chapter two: Philosophical position and theoretical framework

“It is necessary to deconstruct what has been already thought
in order to think what there is yet to think”
Enrique Leff cited in Walsh (2004).

Introduction

Current hegemonic narratives around environmental and social problems are founded on an understanding of the Western world as the only possible world, as the One-World World (Escobar, 2016; Law, 2011). In the One-World World, environmental and social crises are understood through an economic lens. This limits opportunities for bringing change. In order to address the overarching research aim of this research (see Chapter one ‘Research Aim and approach’), the research that informs this study is positioned within the field of decolonial thinking. This field is introduced in the following paragraph, then further expanded in the following sub-section. The theoretical framework is then discussed, followed by a summary of the approach to the research design.

Philosophical position: Decolonial thinking

Decolonial thinking was chosen as the underpinning philosophy of this research because it allows researchers to understand the socio-environmental crisis from a different position; the position of the periphery. Decolonial thinking is a recent field. Although some of its postulates have already been stated by Latin American authors in previous decades (see Fanon, 2001, first published 1961), it did not become an organised field until the first decade of the 20th century. Crucial to the organisation of the field was Quijano’s (Quijano, 1992) ground-breaking article ‘Colonialidad y modernidad/racionalidad’ (Coloniality and modernity/rationality), in which he claimed:

With the conquest of the societies and the cultures that inhabited what is now called Latin America, began the formation of a world order that, 500 years later, culminated in a global power that articulates the entire planet (my translation, p.11).

Decolonial thinking claims that colonisation in the Americas established the beginning of an ongoing relationship of domination between Europe, considered the centre, and the rest of the world, labelled the periphery. This domination shapes world economic, social, political and cultural organisation, as it is underpinned by a paradigm of universal knowledge (Ramón Grosfoguel, 2011; Quijano, 1992). Under this paradigm, Western knowledge became the only way to understand the world as alternative understandings from people at the periphery have been destroyed. The knowledge systems that survive have been dispossessed from their base and denigrated to mere beliefs (Sousa Santos, 1995, 2015). Decolonial thinking calls for challenging the superiority attributed to Western knowledge in order to transform reality from the One-World World into a world constructed of a multiplicity of ways of knowing and being (W. Mignolo, 2016). To contribute to this decolonial task, decolonial thinkers engage in processes of epistemic disobedience that challenge the hegemony of Western knowledge (Mignolo, 2007). The implications of this in relation to the positioning of my research as an exercise in epistemic disobedience, along with the main premises of decolonial thinking, are explained in the following section.

Epistemic disobedience: the implications of conducting a decolonial thinking study

Decolonial thinking claims that the educational structures and institutions implemented during European colonisation continue to play an important role in the present (Dussel, 1993; Dussel & Ibarra-Colado, 2006; Ramón Grosfoguel, 2007b). Contemporary universities continue to legitimise the superiority of Eurocentric knowledges over other knowledge systems (Ramon Grosfoguel, 2013). Their dominant academic protocols have contributed to what Shiva (Shiva, 1993) calls 'monocultures of the mind' that destroy knowledge plurality and, with it, alternatives to a 'universal knowledge' paradigm. Within this model, dialogues are, in reality, a monologue of modern-Western reasoning and the advancement of knowledge through academic research is a reflection of a Eurocentric perspective that informs the One-World World.

Correspondingly, Castro-Gómez (2007) claims that Western education institutions produce a 'constitutive blindness' to alternatives informed by other knowledges. Castro-

Gómez argues that a resulting epistemic blindness of Western, and Westernised societies, prevents many from seeing possibilities that do not subscribe to a Cartesian dualism, progress and universality. These strict academic protocols prevent researchers from understanding the world from other knowledge traditions, since non-Eurocentric knowledge systems are not studied as subjects of study, but as mere objects to study under Eurocentric frameworks. This generates the illusion of inferiority of the knowledges that emerged from different geopolitical locations (C. Walsh & Castro-Gómez, 2002). The claim is made that academic spaces can be used as a domination device that organise the epistemological, academic and disciplinary frameworks of learning, teaching and research.

The task of decolonial thinking involves surpassing the limits imposed by academic practice. The field has called for a 'decolonial turn'. That is, an epistemic shift that questions the epistemic borders imposed by modernity. This involves an epistemic disobedience that allows researchers to leave behind Western hegemonic understandings of reality (Ramón Grosfoguel, 2007b). The decolonial turn shifts the geopolitics of knowledge to reclaim the denied knowledges of the periphery. It opens possibilities to many other forms of hidden knowledge originating outside the imposed borders of knowledge (Escobar, 2007; Maldonado-Torres, n.d.; W. D. Mignolo & Tlostanova, 2006). Exploring these alternative worlds implies a transition from the mind's monoculture, or One-World World vision, towards an ecology of knowledges or *pluriverse* in which many knowledges can coexist (Escobar, 2011b, 2012; Sousa Santos, 2015). In this *pluriverse*, Eurocentric knowledge is no longer the only valid knowledge, but becomes one knowledge in an enormous plurality of coexistent knowledges. The diversity of the *pluriverse* is infinite and, with it, the diversity of alternatives is infinite too (Escobar, 2012).

Positioning my study within the field of decolonial thinking does not mean discarding all the insights gained as a veterinarian conducting biological research to understand the environmental crisis, but to think of problems from a different position, which is from the periphery. Understanding the coloniality behind Western knowledge, and delinking myself from the way I understood the world, was not an easy process. Decolonial thinking "cuts deep into the heart of Christianity and Western hermeneutics regarding its claims to universality", and by doing so, it dislocates the researcher from the safety of European-centeredness (Snyman, 2015, p. 269). Accordingly, Lugonés (1992) recognises the 'deep sense of vulnerability' that stems from rupturing with dominant discourses and opening up

to Other ways of thinking. Mignolo (interviewed by Guliano and Berisso, 2014) recognises the difficult task of breaking with the centurial tradition of constructing new knowledge based on already constructed Western knowledge, but argues that in order to de-link from the modernity paradigm, it is necessary to “lose the fear of our own thinking” (My translation, p. 69).

As my research advanced, a sense of vulnerability started to transform into one of empowerment. Delinking myself from Western epistemic boundaries freed me from the internalised conception of the ‘superiority of the Centre’. I understood that I did not have to continue learning from the centre, and this gave me a voice to explain the socio-environmental crisis from the ‘colonial wound’ – a voice that could no longer be dismissed or inferiorised. Decolonial thinking gave me permission to break with the passive transfer of knowledge from the centre, to understand the epistemic potential of Latin America, which stems precisely from its colonial history. Retamar et al. (2006) argue that the deepest roots of Latin America are found in the violent intersection of European, Indigenous and African blood. The process of *mestizaje* that has taken place in the region has generated a rich epistemological component that is emancipatory in nature. Zapata Olivella (1990) sums up this feeling in his biographical work, *¡Levántate mulato!* (Pick yourself up mulato!), in which he claims:

I had been born from the mix of many bloods and I felt the creative potential of a young man that reclaimed a place in my land without reverences or claudication to any foreign master (My translation 1990, p. 18).

It is from this emancipatory disobedient epistemology that my study emerges. It is an epistemology that understands environmental and social crises as a crisis generated by a universalised Eurocentric understanding of the world. It is an epistemology that delinks from the notion of progress and pursues other ways of living in the world, informed by local epistemologies that consider humans and Nature as part of an integrated whole. The decolonial thinking guiding my study is explained in the sections that follow. They are explained in detail throughout the discussion and analysis chapters of the thesis, and also inform the literature review in the following chapters.

Displacing the origin of modernity from Europe to the colonisation of the Americas

Dussel (1994) refers to the Eurocentric interpretation of modernity as “the myth of modernity.” According to Dussel, modernity is not a result of the linear progression of historical events as many have been taught, where the world’s most important intellectual movements originated in Greece and evolved through the Romans, the Middle Ages, the Renaissance and the Illustration until reaching modernity in Western Europe. This is no more than a self-created Eurocentric vision founded in the European romanticism of the 18th and 19th centuries (Dussel, 1993, 1994).

Decolonial thinking asserts that the origin of modernity was not in the 17th century but in the 14th century, when the colonial project of Europe began. The decolonial field challenges Eurocentric narratives that position modernity as an historical process that emerged in Western Europe and expanded to the rest of the globe. Dussel (1994), Grosfoguel (2011) and Quijano (1992) argue modernity was not an intra-European process but a global experience that could not have happened without natural resources from colonial experiences and the exploitation of its people.

Acknowledging the hegemony of Western knowledge as a system of domination

Decolonial thinking contends that the objective, neutral and universal character of Western knowledge served as a foundation for narratives that claimed Europeans were the most advanced civilization on the globe. Maldonado-Torres (2007) and Quijano (2000) claim the “superiority” of Western knowledge allowed Europe to justify relations of domination as necessary in order to bring modernity to the periphery, as the people on the periphery were considered to be immature. Asymmetrical relationships of power were imposed between Europe, considered the centre of progress, while the rest of the world was labelled the periphery. The periphery was labelled as inferior and backwards and, in the name of modernity, its assimilation was pursued. Under the hegemony of Western knowledge, the entire world was classified under binary divides of superior/inferior and human/sub-human (C. Walsh & Castro-Gómez, 2002).

Castro Gómez and Grosfoguel (2007) argue this Cartesian logic was the main element for legitimising the perpetuation of the exploitation of Nature and people from the periphery. By labelling Eurocentric knowledge as the *only* objective and universal truth, Cartesian logic played a crucial role in the making of the myth of modernity. Modernity

narratives claim knowledge systems undergo a linear process of evolution, with Eurocentric knowledge being at the top of the tree.

Decolonial thinking argues knowledge can never be objective or neutral. Eurocentric knowledge, like every other knowledge system, is the result of embodied cultural practices enabled by specific historical conditions. As such, knowledge is always influenced by the particular context from which knowledge emerges (Castro-Gómez, 2010; Ramón Grosfoguel, 2013). To acknowledge that knowledge is determined by the place in which the thinker is located, Mignolo (1996) coined the term 'locus of enunciation', to refer to the geopolitical place from which the subject speaks. In words of Grosfoguel (2006), the locus of enunciation is:

the geopolitical and body-political location of the subject that speaks. In Western philosophy and sciences, the subject that speaks is always hidden, concealed, erased from the analysis...Ethnic/racial/gender/sexual location and epistemic location are always decoupled. By delinking ethnic/racial/ gender/sexual location from epistemic location, Western philosophy and sciences produced a myth about universalist knowledge that covers up, that is, conceals who is speaking as well as the geopolitical and body-political location in the structures of power from which the subject speaks (My translation, p. 22).

Western knowledge was developed during the emergence of capitalism as the new pattern of world power. It is a system founded in the exploitation of Nature and people from the periphery (Quijano, 2000b). Western knowledge was developed to fulfil the needs of an incipient Eurocentric capitalistic system. The result is a knowledge system founded on qualities of quantification and objectivation that allow for the legitimisation of the domination of Nature and people from the periphery, that is, for the continuation of the colonial project (Castro-Gómez & Grosfoguel, 2007).

Adding to this discussion is Sousa Santos (2015), who challenges the superiority of knowledge by claiming there is no such thing as the superiority of a knowledge system. The author claims all knowledge systems hold knowledge of some aspects of reality, while remaining ignorant to other aspects of reality. In this sense, a superior knowledge does not exist and, as a consequence, a unique or 'true' vision of reality does not exist.

The coloniality of knowledge, then, has permeated every aspect of the sphere of knowledges, and with it, has imposed a global understanding of the world *from* Europe. As

such, understanding Eurocentric knowledge as the only objective and universal knowledge system legitimises the hegemony of a knowledge system informed by a colonial rationale (Souza Santos, 2015; Grosfoguel, 2013; Castro-Gómez, 2010).

Acknowledging the task of decolonisation remains an urgent and unfinished project

Decolonial thinking brings awareness to the incomplete task of decolonisation by analysing the living legacy of colonialism in contemporary societies. As Castro-Gomez and Grosfoguel (2007) explain, the independence of the colonies from the colonial powers was only juridical-political. The naturalised, asymmetric relationships between the centre and the periphery that were established during colonial times remain today under a globalisation paradigm. Quijano (1992) coined the term 'coloniality' to refer to relationships of hierarchy and domination that are a legacy of colonialism today. Coloniality is one of the constitutive elements of global patterns of capitalist power. To bring attention to the ways in which the asymmetric relationships imposed during colonialism continue to invisibilise, marginalise and subordinate the periphery, decolonial thinkers have described three main colonialities: coloniality of power, coloniality of being and coloniality of knowing (Castro-Gómez & Grosfoguel, 2007).

'Coloniality of power' was first described by Quijano (1992) to refer to a system of racial social classification imposed in the 16th Century. It is the foundation of the economic system that continues to underpin the global capitalist system. The concept focuses on the racial discrimination imposed during colonialism that is now integrated into the social and economic structures put in place in contemporary societies. Coloniality of power privileges 'White' people while disenfranchising populations that were labelled during colonialism such as Indigenous and Black. Accordingly, structures of the contemporary global capitalist system continue to perpetuate the accumulation of wealth following a racial hierarchy (Mignolo, 2007; Quijano 1992, 2000).

The concept, 'coloniality of being', was developed by Maldonado-Torres (2007) and refers to internalised feelings of inferiority experienced by the people of the periphery. According to Maldonado-Torres, under modernity, humanity is classified under a binary of existing ways of beings and non-existing ways of being. These colonial differences produce populations that are accepted and revered while others, mostly Indigenous and Black people, are made to feel inferior and dehumanised (Maldonado-Torres, 2007; 2004). Being

de-humanised involves being put into a category of sub-human, backwards and barbarian that leads to the oppressed populations of the periphery forgetting what it means to be human (Fanon, 2001). Adding to this discussion, Sousa Santos describes Western thinking as “abyssal thinking” that divides reality into the realm of “this side of the line” and the realm of “the other side of the line” (2007, p.45). This line perpetuates the “model of radical exclusion” imposed under colonialism. The ways of knowing, being and acting that are ‘on the other side of the line’, that is, outside of the modern/colonial, capitalist, anthropocentric and patriarchal world system are declared non-existent and are invisibilised. Under this model, the cultures from the periphery are expected to “accept the humiliation of being inferior to those who decided that you are inferior or ... assimilate” (Mignolo, 2011, p. 275).

Coloniality of knowledge refers to the process by which Eurocentric hegemonic forms of thought are consolidated and universalised across the globe, seemingly so ‘naturally’ that other knowledge systems are excluded and denied. In this context, the possibility of any other worlds existing become impossible (Lander, 2000, 2001). Sousa Santos (2010) argues that the attributed superiority of Western knowledge has been naturalised and it continues to inform contemporary societies. Since colonialism, a coloniality of knowledge has universalised the Eurocentric notions of ‘modernisation’ and ‘progress’, legitimising the inferiority of so-called traditional societies. In agreement, Latour (1987) claims that this is related to the racism that is perpetuated through cognitive and scientific protocols that are designed by and for White people.

The decolonial turn

To move away from the control of coloniality, decolonial thinking proposes a decolonial turn. The decolonial turn argues for a ‘epistemological aperture’ that allows for freedom of thinking and other ways of being. It is built on knowledges from the colonial experience of the periphery and is, therefore, founded on the preoccupation and problems the region is facing (Quijano, 2007). On these grounds, decolonial thinking calls for an epistemic disobedience that can shift the place of enunciation of knowledge from the centre to the ‘imperial wound’. Emergent knowledge is then a disobedient epistemology that de-links from modernity/coloniality and gives room to those who have been epistemically

disempowered, oppressed and assimilated under the naturalised perspectives of the modernity/coloniality project.

The decolonial turn "emerged from and as a response to the violence of imperial/territorial epistemology and the rhetoric of modernity of salvation that continues to be implemented on the assumption of the inferiority or devilish intentions of the Other and, therefore, continues to justify oppression and exploitation, as well as eradication of the difference" (Mignolo & Tlostanova, 2006, p. 206). By recognising the value of the thinkers from subalternised, racial, ethnic, sexual spaces and bodies, decolonial thinking is an empowering epistemology. In addition to challenging the centre as the only place of enunciation of knowledge, decolonial thinking challenges the Western notion of who can be considered a generator of knowledge (Ramón Grosfoguel, 2006b). Within the field, the construction of knowledge is not limited to the confines of universities and research centres, but considers social movements as a place in which new knowledge is constantly generated (Ouviña, 2015).

Decolonial thinking as a political project in contemporary times

Decolonial thinking enables researchers oppressed by different layers of coloniality (racial, sexuality, gender, anthropocentric, linguistic, and so on) to imagine other worlds and to transform reality (W. D. Mignolo & Tlostanova, 2006). Decolonial thinking is, thus, a political project. By shifting the locus of enunciation, it opens a pathway for a new array of political, economic and social possibilities that are emancipatory in nature and that open up the possibility of decolonising the sphere of knowledge (Dussel & Dussel, 2016; Ramón Grosfoguel, 2006b; Maldonado-Torres, 2011). Disrupting what has been the dominant, universal paradigm in Latin America for more than 500 years, and an aspirational way of thinking, doing and being worldwide for just as long, is a daunting task. However, sociologist and historical social scientist, Wallerstein (1999), argues that throughout human history, the fights of the anti-systemic social movements have had little to no chance of challenging hegemonic systems during the centuries in which this framework has been stable. Yet, when the hegemonic paradigm enters a period of crisis, like today, pathways for generating change open and it is amidst these moments of crisis that paradigms can shift through collective action. According to the author, in these times, like the one we are currently witnessing, thinking of 'utopics' becomes crucial. Utopics, contrary to utopias, are a:

sober, rational, and realistic evaluation of human social systems, the constraints on what they can be, and the zones open to human creativity. Not the face of the perfect (and inevitable) future, but in the face of an alternative, credibly better, and historically possible (but far from certain) future. (Wallerstein, 1998, pp. 1-2)

Mignolo (2005) argues decolonial thinking is sketching a 'paradigm other' of utopias that might conceivably challenge the modernity/coloniality project. The term 'paradigm other', instead of 'other paradigm', is used here to differentiate decolonial thinking from paradigms that seek to replace the hegemony of modernity with other hegemonic systems. The 'paradigm other' seeks to achieve the decolonisation of the epistemic sphere so that the uni-verse of knowledges can shift into a pluriverse in which many different worlds can co-exist (Escobar, 2003; W. D. Mignolo, 2005; C. Walsh, 2013).

The transition from the uni-verse to the pluriverse of knowledges will not be the result of an abrupt and imminent event, but from different alternatives being offered up by various places. In this scenario, the pathway for decolonisation can come about through local alternatives that offer a viable, different way of living (Ouviña, 2017; C. Walsh, 2013). Walsh (2009) argues this is what separates decolonial thinking from other fields that limit themselves to critiquing modernity, but do not suggest an actual pathway to delink from modernity.

Different proposals have been suggested for advancing the decolonial turn, one of the most novel being decolonial pedagogies, which informs the theoretical framework of this research, and upon which the aims, analysis and outcomes of this project rest.

Theoretical framework: decolonial pedagogies

Decolonial pedagogies, a concept developed by Walsh (2008, 2013, 2017) in the first decade of this century, offers a practical way in which to open lines of enquiry to move away from modernity. Walsh (2013) argues decolonial pedagogies are 'praxistical' ways of thinking through *pensar-hacer*, (to think and to do), which is a way of thinking and acting together (C. Walsh, 2013). According to Walsh, the *pensar-hacer* that has informed the resisting struggles of the past 500 years in Latin America is: "reflected in pedagogical strategies that strive to transgress and subvert coloniality and, at the same time, to plant and advance living conditions conceived and postulated from the exterior, the margins or the cracks of the same colonial power" (My translation, Walsh, 2013, p. 32). Adding to this

argument, Maldonado-Torres (2013) claims that pedagogies of the colonial wound provide significant opportunities for a philosophical struggle, which is crucial for the epistemic decolonisation task. As such, this study de-links from Western academic protocols and engages in the construction of new knowledges through the design of a decolonial pedagogy.

Decolonial pedagogies: the origin

In Latin America, the pedagogies that emerged from struggles to resist coloniality are informed by thousands of years of Indigenous pedagogies practiced by native populations of the Abya Yala --the Indigenous name referring to Latin America (Walsh, 2013). Indigenous pedagogies are informed by practice-based activities that, before colonisation, took place through the daily life of the community, as opposed to a confined place or school. As such, pedagogies were not dependant on teachers or people whose only role was that of transmitting knowledge. Pedagogies were carried out by all members of the community who shared the communal responsibility of educating young members (Ouviña, 2017).

With the arrival of colonialism, pedagogies became crucial in the IPs strategy for resisting colonial structures and continuing with their cultural identity. According to Mignolo (2011), the Latin American narratives of resistance to the modern/colonial project found its origin in the work of Waman Puma. Waman Puma, a noble Quechua man, documented the colonisation process *from* colonial difference. His chronicle, titled *The First New Chronicle and Good Government*, narrates the history of the Inca empire before colonisation, and criticises the abuses enacted by the Spanish colonisers. Written in 1615, Wama Puto's critique of the colonial power was sent to the Spanish monarchy, but was never published and was only rediscovered in the 20th Century (Mignolo, 2011a; Walsh, 2013).

Adding to this Latin American genealogy of decolonial struggles is the perspective of the Afro-Caribbean people under slavery. Their sentiment is reflected in the memories of Cugoano, who documented how he was captured in Africa and brought to the island of Grenada in the Caribbean as a slave (W. D. Mignolo, 2011a). In 1787, once a free man again, he published "Thoughts and Sentiments on the Evil and Wicked Traffic of the Slavery and Commerce of the Human Species". It is a call for the abolition of slavery and immediate emancipation of all slaves (Mignolo, 2011a; Walsh, 2013).

Along with the chronicles of Waman Puma and Cugoano, there are many other counter-narratives told by Indigenous and Afro-Caribbean peoples that have been preserved through oral tradition. According to Walsh (Walsh, 2013), it is in these narratives that pedagogy and decolonisation first intersect. As pedagogical tools, these emancipatory narratives call for rebellious and insurgent practices that “open the way, transfer, interrupt, move and invert inherited practices and concepts” (Alexander, 2005, p. 7). Decolonial pedagogies are, then, “insurgent practices that crack the modernity/coloniality code and make possible very different ways of being, being, thinking, knowing, feeling, existing and living-with” (My translation Walsh, 2013, p. 19).

Walsh (2013) argues the many insurgent struggles across Latin America provided a standpoint and outlook for the emergence of radical pedagogical proposals of social transformation that extended to the Mestizo and White populations. These proposals are characterised by a strong sense of hope and possibility. It is thinking in dialogue *with* the works of these pedagogues that we can think and build decolonial pedagogies (Maldonado-Torres, 2013; Walsh, 2013).

Central to the work of Walsh are the works of Brazilian pedagogue Paulo Freire and Martinican psychiatrist Franz Fanon. Both thinkers and activists were interested in freeing the oppressed, but the place from which they understood oppression was different. While Freire positioned himself to understand oppression in terms of class, Fanon went beyond this perspective and understood it in terms of colonial structures. The work of both authors’ is explained in the discussion that follows (Walsh, 2015).

Influential works that contributed to the development of the concept

Freire’s work as a pedagogue is a response to the oppression faced by the ‘lower’ social classes in Latin America. According to Freire (1977), the poor were de-humanised by modern socio-economic structures. He recognised that oppression was linked to a hegemonic education system, which he argued was responsible for perpetuating the dehumanisation of the poor and excluded classes. To free the oppressed and re-humanise them, he understood education could be used as an emancipatory tool. In his seminal text, *Pedagogy of the Oppressed* (Freire, 1977), the author argued that all education should be a domain of transformation, contestation and resistance to the oppressors. Freire’s understanding uses critical pedagogy to help students and teacher’s question, challenge and

undermine the practices behind oppressive structures. In this tradition, the teacher works to lead students to question ideologies and practices considered oppressive (including those at school) and encourages individual and collectives to free themselves from structural oppression. As such, Freire understands pedagogy as a practice that needs to be constructed *with*, and not *for* the oppressed (Fernández Moujan, 2009; Freire, 1977; C. Walsh, 2013).

Through this deconstructive method, Freire sought to educate both the oppressors and the oppressed through a process of critical self-reflection that would lead to the recognition of the invisible frameworks and institutional arrangements that exert oppression (Freire, 1977; Walsh, 2013). The insights gained allow participants to transform society. By using education as a tool by which people can recognise the oppressive structures of society and work to free themselves, Freire provides a foundation to start ‘thinking pedagogy’ from a political perspective (Walsh, 2013; Walsh, 2015).

Fanon takes ‘pedagogy as political education’ further by recognising the colonial structures behind the de-humanisation of what he called the “wretched of the earth”, that is the racialised populations of the periphery (Fanon, 2001). Contrary to Freire, Fanon did not start his fight from within the field of education. As a practicing psychiatrist in the Caribbean, Fanon was interested in the naturalised feeling of inferiority he noticed in his Afro-Caribbean patients. As an Afro-Caribbean man, Fanon understood that racialisation was one of the most ruthless colonial structures present in the modern world. The classification of races, he argued, divides the normal from the sub-normal; the human from the sub-human. As such, Fanon argued that colonisation is an unfinished project, and saw decolonisation as the crucial task facing humanity (Fanon, 2001; Maldonado-Torres, 2005; Walsh, 2009a).

Fanon understood the need to teach black people how not to continue being a slave of the stereotypes imposed by the centre. As such, decolonisation is, for Fanon, a way of unlearning colonial stereotypes that lead to the de-humanisation of the Black race. In his quest to re-humanise the Black race, Fanon recognised the colonial structures that oppress them, and challenged Black people to liberate from systemic oppression (Íbid). Because decolonial pedagogies aim to re-humanise the dehumanised, they “also have a therapeutic and healing dimension of pains, frustrations, restraints, wounds and so on, of the

oppressed, subalternised and racialised subjects” (My translation, Espinosa et al., 2013, p. 416).

In accordance with Freire, Fanon argues no one can liberate the de-humanised but themselves, while also recognising the importance of extending pedagogy beyond the population of the oppressed (Fanon, 2008). It is when humans and sub-humans ‘free their mind’ that they can engage in the decolonial task. The role of the educator is, then, to facilitate recognition of the colonial problem so that the oppressed and the oppressors can decide and act against different elements of coloniality (Maldonado-Torres, 2005). As such, the focus of Fanon and Freire’s pedagogical praxis and critique is never to liberate the oppressed, but to guide them so that they can liberate themselves through the recognition of systemic oppressive structures.

Decolonial pedagogies and the cracks in the modernity paradigm

Walsh (2017) argues decolonial pedagogies are pedagogical-political processes that allow for planting seeds that contain different ways to look at reality, so that they can grow and become a crack in the epistemic hegemonic sphere. In Walsh’s words (2013), decolonial pedagogies must be understood as “insurgent practices that generate cracks in the modernity/coloniality paradigm and make possible other ways of being, thinking, knowing, feeling, existing and living-with” (My translation, p. 19). As such, decolonisation will not happen abruptly in a short period of time as the result of a sudden, universal awareness of the colonial side of modernity. This change in paradigm will come gradually, from the many alternatives that emerge from the colonial wound, and the projects that widen already existing decolonial cracks (C. Walsh, 2017). Accordingly, Ouviaña (2017) argues that a change in paradigm will not come from an abrupt and imminent event, but will only be possible after a prolonged pedagogical-political and emancipatory process. It is in this gradual transformation from the universe to a pluriverse that my study sits.

While there is no standardised way to design a decolonial pedagogy, Walsh (2013) argues they involve a process of un-learning and re-learning. This perspective, informed by the works of Fanon and Freire, is also shared by the Kichwa radical education proposal of the Amawtay Wasi University. The Kichwa people designed a pedagogical principle based on the principles of *Runa Yachay* kuna-Kallari and *Shuktak Yachaykunci'Yachak*, in which students, both Indigenous and non-Indigenous, engage in a process of learning to un-learn

the Eurocentric narratives that shape the world (García, 2004). The students then learn to re-learn from other epistemologies. To explain the rationale and the methods followed to achieve this, and to map the steps I took to design and build the decolonial pedagogy taken up in this study, it is first necessary to address where this work of scholarship sits in relation to the broader research literature. The literature review following informs the organisation of this thesis. This is my objective in the next section of this study.

Positioning this study within the decolonial thinking and decolonial pedagogies literature

Escobar (2007) recognises that one of the pending tasks of decolonial thinking has been engaging with the implications of modernity and Nature. Accordingly, Walsh (2009) claims that this relationship has not been discussed in depth within the field of decolonial thinking. It is only in recent years that decolonial thinking has expanded to understand the implications of a coloniality of Nature (Escobar, 2014). This research adds to this discussion.

Different ways to approach the environmental impact of modernity have been proposed. Alongside Leff (2004), this research understands Nature and human society as interconnected parts of one system that cannot be understood separately. Consequently, this study does not differentiate the current environmental crisis from the social, but, as suggested by Grosfoguel (2013), as one crisis with a common origin. Following Leff (2014), Sousa Santos (2010) and Escobar (Escobar, 2004a, 2013), this research recognises the origin of the socio-environmental crisis as an epistemological crisis. In the view of the authors, a coloniality of knowledges sustains and perpetuates colonial understandings of Nature as a commodity that must be exploited, along with the people from the periphery, in order to achieve progress.

Souza Santos (2010) argues that the only way to bring socio-environmental justice is through 'cognitive-justice'. That is, by recognising Indigenous epistemologies as valid ways from which to understand the world. Hence, cognitive justice recognises that the 'objective and universal' characteristics of Western knowledge is a device of domination. So too, cognitive justice involves pursuing a decolonial turn to start thinking in 'Other ways' to understand the world.

This research is informed by decolonial pedagogies that empower people to think from the margins of knowledge. 'Borders' of knowledge, like geographical *borders*, are often

spaces of resistance, where people from the subaltern congregate. These populations often have different epistemological outlooks and ways of being, seeing and doing to those in dominant positions of (Western, gendered, sexual, spatial, historical, racial, cultural, religious and so on) power. It is from these margins that other possible worlds can be imagined, and where 'germs of the society of tomorrow' (Ouviña, 2015) can emerge.

Decolonial pedagogies are founded in the works of Freire and Fanon, both activists and scholars interested in freeing the oppressed sectors of society due to the socio-economic system or to the coloniality of being. Consequently, the decolonial pedagogies documented (see Walsh, 2013; 2017) lean mostly towards freeing the oppressed sectors of societies. Amongst these sectors are the Indigenous and Afro-Latino communities' who are defending their land from exploitative practices, and by doing so, are building their own pedagogies.

The decolonial pedagogy proposed in this study acknowledges the value of the pedagogies that are being proposed by the oppressed communities defending their lands from modernity/coloniality knowledges, and takes it further by exploring the possibilities that arise from introducing outsiders to these pedagogies. The outsiders are professionals who, by trying to create change within the current socio-environmental crisis, are inadvertently perpetuating further the coloniality of knowledge. In this sense, the participants are the 'oppressors' as they are the holders of hegemonic Eurocentric epistemologies and, through their work, unwittingly reinforce the status of Western knowledges as the only knowledges capable of offering solutions to socio-environmental crises. The participants are, at the same time, inadvertently the oppressed, as they are limited in thinking about solutions from within the borders imposed by a coloniality of knowledges.

Although Fanon (Fanon, 2001) recognised the crucial need for decolonising the oppressors, and not only the oppressed, in order to advance the urgent yet incomplete task of decolonisation, there is no literature documenting decolonial pedagogies designed to target the 'oppressors' (see Walsh, 2013, 2017). In terms of the coloniality of knowledges (leaving aside the coloniality of being), the decolonial pedagogy used in this research is designed to target non-oppressed sectors of society, such as scientists and social scientists. At first glance they might be considered the oppressors, but when one looks deeper, they

are both the oppressors and the oppressed, as they are only perpetuating hegemonies of Western knowledge due to a coloniality of knowledges, of which they remain unaware.

This research contributes to the decolonial turn by addressing one of the least studied elements affected by modernity/coloniality: Nature. Understanding environmental crisis as a socio-environmental crisis caused by a coloniality of knowledges, this study proposes a decolonial pedagogy that targets the oppressors. Research on this group and the use of decolonial pedagogies has not yet been extensively documented. Ultimately, this research seeks to have a theoretical-practical impact that can generate a crack in the modernity paradigm; a crack that can not only outlive the duration of this study, but that might expand in the following years.

As such, the overarching aim of this research is to design a decolonial pedagogy directed at people who are actively trying to find solutions to the current socio-environmental crisis, by introducing them to a coloniality of knowledges and the epistemologies from the periphery, to empower them to find solutions outside of the epistemic borders imposed by Western knowledge. This includes scientists and social scientists that continue to perceive Eurocentric knowledges as objective, universal and superior to Indigenous knowledges.

To do so, the pedagogy I propose and have designed, first, guides the participants in becoming aware of the existence of a coloniality of knowledges. I then immerse the participants in the socio-environmental struggle of the Nahua people of Cuetzalan. Through this process, the participants come to understand the power of imagining other possible worlds, and can start creating change 'positioned from the margins' and not, as they are used to, from the centre.

Research design

As a study that focuses on building a decolonial pedagogy, the structure of this thesis is different to those of regular dissertations in that it is organised according to *pensar-hacer* or theoretico-practical knowledge. The thesis is organised as a decolonial pedagogy that seeks to 'plant seeds' that guide people to look at reality from a decolonial perspective. This theoretico-practical approach is consistent with the work of Freire and Fanon, scholars who were at the same time activists, and committed to transforming society through practical engagement with oppressed communities (Walsh, 2013). Informed by *pensar-hacer*, this

thesis was constructed as an exercise of epistemic disobedience that surpasses the limits imposed by academic protocols to transition from the uni-verse of knowledges into a pluriverse of knowledges in order to bring about socio-environmental justice.

Six main differences can be observed informing the organisation of this thesis when compared to a traditional dissertation structure: a) this research is not neutral or objective, as this would be reproducing the hegemony of Western knowledge. Instead, it is informed by my particular perspective as a researcher from Latin America; b) the sources informing this manuscript are mostly from the periphery, including Indigenous voices; c) as a study that is being thought from the periphery, it is not underpinned by a research question, but by a research aim directed at finding solutions to the current problems being faced in the region; d) the research design is introduced early in the study. This is so the reader can become familiar with the structure of the thesis and with the practical purpose that accompanies the theoretical purpose of the manuscript e) the literature review is longer than a traditional thesis. The literature review constitutes a part of the decolonial pedagogy itself, as it was constructed to guide the participants in their journey of learning to un-learn Eurocentric narratives. As such, the review flows through many chapters of the thesis. This is very unlike 'Western' ways of writing a thesis; f) different methods were selected to conduct the research needed to inform each of the four steps, as they are informed by different epistemologies.

As a study that sits in the field of decolonial thinking, it recognises that the research is always influenced by the geo-political location from which the subject speaks, that is, the locus of enunciation. As such, **part I, positioning myself**, introduces the reader to both my locus of enunciation and to the field of decolonial thinking, which also emerges from Latin America, and therefore reflects and guides my position as a researcher from the periphery. The rest of the manuscript is, then, influenced by this first part of the thesis. The remaining three parts of this manuscript correspond to the three steps I followed to build the proposed decolonial pedagogy. Table 1 presents an introductory diagram of the three steps with a brief description and the methods used for each of those steps.

Table 1 Steps that inform the construction of the proposed decolonial pedagogy

| Step | Description | Method |
|--|--|---------------------------------------|
| Learning to un-learn (part II of the thesis) | Un-learning the Eurocentric narratives that position Eurocentric knowledge as objective and universal and that | Multi-disciplinary literature review. |

| | | |
|---|---|--|
| | marginalise other ways of knowing. | |
| Learning to re-learn (part III of the thesis) | Developing a partnership with the Nahua people in order to re-learn from their epistemologies. | Yarnings. |
| Empowerment (part IV of the thesis) | Bringing together the learning to un-learn and learning to re-learn steps into a decolonial pedagogy for empowering the participants to think from the margins. | Analysis-centred analysis and design framework (ACAD). |

Table 1 introduces the reader to the three steps involved in the construction of the proposed decolonial pedagogy. In what follows, each of these steps is introduced in detail.

Step I: Learning to un-learn

To be able to guide the participants in recognising the colonality of knowledges, I had to first learn to unlearn the Eurocentric narratives that sit within the epistemic borders of modernity. In order to do this, I formulated three questions directed at understanding the impacts the colonality of knowledges is having in Nature, in relation to their impacts on people:

1. How did Eurocentric knowledge hegemony shape the way humans understand their relationship with Nature and how did this lead to the current global socio-environmental crisis?
2. What is the current impact that Eurocentric epistemic logic hegemony has on Nature and the people of Latin America?
3. Are the marginalised knowledge systems present in Latin America capable of offering viable solutions to socio-environmental crisis?

In order to find answers to these questions *from* the colonial wound, I conducted a multi-disciplinary literature review following Walsh's (2013, 2015) recommendation of "walking and asking". Walking and asking is an undetermined process by which the researcher engages in a journey of discovery. Such journeys do not have a pre-established direction, but are informed by a series of questions in which every answer generates more questions that help the researcher move forward (Walsh, 2015). This exercise led to the

formulation of the three questions mentioned above. To answer these questions, I conducted a multi-disciplinary literature review that included perspectives from the biological sciences, the social sciences and the humanities.

Learning to unlearn was a profoundly transformative experience. It took me from being in an inadvertently oppressed position, in which I was perpetuating the coloniality of knowledges, and gave me a voice to advance the decolonial task. This step enabled me to become familiar with what has been studied and what is yet to be learned in relation to the impact of the colonisation of knowledges in Nature and its people. Locating the gaps in the literature allowed me to build a chronological narrative that shows the crucial historical events that led to the coloniality of knowledges, the impact it has in the people of the periphery and in the natural environment, and the hidden alternatives from Latin America. These narratives inform chapters three, four and five.

In this thesis, the literature review surpasses its academic purpose as it was conducted not only to gain an understanding of the existing research around a particular topic or research problem, and/or to locate areas where further research is needed. Instead, the literature review constitutes a crucial part of the process for building the proposed decolonial pedagogy, as it is through the counter-narratives produced that I will guide the participants in the recognition of a coloniality of knowledges.

Step II: Learning to re-learn

Decolonial thinking argues in favour of an epistemic openness in which Western knowledge is not considered the only valid knowledge (Sandoval Forero & Capera Figueroa, 2017). The process of learning to re-learn involves learning from other ways of looking at the world. As such, participants are introduced to epistemologies that sit outside the borders of knowledge. Learning to re-learn must be facilitated by holders of non-Eurocentric knowledges. To achieve this, I approached the Nahua Indigenous people of Cuetzalan, Puebla, in Mexico. The Nahua people of Cuetzalan have been engaged in a successful resistance movement against mining and other extractivist projects in Mexico. To approach the community, I followed Indigenous scholar Simpson's (2004) advice to:

Academics who are willing to be true allies to Indigenous Peoples ... must be willing to step outside of their privileged position and challenge research that conforms to

the guidelines outlined by the colonial power structure and root their work in the politics of decolonisation and anticolonialism (p. 381).

Following this advice, and in accordance with the postulates of decolonial thinking, I did not position myself as a researcher of the Nahua epistemologies, but as a student seeking to continue the unfinished task of decolonisation by engaging in non-Eurocentric epistemologies. In order to *re-learn* from the Nahua epistemologies, I formulated these research sub-questions:

3. How do Nahuas knowledge systems understand their relationship with Nature and with the rest of the community?
4. How do Nahua epistemologies inform the alternatives that are being proposed by the Nahua for escaping a modernity logic?

In order to position myself effectively as a student of the Nahua resistance movement, it was necessary to find a framework that could accommodate both Indigenous and Western ways of learning. The inclusion of Indigenous processes of knowledge transmission enhance the learning of students (Snively & Williams, 2016). In this case, it enhances the learning of the researcher. As a researcher thinking from Mexico in Australia, I turned to the Australian literature of the subaltern to select a method to *re-learn* epistemologies from the subaltern. Australian Indigenous and non-Indigenous scholars have produced a series of decolonial proposals that can enrich the decolonial research of Latin America. Amongst them is Australian Indigenous scholar Yunkaporta (2009), who proposed “the 8 Aboriginal Ways of Learning.”

The 8 Aboriginal Ways of Learning is a pedagogical framework that proposes eight Aboriginal learning techniques that overlap with Western ways of learning. The proposed techniques consider the need to be applicable to a wide range of learning environments. A learning technique proposed by Yukaporta (2009) that overlaps substantially with Latin American decolonial pedagogies is story-sharing. Christensen (2012) consider story-sharing a powerful tool due to the common ground between Indigenous and Western pedagogies. Story sharing is at the core of Indigenous epistemologies. The stories shared by each Indigenous community contain the wisdom that has been passed down by ancestors. It is also a way in which IPs discuss current issues and how they maintain their connection to the land (Yunkaporta, 2009; Christensen, 2012). Within Western ways of learning, story-sharing,

or the telling of narratives, is used to make sense of the events that took place in the past (Jørgensen, 2018).

Yunkaporta (2009) argues story-sharing allows for a deep connection as it is not monologic but involves a dialogue. All the participants engaged in story-sharing are encouraged to share their own personal stories as this brings “everyone’s home culture and knowledge” into the dialogue (Yunkaporta, 2010, p.42). The knowledge, experiences and stories of all the participants play a central role, as they all inform the learning of the entire group. This approach is consistent with Freire’s (1998) dialogical education. According to the author, the essence of learning is dialogue, as dialogue is an “existential need” (Freire, 1977, p. 101). Dialogue allows for the valorisation of previous knowledges of the participants. By sharing their experiences, the participants bring with them the community issues they are interested in transforming. As such, sharing stories is an act, a praxis of creation in which the participants engage in a reflection/action process that leads to emancipatory proposals capable of rehumanising the learners or of transforming the world (Freire, 1977, 1998).

According to Freire (1977), dialogue requires humility, as the reflecting/acting process “is not possible among those who deny others the right to speak and those who are denied this right” (pp. 76-77). In order to engage in a cross-cultural dialogue with IPs, it is first necessary to challenge the authority of the centre as the only place from which knowledge can emerge and to recognise that both Western and Indigenous knowledge systems are equal knowledges that inform the pluriverse. Sharing personal stories builds trust.

Yarning

To engage in story-sharing with the Nahua people of Cuetzalan, I selected yarning as the methodology to generate a dialogue between us. Yarning is an Indigenous method from Australia that focuses on oral communication, the most important means of communication for Indigenous peoples (Bessarab & Ng’andu, 2010). The use of yarning as a method to collect data when engaging with Indigenous participants has been suggested by Singh and Major (2017), Geia, Hayes and Usher (2013), Bessarab and Ng’andu (2010) and Dean (2010). Yarning involves “a two-way partnership between the researcher and the participants which leads to a culturally safe environment” (Sighn and Major, 2017, p.15). During a yarn, participants actively engage in sharing information about a certain topic or ideas. It is an

informal and relaxed discussion through which both the researcher and participant journey together, visiting places and topics of interest relevant to the research study (Bessarab & Ng'andu, 2010). This method facilitates in-depth discussions in a relaxed and open manner providing a source of rich data and thick descriptions related to a particular issue. Indigenous peoples are able to talk freely about their experiences, enabling the researcher to explore the topic in more depth, resulting in the emergence of information that Western research processes may not facilitate (Geia, Hayes, & Usher, 2013). The sharing of research findings can lead to new discoveries and understandings (Bessarab & Ng'andu, 2010).

Children are often not viewed as the holders of knowledge in Western approaches to research (Azzarito & Kirk, 2013). Green and Hogan (2005) suggests this is due to the Western paradigm whereby children are viewed as largely irrelevant, portrayed as unformed, passive, dependent and unreliable informants. Burke (2008) claims that this situation positions children as “less powerful” and having “less voice” than adults. Mayall (2002) believes that within Western paradigms, adults are pleased with their power over children and childhood, and do not wish to face challenges to those powers inherent in any serious analysis of the social status of children. This implies the existence of a traditional power imbalance between researchers and participants. With Indigenous methods, paying attention to children is crucial to understanding their motivations and worldviews, which are different, but not inferior, to those of adults (Azzarito & Kirk, 2013). The yarnings conducted in this research included children since this research recognises children’s ability to construct valid meanings about the world and their place in it, and that children’s perspectives and insights can help adults to better understand their experiences.

Meaningful yarnings lead to the development and construction of a relationship in which researchers are accountable to Indigenous people participating in the research (Bessarab & Ng'andu, 2010). Yarning strengthens the connection between the researcher and the participants, since it enables a real and honest engagement. It provides an opportunity for the researcher to become a learner while listening carefully to the stories shared. In yarning, there are no power imbalances between the researcher and Indigenous peoples. The knowledges of both are considered equal. This avoids the potential for the researcher to guide the conversation to a specific place, as can occur when using other methods, such as interviews (Sighn and Major, 2017).

The yarning process led to the development of a partnership with members of the

Nahua community. At the core of these partnerships are relationships of trust, respect and reciprocity (Fluckiger, Diamond, & Jones, 2012). Introducing Nahua epistemologies to non-Indigenous peoples trying to create change from within the borders of knowledge is not only beneficial for me, as the designer of the pedagogy. As the Nahua people explained to me, it is also important for them to share their ways of thinking with other people, as they are being deeply affected by neoliberal policies (see chapter four). The partnerships made will outlive the duration of the research project and, as such, will continue to provide a place in the margins from which the future participants can learn to re-learn.

Participants of the yarnings

As a study positioned in decolonial thinking, I consider *who* is thinking and *where* this thinking is taking place, an integral part of knowledge itself. As such, in chapter six, in an effort to avoid dislocating the participants from their knowledge and land, I introduce the participants and their geographies in conjunction with their epistemologies. The experience of having conducted yarnings is also weaved throughout the narratives presented in part III, learning to re-learn. The outcomes of establishing a partnership with the Nahua community are shared in part IV, Empowerment.

Data collection

The study uses a qualitative approach to data collection. In step III, learning to re-learn, data was gathered through the recording and transcript of the yarning sessions, observations of these sessions and document analysis of books and articles written by members of the community or by other authors suggested by the community. The data observations were transcribed and stored in the server of Griffith University, which has quality control implications regarding security.

Ethical considerations

The research was conducted in accordance with all procedural requirements specified by the Griffith University Human Research Ethics Committee and the Griffith University Research Ethics Manual under protocol number HUM/2016/867/HREC. See appendices A-C.

Step III: Empowerment

Having prepared both the counter-narratives necessary to inform the process of learning to un-learn (see chapters three, four and five) and established a partnership with members of the Nahua people of Cuezalan for guiding the participants in the process of learning to re-learn (see chapters six and seven), I then proceeded to bring them together to inform the design of a decolonial pedagogy. To build the pedagogy, I engaged in design for learning, which allowed me to design learning activities focused on freeing the participants from the epistemic boundaries imposed by the coloniality of knowledge, so that participants could imagine and build other possible worlds. The research question that informs the design are:

1. What elements of the learning design need to be considered in order to build a decolonial pedagogy with the following aims:
 - a) That the participants can become conscious of the existence of the coloniality of knowledges; and
 - b) That the participants understanding that thinking from the margins opens a viable pathway for creating change?

In what follows I describe the method I followed for designing the learning experience of the participants.

Design for learning: activity-centred analysis and design framework

The term 'design for learning' has many interpretations. Carvalho and Goodyear (2013, 2014), claim learning cannot be designed and as such, design for learning refers to the process by which the conditions that provide learning opportunities are designed. McKenney et al. (2015) argue design for learning can be conducted by professionals others than teachers, like myself. Within the existing frameworks of design for learning, an activity-centred analysis and design framework (ACAD) (Peter Goodyear & Carvalho, 2014b) provides an adequate tool for designing decolonial pedagogies. The ACAD framework is the result of more than fifteen years of research (P. Goodyear, 1999; Peter Goodyear, 2000, 2005, 2008, 2011; Peter Goodyear, Asensio, Jones, Hodgson, & Steeples, 2003; Peter Goodyear & Carvalho, 2013; Peter Goodyear & Dimitriadis, 2013; Peter Goodyear & Ellis, 2008; Peter Goodyear & Retalis, 2010a, 2010b; Peter Goodyear & Yang, 2009; Yang & Goodyear, 2004) through which many refinements have been applied (Yeoman, 2015).

The ACAD framework was designed for complex learning situations. This consideration is crucial as the learning pedagogies utilised in this research involve learning to unlearn the Eurocentric narratives presented as universal truths, and re-learning from Indigenous knowledges. The ACAD framework also accommodates designing a pedagogy in which knowledge is not transferred, but emerges from the engagement of learners in the activities. The ACAD framework regards learning as physically, epistemically and socially situated, which is consistent with decolonial thinking and an argument where context influences the production of knowledge. The ACAD considers that the designer can influence learning through shaping the environment in which the pedagogy will be applied. In this situation, learners participate in the co-creation and co-configuration of knowledge and their learning environment. This is consistent with Freire's (1977) argument that pedagogies designed for the social, political, ontological and epistemological struggles of freedom, need to be thought *with* and not *for* the participants.

The ACAD framework focuses on the design of the task that will be given to the participants (epistemic), the design of the place in which learning occurs (set) and the design of the organisational structures involved in learning (social). The task design involves structuring knowledge-oriented tasks. The set design involves thinking about what constitutes a learning space to facilitate learning. It includes artefacts that are given to participants. Social design involves considerations about social collaboration between participants, and the participants and the facilitator (Goodyear and Carvalho, 2014).

To accommodate the locus of enunciation, understood as the context influencing the generation of new knowledge through the implementation of a decolonial pedagogy, I expanded Goodyear and Carvalho's (2014) concept of the 'design of the set and the task' to include the geographical and socio-political environment in which the activities are implemented, as well as the epistemologies informing the emergence of new knowledge. This is particularly important as decolonial pedagogies emerge from the struggles of the subaltern, and never from theory (Walsh, 2017). Figure 1 shows the ACAD framework.

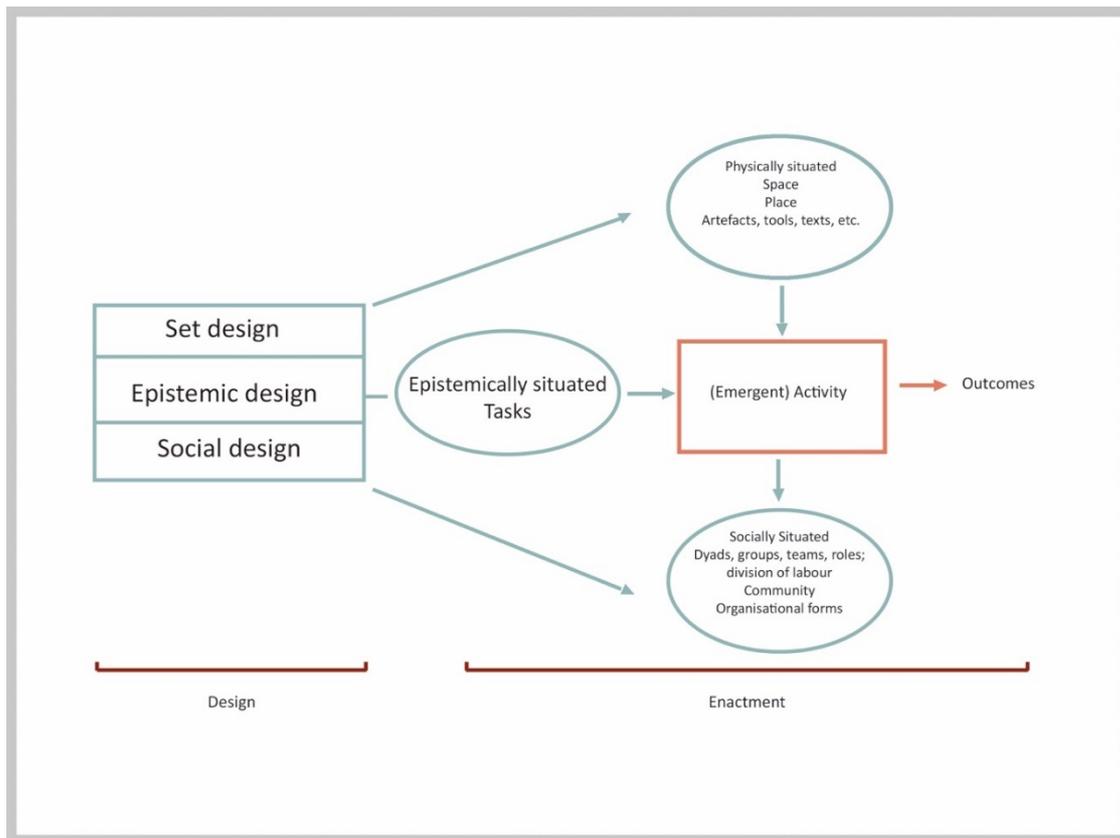


Figure 1 An illustration of the activity-centred analysis and design (ACAD) framework. Source: for this thesis, based on the design by Goodyear & Carvalho (2014).

Figure 1 illustrates how the ACAD framework involves two phases. In the designing phase, the researcher designs the physical space in which the pedagogy is applied, the tasks given to the participants, and the social interactions between participants. Through this design exercise, the researcher anticipates how the activity will be performed by the participants. The design process is discussed in chapter eight.

The enactment phase shows the emergent activity, the behaviour of participants, the knowledge produced through the intersection of task, tools and social arrangement. This enactment results in a co-construction and co-configuration of knowledge. That is, the participants become partners with the designer in the creation of the learning experience. The process experienced by the participants is then compared with three elements that inform Fanon's understandings of the process of decolonisation. These are: transformative character, identified opportunity for change, and modifications in the ways of thinking and being. The enactment phase, that is, the actual application of the pedagogy with a group of participants, is discussed in chapter nine.

Participants of the proposed decolonial pedagogy

In accordance with a decolonial pedagogies argument, previous experience and knowledges of the participants are a crucial part of the pedagogy. The participants, along with their stories, are considered key in the design process. As such, these are introduced in chapter eight.

Data collection

The study uses a qualitative approach to data collection. For step IV, Empowerment, data were gathered through the recording and transcript of the dialogue between the participants and between the participants and myself, notes taken from direct observations, photographs taken during the pilot, analysis of the resources built by the participants, and by the recording and transcription of individual interview with each of the participants. This data was then transcribed and/or stored in the server of Griffith University, which has quality control implications regarding security.

Ethical considerations

This pilot program was conducted in accordance with all procedural requirements specified by the Griffith University Human Research Ethics Committee and the Griffith University Research Ethics Manual under protocol number HUM/2018/592/HREC. See appendices D-G.

Conclusion

This is the final chapter in '**Part I, Positioning myself**', which introduced the reader to the context that informs this research. It presented the reader with the philosophical position in which the study lies, along with the theoretical framework that informs this research. Positioning the study within the field of decolonial thinking facilitates exploration of the current socio-environmental crisis from a perspective situated outside the hegemony of modernity. Decolonial pedagogies guide the theoretical-practical framework of this research. It then detailed the three theoretico-practical steps needed to advance the decolonial turn (Step II – Step IV) within this context.

In the following **Part II. Learning to un-learn**, the theoretical framework is used to guide the literature review conducted regarding the coloniality of knowledges and how they

are perpetuated through Eurocentric narratives sustained by the 'neutrality' of Western knowledge. **Part IV: Empowerment** further draws on the theoretical framework detailed in this chapter, in addition to the literature review findings, to discuss the potential for learning activities to bring forth a decolonial pedagogy.

PART II. LEARNING TO UN-LEARN

Learning to un-learn involves de-linking from Eurocentric narratives that perpetuate notions of the neutrality and universality of Western knowledge and, with it, deny Indigenous ways of knowing, being and imagining different realities. In order to continue with the unfinished task of decolonisation, it is necessary to un-learn what has been learned through a Eurocentric lens.

For this to happen, it is necessary to become aware of the coloniality of knowledge that sustains the modernity/coloniality paradigm. This section introduces the reader to the counter-narratives that have been generated to guide the participants to become aware of the coloniality of knowledges. This allows participants in the project to start learning to un-learn the borders imposed by Western knowledge.

Chapter three presents a chronological series of events – from the colonisation of the Americas until the universalisation of neo-liberalism – that led to the colonisation of knowledges, along with the impacts this has had on Nature and the people of the periphery.

Chapter four explores the current impacts of neoliberal policies in the Latin American context. It draws parallels with the situation in the region during the colonial times.

Chapter five analyses the possibilities for change that arise from the epistemologies of Latin America that have been denied, and explores the potential of Mexico as a place from where viable radical alternatives can emerge.

Chapter three: Socio-environmental crisis -

Epistemic roots

“Knowledge itself is power”
Bacon, (1597).

Introduction

Multiple processes have been identified as the cause of the current environmental crisis, including the socio-economic system, rates of over-consumption and over-production, the industrial revolution, the use of disposable materials and the use of fossil fuels (Hargroves & Smith, 2006; Smith, Hargroves, & Desha, 2010). Kureethadam (2018) warns about understanding these activities as the starting point of the crisis. Instead, he argues it is necessary to investigate the situation in more detail to avoid (mis)labelling mere *consequences* as the original *cause*. Recently, scholars from different fields, including Kureethadam (2018) Walsh (2016, 2014), Escobar (2016, 2018), and Leff (2018) have claimed that the environmental crisis is, in fact, a crisis of knowledge. However, these authors disagree about the genesis of the epistemic crisis and the original reason for the present-day degradation of Nature. Responding to this knowledge gap, this chapter presents the findings of a detailed literature review to discover the epistemic origin of this environmental crisis. This includes a chronological narrative of the events, organised in seven sections, that led to the current coloniality of knowledges. It also revises how these events shaped the way we relate to Nature. The sections, also illustrated in Figure 2, are:

- 1) The beginning of Modernity with the ‘discovery’ and colonisation of the Americas.
- 2) The scientific revolution and the advancement of modernisation.
- 3) The construction of the Eurocentric narratives of Modernity.
- 4) The imperial race.
- 5) The development paradigm.
- 6) Globalisation.

These correspond to significant events that led to the coloniality of knowledge, and that underpin the socio-environmental crisis, following the history of modernity, from its beginning until its universalisation.

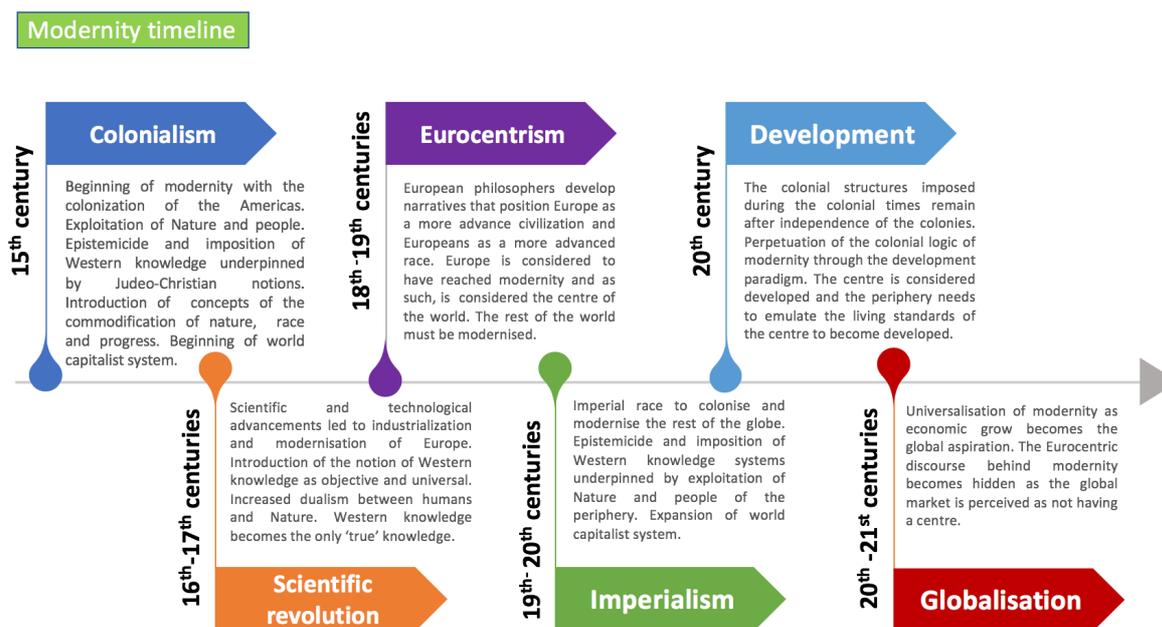


Figure 2 Diagram of the six time periods that inform this literature review. These time periods correspond to the significant events that led to the coloniality of knowledges.

Hence, the following analysis reviews five decades of scholarship to investigate the impact of what is called the 'universalisation of Modernity' through globalisation. That is, 500 years of history, from the 15th century through to the 21st, spanning the beginnings of modernity when colonial thinking was born, and Europe started to explore the Americas. This period extends through the 18th and 19th centuries when capitalism had taken hold, along with Western knowledge in the parts of the world that Europe had, and was, colonising. Indigenous people, knowledges (including Indigenous cultural sub-categories of 'knowledge' like language, food, music and so on) and Nature was being eradicated as these processes took place around the globe, in countries like Latin America, but also in places like the United States and Australia. An important step in the development of this logic were the scientific and industrial revolutions of the 16th and 17th centuries, which modernised Europe and its colonies, and at the same time, constructed a way of thinking that placed value on 'science', empirical or 'hard' data, 'rational' thinking, logic, the individual, linear thinking, order, notions of 'truth' over concepts like circular thinking, emotion, family, community and Nature. The final period I discuss, globalisation, considers the history and values of economics and economic growth and how this thinking has come to appear 'natural', aspirational, made invisible and 'normal' by 500 years of history.

The final section of the literature review, titled **The One-World World**, offers a conclusion which discusses the implications of living under the coloniality of knowledges, where the logic that underpins modernity is considered. An argument is made that **The One-World World** is the only way forward. The subsequent literature review chapters (**Chapter four** and **Chapter five**) build on this context to offer an analysis of the social and environmental implications of the coloniality of knowledges in Latin America.

Section I: 'Discovery' and colonisation of the Americas: the beginning of modernity.

From a decolonial perspective, Modernity as a historical process emerged between the 15th and 16th Centuries when Europe aspired to 'world domination'. It began with the 'discovery' and colonisation of the Americas by the Spanish, and then the Portuguese (Dussel, 2013; W. Mignolo, 2007; Quijano, 1992, 2000b). This aspiration had its roots in the 14th Century, when European identity started to emerge after Spain reconquered the territories of the Iberic peninsula. These territories had been under the domain of the Arab caliphate for the preceding eight centuries. The Arab caliphate was a political-religious State that ruled under the principle of One State with multiple identities, that is, a State in which Christians, Arabs and Jews coexisted practicing their traditions (Grosfoguel, 2015). During these eight centuries, the Arab caliphate was known for having superior knowledge in political and religious affairs to those of the territories of what today is called Europe (Prince, 2002). As such, many libraries were established under the Muslim territories. The biggest library was the library of Cordoba, with an estimated 500, 000 titles from diverse regions of the empire, such as Alexandria, Cairo, Bagdad and Damascus, as well as translations from Ancient Greece. The titles contained the accumulated universal knowledge of more than 10 centuries (Hall & Tandon, 2017). The epistemic diversity that characterised the Arab caliphate ended with the rise of the Spanish empire, as is explained in the discussion following.

Christian identity: the beginning of epistemic violence

In the 15th Century, the Catholic Monarchs of Castilla and Aragon unified their kingdoms to take the Iberian Peninsula from Muslim rule and, contrary to the will of the Arab caliphate, established a government based on the principle of One State One Identity

(Ramón Grosfoguel, 2015). This homogeneous identity was Christian and was shared throughout the rest of Europe. Christianity unified the identity of Europe, differentiating it from the rest of the globe. To assure and establish this Christian identity, the Catholic Monarchs installed the Inquisition in the Kingdom of Spain, expelling Jews and Muslims who opposed conversion. The Inquisitor Cardinal of Spain ordered that books written under the Arab caliphate be burned to remove any memory of Islamic culture. The burning of the Granada library signified the first of many 'epistemicides', which has been referred to as 'the destruction of existing knowledge systems' (Sousa Santos, 2007). This process was repeated by European colonisers across the world. This epistemicide represents the beginning of the imposition of Eurocentric thought across the globe. It characterises a course of events whereby 'the only way of knowing' and 'the denial of knowledge systems' originates outside of Europe. These events are inextricably linked to colonialism (Ramón Grosfoguel, 2015).

The first colonial epistemicide outside of Europe was carried out during the conquest of the Americas. In the 16th Century, Spain had started its colonial expansion to the Americas. Under the principle of 'one State one Catholic Identity', Spain exterminated most of the Indigenous peoples of Latin America in less than 50 years. This genocide was accompanied by an epistemicide of the knowledge systems present in the Americas. Most of the accumulated knowledges generated in Latin America over thousands of years were destroyed (Ramón Grosfoguel, 2015; Sousa Santos, 2007). The Codex that held the local knowledges of Great Civilizations such as the Aztec, Mayans and Inca empires were burnt. With the destruction of the written component of the local languages, the remaining population was transformed into "illiterate, peasant subcultures condemned to orality" (Quijano, 1992, p. 13). The epistemic violence had significant repercussions in the surviving Indigenous population. As Cavero (2010) explains,

As part of the new world power pattern, in the process of the Conquest, the American populations were expropriated not only from their material resources, but also from the imaginary of their symbolic world, their "cognitive perspectives" and the ways of producing or give meaning to the results of the material or intersubjective experience (My translation, p. 216).

The survivors of this genocide were forced to convert to Catholicism and leave their knowledge systems behind to save their souls and their lives (Grosfoguel, 2015). The

epistemic violence denigrated and invalidated the alterity of the Other and imposed a foreign knowledge system – the Eurocentric knowledge system – as the only way of knowing and understanding the world. By denying the possibility of Indigenous peoples to produce knowledge, the Eurocentric epistemology positioned itself as the only knowledge system of the Americas (Ramón Grosfoguel, 2006a, 2015; Lander, 2001; Quijano, 2013; Sousa Santos, 2007). This imposition of thinking from a Christian perspective brought with it the introduction of three key notions that were foreign to the Indigenous population, and that continue to inform modernity today.

The first notion underpinning the introduced Judeo-Christian-based knowledge was an understanding of humans as separate from the rest of the components that inhabit the world (Clayton & Myers, 2015). The Christian divide between humans and Nature breaks with Indigenous understandings of Nature and humans as one integrated whole. For Christianity, humans are understood as having been made in God's image and, therefore, are positioned as being on a higher scale than other species. Christianity introduced the idea of Nature being created by God for no other purpose than to serve humans needs (Clayton & Myers, 2015). Indeed, in the Book of Genesis, God gives precise instructions to humans: “be fruitful and multiply, and fill the earth and subdue it; and have dominion over the fish of the sea and over the birds of the air and over every living thing that moves upon the earth” (Gen. 1: 28 *New Living Translation*, 2004).

Following this (constructed) divide between humans and Nature, Christianity introduced a rights-based ethic that was instituted as *the* guide to relations between humans and Nature. This deeply impacted the relationship between land and Indigenous peoples. The reduction of the role of Nature from a spiritual being to a commodity resulted in the very fast degradation of the land. As Occhionero and Silva (1964) explain, by 1609 “the insatiable farmers were exhausting the fields” (p. 244), and by 1630, after a century of European occupation, “little by little, almost everywhere people [in Spain] became obsessively worried that the land could be exhausted” (p. 244). As such, efforts were made to search for new land. Further, the impact of deforestation and mining resulted in the disappearance of native animals, some of which had a deep meaning within Indigenous epistemologies (Moore, 2010).

The second key notion introduced in the Americas under a Judeo-Christian perspective was the concept of race. Colonialism not only exploited the resources of the

Indigenous peoples, but exploited the people producing these resources. To extract minerals out of the land to work the fields, Europeans needed free labour. Indigenous peoples were not strong enough to maintain the production rates needed. So, slaves were brought from Africa to continue the European economic project. To justify the exploitation of these people, the construct of 'race' was created. It was at this time in history that 'race' was imposed for the first time as a foundation of a socio-economic system (Ramon Grosfoguel, 2013; Quijano, 1992, 2000b, 2013). Under Catholicism, this abuse was justified because Indigenous and Blacks were considered to not have a soul (Grosfoguel, 2015).

The third key notion introduced by Eurocentric knowledge, and underpinned by Judeo-Christian tradition, was the concept of time as a linear construct. For the Indigenous peoples of Latin America, time was understood as cyclical because it followed the cycles of Nature. Daily life was organised into cycles following the cycles of crops. (Hiernaux-Nicolas, 2007; Nabokov, 2002). However, Christianity introduced the concept of time as a sequence of events whereby the present evolves in a linear path from the past to the present. The Bible follows a linear path that begins with the creation of the world by God. The book of Genesis opens with "In the beginning God created the heavens and the earth" (Genesis 1:3). The Judeo-Christian notion of linear time brought with it the idea of future, and with it, the concept of progress. For the first-time, life was infused with a hope for the future that is still to come (L. White, 1967). The result was the guidance of daily habits by an implicit faith in perpetual progress that had been unknown to the ancient Greeks, Romans, Muslims Indigenous peoples of the Americas. Also unknown to these cultures was the notion of the visible world having a specific beginning (Íbid).

The three notions described – the commodification of Nature resulting from introducing a divide between humans and Nature, the concept of race as the basis of a socio-economic system, and the concept of progress stemming from the introduction of time as a linear construct - underpin the ascent of global capitalism under the control of Europe. These ideas are explained further in the discussion that follows.

The new world capitalist economy: a system underpinned by anthropocentrism, racism and the notion of progress.

Under the pretence of saving the souls of Indigenous people, Christianity allowed Spain, Portugal and later the Dutch, French and British empires to develop an economy

based on the exploitation of both Nature, and the people of the region (Grosfoguel, 2013). By the 16th Century, American silver became the epicentre of a commodity revolution that later gave way to a capitalist world economy (Galeano, 2003). This capitalist world economy, as Moore (2010) argues, should be understood as a capitalist world-ecology. He explains:

The 'capitalist world-economy', as Braudel (1972) and Wallerstein (1974) implicitly recognize, does not act upon Nature, so much as develop through Nature-society relations ... The modern world-system is a capitalist world-ecology, bringing together the endless accumulation of capital and the production of Nature in dialectical unity (Moore, 2010, p.2).

The capital world-ecology of the colonies was founded upon a "profoundly unequal ecological exchange between American peripheries and European cores" (Moore, 2010 p. 5). The mining production of the Americas was crucial in the formation of this capitalist world-ecology. In the 16th Century, 74 per cent of the world's silver production came from the New Continent (Barrett, 1990). Two centuries later, when the Industrial Revolution occurred, American mines were still providing 64.4 per cent of the silver of the world (Moore, 2010).

Equally crucial for the capital world-ecology was the exploitation of Indigenous and Black populations (Quijano, 1992, 2000b). In order to extract minerals and other resources, Indigenous peoples were dispossessed from their land and forced to work in subhuman conditions. African populations were enslaved and brought to the Americas to supplement the decimated native population due to the introduction of diseases (Dussel, 1993, 1994).

The exploitation of Nature and the people of the Americas was driven by the third notion introduced by Judaeo-Christian thought: a faith in progress. According to the Gospel, faith "is the assurance of things hoped for, the conviction of things not seen" (Hebrews 11:1). Hope involves the betterment of the future, a concept that can only be explained through a linear understanding of time. When comparing the past and the present, Europeans could see an improvement in the present, but this relied upon an ignorance of history. This informed their faith in progress, a "conviction that similar progress will definitely be made in the future" (Goudzwaard, 1978, p. 37) This faith in progress led to the development of the scientific method, and to the technological innovations that resulted in a shift of paradigm, from a religious to a scientific one.

Section II: The scientific revolution

The scientific revolution refers to a series of events that marked the emergence of modern science. Necessary for this revolution were the resources coming from the colonies of the Americas (Moore, 2010). As such, the strategic location of Europe changed from the Mediterranean to the Atlantic and France, England and the Dutch empires became the new matrix of power in Europe (Acemoglu, Johnson, & Robinson, 2005; Ruíz, 2014). The transition from the religious to the scientific paradigm was deeply influenced by Christianity, the colonisation of the Americas, and the emerging world capitalist system. These spaces provided the social context necessary for the development of science (Ramón Grosfoguel, 2013, 2015). Crucial to the development of the scientific method were the ideas of English philosopher, Francis Bacon, and French philosopher, Rene Descartes (Kureethadam, 2018).

Bacon and the idea of progress

Bacon argued for a break from ancient philosophical traditions that did not produce practical outcomes of benefit to humanity. Bacon thought that helping humanity should be the ultimate goal of scientists (Kureethadam, 2018). His work was guided by the idea that humans could go back to the Garden of Eden once they had learned how to tame Nature. The original sin that expelled humans from the Garden of Eden had transformed humans' harmonious domination of Nature into a violent domination (Montuschi, 2010). Understanding Nature was the key to its domination, he thought, and would place Nature in the service of humanity (Merchant, 2008). As Bacon argued in *Novum Organon*, "Let the human race recover that right over [N]ature which belongs to it by divine bequest" (Bacon, 1960 p.115).

Looking to achieve this, Bacon outlined the basis of his scientific method by linking technology and natural philosophy (Kureethadam, 2018; Merchant, 2008), which interestingly, was the discipline that had given academic attention to Nature before the development of modern science. At the time, technology was considered an inferior branch of knowledge and not considered worthy of attention by philosophers. Bacon argued that by linking science to technology, humans would regain domination over Nature; a domination that was lost with original sin. In doing so, the condition of humankind would improve, Bacon reasoned (Merchant, 2008). For Bacon, the ultimate goal of science was

“the improvement of the living standard, relief, and, if possible – abolition of distress, anxiety and grief” (Kureethadam, 2018, pp. 71-72). By connecting science to technology, Bacon provided the means for knowledge to have a practical outcome that could accelerate progress through the extraction of Nature. As Merchant (1981) argues, Bacon saw Nature as “a source ... to be extracted for economic advance” (p. 165).

Montuschi (2010) argues Bacon’s advancements in practical knowledge led to an applied science that, in turn, became the foundation of industrial science. As the technological and scientific paradigm articulated by Bacon is deeply influenced by the Christian paradigm, it can be argued that industrial science is informed by anthropocentric notions of Christianity (Ramón Grosfoguel, 2013; Merchant, 2008).

Descartes and ‘objective’ knowledge.

Like Bacon, Descartes speaks of mastery of Nature in the last part of his Discourse on Method (Descartes, 2012). He claimed that turning away from speculative philosophy to a practical philosophy would improve humankind’s knowledge of the natural world and that society could then cease to be a slave of Nature (Descartes, 2012, part 6). To improve the available knowledge of Nature, Descartes was determined to know what could be known for certain, that is, knowledge that would remain ‘true’ despite the advancement of knowledge. Descartes mission was influenced by a time of new discoveries replacing old theories (like the geocentric and heliocentric theories). Following his mission to find true knowledge, Descartes prioritised the knowledge gained through the mind, and dismissed knowledge generated through the senses since he believed these could be deceived. He argued humans were made up of two infinitely differentiable substances: *res cogitance* (mental substance; the mind) and *res extensa* (corporal substance; the body). True knowledge belonged only to *res cogitance*; the mind (Descartes, 2012; Kureethadam, 2018).

The separation of the body and the mind/soul brought radical transformations in the way humanity understood knowledge (Castro-Gómez & Grosfoguel, 2007). Modern knowledge was no longer seen as one amongst many possible ways of constructing reality, but as *the knowledge* that had the ability to uncover *the truth*. The emergence of modern knowledge meant the emergence of true knowledge that could leave previous beliefs behind. It meant theories developed through modern knowledge were never going to become outdated, as had happened previously. The metaphysical dualism between *res*

cogitance and *res extensa*, allowed scientists to claim to construct universal truths that were unbiased, objective and value-free (Castro-Gómez, 2007a, 2010; Dussel, 1994; Ramón Grosfoguel, 2015; C. Walsh & Castro-Gómez, 2002).

The separation of the two substances also contributed to deepen the divide between humans and Nature. The dualism that separated them was no longer informed by religious beliefs, but became an ultimate truth. As Kureethadam (2018) explains,

For Descartes, dualism is woven into the very ontological fabric of reality, as vouched by the distinction between *res cogitans* and *res extensa*...it is with Descartes that the dualistic tradition within Western philosophy reaches a level of extreme polarisation between ... humanity and Nature. A human Nature divide follows the metaphysical dualism between *res cogitans* and *res extensa*: since Nature is entirely and exclusively the latter, i.e. external, while the former is no sense 'Nature,' that division provided the metaphysical charter for a purely mechanistic and quantitative picture of the natural world (p. 249).

For Descartes, only humans are considered to possess a mind, and therefore to think. In Descartes view, animals do not possess a soul or reason and are merely machines designed by God. Humans have no responsibility to treat them differently to any other machine. Descartes asserts that studying their machine-like properties, along with the scientific laws conforming to the universe will lead to the domination of Nature. (Kureethadam, 2018; Plumwood, 2007).

The 'universal truths' that stem from the separation between the mind and the body reduced the diversity of understandings of reality – contained in the diversity of knowledge systems – into a homogeneous understanding of the world through Eurocentric logic. As Shiva (1993) argues:

When knowledge plurality mutated into knowledge hierarchy, the horizontal ordering of diverse but equally valid systems of knowledge was converted into a vertical order of unequal systems, and the epistemological foundations of Western knowledge were imposed on non-Western knowledge systems with the result that the latter were invalidated (p. 67).

Based on the assumption of Western knowledge as the 'only true knowledge', Indigenous peoples were labelled as primitive and unscientific, and their knowledge systems were invalidated by Western Science. The deep knowledge of the Aztecs, the Mayans, the

Incas, the Chinese and the Middle East was labelled as local and, as such, invalidated. (Ramón Grosfoguel, 2013; Shiva, 1993; Sousa Santos, 2010; Thésée, 2006).

The objective, neutral and universal character of Western knowledge is now being contested. As Dussel (1994), Grosfoguel and Castro-Gomez (2007) argue, the myth of the dissociation between the subject and its geopolitical location enabled Eurocentric Modern knowledge to position itself as a 'universal knowledge' that had to be imposed on every culture. Not using the senses allowed Descartes to be situated in a 'no-space' and in a 'no-time' in which gender, ethnicity, race and epistemic location had no influence whatsoever on the generation of knowledge (Ramón Grosfoguel, 2012). From this point on, Western knowledge has masked the geopolitics of enunciation. Castro Gomez (2015) calls this historical event 'the hybris of point zero' and Grosfoguel (2013) calls it the 'God-eye view'. The assumption of science as universal knowledge became the foundation of Modern Western Knowledge when, in fact, Western knowledge is a local knowledge that became globalised (Castro-Gómez, 2010; Castro-Gómez & Grosfoguel, 2007; Ramon Grosfoguel, 2013; Hall, Dei, & Rosenberg, 2000; Sousa Santos, 2007, 2010, 2015; Thésée, 2006).

Cartesian dualism also revolutionised the way in which knowledge was produced and truths were discovered. This dualism generated a divorce between science and philosophy/humanities (Grosfoguel, 2013). Up until then, science and philosophy had walked together for centuries under the name of 'natural philosophy', a philosophy with the purpose of unravelling the mysteries of the world. Now, the world was beginning to be understood in a reductionist way and some disciplines were considered to generate more important knowledges than others. In this world, only science could lead to the search for true knowledge; philosophy and humanities became no more than the pathway for good and beauty. Reason and logic were thought to be the ultimate human abilities since they had the ability to generate universal truths, while creativity and expression were denigrated (Sorell, 1991, 2005).

The contributions of Bacon and Descartes, along with other philosophers that contributed to the scientific revolution, provided the technological changes needed to advance industry and bring 'modernity' to Europe (Merchant, 2008; Sorell, 2005). The process of modernisation of Europe involved exploiting Nature and people – mainly from the periphery – to pursue economic progress. Although science replaced religion as the overarching paradigm, it perpetuated the three Judaeo-Christian notions introduced in the

Americas: a divide between humans and Nature, the concept of race as the basis of the socio-economic system, and the notion of progress (Ramón Grosfoguel, 2013; W. D. Mignolo, 2011b; Plumwood, 2007).

More importantly, the ideas of Bacon and Descartes – along with other philosophers that contributed to the modernisation process of Europe—were crucial for the development of a narrative that positioned European civilization above the rest of the world. Such narratives self-positioned Europe as the centre and motor of civilization (Dussel, 1993, 1994, 1997). In what follows, the arguments of some of the most influential Eurocentric philosophers, and how they relate to the arbitrary label of Western knowledge as superior knowledge, due to its ‘neutral’ character, is explored.

Section III: Eurocentrism: Europe as the centre and motor of civilization.

The profound changes Europe started experiencing in the seventeenth century as a result of the modernisation processes led European philosophers to consider themselves as carriers of a superior race and civilization (Ramón Grosfoguel, 2013; W. Mignolo, 2001; Stone, 2017). Eurocentric narratives positioned modernity as an exclusively European phenomenon in which Europe alone became Modern because of the inherent superiority of the White race. Eurocentric philosophers self-positioned Europe not only as the apex of the human race, but as the motor of civilization. Under this Eurocentric discourse, modernity emerged in the seventeenth century, in Northern Europe (France, Germany, England). The rest of the world was labelled as non-advanced and stagnant and was expected to ‘modernise’ in order to advance and become like Europe (Dussel, 2013; Ramón Grosfoguel, 2007a; W. Mignolo, 2001; Stone, 2017).

Western knowledge was proclaimed the only valid knowledge system, a knowledge system that was objective and universal and had to become the only knowledge system of the entire globe (Castro-Gómez & Grosfoguel, 2007; Ramón Grosfoguel, 2007a; W. Mignolo, 2001; Quijano, 1992, 2000b). Such was the impact of the recently discovered ‘true, objective knowledge’, that a series of classifications of the world and its societies according to their level of knowledge became a seminal topic for European philosophers of the 18th and 19th centuries. Amongst the philosophers interested in the links between knowledge and progress are the works of German philosopher, Immanuel Kant, French philosopher,

Auguste Comte, and German philosophers Georg Wilhelm, Friedrich Hegel and Karl Marx. Their arguments in relation to knowledge, progress and modernity are reviewed briefly in the following sections.

Kant and the link between true knowledge and race

For Kant, the ability to generate true knowledge was dependant on race. Kant introduced the concept of race as one of the conditions for generating universal truths (Dussel, 2013; Grosfoguel, 2007; Mignolo, 2001; Stone, 2017). Kant claimed that only the White race was capable of transcendental reason. In *Of the Different Races of Men* (2007, first published in 1775), there are four races:

Whites of brunette color First race, very blond {northern Europe) of damp cold.

Second race, copper-red {America) of dry cold.

Third race, black {Senegambia) of damp heat.

Fourth race, olive-yellow {Indians) of dry heat (p.411).

Kant argued that skin colour was determined by the reaction of iron in the blood to external elements, that results in skin coloured Red, Black or Yellow. The blood of Whites does not separate, which demonstrates the superiority of the white race (Larrimore, 1999). Kleingeld (2007) argues that Kant's definition of race, although based in colour, is connected to their intellectual capacities. Kant claims that humanity finds its plenitude in the white race:

Humanity finds its fullest [Vollkommenheit] expression in the white race. The yellow Indians [Asians] have less talent [Talent]. Blacks are much lower, and still lower are part of the American peoples (Kant, 2007, first published 1775, p. 316).

The 'Talent' or faculty of knowing was a gift given by Nature and as such, could not be developed if Nature did not give it in the first place (Ramón Grosfoguel, 2007a; Kleingeld, 2007). For Kant, only the European white man (term intended), had the ability to produce universal knowledge (Ramón Grosfoguel, 2007a; Lepe-Carrión, 2014; Nwosimiri, 2017). While Whites were capable of generating universal truths detached from the geopolitical context in which they originated, Other races could not produce knowledge. At most, Blacks

could be 'trained' as 'slave and servants.' The 'Reds' were completely uneducable because they did not seem to learn from the educated European colonisers (Nwosimiri, 2017).

Comte and the evolution of the human mind

The work of French philosopher Auguste Comte took a different approach from that of Kant. For Comte, the human mind evolved in three consecutive stages: the theological, the metaphysical and the positivist (Comte, 1973). In the theological stage, the explanation of Nature and reality was based on supernatural beings. In the metaphysical stage, the world's explanations were given by abstractions such as the substance and the essence. The last and most evolved stages is positivism, in which human beings look for scientific explanations to understand their surrounding environment. Positivism considers scientific knowledge as the only true knowledge (Íbid). Contrary to Kant, Comte believed everyone could have access to the most elevated stage. The people who do not base their knowledge system in science are in a previous stage of knowledge and need to adopt positivism to be as evolved as Europeans. Mignolo (2001) argues the work of Comte is influenced by evolutionist understandings of reality that inform the work of Hegel.

Hegel and the construction of European history as universal history.

Hegel argues only Europe has a history. In his work, the philosopher explains the superiority of the present European society in comparison with the European past and the world's present (Dussel, 2009; Ramon Grosfoguel, 2013). The universalism of Descartes is present in Hegel's understanding of universal history. Hegel claims knowledge is not separated from reality, but it is itself reality, and there is only one reality (Grosfoguel, 2013, Stone, 2017). In his *Philosophy of World History*, he seeks to capture the reality of world history. For Hegel, history is a process of moving towards the expansion of human freedom: "The history of the world is none other than the progress of the consciousness of freedom" (Hegel, 2012, p. 19). Hegel then constructed the history of the world as a narrative of four stages of human freedom.

In Hegel's (2012) view of universal history, the first stage is the Oriental world (China, India, Ancient Egypt and Ancient Persia). The Oriental world was considered to be a stationary civilization in which only the ruler was free. The remaining population could

never achieve freedom because they did not understand self-determination, necessary for freedom. As such, Hegel considers that they are outside of history. As he claims: “other Asiatic peoples also have ancient traditions, but no History” (Hegel, 2012, p. 116). The second stage was occupied by the Greek world, who possessed a limited freedom because they support slavery and, although they have a social consciousness, they did not develop an individual consciousness. It is with the Greeks that World History starts (íbid).

The third stage is the Roman world, in which Christianity advanced freedom by introducing the concept of free Spirit. As for the Arab World, Hegel described the middle ages as “*a terrible night*” (Hegel, 2012, p. 411). Finally, the last stage in world history according to Hegel is Christian Europe, the most advanced civilization. Hegel claims that only Europeans have reached the most advanced stage as they realise humans are free due to Christianity, as it introduced the notion of the freedom of Spirit (Dussel, 2009; Ramón Grosfoguel, 2013; Hegel, 2012). Protestantism allowed human beings to find their own individual freedom. Individuals could now freely choose their own institutions and laws, and demand freedom for everyone. In the view of Hegel, the two main historical processes that brought freedom to the people were the French Revolution and the American Independence (Stone, 2017).

These four stages continue to inform the current global vision of universal history. Today, the history of humanity is still divided by historians in the pre-history (first stage of Hegel), Antiquity (second stage of Hegel), the Middle Ages (third stage of Hegel) and the Modern Age (the fourth and most evolved stage of Hegel). This universalised narrative of human history portrays history as moving from the centre to the periphery.

Through the coloniality of knowledge, this narrative of history has been naturalised as the universal history of the world (Dussel, 2009). But this narrative is deeply problematic. In continuing the epistemic racism that underpins modernity, Hegel understood the stages of freedom as moving from Europe to the periphery (Grosfoguel, 2012). It also does not consider crucial historical events that had taken place outside Europe. The Middle Ages, also called the Dark Ages due to the lack of progress in terms of reason and knowledge, is actually filled with numerous scientific and philosophic advancements that took place in the Middle East, which at that time were epistemically superior than those ‘knowledges’ advancing in Europe (Dussel, 2009; W. Mignolo, 2001).

Hegel vision of world history justified colonialism. For Hegel, Africa was intrinsically

pre-historic and incapable of self-determination. In order to be free, they needed first to become slaves and learn the concept of freedom from the Europeans (Hegel, 2012). Hegel thought Indigenous peoples could only be free through the Christian Church. As he argued, Native Americans were “inferior individuals” and “it will be a long time before Europeans succeed in producing any independence of feeling in them.” (Hegel, 2020, p. 81).

Hence, current universal understandings of world history fail to acknowledge important events that took place during the modern era outside of Europe. An example of this is the Independence of Haiti, where the triumphant revolution of the Black slaves liberated themselves from their colonisers. This constituted the first global movement to free the slaves. Yet, for Hegel, freedom could only be practised by Europeans. As such, from a current perspective on world history, France and the United States are responsible for the abolition of slavery, even after Haiti sent a delegation to France to write a first draft of the Human Rights Declaration (Espinoza, 2014).

Marx and the evolution of the socio-economic system

The linear progression rhetoric characteristic of the Eurocentric philosophers was also reflected in the work of Karl Marx (Ramón Grosfoguel, 2007a). The philosopher classified the economic history of Europe in a series of economic systems in which every new system is more advanced than the previous one. Under Marx’ view, the first economic system was early communism. This was followed by slavery, then by feudalism and finally by capitalism, which was the most evolved socio-economic system of the time. From there, society would evolve to socialism and finally to communism. In his view, the linear evolution of the economic systems of the world had to follow the same European progression (Amin, 2010). However, this narrow understanding from a European position fails to consider alternative economic systems that were developed by non-European societies (Amin, 2010; Ramón Grosfoguel, 2007a).

Bringing modernity to the world.

The narratives of Eurocentric philosophers illustrate the unconscious or ‘mindless’ ‘intellectual superiority’ of Europe and Europeans as a result of their so-called ‘advanced knowledge’. As Alimonda (2011) argues:

Modernity would thus constitute a linear paradigm of historical evolution, instituting notions of "civilizing processes", "progress" or "development", which would have been a unique experience and heritage of some nations only ... the rest of humanity was not able to achieve this level of civilizing experience, its destiny being guided and led by civilized peoples (p. 67).

In the 19th century, Eurocentric narratives were characterised by an ambition to bring modernity to the rest of the world. These narratives provided a justification for an imperial expansion to continue the industrialisation of Europe and modernisation. To achieve this, free manual labour was needed to gather and supply raw materials. (Foster & Clark, 2004). This resulted in a new and even more brutal colonial expansion in the 19th and 20th centuries. This expansion was notable for its violence towards Nature, the Indigenous people of the colonies and the epistemologies of the periphery (Heleta, 2016; Quijano, 2000b; Radcliffe, 2017).

Section IV: Modernity and the new imperialism

In the 19th and 20th century, the European empires were competing against each other to become the dominant power, wanting and holding a matrix of sovereignty over a number of diverse territories (that they sought to unify). In order to maintain rapid processes of industrialisation, countries within Europe embarked on a race to acquire as many overseas territories as possible (Woolf, 2018). New technological advances such as steam engines and the construction of the Suez Canal facilitated the imperial domination of regions that had previously been isolated by natural barriers (Headrick, 1988). The occupied small coastal territories of Africa, Asia and Oceania soon occupied the minds of many in mainland Europe. Africa was one of the regions most deeply impacted by these changes. The imperial race in this continent resulted in what the European powers called 'the scramble for Africa', or the 'partition of Africa' (Headrick, 1988; Michalopoulos et al., 2011).

In only 30 years, from 1881 to 1914, Africa, with the exception of Ethiopia, became entirely colonised by seven European powers. This enterprise had terrible consequences for both the people of Africa and Nature. The way of living of the people was completely destroyed, and the linguistic, ethnic and cultural differences of the continent were used to help maintain European power (Herbst, 2014; Michalopoulos et al., 2011). In places like the Congo, forced labour was instituted to civilize the local population, which led to the

genocide of an estimated 10 million people (Weisbord, 2003). Indigenous peoples lost their lands and Protestant and Christian missionaries were sent to the colonies to convert the Indigenous population and to learn the newly imposed language (Shorter, 2006). The introduced demand for ivory, rubber and oil affected Nature. An example of this is the Niger Delta, once the largest wetland ecosystem of Africa, which is now one of the most polluted places in the world. This has devastated the subsistence system of the Indigenous peoples (Kadafa, 2012).

Asia, India and Southeast Asia (except Thailand) were occupied by the European empires and by the United States. With the Spanish-American War, the U.S. moved from the periphery and occupied previously Spanish colonies, such as the Philippines (Adas, 1998). Colonisation altered the social hierarchy of Southeast Asian countries. Local populations were forced to abandon traditionally subsistence agriculture and, instead, work on commercial labour plantations. Indigenous lands were expropriated. This created a new working class that increased migration from other regions and changed the dynamics of the urban centres. Extensive monocropping systems were implemented, with negative impacts for the native environment and on labour for the local population. Working conditions for labourers were poor. Christianity was introduced, although traditional religions persisted (Tarling, 2003).

Oceania was colonised by the British, French, Spanish, Dutch, Germans, Americans and the Japanese. Great Britain claimed the largest territories, in Australia and New Zealand as settler colonies. Despite Indigenous Australians having inhabited the land for more than 60 thousand years, making them the oldest living culture in the world, it was decided that Australia was an *empty* land, and the lands of between 300, 000 and 1.5 million Indigenous peoples were expropriated (Banner, 2005). The exact number of inhabitants at the time of colonisation is not known, since Aboriginal and Torres Strait Islanders *were not counted as people* at the time. The population was quickly decimated by disease and massacre. Animal and plant species were brought from Europe for the diet of the settlers who dismissed the local diet of the Indigenous peoples. The introduction of livestock, plants and seeds resulted in the extinction of native species and in a significant reduction of the populations of many others (Jalata, 2013; Reynolds, 2006).

Smaller countries in Oceania fared poorly during this time. Nauru, the smallest country in the Pacific Ocean became the target of phosphate mining. As a result of ongoing

unsustainable mining practices first introduced by the colonisers, currently 80 per cent of the land is unusable for growing crops or even for habitation. The way of life of the Indigenous peoples who had lived there for three thousand years was destroyed, and marine animals were also affected by the pollution generated (Teaiwa, 2015).

By the first half of the 20th Century, virtually all of Africa, Oceania, India and Southeast Asia had been colonised by Europe, the U.S. and Japan, who had adopted the Modernity Eurocentric paradigm. Antarctica had also been claimed. The imperialistic expansion to secure raw materials from the periphery was justified by the idea of civilizing the periphery by bringing modernity to these deficient lands (Ndlovu-Gatsheni, 2013). In addition to the exploitation of Nature and people from the new colonies, the imperialistic wave of the 19th and 20th centuries actively pursued the epistemicide of the knowledges of the conquered territories. The difference with the colonisation of the Americas was that, this time, the argument for the imposition of Western knowledge as the only knowledge system was based on the moral duty of Europeans to modernise the rest of the world.

The white man's burden

Bringing modernity to the rest of the world was considered part of what Kipling (1899) called "the white man's burden". 'True knowledge' had to be introduced to bring progress to the 'barbarian', 'backwards', 'uncivilized' and 'inferior' people for their own benefit. European knowledge structures were imposed on the entire globe due to the 'superiority' of their knowledge. As Quijano (2000) argues: "Europe's hegemony over the new model of global power concentrated all forms of control of subjectivity, culture, and especially knowledge and the production of knowledge under its hegemony" (p.540).

Education played a crucial role in the control of the production of knowledge. From its conception, a central trait of modern Western education was the epistemicide of thousands of knowledge systems and the imposition of the knowledge system of the centre as the only valid knowledge system (Grosfoguel, 2015; Walsh, 2009, 2014). In the Americas, Eurocentric education was introduced to Africa, Asia, and Oceania with the aim to educate the uncivilised, non-European. In many colonies, residential schools run by the church were implemented to remove children from the influence of their 'backward' culture and assimilate them into European ways of being, which was a modern and civilised way of being (Nagy & Sehdev, 2012). This is exemplified in the discourse of Capt. Richard Pratt

(1957) (cited in Martínez-Alemán, Pusser, & Bensimon, 2015), founder of the first Western school created for Indigenous peoples in the United States, who wrote:

It is a great mistake to think that the Indian is born an inevitable savage. He is born a blank, like all the rest of us. Left in the surroundings of savagery, he grows to possess a savage language, superstition, and life. We, left in the surroundings of civilization, grow to possess a civilized language, life, and purpose. Transfer the infant white to the savage surroundings; he will grow to possess a savage language, superstition, and habit. Transfer the savage-born infant to the surroundings of civilization, and he will grow to possess a civilized language and habit. These results have been established over and over again beyond all question; and it is also well established that those advanced in life, even to maturity, of either class, lose already acquired qualities belonging to the side of their birth, and gradually take on those of the side to which they have been transferred (p. 22).

Education became a crucial tool to Westernise the world by proclaiming Eurocentric modernity was the natural path for all humanity (Afonso, Marques, & Magalhães, 2018; Carnoy, 2000). Western models of education resulted in the sub-alternisation of Indigenous ways of knowing, with the introduction of the idea of 'Otherness' (Battiste & Henderson, 2018; Simpson, 2004; Vargas & Stella, 2014). Eurocentric knowledge was seen as the norm, and became the standard against which other cultures were judged. Otherness homogenised the cultural diversity of the colonies into the 'primitive' vs the 'evolved' who, in order to modernise, had to forget their knowledge systems and adopt Eurocentric thinking and ways of doing as the only way to advance (Lander, 2000).

The universalisation of the Eurocentric paradigm resulted in a "colonisation of reality" (Escobar, 1998, p. 23) whereby the Eurocentric civilization became the 'normal way', that is, the only way in which to understand the world. This 'normal way' of understanding the world legitimises the role of Nature as a commodity. As such, the global imposition of Western knowledge as the only knowledge system signified moving away from other ways in which to understand our relationship with land. As Polanyi (2001, p. 97) argues:

Traditionally ... life and Nature form an articulate whole. Land is thus tied up with the organizations of kinship, neighbourhood, craft, and creed—with tribe and temple, village, guild, and church... The economic function is but one of many vital functions of land. It invests man's life with stability; it is the site of his habitation; it is a

condition of his physical safety; it is the landscape and the seasons... And yet to separate land from man and to organize society in such a way as to satisfy the requirements of a real-estate market was a vital part of the ... market economy (p. 178).

The knowledge systems that survived the epistemicide are proof of alternative ways in which society can understand the role of Nature. These alternatives are not underpinned by modernity logic and its notions of anthropocentrism, racism, and infinite progress. Table 2 shows examples of alternative understandings of reality to that of modernity.

Table 2 Examples of surviving Indigenous understandings of the relationship between Nature and people.

| Continent | Knowledge |
|---------------|---|
| North America | The Haida Gwaii people of Canada consider their heart and the heart of the Earth is one. As such, they are inextricably connected with all the elements of Nature (Lertzman, 2002). |
| South America | The kwichua people of Ecuador perceive Nature, or <i>Pacha Mama</i> , as a mother that provides clothing, food and shelters for human beings. <i>Pacha Mama</i> possesses a spirit, and it is considered a sacred being that needs to be protected (Acosta, 2013). |
| Africa | The kikuyu people of Africa consider that when Kikuyu people die, their spirits remain in the forest or on the mountain. The Kikuyu people cannot destroy the land because they would be destroying their ancestors, the place to go when they die, and the place in which they are born into (Castro, 1993). |
| Asia | The T'boli people of the Philippines consider Nature carries the soul of their ancestors, and with it, it carries their identity (Mora, 1987). |
| Oceania | The Baligu and Njamal people of Australia argue humans are connected to the land. Both humans and the land were made from the same substance and the Ancestors continue to live in Nature (Kwaymullina, 2005). |

Table 2 shows that although the knowledge systems informing these different paradigms were developed by different societies in different places around the world, they continue to share a close relationship with Nature, where it is regarded as a living being. Although this table focuses on Nature, Indigenous knowledges also offer a different insight into relationships between humans to that offered by modernity. The cooperative relationships between Indigenous peoples are further explored in chapters four, six and seven.

The close relationship between Indigenous peoples and Nature is reflected in their Indigenous epistemologies, which are described by La Duke (2002) as:

The culturally and spiritually based way in which Indigenous peoples relate to their ecosystems. This knowledge is founded on spiritual-cultural instructions from “time

immemorial” and on generations of careful observation within an ecosystem of continuous residence (p. 78).

With the imposition of Western knowledge as the only valid knowledge system during colonial times, Nature was dispossessed from its meaning as a sacred place that required reverence, and turned into a non-living entity that had no purpose other than to serve humans. Around the globe, humans could no longer understand their place as a part of Nature. Being modern involved understanding the division between Nature and humans and understanding the potential of Nature as a commodity to bring progress in the form of material wealth.

The “colonisation of reality” referred to by Escobar (1998), also naturalised the racism inherent in the Eurocentric narratives (Ramón Grosfoguel, 2015). In addition to the exploitation of the periphery in order to extract raw materials, the denigration of Indigenous epistemologies and the labels ‘backwards’ and ‘savage’, caused Indigenous peoples to internalise a sense of inferiority and to become ashamed of their own culture (Kayira, 2013). This sense of inferiority also contributes, in a way that is difficult to quantify, to the disappearance of epistemologies from the periphery. Seeking to become modern to avoid discrimination, Indigenous people across the world have stopped speaking their languages and expressing their culture in a multitude of ways, big and small and, with this, have stopped transmitting their knowledges to subsequent generations (Simpson, 2004). The labelling of the cultures of the periphery as ‘inferior’ has had a devastating impact on Indigenous communities and persons for generations to come, as losing epistemologies, ways of thinking, doing, being, and expressing culture has meant losing a crucial part of Indigenous identity (Battiste & Henderson, 2018; Shava, 2013; Simpson, 2004; Thésée, 2006).

Under imperialism, virtually the entire world became part of the global capitalist economic system. Societies in every colony were arranged to fulfil their role in the global market to advance the progress of humanity. Progress became the universal norm. The “colonisation of reality” denied the possibility of imagining other forms of social organisation to that of modernity. Local sustainable ways of living that were not organised to accumulate material wealth were no longer acceptable and any trace of this way of thinking was interpreted as backwards and deficient (Simpson, 2004). The ‘epistemic violence’ that sustains the exploitation of Nature and people continues today, under the

form of a coloniality of knowledge, having a devastating impact on current generations of Indigenous people.

Section V: Development

The imposition of Western knowledge as the only valid knowledge system – and the anthropocentric, racist and materialistic logic that underpins it – did not disappear with the independence of the colonies from the empires (Castro-Gómez & Grosfoguel, 2007; Dussel, 2016; Quijano, 2000). By the 1950s, most colonies had gained independence. Yet, the new independent colonies organised themselves following Eurocentric socio-economic and political frameworks, since these were understood as the only ‘valid’ ones. The ex-colonies constituted themselves as nation-states and organised their socio-economic systems using either capitalist or socialist regimes, both of which emerged from Eurocentric logic and, both of which rely upon the exploitation of Nature. As such, the imposition of Western knowledge continues to shape the contemporary world (Castro-Gómez, 2007b).

As Grosfoguel (2006) explains, the independence of the colonies from the colonial powers was only juridical-political. The naturalised asymmetric relationships between the centre and the periphery that were established during colonial times remains today, largely due to the hegemony of Western knowledge. Quijano (2000) introduced the concept of coloniality to refer to the structural and persisting asymmetry of power relationships that were imposed during the colonisation process.

As a result of the coloniality of knowledges, the asymmetry in the validity of knowledges established during colonisation continues to shape our world today. The notion of Western knowledge as a superior knowledge led independent colonies to organise themselves from a Western monoculture in which Western knowledge is considered the only valid way to understand and shape reality (Ramón Grosfoguel, 2006a; Lander, 2000; Palermo, 2010; Sousa Santos, 2010). The coloniality of knowledges naturalises the anthropocentrism and racism that characterised the colonial and imperial enterprises into current societies.

Today, the Eurocentric logic that sustained modernity is being perpetuated by a development paradigm. Traveling in the same direction as modernity, development silences the voice of the periphery by imposing the way of life of the centre as the only possible

pathway forward. The development era was started in the 1950s by the United States as a measure to prevent further communist advances (Escobar, 2012; Rist, 2002; Sachs & Warner, 2001). Although development has a broad definition, it is recognised that it is focused on increasing the per capita income of the population (Escobar, 2011a). Harry Truman started the development era with his inauguration speech as President of the United States. In his speech, Truman (1949) claimed:

More than half the people of the world are living in conditions approaching misery.... Their economic life is primitive and stagnant. Their poverty is a handicap and a threat both to them and to more prosperous areas. For the first time in history, humanity possesses the knowledge and skill to relieve the suffering of these people.... Such new economic developments must be devised and controlled to the benefit of the peoples of the areas in which they are established... All countries, including our own, will greatly benefit from a constructive program for the better use of the world's human and natural resources.... Greater production is the key to prosperity and peace. And the key to greater production is a wider and more vigorous application of modern scientific and technical knowledge (p. 183).

The colonial discourse of Truman continues to differentiate the centre from the periphery. It perpetuates the idea of time as linear where the centre occupies the top or front or leading position/s. Truman's speech labelled two-thirds of the world's population as the 'poor' or 'underdeveloped'. This division generated a global hierarchical classification of the population based on levels of 'development' (Escobar, 1998, 2004a, 2011a). 'Underdeveloped areas' were seen as occupying lower positions in a linear continuum towards progress, where developed nations had both a duty and a capability to bring developing nations out of 'misery' (Bull & Bøås, 2012; Escobar, 2011a).

Over two billion people became underdeveloped for the *only reason* that their daily income did not resemble that of the developed countries of the North. 'Underdeveloped' became the new label for the previously 'uncivilized' people of the periphery (Ramón Grosfoguel, 2011). IPs were once again labelled as 'unadvanced.' Their subsistence agriculture practices did not contribute to the generation of economic growth and as such, their ways of life were considered an 'obstacle to progress' (Cadena, 2000, p. 308).

The Western way of life became the unquestioned aspiration for the world's population. To attain the standards of wealth enjoyed by the centre, developing countries

had to transform and adjust their economic structures. Gross domestic product (GDP) became the global indicator to measure how modern a nation is - a measure of the capacity of an economy to meet the needs of individuals (Escobar, 2011a, 2012; C. Walsh, 2010). Walsh (2010) claims development is a colonial discourse that has “legitimized relations of domination, superiority/inferiority, and established a historical structural dependence related to capital and the world market” (p. 15). Walsh further argues development does not only measure economic growth, but is a hegemonic ‘model of judgment and control’ in which development is positioned as the only possible pathway for humanity (Walsh, 2010 p.5).

The way in which development is perpetuating the exploitation of Nature and people – especially from the periphery – in the pursuit of (economic) progress, is explained in the discussion that follows. This includes explaining that ways that globalisation is contributing to the disappearance of non-Eurocentric knowledge systems, and with it, deepening the coloniality of knowledge.

Section VI: Globalisation

Globalisation is not a new phenomenon, as the global capitalist market began with the discovery and colonisation of the Americas. Globalisation is, then, an “intensification” of modernity logic that results from the introduction of neoliberal measures to liberate world markets by reducing state regulations (Escobar, 2004, p.65). By positioning the global market as the centre of relationships between all societies in the world, modernity stops being a paradigm of the West. Globalisation emerges, then, as an “empire without a centre” (Alimonda, 2010, p. 68) and is perceived as not having the same place of enunciation as colonialism. Hiding the Eurocentric matrix of power behind it is the culmination of modernity (Quijano, 2001). Accordingly, Escobar (2004) argues modernity:

is no longer a pure matter of West, since modernity is everywhere. The triumph of the modern lies precisely in having become universal...from now on, modernity is the only way, everywhere, until the end of time. Not only radical alterity is expelled forever from the realm of possibilities, but all cultures and societies of the world are reduced to the manifestation of history and European culture (p.211-212).

Under globalisation, the European aspiration of a global capitalist market that could provide raw material and free or cheap labour became universal. Infinite economic growth became

the universal aspiration, reproducing with it the exploitation of Nature, people and continuing with a series of epistemicides that started in the 15th century. Toth and Szigeti (2016) have analysed the historical trends of the GDP to estimate how it has impacted the biological processes of the Earth. For most of human history, societies across the globe have had a constant GDP per capita. As Keynes (2010) noted:

From the earliest times we have record-back, say, to two thousand years before Christ down to the beginning of the eighteenth century, there was no very great change in the standard of living of the average person living in the civilized centres of the earth (pp. 321-322).

GDP per capita started increasing for the countries in the Centre with the Industrialisation process that resulted from the scientific revolution. However, it was not until the 1930s that global GDP began to grow exponentially (Toth & Szigeti, 2016). Figure 3 shows the world GDP over the past two thousand years:

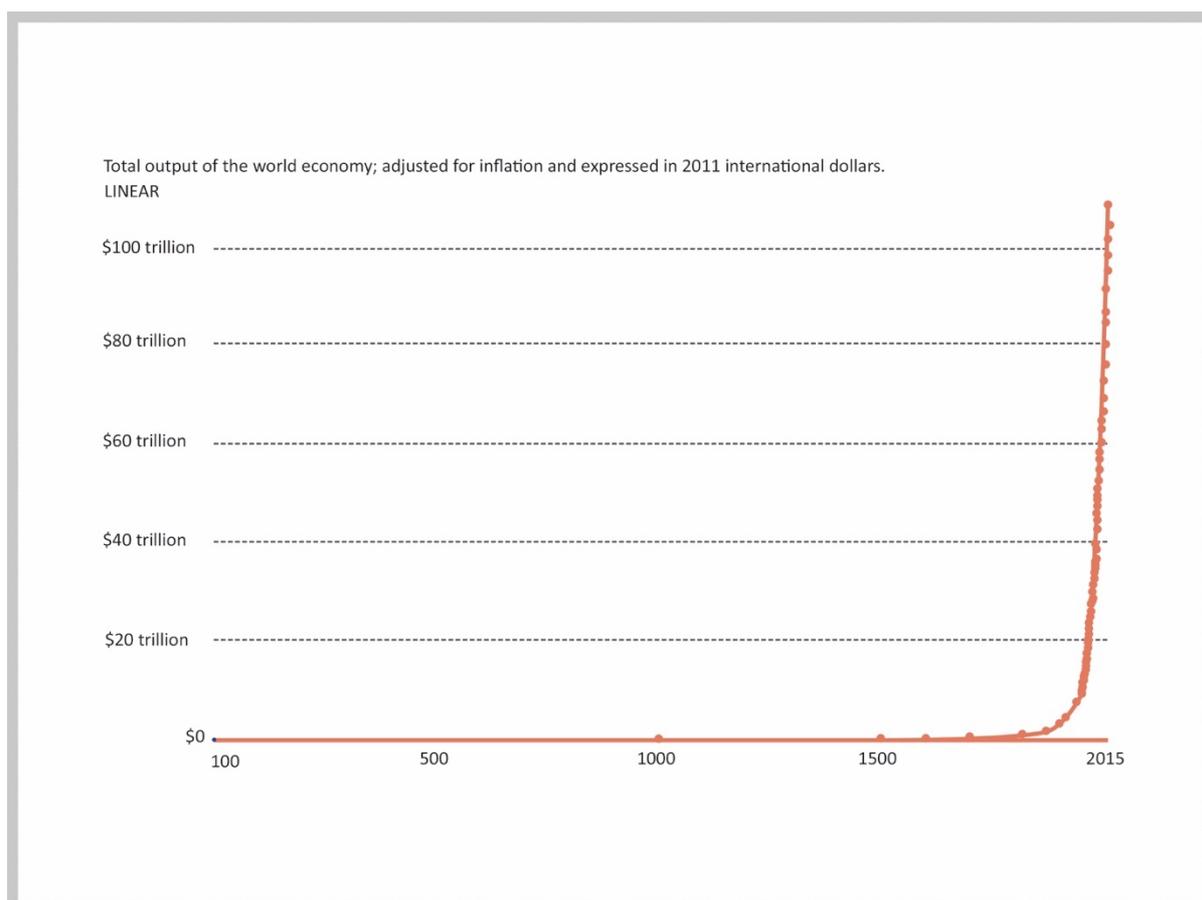


Figure 3 World GDP since the year 1 to 2015. Based on Roser, (2018).

Figure 3 shows the historic trends of global GDP according to the World in Data analysis of Bolt et al. (2018) The figure shows how GDP started increasing only in the 1500s,

with the colonisation of the Americas, and the resulting emergent world capitalistic system. The figure also shows how an exponential leap started only after the entire world had been colonised and, therefore, entered the world capitalist market. Since the implementation of neoliberal policies, the world GDP has almost grown fivefold. In the 1970s, when the deregulation of the markets started, the world GDP was estimated at 23.8 trillion, and by 2015 it had grown to 108 trillion (Roser, 2018).

The global pursuit of infinite economic growth does not consider the natural limits of the planet. Instead, it has led to the implementation of a world model in which Nature is considered an 'externality' of the global economic system (Hargroves & Smith, 2006). The process of global industrialisation to satisfy the overconsumption of both the centre and the periphery has had a big toll on the environment. The Earth is now facing accelerated loss of biodiversity, acidification of the oceans, deforestation and desertification processes, depletion and contamination of water resources, impoverishment of soils, air, soil and water pollution, and extreme climate events (Goudie & Viles, 2013).

However, these negative impacts are not distributed equally around the globe. The current patterns of exploitation of Nature reproduce the asymmetries of exploitation of Nature seen in the historical colonisation of the Americas and the imperial race to colonise the rest of the world. Figure 4 shows the total natural resource rents. That is, the percentage of the GDP that comes from the total natural resources' rents. These are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents. The larger the circle, the larger the contributions of the total natural rents to the GDP of each country.

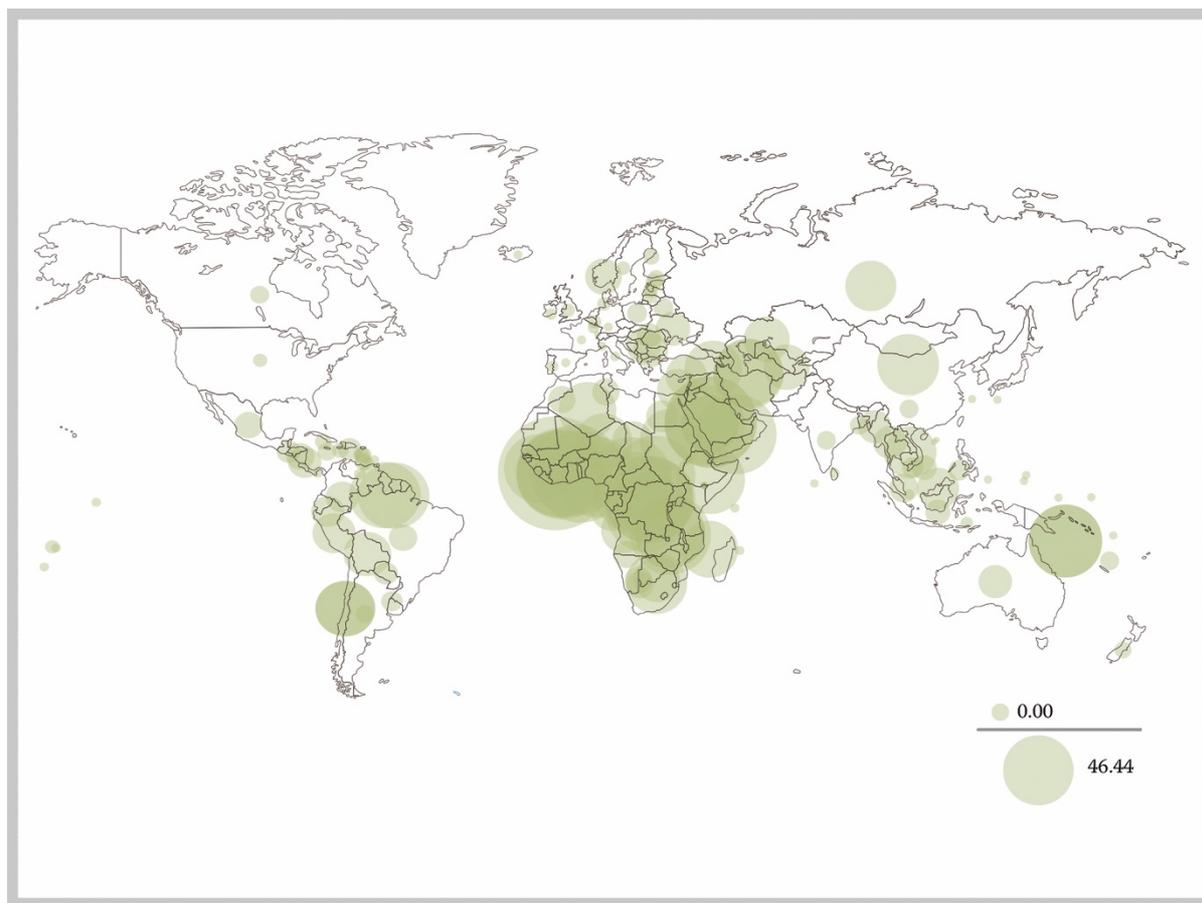


Figure 4 Global Total natural resources rents. Based on World Bank Open data (World Bank, 2018)

Figure 4 shows that although in a global system the centre is hidden, the environmental costs from the global economy reproduce the natural exploitation patterns of colonialism. While the periphery exports their Nature with no added value, the centre has the infrastructure to grow their economy by transforming these resources and by providing services. These activities have a lower impact on local ecosystems. As explained throughout this review, the exploitation of Nature is accompanied by the exploitation of the people who provide the work force that is invisible to final consumers. People from the periphery are also affected by the local pollution generated through the extraction of Nature.

In addition to the social costs of globalisation that come from the exploitation and deterioration of Nature, globalisation is perpetuating a chain of epistemicides that started when the Spanish monarchy burned the Arab libraries (Ramón Grosfoguel, 2013). Under globalisation, coercive imposition of Western knowledge is no longer needed to replace Indigenous knowledges with Western knowledge. The influence of globalisation causes non-Eurocentric language speakers to stop speaking their language and shift to a dominant European language in the pursuit of power and more opportunities (Majidi, 2013). This

happens routinely across the globe every day. According to Lewis and Gary (2013), at least a quarter of the world's languages are threatened with extinction. Shava (2013) reminds us that *most cultures* do not have written languages and therefore, oral language becomes the repository of the knowledge of an entire culture. In this matter, The Assembly of First Nations (of Canada) (AFN, 1993) argues:

Our Native language embodies a value system about how we ought to live and relate to each other ... It gives a name to relations among kin, to roles and responsibilities among family members, to ties with the broader clan group. There are no English words for these relationships ... Now, if you destroy our languages, you not only break down these relationships, but you also destroy other aspects of our Indian way of live and culture, especially those that describe man's connection with Nature, the Great spirit, and the order of things. Without our languages, we will cease to exist as a separate people (p.63).

Being part of a global economy makes it increasingly difficult for countries of the periphery to balance global demands with the protection of Nature and people. Furthermore, the global agenda to take care of the planet often contributes to exacerbate this problem. Sustainable development (SD) has been understood as the only alternative pathway that has been able to permeate all spheres of society. Governments, tertiary institutions, the private sector, transnational organisations, activists and the civil society have embraced sustainable development as the pathway to take care of the Earth.

Sustainable Development

Although much of human history has been accompanied by the destruction of ecosystems and the pollution of air, water and land, the environmental consequences of this did not become a global concern until the 1960s, with the publication of *Silent Spring*. It was in this decade that the developing environmental movement brought attention to the links between the dominant economic system and environmental degradation (Lytle, 2007). Natural scientists began to challenge the discourse of perpetual economic growth due to the inevitable consequences for the environment that, ultimately, they said, would lead to social conflicts (Perez-Carmona, 2013). The Club of Rome led the discussion by publishing *The Limits to Growth* (Meadows, 1972). This report, informed by science and equation modelling, predicted how the exponential growth of population and industrial production

was incompatible with the finite Nature of the planet, and would lead to a collapse. The report constituted a radical proposal that criticised reductionist understandings of Nature and called for a holistic understanding of the Earth as a connected system.

The environmental discourse of infinite economic growth being incompatible with the limited availability of natural resources was not universally accepted. The other side of the debate was led by Howard J. Barnett and Chandler Morse, who published *Scarcity and Growth* in 1963 (Barnett & Morse, 2013). The book claimed resource scarcity did not threaten economic growth due to technological progress. These authors argued that technology would play a key role in overcoming the finite Nature of the planet. In the late 1970s, a collection of papers that investigated the topic of scarcity and growth was published under the name *Scarcity and Growth Reconsidered*. The conclusion of the publication was the same as that reached by Barnett and Morse.

It is from this debate that Sustainable Development emerged. Used for the first time in the *World Conservation Strategy* published in 1989 (IUCN, UNEP, & WWF, 1991), the term sustainable development became a contested concept. Senge cited in White (2013) claims that there must be more than 2000 different, and sometimes contradictory, SD definitions. Ciegis, Ramanauskiene and Martinikus (2015), claim there are three main ideologies behind SD: the ecological, the social, and the economic. The ecological focuses on maintaining the general vitality and health of the ecosystems and its processes. The social focuses on reducing the vulnerability of marginalised communities in relation to environmental degradation and improving resilience skills to withstand environmental changes. Finally, the economic focus seeks to “*maximise the flow of income and consumption that could be generated while at least maintaining the stock of assets [natural resources], which yield beneficial outputs*” (Ciegis, Ramanauskiene, & Martinkus, 2015, p. 33). Economic sustainability is also referred to as ‘weak sustainability’ because it allows, and sometimes encourages, trade-offs between environmental and social issues in favour of economic objectives (Íbid).

The result is that different sectors of society promote different types of SD. This is an explanation for its wide acceptance within different groups within society (Holden, Linnerud, & Banister, 2014). However, the global institutional agenda for guiding the world countries in advancing a sustainable development agenda is based on an economic ideology. Economic sustainability – or weak sustainability – has been taken up by the United

Nations (UN), the organisation responsible for developing the guidelines and principles of SD, along with the indicators used to measure each country's advancement in SD. These principles influence policy developments in the governments of the 193 UN Member States. The UN ideology of SD is, then, the dominant approach to SD worldwide (Banerjee, 2003). In the next section, the institutionalisation of SD as a paradigm of economic sustainability is analysed through three seminal UN documents: the Brundtland Report, Agenda 21 and Agenda 2030.

The Brundtland Report: development

Although the concept of SD first appeared in the *World Conservation Strategy* (1980), the starting point of SD is often considered to be the *Brundtland Report* (1988). *Our Common Future*, or the *the Brundtland Report* as it is commonly known, was deeply influenced by the United Nations World Commission on Environment and Development (UNWCED) of 1972 (UN, 1972). The UNWCED was organised to promote interplay between the economy and the environment. As such, the UN SD agenda emerged from a development perspective and not from an ecological one. In the conference, the alleviation of poverty emerged as a seminal strategy to protect Nature. According to the Report of the conference, environmental degradation was caused by the 'underdevelopment of the third world.' The 'poor' engaged in activities that degraded the environment to meet their needs. The problem should then: "be remedied by accelerated development through the transfer of substantial quantities of financial and technological assistance" (UN, 1972, principle 9). Following the thesis of the UNCHE, the Brundtland Report attributed the cause of environmental degradation to insufficient income, and economic growth was understood as the solution to alleviate poverty (Banerjee, 2003).

In planning, developing and releasing the report and agenda, the *Brundtland Report* (1988), The UN program of SD reproduced the rationale of modernity by adding a third pillar of interest and responsibility to the existing pillars of development: economic growth and social welfare. By recognising the environment in its new SD model, the United Nations-sponsored SD thesis links economic growth to Nature. Economic growth, according to the UN, allows for social development by guaranteeing all the people of the world can meet the imposed standards of living and by doing so, stop engaging in activities detrimental to the environment. As such, it perpetuates a vision of progress as the only pathway for humanity

(Doyle, 1998). The concerns of scientists regarding the incompatibility of infinite economic growth in a planet with limited natural resources were dismissed. The Brundtland Report argued there were “not absolute limits but limitations imposed by the present state of technology ... technology [can] make way for a new era of economic growth” (Brundtland Report, 1998). As Perez-Carmona (2013) claims, the question of how to conserve the Earth while pursuing development became a question of how to maintain a perpetual economic growth policy on a finite planet. Since then, the influential frameworks of SD have promoted a global agenda that seeks to increase the productivity of the global population, to bring about economic growth. This has resulted in the further endangerment of the knowledge of Indigenous communities, whose sustainable lifestyle is not compatible with the universal agenda of SD (Banerjee, 2003).

Agenda 21 and Agenda 2030: globalisation

In the first Conference on Environment and Development, or the Earth Summit as it became known, held in 1992 in Rio de Janeiro, SD gained global geopolitical significance and became the new dominant development paradigm. To show their commitment to SD, the nations of the world endorsed Agenda 21, a global SD action plan for applying policies at local, national and international levels. To raise people out of poverty in the developing world, Agenda 21 encouraged the elimination of government-imposed restrictions on transnational movements of goods and capital, and facilitated foreign investment (Banerjee, 2003; Doyle, 1998). The Agenda 21 framework reflects the macroeconomic policies of neoliberal development. The agenda recommends:

[foreign] Investment is critical to the ability of developing countries to achieve needed economic growth to improve the welfare of their populations and to meet their basic needs (chap. 2, Pt. 2.23).

Agenda 21 and the subsequent UN Earth Summits have been highly influential in promoting a Eurocentric globalised approach to modern development through its SD guidelines. This continues to expand and perpetuate the modernity/coloniality paradigm (Banerjee, 2003; Doyle, 1998). The latest of these guidelines is *Transforming the World: Agenda 2030* (UN, 2015), the UN’s “new universal agenda” that seeks to guide the development efforts of the world until 2030. Agenda 2030 claims to ‘leave no one behind’,

reinforcing the Eurocentric narrative of the centre being more advanced and the periphery needing to catch up.

The Eurocentric approach of Agenda 21 and Agenda 2030 perpetuate assimilationist policies. The economic growth focus of both agendas seek to incorporate everyone in economic productive activities and discard any way of living based in self-sustaining practices. Western education continues to be imposed on IPs, causing the disappearance of Indigenous approaches to teaching. With it, the hegemony of Western knowledges continues, further endangering remaining Indigenous knowledges and with it, the possibility of imagining different worlds (Banerjee, 2003; Doyle, 1998; Kothari, Demaria, & Acosta, 2014).

As Sousa Santos (2010) claims, “we have to keep in mind that nouns still establish the intellectual and political horizon that defines ... what is available, credible, legitimate or realistic” (My translation p.16). Sustainable development is therefore, not a radical change but an alternative view within the development paradigm. As such, it does not offer a pathway away from modernity logic that underpins globalisation but finds the solution to the socio-environmental crisis in more economic growth.

The One-World World

Modernity deeply transformed the world from a place dominated by a diversity of knowledge systems and ways of being into a place dominated by the hegemony of a self-proclaimed true and universal Western knowledge. Western knowledge dictates the universality of a ‘single-reality’ and denies Other ways of understanding or constructing the world. As such, it has shaped our understanding of reality as a One-World World (Escobar, 2015):

... a world that supposedly contains only one World, and that has seized the right to be "the" World, subjecting all other worlds to their own terms or, even worse, relegating them to non-existence (para. 4).

The One-World world normalised the anthropocentrism and racism that allows for modernity to continue. The asymmetric relations between the centre and the periphery and between humans and Nature are imposed across the world through the structures of globalisation. Yet the Eurocentric discourse that sustains the One-World World is so

embedded in our lives that it is hard to recognise. It perpetuates the anthropocentric and racist logic imposed under the colonisation of the globe through the structures of globalisation (Escobar, 2015). Modernity has been imposed as a universal paradigm, which Toth and Szigeti (2016) describe as:

... a theory, which has conquered the world and become a guiding scheme of thought ... We do not only think *of* these theories but think *by* them. This is not only true for an elite group of professionals of a special science, but everyday people, who have never heard of the theory itself. In most cases, they are the most devoted believers and supporters of the mainstream paradigm(s) and the systems constructed by them (p. 284).

The colonality of knowledges sustains the position of Western knowledge as the only valid knowledge system, and the only knowledge system capable of deciding the universal path of the world. As such, it becomes the only knowledge from which solutions to the socio-environmental crisis can emerge. As Souza Santos (2010) and Mignolo (2014) explain, under the colonality of knowledges, “changing the world” will always be narrowed to those alternatives that can fit within the limits imposed by Eurocentrism. As such, the proposals to resolve the socio-environmental crisis that are underpinned by Eurocentric logic will not challenge the commodification of Nature, the exploitation of people from the periphery or ongoing epistemicides.

As such, modernity hides its other side, the colonial side. Modernity, as a historical process, did not happen in isolation from the rest of the world, but happened because Europe had extended its territories overseas. Its colonies provided the region with the resources needed for its industrialisation (Quijano, 2000; Dussel, 2000; Mignolo 2011; Escobar, 2004; Walsh, 2009). Modernity is, in reality, ‘a modernity/coloniality project’ that cannot be sustained without the exploitation of people and the natural world of the colonies. Modernity and coloniality are inseparable, they are “two sides of the same coin” (Mignolo, 2016), with coloniality being the dark hidden side (Maldonado-Torres, 2007). The Eurocentric logic behind modernity hides its colonial Nature (Mignolo 2016; Quijano, 2000; Maldonado-Torres, 2007; Escobar, 2007). As McClintock, Mufti and Shohat (1997) argue:

Although colonialist discourse and Eurocentric discourse are intimately intertwined, the terms have a distinct emphasis. While the former explicitly justifies colonial

practices, the latter embeds, takes for granted and 'normalizes' the hierarchical power relations generated by colonialism and imperialism, without necessarily even thematizing these issues directly (p. 194).

Conclusion

This chapter provided a detailed chronological counter-narrative of the events that have taken place over the last 500 years, leading to the current coloniality of knowledges. It explored how modernity has sharpened the world into a homogenous Eurocentric world that perpetuates and normalises hegemonic power relationships of exploitation. The chapter analysed the 'neutrality' given to Western knowledge and their role in denigrating and marginalising non-Eurocentric knowledge systems and, with it, other possible worlds. The chapter finished by showing how globalisation erased the colonial origin of the paradigm, hiding its Eurocentric *locus of enunciation*, and converting it into the global aspiration.

In the following chapter (**Chapter four**) this context and its epistemological origins, are referenced to offer an analysis of the social and environmental impacts of the 'One-World World' model on Latin America. This is where the project of modernity/coloniality started, and where the consequences are still present 500 years later. The implications of sustainable development, as the proposed solution to the socio-environmental crisis, are also investigated, in addition to alternatives informed by Indigenous knowledge systems.

Chapter four: Socio-environmental costs of modernity

"The problem with reality is that it does not know anything about theory"

My translation, Don Durito de la Lacandona cited in Subcomandante Marcos (2017).

Introduction

The 'One-World World', or a world with only one knowledge system, is a concept termed to describe the globalisation of modernity. The concept is a way of characterising the culmination of the colonial project that began with the colonisation of the Americas (Escobar, 2004a, 2015; Quijano, 2000a). 500 years later, the march of neoliberalism to the continent marked a decisive moment in the history of the region, a place that, in the previous decades, had followed a protectionist economic policy of import substitution to reduce foreign dependence. With the Washington Consensus, neoliberalism entered fully into Latin America in the 1980s, as the region adopted policies of liberalisation, deregulation and privatisation to join the global economy (Perez-Carmona, 2013). These economic policies were predicated on the incorporation of Latin America into the global market, which would result in a steady increase in the GDP and, with it, the notion that population would rise out of poverty. There was a belief that people in this part of the periphery would now be able to reach the standards of living of the centre, and most importantly, that their wellbeing would increase as a result (World Bank, 2018).

This chapter builds on the literature review in **Chapter three**, which discussed the epistemological origins of modernity, to focus on the Indigenous epistemologies of Latin America and their power to imagine and change reality. Specifically, it presents an analysis of the social and environmental impact that the globalisation of modernity (neoliberalism) is having in Latin America. It also considers the consequences of sustainable development, which was similarly proposed by the West as another solution to the socio-environmental crisis. The chapter begins with a focus on the strategies of Latin American to increase the

GDP of the region after the adoption of neoliberal policies. The chapter then analyses the impact these policies are having on Nature and on the well-being of the people of Latin America. It also analyses how the United Nation's SD30 agenda is underpinned by Eurocentric notions that perpetuate the socio-environmental crisis. This chapter is followed by chapter five which focuses on the Indigenous epistemologies of Latin America and their power to imagine and change reality.

A history of natural-resource based economic growth in Latin America

Between the 1940s and 1970s, Latin American states were moving away from achieving economic growth through the primary sector of the economy (raw materials). To achieve this aim, the governments of the region started investing in the diversification of their economies. This strategy was accompanied by a protectionist economic policy of import substitution to reduce foreign dependence (Coronil, 2000). But the adoption of neoliberal policies in the 1980s changed the direction of the economic policies of the region. Neoliberalism entered fully into Latin America in the 1980s with the Washington Consensus. Guided by the International Monetary Fund (IMF), the World Bank and other institutions from the centre, economic reforms were implemented in developing countries (Perez-Carmona, 2013). Liberalisation, deregulation and privatisation policies were implemented to incorporate Latin America fully into the global economy with the aim of achieving sustained economic growth. To secure enough production for the global market, the periphery was encouraged to adopt a development model based on the extraction of its natural resources (Maristella Svampa, 2015; Wallerstein, 2010).

The integration of the Latin American economies to the free market increased the dependency on Nature and the extraction of resources from Nature, as well as on foreign investments. In order to increase its exports, Latin America relied heavily on foreign investment to buy equipment for extractive activities (Aleida Azamar, 2015). Since the 1990s, Latin America has adopted and sustained a development strategy based on the extraction and export of natural resources to grow the gross domestic product (GDP) of the region (Acosta, 2011; Aleida Azamar, 2015; Gudynas, 2011c). Extractivism refers to activities that extract unprocessed natural resources from large extensions of land, which are then exported without adding additional value (Acosta, 2011). These include, but are not limited to, fossil fuels, mining, agriculture, forestry and fishing. The first wave of foreign capital for

extractivist activities arrived in Latin America in the 1990s. During the early nineties, exports almost tripled, growing from a stable 3.8 per cent (that had remained stable from 1950 to 1990) to a rate of 9.1 per cent (Burchardt & Dietz, 2014; Moreno-Brid, Pérez, & Nápoles, 2005). Due to the massive implementation of extractive projects, by the end of the decade exports constituted more than 20 per cent of Latin America's GDP (Moreno-Brid et al., 2005). Figure five shows the steady increase in Latin American exports since the adoption of neoliberal policies.

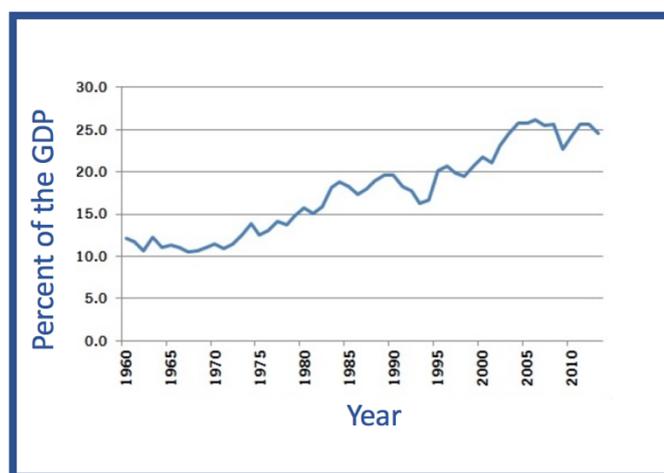


Figure 5 Export trends in Latin America

Figure 5 shows that 25 per cent of the exports of Latin America come from Nature. This is compared to the percentage of exports before the entry of neoliberalism to the region.

In the early 2000s, and seeking to detach from neoliberal policies, many countries in Latin America, particularly in South America, experienced a shift towards progressive governments. As a measure to protect the wellbeing of their populations, the governments strengthened the role of the state in regulating the global market. Although they were no longer following neoliberal policies, these countries continued to base their economic growth on the extractivist paradigm that relies on direct foreign investment and the export of natural resources in primary commodity form (Gudynas, 2011c, 2011b; Maristella Svampa, 2015). Similar to extractivism, this neo-extractivism model still relies on foreign investment for the exploitation of Nature, but regulates the appropriation of resources and their export in order to generate revenue to improve the living conditions of the population (Gudynas, 2009; Maristella Svampa, 2015; Veltmeyer, 2013). Some of the countries

following neo-extractivist policies have surpassed neoliberal countries in the amount of land given over for the extraction of Nature.

Exports for agriculture, minerals, and commodity raw materials account for more than 60 per cent of the GDP of the region. This contrasts with 34 per cent of GDP for the world as a whole (Burchardt & Dietz, 2014). This difference is explained by the extractivist and neo-extractivist policies of large-scale enterprises with an exportation focus. Figure 6 shows data illustrating the exports of commodity raw materials in Latin America.

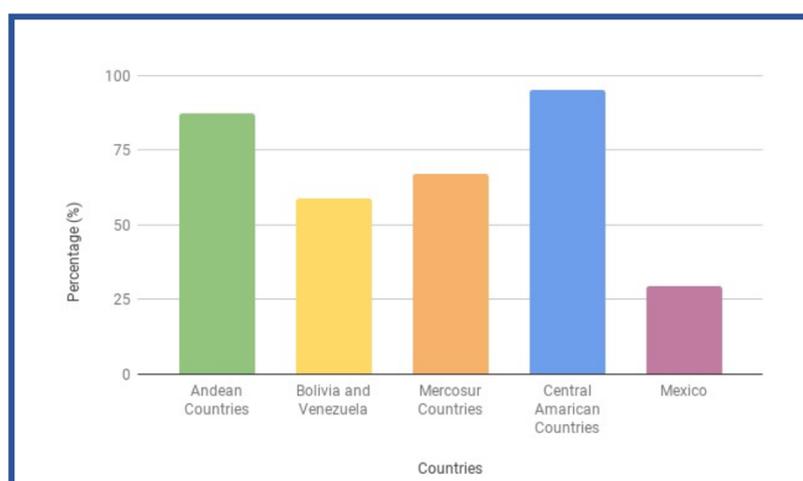


Figure 6 Percentage of GDP that corresponds to exports of raw materials in different countries of Latin America.

Figure 6 shows the average export of raw materials for the world and for Latin America. The figure also depicts the percentages for some of the countries of the region. The boom in raw materials exports reached 87.3 per cent in the Andean States (Chile, Peru and Ecuador) and in Bolivia and Venezuela, the figure was 95 per cent (Burchardt & Dietz, 2014). In the Mercosur countries (Argentina, Brazil, Uruguay and Paraguay) the average was that of 67.1 per cent. In Central America, raw materials exports constituted 58.7 percent of their GDP for the same year. Mexico is the only Latin American country of the region with a smaller number than the raw material GDP of the world, at 29.3 per cent, but there has been a continuous increase of this indicator since 2000 (Burchardt & Dietz, 2014). The most common extractivist and neo-extractivist projects of the region are mining and agriculture.

Mining and agriculture

The world demand for minerals has placed Latin America at the centre of the world's mining activity (Liebenthal, Michelitsch and Tarazona, 2005). While the worldwide investment in mining exploration in the 1990s grew by 90%, in Latin America it grew by 400

per cent. In countries like Peru alone, the percentage grew by 200 per cent (Veltmeyer, 2013). By 2010, Chile, Peru, and Mexico produced 45 per cent of the world's copper; Peru, Mexico, and Bolivia produced 31 per cent of world's silver; Brazil, Venezuela, and Mexico produced 23 per cent of the world's iron; and Peru, Brazil, and Mexico produced 19 per cent of the world's gold (Alimonda, 2015).

Mining in the region is carried out with large sums of foreign investment, mainly from Canadian capital. At the end of the year 2000, more than 2000 large-scale mining projects, financed by Canadian capital, had been registered in Latin America, 887 of which were established in Mexico alone (Veltmeyer, 2013). Canadian companies had a virtual monopoly on mines of gold and silver in the region. In Mexico alone, up to 23 per cent of the national territory has been allocated for the exploration and mining of minerals, and up to 70 per cent of these lands have been granted to Canadian firms (Veltmeyer, 2013).

Another sector that contributes greatly to the GDP in Latin America is agricultural exports from monocultures (Ceddia, Gunter, & Corriveau-Bourque, 2015). Foreign investment has also generated an increase in exports from the agricultural sector (M. Svampa, 2012). In South America, large-scale soy production for export grew from 11.5 million hectares in the 1980s to 42.8 Mha in 2009 (North & Grinspun, 2016). Of particular importance is soy, as half of the soy consumed in the world is produced in Latin America. The majority of the soy grown in the region is used for biodiesel production. Argentina, for example, went from a negligible amount of biodiesel production in the early 2000s to over 2 billion litres annually from 2010 to 2015 (Burchardt & Dietz, 2014).

Other monoculture crops increasing in the region is sugar cane and palm oil. Sugarcane production increased from 3.6 Mha in the 1980s to 9.9 Mha in 2009. In Central America, African palm plantations grew from 0.04Mha in the 1980s to 0.24Mha in 2009 (North & Grinspun, 2016) and was exported as crude palm oil (Vijay, Pimm, Jenkins, & Smith, 2016). In South America, Colombia registered an increase in the demand for palm oil exports for biodiesel from 5% in 2008 to 42% in 2012 (ibid).

In summary, extractivism and neo-extractivism allowed the region to grow at an annual rate of 4.5 to 7.2% from 2002 to 2008 (Veltmeyer, 2013), and at an annual growth rate of 2.5% and 5% from 2008 to 2017 (Vidal-Martínez & Wunderlich, 2017). According to Cord, Genoni and Rodriguez Castelan (2015), the increase in the GDP over the last decade should result in 'remarkable reductions in extreme poverty' and a consequent increase in

the population's wellbeing (Cord et al., 2015). This assumption, however, does not take into consideration the asymmetric colonial relations that operate in the region, or the new inequalities that are being generated in the region as the result of extractivist and neo-extractivist practices.

Globalisation and inequality

Given that Latin America is the most unequal region in the world (Cord et al., 2015), a steady increase in the GDP of the region has not translated into an equitable distribution of economic resources within the population. Engerman and Sokoloff (2005) attribute the origin of income inequality to colonial times. In their view, the unequal distribution of land and assets is due to its inheritance from the colonial era. The authors further argue current institutions perpetuate the privileges of the small oligarchy of the region.

North and Grinspun (2016) suggest that in Latin America, traditional elite families use their land, commercial and financial assets as capital to invest in strategic industries, often in alliance with foreign capital. Elite family business groups who own and control extractive industries in the region have been examined by Hanson, Conaghan's and Paige (North and Grinspun, 2016). By 2014, the richest 10% of Latin America had accumulated 71% of the total wealth of the region (Oxfam, 2017). From 2002 to 2015, the fortunes of the billionaires of the region grew an average of 21 per cent per year, which is six times larger than the growth of the GDP of the whole region. Figure 7 compares the inequality of Latin America to that of other regions.

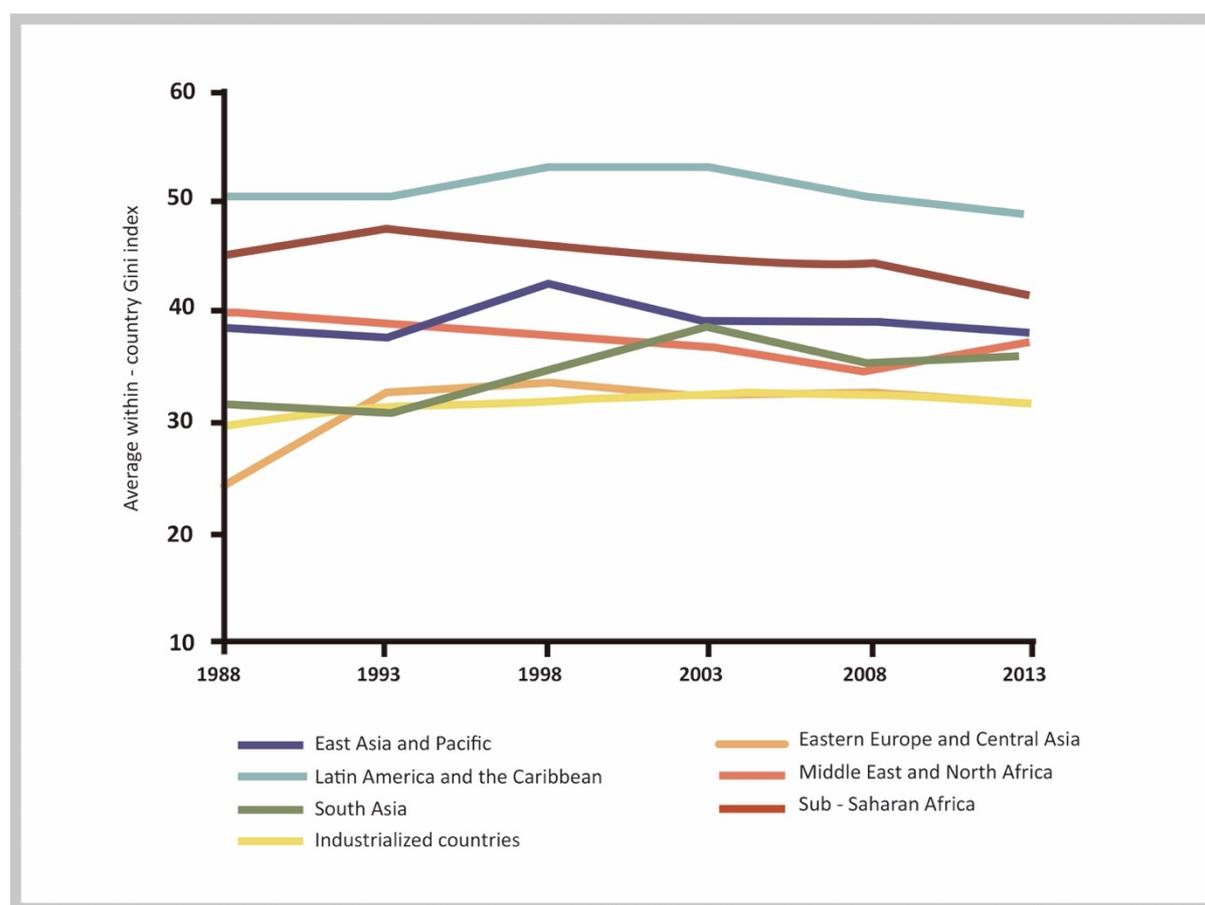


Figure 7 Inequality in different regions of the world based on the Gini index

Figure 7 shows the Gini index for regions in the world. The Gini index measures the income distribution of a nation's residents. A Gini coefficient of zero expresses perfect equality (everyone has the same income) and a Gini coefficient of 1 (or 100%) expresses maximal inequality among values (where only one person has all the income). This figure shows that by 2013, in Eastern Europe and Central Asia, the Gini Index shrank by 2.3 percent, while in Latin America, the ratio fell by 0.2 percentage points, but remained the highest in world terms at 5.4 per cent.

Income in/equalities in Latin America are often 'inherited' or generational and are frequently accompanied by un/equal access to services such as education, social security, health, water and land. These in/equalities are often dependent on factors like ethnicity, gender and social class (Burchardt & Dietz, 2014). In addition, Burchardt & Dietz report that in Ecuador, the 'nobles of Cuenca' even control access to professional education at the local university. This particularly affects the social mobility of the lower social classes, regardless of how hard they work.

Along with the colonial heritage that perpetuates inequality, the dependency of the region on the extraction of Nature and foreign investments brings more challenges. To attract foreign investment to grow GDP, transnational companies receive tax exemptions and generous discounts that cuts the total tax payment paid by domestic firms to half (Robinson, 2012). The resulting local fiscal revenues are minimal, with as little as 1.2 percent registered for mining activities in Mexico (Veltmeyer, 2013).

Both the inherited colonial inequality and the reliance on foreign investment – which explains the tax exemption system to attract foreign capital – causes poverty rates in Latin America to be systematically higher than what would be expected when compared with other countries with similar average incomes (World Bank, 2016). Out of the ten most unequal countries in the world, seven are located in Latin America. These countries are Brazil, Chile, Colombia, Costa Rica, Honduras, Mexico, and Panama (World Bank, 2016). The inequality between the populations of these countries is continuously increasing. An example of this is Colombia, where according to official data, the difference between the country with the highest poverty rate and the lowest poverty rate grew from 38 percentage points in 2002 to 53 percentage points in 2014 (Cord et al., 2015).

Supposedly, the adoption of neoliberal policies in the region was going to generate a steady increase in GDP, that would raise the population in Latin American out of poverty. People in this part of the periphery would now be able to reach the standards of living of the centre, and most importantly, their wellbeing would increase as the result of this (Perez-Carmona, 2013). To date, there is almost no evidence of improvement of social conditions of the people of Latin American as a result of an increase in GDP (Veltmeyer, 2013).

In the following section, the environmental costs and social costs of neoliberalism in Latin America are discussed.

Environmental Costs: Exploring the tension between GDP and Nature

According to The United Nations Environmental Program (2010), Latin America is the region of the planet with the greatest biological diversity. It holds half of the tropical forests of the world, holds more than 30 per cent of the planet's available freshwater, is home to half of the amphibian species and forty per cent of the world's mammals, and it has the largest land reserves for agriculture on the planet. Brazil, Colombia, Ecuador, Mexico, Peru and Venezuela are classified as megadiverse countries. These countries account for 70 per

cent of all the biodiversity on the planet. Latin America is also home to a large number of endemic species, that is, species who are only distributed in a defined geographic location, so are not found elsewhere in the world (Mittermeier, Myers, Mittermeier, & Robles Gil, 1999).

Unfortunately, 500 continuous years of exploitation of Nature in Latin America have taken a big toll on the environment. The region is now facing accelerated loss of biodiversity, with 12 per cent of its species threatened with extinction; acidification of the oceans and bleaching of its corals; deforestation and desertification processes; depletion and contamination of water resources; soil and water pollution and extreme climate events. These negative consequences are both the result of the direct environmental impacts from extractivist and neo-extractivist policies, and from the indirect environmental impacts that stem from the increasing consumption of fossil fuels (Aleida Azamar, 2015).

Direct environmental impacts

Direct environmental impacts are defined as the impacts that occur through direct interaction of an activity with an environmental, social, or economic component (Smith et al., 2010). The acceleration of extractivist and neo-extractivist practices in Latin America has had nefarious impacts on the Nature of the region. The countries in the region with the most rapidly growing economies are the ones facing more pressure in the environment. These pressures include, but are not limited to, land degradation, water contamination, deforestation, overfishing, and extinction of plants and animals (Mittermeier, Myers, Mittermeier, & Robles Gil, 1999). Agriculture, pastureland and mining are the extractive activities growing at the highest rate in Latin America. In what follows, a discussion of the most evident environmental impacts of agricultural and pastureland expansion, along with those of mining, are presented.

Mining

Another highly contaminant industry that has grown significantly in Latin America is mining, an activity that is now present in almost all the countries of Latin America (Bebbington & Bury, 2013). Extractivist and neo-extractivist mining enterprises involve the removal of healthy ecosystems, the use of explosives and diesel, the overexploitation of nearby sources of water, and the use of high amounts of toxic substances such as arsenic, cyanide and mercury. These substances result in acid drainage and high metal

concentrations in wetlands and in the soil. These metals can travel upstream in the trophic net through the bioaccumulation of the compounds (Miranda, López-Alonso, Castillo, Hernández, & Benedito, 2005). Mining pollution has a detrimental effect on wildlife (Bebbington & Bury, 2013). Along with large scale mining, the global demand for minerals has generated conditions for illegal mining.

Illegal mining is practiced by people in the most marginalised communities of Latin America, who engage in informal forms of mining that heavily impact on their health, and the health of the environment. To avoid fines and closure of their artisanal (that is, traditional) mining activities, the illegal miners go to remote natural areas, such as the Amazon rainforest, due to the difficulty police have accessing these spaces. Artisanal mining is more dangerous than legal mining, as miners do not use protective gear to protect their health, or follow environmental protocols that reduce the harm on the environment. Artisanal mining has a high environmental impact, and it is estimated that since 1980, 20 to 30 per cent of the production of metals, such as gold, comes from this practice (Swenson, Carter, Domec, & Delgado, 2011).

Artisanal mining is responsible for 30 per cent of the total mercury released into the environment. After used, mercury is not properly disposed of and instead, is dumped into rivers and other waterways, sediments and the atmosphere, causing its bioaccumulation through the trophic net. Aside from mercury and other toxic substances, informal miners disturb pristine remote areas that can only be accessed by small boats, which makes it difficult for remediation protocols. The arrival of miners in remote locations also brings with it other problems, such as hunting of native wildlife (Íbid).

Agriculture

Within the region, high levels of deforestation are particularly concerning. The replacement of native forests with monoculture has reduced the plant diversity of the ecosystem and with it, the wildlife that depends on natural forests (Vijay et al., 2016). The most important threat to the biodiversity of Latin America is habitat loss due to agriculture and pasture grown for livestock. According to Armenteras et al. (2017), although several reports suggest deforestation rates are diminishing worldwide, this is not the case in Latin America. Their study shows that of the 17 countries analysed, only Costa Rica had experienced an increase in their forests. Leblois, Dametter and Woldersberger et al.'s (2017)

research supported this finding, showing that 11 out of 30 countries with the highest deforestation indexes are located in Latin America. These are Argentina, Bolivia, Brasil, Chile, Colombia, Guatemala, México, Nicaragua, Paraguay, Peru and Venezuela.

The main cause of deforestation in the region is agricultural expansion and cattle grazing (Armenteras et al., 2017). From 2001 to 2013, native forests in Latin American were impacted by a 17 per cent growth in croplands for human consumption and the production of biodiesels. Vijay's (2016) research shows that eight Latin American countries (Brazil, Costa Rica, Ecuador, Guatemala, Honduras, Mexico, Peru and Venezuela) had a large increase in the total area of oil palm plantations. The soy expansion in Argentina, for example, has resulted in one of the fastest growing deforestation areas in the world. Pasturelands for feeding domestic animals are growing at a faster rate, with a 57 per cent registered growth (Armenteras et al., 2017).

Amongst the tropical forests of the region, the most biodiverse land-ecosystem, deforestation has been widely documented in the Brazilian Amazon, the Bolivian lowlands, the Argentinian Chaco, the Colombian southern forests, the Guatemalan northern forests, the Mexican Yucatan Peninsula, the Paraguayan Atlantic and Chaco forests and the Venezuelan Lake Maracaibo basin (UNEP, 2016). Other important ecosystems, such as the grasslands and savannah reserves of the region, are also affected by the conversion of land for agriculture. The areas growing monocultures of maize, soybeans and sugarcane continue to satisfy international demand (Vijay et al., 2016).

The expansion of agriculture in the region has not only brought deforestation, but also contamination of ecosystems, with heavy metals and persistent organic pollutants (POPs), such as polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs) and polybrominated diphenyl ethers (PBDEs). These pollutants are present in the runoff into major water courses, like rivers and wetlands, and ultimately the ocean (Vidal-Martínez & Wunderlich, 2017).

Indirect environmental impacts – global warming and climate change

Indirect environmental impacts are defined as those that are produced away from, or as a result of, a complex impact pathway (Smith et al., 2010). The most widely known indirect environmental impact is climate change. Maintaining a global pursuit of infinite economic growth requires an intensive use of energy. Some of the most energy-intensive

activities are fossil fuel combustion, cement manufacturing, and gas flaring from agriculture (Hargroves & Smith, 2006). The current concentration and on-going emissions of greenhouse gasses produced by fossil fuels that results from sustaining the global economic system has altered global patterns of climate (UN, 2015, SDG13).

Although climate change is a global phenomenon, it does not impact every country in the same way. As the UN (2015) recognises, “the poorest and most vulnerable people are being affected the most (UN, 2015, SDG 13).” Most developed countries are located within the mid-latitudes and will not be as deeply affected as developing countries in the tropics. According to UNEP (2016), ‘climate change’ is already affecting Latin America. Some of the main impacts registered in the area are the acidification of the ocean and the bleaching of coral reefs; changes in rain patterns in the Amazon basin ecosystems; the melting of glaciers in the Andes; and changes in the endemic avifaunal populations in Mexico. Along with negative effect on the environment, global warming threatens the lifestyle of Indigenous peoples and local farmers.

These detrimental impacts are reflected in the Notre Dame ND-Gain Index (University of Notre Dame, 2018). This index estimates each countries’ vulnerability to climate change based on indicators that measure factors such as: access to water; food security; vector-borne diseases; ecosystem and cities resilience; rising sea levels; impact of natural disasters on transportation infrastructure; impact of natural disasters on energy provision; favourable investment conditions; political stability; and strong institutions (Noble, Hellmann, Coffee, Murillo, & Chawla, 2015). Figure 8 shows the vulnerability of the Americas on a red to green colour gradient from most to least vulnerable.

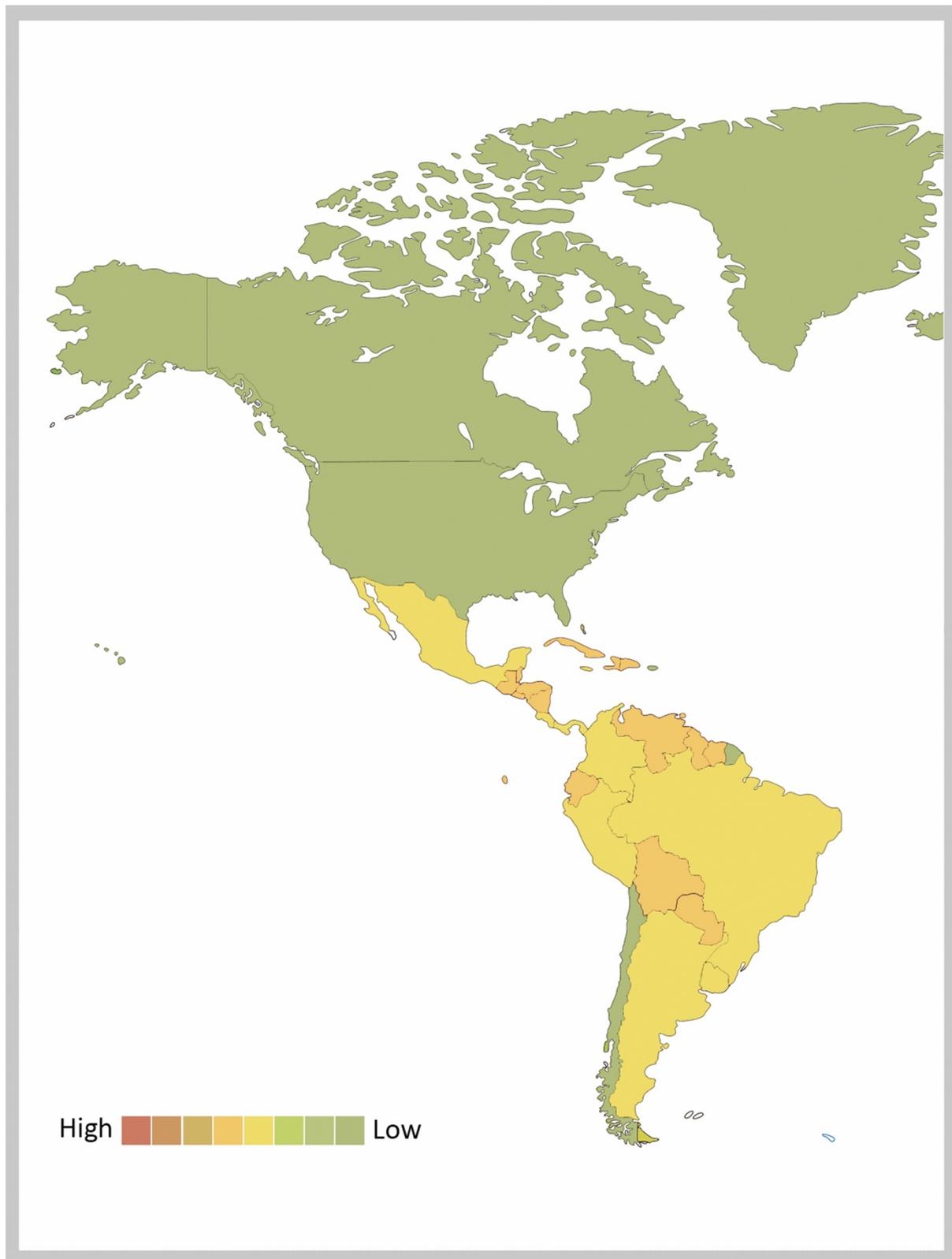


Figure 8 Vulnerability of the Americas to climate change. Figure produced for this thesis based on the ND-Gain Index (2018).

Figure 8 shows the vulnerability propensity or predisposition of human societies to being negatively impacted by climate hazards. Low vulnerability, shown in green, refers to few present challenges and having time to prepare for change. Medium vulnerability, represent

in yellow and orange, represents greater challenges and a need to act urgently. The figure shows how, with the exception of Chile and Suriname, Latin America has a medium to medium high vulnerability to climate change. By way of contrast, Canada and the United States have a low vulnerability (Íbid).

Social Costs: Exploring the tension between GDP and well-being

Robinson (2012) suggests that the incorporation of Latin America into the global economy has caused two additional inequalities: uneven access to land, and uneven access to a healthy environment. Aside from these inequalities, (neoliberal) globalisation continues to support the ongoing wave of epistemicides across the globe. These situations are explored in the discussion that follows.

Uneven access to land

In the global economy, large amounts of capital are required to obtain access to land for extractivist and neo-extractivist practices. The new transnationally-oriented elites have been implementing socio-economic regimes that facilitate transnational corporate access to the region's abundant natural resources and fertile lands (Ceddia et al., 2015; Robinson, 2012). This includes mining, logging, tourism and farming industries that require millions of dollars. Since the great majority of the population of Latin America does not have access to capital, they face uneven access to Nature.

Seeking to grow the GDP, Latin American governments have modified their laws to allow for the acquisition of big land surfaces, with the aim of extracting and producing agri-industrial exports (North & Grinspun, 2016). Most of these lands, however, are not uninhabited lands, but private lands, that mostly belong to rural and Indigenous communities. The boom in agri-industrial exports that started in the 1980s, and that continue to accelerate, has led to an increase in what is called 'land grabbing'. Land grabbing is defined by the International Work Group for Indigenous Affairs (IWGIA) (2014) as "the large-scale acquisition of land for commercial or industrial purposes, such as agricultural and biofuel production, mining and logging concessions or tourism." Land grabbing is founded on the premise of lands being 'unoccupied' or 'unproductive' when, in

reality, governments and, both local and transnational companies, are usurping lands that belong to rural and Indigenous communities (North & Grinspun, 2016).

Land-grabbing from Indigenous peoples constitutes a violation of the IPs rights granted by the Labour International Organisation (LIO). Convention 169 of the LIO obliges governments to conduct a free, informed consent process prior to

“the undertaking of projects that affect indigenous peoples’ rights to land, territory and resources, including mining and other utilization or exploitation of resources...[and]...the adoption of legislation or administrative policies that affect indigenous peoples” (Rodgers & Burleson, 2017, p.6).

Robinson (2012) argues land-grabbing practices have caused the displacement of millions of rural and Indigenous communities in the region who no longer have access to elements essential to human life, such as water and soil. The dispossession of the land also results in aggravated poverty, because the communities that have been displaced can no longer practice subsistence farming. Fruits and vegetables for the global market have replaced millions of acres previously planted with corn, beans, and other crops for subsistence farming (Robinson, 2012). These rural Indigenous populations do not have access to the fruits, vegetables and cattle that are produced for export. This situation has resulted in a loss of identity for Indigenous peoples. As Indigenous activist Shimray explains, for Indigenous peoples, the land is the only basis for the continuity of their identity (Notimía, 2017). Losing their land is accompanied by a loss of Indigenous knowledges and Indigenous languages, both of which are not useful in larger cities [without land] (Shava, 2013).

The number of lands Indigenous Peoples have lost in the past two decades to land grabbing practices presents a sustained increase. Over the last 20 years, more than 5,000 land grants belonging to Indigenous people have been granted in Mexico without their prior consent (Boege, 2012). The privatisation of these territories is equivalent to 17 per cent of the country's Indigenous lands (Íbid). Similarly, more than four thousand permits for mining exploration have been granted on Indigenous lands in Brazil. In the state of Pará alone, more than 90 percent of the lands that belong to the Xikrin and Baú are currently under exploration (Alimonda, 2015).

This situation is particularly concerning when the current distribution of the land in Latin America is analysed. This region has the most unequal land distribution in the world.

The Gini coefficient applied to measure the land distribution in the region and it is 0.79, meaning land is highly concentrated in the hands of a few. This number is substantially higher than the values of Europe, Africa and Asia. Within Latin America, the countries of South America have a Gini coefficient of .85 (FAO, 2017). Similarly, Oxfam (2016) reports that half of the agricultural land of Latin America belongs to one percent of the total productive units in the region.

In order to defend their lands, IPs and rural communities have engaged in collective action to stop the 'proyectos de muerte' or 'death projects.' These resistance movements, which exist to defend what belongs to them, have been criminalised by the Latin American governments. The fight for land has escalated to the murdering of Indigenous leaders (Alimonda, 2010). Hundreds of Latin American environmental activists who have opposed extractivist projects have been killed, making Latin America the region in the world with most murders related to the defence of the environment (La Mula, 2017). According to the Inter-American Commission on Human Rights (IACHR), during the first two months of 2018 alone, there were 14 murders of environmental defenders: seven in Colombia, two in Guatemala, two in Mexico, and three in Nicaragua. The total count for the murders of environmental activists in Latin America in 2017 was 116 people. So, 116 people died "for facing governments and companies who stole land and damaged the environment, and for denouncing the corrupt and unjust practices that allowed it" (La Mula, 2017). This trend has been steady for the past few years. In 2016, 137 people were murdered and in 2015, 122.

Uneven access to a healthy environment

The second inequality that emerges from the pursuit of economic growth through extractivist regimes, is the uneven access to a healthy environment. The exploitation of Nature in order to generate unlimited economic growth has resulted in serious damage to the health of populations living close to areas under extractivist and neoextractivist practices, such as mining, fracking and monocultures. These practices pose additional health threats on affected communities that result from exposure to a wide array of toxic chemicals (Laborde Amalia et al., 2015). The World Health Organisation (WHO) has estimated that environmental related diseases are 15 times higher in developing countries than in developed countries, due to differences in exposure to environmental risks and access to health care (Remoundou & Koundouri, 2009).

In the Amazon basin, more than one million people suffer from diseases that originated from direct contact with toxic and carcinogenic compounds used in mining (PENRE). Similarly, there are studies documenting how Peruvian communities have been exposed to high levels of lead, sulphur, cadmium, arsenic and antimony from mining activities (PENRE). The marginalised people that engage in illegal mining become exposed to highly toxic substances, like mercury vapours (Larmer B, 2009; Keane L, 2009; Swenson et al., 2011). Severe impacts in the central nervous system as a result of mercury poisoning are well documented in research evidence. Children are the most vulnerable demographic exposed to toxic chemicals. The 300 million children of Latin America have higher risks of developing acute and chronic diseases, than those in developed countries, because of the location of extractivist projects in their region (Laborde Amalia et al., 2015).

This situation is aggravated by the governments of Latin America who, in order to increase their participation in the global market, 'flexibilise' the environmental regulations and taxes to attract industry who would be subject to stronger environmental regulations in their 'home' countries (Robinson, 2012). The result is an acceleration of the contamination process, because the disposal of waste is not properly regulated in Latin America. It is also common that industries who regularly deal with toxic waste appear to violate the already 'relaxed' norms without penalty due to corruption in the region (Íbid). The tax and tariff incentives offered by governments, along with comparatively cheap domestic labour available in Latin America, comes not only with environmental-related health issues, but with constant human rights violations for the workers employed on these extractivist projects, who often belong to the most marginalised sectors, and are unable to advocate for their rights (Íbid). Amongst these rights, is the right to speak their own language; a situation that is explored next.

Epistemicides

In a globalised world, speaking the dominant language of the region increases chances of employment. Many people who are approaching working age abandon their native tongues and embrace the languages that will increase their opportunities to secure employment. This process is accompanied by migration to cities in search of better opportunities. In the pursue of a better future for their children, the dominant language becomes the favoured family language. The population that remains in rural areas becomes

so reduced that there is little chance of an ongoing use of their Indigenous language (Majidi, 2013). By far the most rapid losses in linguistic diversity have occurred in the Americas where, according to a Red List analysis, 60 per cent of languages are threatened or have become extinct since 1970. According to Lewis and Gary (2013), within the Americas, North America is the most affected region, with a decrease of 75 per cent occurring in the Nearctic and the Neotropical biogeographic realms. Figure 9 shows the languages threatened with extinction in Latin America.



Figure 9 Distribution of endangered languages in Latin America. Figure produced for this thesis based on the Endangered languages initiative.

Figure 9 shows the distribution of the endangered languages of Latin America according to the initiative 'Endangered Languages'. The authors use the linguistic diversity index (LDI), which is a quantitative tool for measuring global trends of linguistic diversity by estimating changes in the number of mother-tongue speakers of the world's languages, to estimate threatened languages.

Amongst the social impacts, neoliberal policies continue to deeply affect the Indigenous peoples of the region by taking their lands and by exerting pressure on the remaining Indigenous knowledges and languages. The ongoing epistemicide process takes with it the possibilities for imagining and constructing other worlds. As a result, the unfair relationship between the centre and Nature and people of the periphery remains - 500 years later. This situation is being perpetuated by the latest UN Agenda of sustainable development, Agenda 2030. This agenda, underpinned by modernity/coloniality values, will guide the sustainable efforts of the world's countries until the year 2030.

Sustainable development: Exploring infinite economic growth as the source of the solution.

Agenda 2030 (UN, 2015) is based on a set of global Sustainable Development Goals (SDGs) intended to inform development efforts around the world from 2015 to 2030. Agenda 2030 seeks to guide development and environmental efforts to "transform the world." While the SDGs are not legally-binding, governments of both developed and developing countries are expected to implement actions and monitor their progress in achieving goals. Agenda 2030 is composed of 17 universal Sustainable Development Goals (SDGs) and 169 targets across the social, economic and environmental spheres of SD that will guide global policy. To complement the targets outlined in Agenda 2030, specific indicators for each of the SDGs are provided to measure the advancement of the goals around the world by 2030 (UN, 2015).

The main focus continues to be that of infinite economic growth, which perpetuates the exploitation of Nature and people, particularly those of the periphery. In what follows, five arguments of Agenda 2030 are analysed: decoupling economic growth from its environmental impact; the increasing participation of the industrial sector in leading sustainable development; the commodification of Nature; knowledge flowing from the centre to the periphery; and small room for creating change.

Decoupling economic growth from its environmental impact

Despite the accumulating evidence of the negative socio-environmental consequences of a global system organised to pursue infinite economic growth, Agenda 2030 (UN, 2015) promotes the foundational role of economic growth in the world over the next 10+ years. Agenda 2030 takes the economic rationale of the Brundtland Report and Agenda 21 even further by arguing the world needs to “endeavour to decouple economic growth from environmental degradation” (UN, 2015, SDG8, target 4) by surpassing the ecological limitations (of growing the economy) imposed by the present state of technology. Decoupling economic growth from its ecological impact means reducing the amount of resources needed to produce sustained economic growth (Smit et al., 2010).

Fletcher and Rammelt (2017) argue decoupling has become a central component in global efforts to follow the goals of Agenda 2030. The authors argue that examples of this can be found in the Sustainable Development Solutions Network, which argues ‘[t]he key is for all countries, rich and poor, to adopt sustainable technologies and behaviours that decouple economic growth from unsustainable patterns of production and consumption.’ Other examples of institutions proposing decoupling are the OECD (2014), and New Climate Economy (2014).

The concept of economic decoupling perpetuates the modernity/coloniality logic underpinned in the notion of infinite economic growth. As Wagner (2015) argues, decoupling constitutes an ideological pillar that sustains a neoliberal discourse. In addition, Fletcher and Rammelt (2017) argue economic growth depends on extractions from Nature and, as such, the intended divorce between sustained economic growth and impacts on Nature is no more than a fantasy. The authors also raise concerns about how decoupling will result in an increase in inequality, as economic growth is dependent on cheap labour.

Increasing participation of the industrial sector

The infinite economic growth that underpins Agenda 2030 is no longer being promoted by governments only, but also by the industrial sector. For the first time, the design of the UN Agenda of SD was not completed by academics, experts and politicians only, but included the participation of the private sector (Scheyvens, Banks, & Hughes,

2016). Scheyvens, Banks, & Hughes argue that the involvement of these players in the process of drafting the SDG was uneven. After analysing the corporations involved, Pingeot (2014) identified that:

Of the 55 corporations identified ... 11 were from the mining/oil/gas sectors, five from food and beverages, four from telecommunications and one to three from other sectors. The geographical base of 26 of the 55 companies represented was in Europe, another six were USA-based and three were from Japan. (cited in Scheyvens et al., 2016).

Pingeot (2014) argues the involvement of the private sector in designing the Agenda is reflected in the lack of goals and targets designed to diminish environmentally damaging extractivist practices such as fracking, coal mining and burning, oil extraction and expansion of agriculture and grazing lands. Scheyvens, Banks and Huges (2016) and Pingeot (2014) argue the goals and targets of the Agenda encourage the presence of extractive corporations in order to generate economic growth. In fact, in the view of these authors, Agenda 2030 legitimises governments and corporations in opening previously protected areas to mining and agriculture *in the name of* economic growth.

Commodification of Nature

Agenda 2030 continues to consider Nature as a commodity and, with it, continues to perpetuate a rights-based ethic in its transformation of the pursuit of unlimited economic growth. Kopnina (2016) argues Agenda 2030 understands the conservation of Nature as a measure to secure economic growth. As such, only the ecosystems that support economic activities are worth preserving, while the species and ecosystems that do not bring an economic benefit are not subject to conservation mechanisms. Table 3 shows the UN anthropocentric and instrumental rationale behind goals 13, 14 and 15, the only three – of seventeen – goals related to biodiversity.

Table 3 UN anthropocentric and instrumental rationale informing sustainable development goals 13, 14 and 15.

| | Anthropocentric stand | Instrumental stand |
|-------------------------|--|--|
| 13 climate action | “Severe weather and rising sea levels are affecting people and their property in developed and developing countries. From a small farmer in the Philippines to a businessman in London, climate change is affecting everyone, especially the | “Investments of only \$6 billion for disaster risk reduction over the next 15 years would result in total benefits of \$360 billion in |

| | | |
|---------------------|---|--|
| | poor and vulnerable, as well as marginalized groups like women, children, and the elderly” (UN, 2018a, p.1). | terms of avoided losses over the lifetime of the investment” (UN, 2018a, p.2). |
| 14 Life below water | Oceans provide key natural resources including food, medicines, biofuels and other products. They help with the breakdown and removal of waste and pollution, and their coastal ecosystems act as buffers to reduce damage from storms. Maintaining healthy oceans supports climate change mitigation and adaptation efforts” (UN, 2018b, p.1). | The UN Environment Programme estimates the cumulative economic impact of poor ocean management practices is at least US\$200 billion per year” (UN, 2018b, p.2). |
| 15 life on land | Forests cover nearly 31 per cent of our planet’s land area. From the air we breathe, to the water we drink, to the food we eat—forests sustain us. Think about it. Around 1.6 billion people depend on forests for their livelihood. Almost 75 per cent of the world’s poor are affected directly by land degradation” (UN, 2018c, p.1). | Natural disasters caused by ecosystems disrupted by human impact and climate change already cost the world more than US\$300 billion per year” (UN, 2018c, p.2). |

Table 3 shows how the UN’s standards for SDG 13, 14 and 15 are deeply anthropocentric and argue the importance of Nature is that of the economic benefit it brings to people. According to this argument, Nature must be protected so that humans can continue to enjoy the environment. With this, the agenda perpetuates the Eurocentric notion of Nature having no intrinsic value. Koprina et al (2016) argue the cost-benefit approach to conservation promoted in Agenda 2030 has proved not to be effective for conservation in the past, since only the species of use to humans are considered worth conserving. The authors argue the Agenda is promoting the domination of Nature and exacerbating an “ecological injustice between species” (p.114).

Knowledge flowing from centre to periphery

Agenda 2030 (UN, 2015) perpetuates the modernity/coloniality logic of progress flowing from the centre to the periphery only. To ‘help’ the underdeveloped countries of the world, SDG3 calls for the Enhanced Integrated Framework for Trade-Related Technical Assistance to Least Developed Countries (UN, 2015, SDG3). The Agreement also emphasises the need for “international cooperation to help developing countries move toward a low-carbon economy” when, in reality, most developing countries produced a fraction of the total amount of greenhouse gas emissions in the Wanner (2015).

Of particular concern is the fact that there are no goals or targets that promote the role of Indigenous knowledges to offer alternatives to live in sustainable ways. Agenda 2030 frames IPs as a “vulnerable people” that need to be “empowered.” For Agenda 2030, the vulnerable people include “...persons with disabilities (of whom more than 80% live in poverty), people living with HIV/AIDS, older persons, indigenous peoples, refugees and internally displaced persons and migrants” (UN, 2015, par. 23). As such, the Agenda equates the struggle of a community that has been oppressed by the dominant culture for centuries to that of having a condition, a disease, or having arrived from another country. Indigenous peoples have externalised their concern with the colonial tone of the agenda and have formally expressed their desire to participate, with their knowledge, to finding solutions for the environmental crisis. At the UN Indigenous Permanent Forum, Indigenous activist Tarcila Rivera, a Kichwa Indigenous leader, argued IPs do not need to be “empowered” to live under Western standards, as they have never expressed their wish to adopt standards foreign to their cultures (Notimía, 2017). She argues the agenda should have recognised the contributions of Indigenous peoples and their knowledge to sustainable development, especially in the SDG 2 Zero Hunger realm.

Indigenous communities have sustainable agricultural systems, known as agro-ecological systems, which have been able to cope with climate events for centuries, providing a great example of their socio-ecological resilience. They are also responsible for domesticating most of the vegetables, crops and fruits we eat today (Chapela & Boege, 2012; Toledo & Barrera-Bassols, 2008). However, the SDG 2 states that IPs need help in doubling their agricultural productivity by 2030 (UN, 2015). Doubling their agricultural productivity would mean unlearning the deep knowledges of the land they have accumulated over millennia. It would also mean losing valuable knowledges about sustainable agricultural practices.

Another concern raised by the IPs is Agenda 2030’s promotion of universal primary and secondary education for everyone. According to Agenda 2030, Western education offers IPs “life-long learning opportunities that help them acquire the knowledge and skills needed to exploit opportunities and to participate fully in [global] society” (par. 25). Limiting Indigenous education further endangers the transmission and generation of Indigenous knowledge systems, and with it, the opportunity to understand the socio-environmental crisis from other perspectives.

Small room for creating change

Although Agenda 2030 claims the participation of everybody is needed in order to achieve goals and targets by 2030, the Agenda constantly highlights the major role of both industry and the scientific community to provide solutions that can mitigate the negative environmental impact of industry, while maintaining their profitability.

Contrastingly, the Agenda does not extend an invitation to the social sciences and the humanities to find solutions to the environmental crisis. Instead, it limits their role to that of ‘raising awareness’ (UN, 2015). Accordingly, the role it assigns to civil society are limited. Each SD Goal suggests civilians can take action by following ‘The Lazy Person Guide to Saving the World’ (UN, 2018d), a guide developed by the United Nations to guide the millions of people who are looking to have an impact. The document states:

The UN’s Lazy Person Guide to Saving the World is here to remind us that you don’t have to be a multinational corporation or a country like Sweden to make a difference. Even the “smallest” of actions can make a big impact—and all you have to be is you (UN, 2018d).

The guide is divided into four levels, of increasing difficulty. Some of the actions described for each of these levels are shown in Table 4.

Table 4 The four levels of the UN’s Lazy Person Guide to Saving the World with examples of the document.

| Level | Name | Examples |
|-------|----------------|--|
| 1 | Sofa superstar | <ul style="list-style-type: none"> • Share, don’t just like. If you see an interesting social media post about women’s rights or climate change, share it so folks in your network see it too. • Don’t print. See something online you need to remember? Jot it down in a notebook or better yet a digital post-it note and spare the paper. • Turn off the lights. Your TV or computer screen provides a cosy glow, so turn off other lights if you don’t need them (UN, 2018d, p.1) |
| 2 | Household hero | <ul style="list-style-type: none"> • Compost—composting food scraps can reduce climate impact while also recycling nutrients. • Recycling paper, plastic, glass & aluminium keeps landfills from growing. • If you have the option, install solar panels in your house. This will also reduce your electricity bill! (UN, 2018d, p.2) |

| | | |
|---|------------------------|---|
| 3 | Neighbourhood nice guy | <ul style="list-style-type: none"> • When you go to a restaurant and are ordering seafood always ask: “Do you serve sustainable seafood?” Let your favourite businesses know that ocean-friendly seafood is on your shopping list. • Maintain your car. A well-tuned car will emit fewer toxic fumes. • Use a refillable water bottle and coffee cup. Cut down on waste and maybe even save money at the coffee shop. <p>(UN, 2018d, p.2).</p> |
| 4 | Exceptional employee | <ul style="list-style-type: none"> • If you have a fruit or snack that you don’t want, don’t throw it out. Give it away to someone who needs and is asking for help. • Bike, walk or take public transport to work. Save the car trips for when you’ve got a big group. • Examine and change everyday decisions. Can you recycle at your workplace? Is your company buying from merchants engaging in harmful ecological practices? <p>(UN, 2018d, p.2).</p> |

Table 4 shows how Agenda 2030 limits the actions of civil society to individual actions. Actions that often do not reduce the impact each consumer has on the planet, and sometimes even exacerbate the problem. Csutora (2012) introduced the BIG problem or the behaviour-impact gap problem to describe the problem that emerges when “the required behavioural change is achieved, but the observed ecological effect is minor or missing” (p. 148). As many studies have pointed out, individual consumption strategies do not change prevailing socio-economic trends. Committed consumers in higher income countries still pollute more than non-committed consumers in low income countries. In respect to the behaviour-impact gap problem, Thøgersen (2005) argues that the evidence of his studies suggests that, although individual consumers – especially in the industrialised world – have some discretionary power over their consumption pattern, and although current lifestyles contribute to resource depletion and environmental degradation, limited abilities and restricted opportunities, in combination with norms and incentives supporting non-sustainable practices, make it difficult even for highly motivated individuals to do anything radical to improve the sustainability of their lifestyles.

According to Kelsey and Armstrong (2012), witnessing the socio environmental crisis without having an opportunity to do something about it results in feelings of hopelessness, grief and despair that can lead to burnout and depression. These negative feelings can even

be exacerbated when people cannot find a viable action pathway to bring change (Sobel, 1996). And yet, Agenda 2030 does not provide any real opportunities for change for children, youth, or the great majority of the adult population.

Conclusion

This chapter reviewed the socio-environmental impacts globalisation is having in Latin America, focusing on how neoliberal policies perpetuate the colonial asymmetrical relationships that were established in the region 500 years ago. This chapter has shown how the exploitation of Nature, and the people of Latin America, that started with the 'discovery' of the region by Christopher Columbus, continues to be reproduced today under neoliberal globalisation. Extractivism and neo-extractivism not only affect Nature, but also its people, who face increasing struggles in terms of inequality, health, and human rights violations. The chapter showed how the hegemonic socio-environmental agenda of sustainable development further exacerbates the exploitation of Nature and people in the region, as it is underpinned by the Eurocentric notion of infinite economic growth. As such, the chapter concluded by arguing that in order to bring about socio-environmental justice, it is necessary to challenge the colonial logic of modernity, and look for alternatives outside the limits imposed by Western epistemologies.

By continuing to accept Western knowledge systems as the only system capable of generating solutions to the socio-environmental crisis, solutions for the problems continue to emerge from a Eurocentric paradigm. This thinking reproduces intrinsic racism and anthropocentrism. As such, there will be no environmental or social justice as long as the coloniality of knowledges continues. The primordial focus of both the environmental and social fights should be to decolonise the knowledge sphere. That is, to move from the One-World World into a pluriverse of knowledges in which the diversity of knowledges is recognised. It is only through epistemic justice that Nature and people from the periphery can free themselves from the hegemony of the centre. The following chapter (**Chapter five**) discusses possibilities that emerge from the plurality of knowledges, specifically in the Latin American context.

Chapter five: Alternatives from the periphery

“It is necessary to deconstruct what has been already thought
in order to think what there is yet to think”

My translation,
Enrique Leff cited in Walsh (2004)

Introduction

Contrary to Eurocentric argument that denies the existence of knowledge systems in the periphery, Latin America is home to a diversity of complex knowledges. In recent decades, the Indigenous peoples (IPs) of the region have been proposing alternatives to the One-World World. Other Latin American people have joined them in this search for alternatives, resulting in transitioning discourses that offer pathways that break away from the modernity paradigm. This chapter explores transitioning discourses and their origins, reviewing the most visible transitioning discourse, the *sumak kawsay*, and exploring the potential for Mexico to provide alternatives to the One-World World. The chapter concludes with a discussion of the literature about the role of decolonial pedagogy in relation to these ‘Indigenous knowledge’ alternatives and whether, and how, they might become viable environmental alternatives to those currently offered by the West.

The emergence of Latin American transitioning discourses

Latin America is a region with a big potential to generate alternatives that can help decolonise the One-World World and transition to a World with many knowledge systems. Since the colonisation of the Americas, the Indigenous peoples of the continent have resisted the commodification of the forests, the rivers, the mountains, the wildlife and any other living being present in their territories (Toledo & Barrera-Bassols, 2008). These environmental fights are at their core epistemological fights. By resisting the privatisation and unsustainable exploitation of Nature, Indigenous peoples are resisting the One-World World and the Eurocentric knowledge that underpins it (Escobar, 2016). The Indigenous

resistance to the hegemonic understanding of the world in Latin America is a historical process that has been taking place for the last 500 years (Quijano, 2006). Today, the One-World World portrays IPs as vulnerable communities that have suffered severe hardships, trauma, and that are exposed to a multiplicity of risk factors (Kirmayer et al., 2011). In this understanding of the globe, Indigenous communities need aid from the West (Escobar, 2011a).

Despite histories of dispossession, displacement, violence, and exploitation, Indigenous people have succeeded and ensured the continuity of their cultural identity, which is complex and difficult to define. In its most basic form, cultural identity implies a sense of belonging (ref). Hovane et al. (2014) have explained that Indigenous cultural identity is informed by “a body of collective shared values, principles, practices and traditions” (p.61), which have been passed down orally. UNESCO (2017) describes it as “that complex whole which includes knowledge, beliefs, arts, morals, laws, customs, agri-diversity and any other capabilities and habits acquired by [a human] as a member of society” (para. 2).

The cultural identity of IPs emerged from the close relationship that people have had with land for thousands of years (Hall et al., 2000; Simpson, 2004). Scholars such as Hall, Dei and Rosenberg (2000) and Navarro Linares (2008) argue that the relationship between IPs and the natural environment transcends into a deeper level in which the land becomes inseparable from the identity of the people living there. As Cajete (1994) explains, the landscape becomes “a reflection of their very soul” (p. 84). Knowledge of the land is, then, closely linked with knowledge of self, because the land is inseparable from Indigenous identity (Hall et al., 2000). Nature is a spiritual space in which every being is alive and, of which, humans are a part. Nothing is regarded as mere animal, plant, or food. Everything has a spirit and is part of the larger family, of which, Indigenous peoples are a part (Lertzman, 2002). The land provides spiritual health, as well as being the foundation for the Indigenous community-oriented way of living. In the words of an Embera Indigenous person from Colombia:

The Indigenous people need the territory and the forest, it is important for us because, it is where we live and it is for our children to live and work ... we live better here, in our territory...we need the land because the animals, trees, and medicinal plants are here. There are water sources and there are resources to live because we

live from it, that is, it is the heart, the body of the natives, because if not, Embera is nothing or it would not exist, it is like that (My translation, Higueta Ocampo, 2010, p.6).

The land is also the place that allows every member of the Indigenous communities to have a responsibility to work for providing for the community (Navarrete Linares, 2008). Their territory has allowed them to find their strength to survive and to turn an unfavourable environment into a favourable one. It also has helped them succeed in maintaining their cultural identity, their worldviews and their knowledges (Hall et al., 2000). In this sense, Indigenous worldviews follow a way of living that is underpinned by a sense of universal responsibility towards Nature and all of its inhabitants (Cajete, 1994).

These worldviews, denied by the One World-World for hundreds of years, are gaining momentum as dissatisfaction with neoliberal policies grows in the Latin American region (Vanhulst & Beling, 2013). In the 1990s, the Indigenous peoples of Latin America came together under a shared identity to raise a common voice "from the Patagonia [Argentina and Chile] until the heart of the Lacandona Rainforest [Mexico], a voice that comes from far, an ancestral voice of resistance of more than 500 years of exploitation that made itself be heard" (My translation, Moctezuma Pérez, 2011, p.8). Accordingly, Quijano (2006) argues that in order to gain strength, the Indigenous people of Abya Yala, the Indigenous term used for referring to Latin America, organised to form one Indigenous movement, the Latin American Indigenous movement. The Indigenous movement of Latin America is composed of several different Indigenous groups.

Today, the IPs of Latin America are not only resisting, but offering alternatives for living outside of a modernity paradigm (Toledo, 2011). In the year 2000, they held the First Continental Summit of the Indigenous Peoples of the Abya Yala, to strengthen the organisation and communication of the Indigenous movement, and to look for solutions to the global socio-environmental crisis (Bonilla, 2004). Based on their knowledge systems, and to organise their communal institutions, they are committed to provide new paradigms that can become "alternative[s] of life in front of the civilization of death" as they call the Western paradigm (Declaración de Mama Quta Titikaka, 2009, p.9). But these are not mere alternatives, as Bonfil Batalla (1994) argues, the IPs of Latin America are offering:

...different projects that rest in different ways of conceiving the world, Nature, society and man (sic); that postulate different values hierarchies; that do not have

the same aspirations nor the same understanding of what the full realization of the human being entails; they are projects that express two senses of transcendence that are unique and, therefore, different. (pp. 101-102).

Ouviña (2013) argues these projects are 'germs of the future society' due to its capacity to propose alternatives to the current paradigm of modernity (p. 88). As a matter of fact, they are already starting to generate cracks in the logic of infinite economic growth. The protests and resistance fights of the Indigenous movements that condemned neoliberal extractivist and neo-extractivist projects in Latin America (see Chapter three), brought light to the Indigenous alternatives to development (Acosta, 2013; Gudynas, 2011a). Today, the Mestizo, Afro-Caribbean and White people from Latin America have joined the Indigenous movement in thinking about alternatives that do not follow the logic of modernity (Escobar, 2016, 2018). The exchanges between these peoples have supported emerging discourses that are underpinned by Indigenous ecocentric philosophies, and that add the perspectives of the Mestizo, African and White populations. Some of these discourses have the potential to build clear pathways to delink from the One-World World (Escobar, 2011b, 2016). Escobar calls these discourses transitioning discourses because of their power to transition from the One-World World into a world with a 'pluriverse' of knowledges. These transitioning discourses seek to build alternative worlds to the colonial One-World World that has continued to dispossess Latin America for more than 500 years. In recent years, these discourses have started to emerge with more intensity (Escobar, 2011b, 2012, 2018). Within these transitioning discourses, the one with the most visibility at an international level is the *sumak kawsay* or *Buen Vivir* (a discourse of 'good living').

Sumak kawsay: the Kichwa paradigm

The *sumak kawsay* or *Buen Vivir* emerged—from the Amazon basin and the Andean mountains. The Kichwa peoples from these regions are calling for living under the *sumak kawsay* (Acosta, 2013). Many translations have been proposed for this term. *Sumak* means good, beautiful, full; and *kawsay* means life. Therefore, *sumak kawsay* refers to a good life, a full life, a beautiful life (Gudynas, 2011a). The concept in Spanish has been called *buen vivir*, which translates as 'good living'. This 'good living' or full life of the Kichwa must be understood as a life in which both humans and Nature enjoy this fulfillment (Acosta, 2017; Boff, 2009; Kothari et al., 2014; Salazar, 2016). The *sumak kawsay* is not a utopia, but a

current practice the Kichwa communities live by. Acosta (2013) describes it as living in harmony with Nature. For the Kichwa people, to live well is to care for all the members of the community, which includes Nature. In order to respect all life, *sumak kawsay* proposes a simpler life, a life that takes only what is needed and does not accumulate wealth (Acosta, 2013; Salazar, 2016; Gudynas, 2011).

The *sumak kawsay* has been transferred from generation to generation, and currently survives within the Kichwa people as the ethics that guides the ways of being of the community (Acosta 2013; Gudynas, 2011) Quechuas perceive Nature, or *Pacha Mama*, as a mother that provides clothing, food and shelter for human beings. *Pacha Mama* possesses a spirit, and it is considered a sacred being that needs to be protected. It requires attention and care and it is people's responsibility to take care of it, and with this, maintain the harmony that exist between the universe and Nature, or the universe and people/communities/society, or the universe and the Earth (Salazar, 2016).

Kichwa's lifestyle is founded on principles of frugality and simplicity. Understanding the intrinsic links between the wellbeing of people and Nature leads them only to consume only what is necessary (Boff, 2009). The concept of owning land is alien to the Kichwa worldview. The land does not belong to Kichwas, but the Kichwas belong to the land. Further, maintaining harmony with Mother Nature implies an understanding of and respect for 'the Nature cycles' so that all living forms can continue with their own 'cycles'. An example of this is respecting the natural growth time of crops and animals, which allows Nature to regenerate and revitalise (Acosta, 2013).

The community's life is also governed by cycles. The concept of progress, understood as reaching something better in the future, is something unknown to the Kichwas. Their understanding of time is circular, emulating from the natural cycles of Nature. For example, maize does not produce its grains all year round, neither does it produce grains in a constant way in the future, but it does produce grains in a cyclic form. Kichwa lifestyles focus on the present. You need to have a good life in the present, and you have to accept the good and bad as part of a cycle because everything is temporary, like the absence of grains in certain phases of the corn cycle (Salazar, 2016).

The community is at the core of the social organisation which is operated on a reciprocity principle between people, and between people and Nature. Reciprocity means knowing what you need to give in order to receive. Community members establish mutual

helping relationships that enable them to build links between themselves, and redistribute any surplus. The structure informing the discourse of *sumak kawsay*, or good living, is direct democracy, where Indigenous Elders have more authority in the organisation due to their accumulated experience (Acosta, 2013).

It is in these connections, between individuals, the community, and Nature, that a 'full life' is reached, and the 'good life' achieved. For the Quechua people of Ecuador, the idea of a full life implies living in harmony with Nature, and as a consequence, having a good life carries with it the responsibility of respecting and caring for all life forms (Acosta, 2013; Salazar, 2016). This understanding of having a good life contrast with Western notions of wellbeing, the indicator used to measure how well individuals and populations are doing (Kothari et al., 2014). Wellbeing is an ambiguous term that has been given a variety of meanings. It is a cultural construct that tries to measure how people can achieve a good life. Its definitions have changed over time and it is a contested concept (Andrews & Withey, 2012). For a long time, wellbeing was measured by Gross Domestic Product (GDP). Boff (2009) argues using GDP as an indicator limits the meaning of a good life to that of being able to accumulate wealth and material possessions. More recently, the Human Development Index (HDI) has been proposed as a better measure of wellbeing. The HDI measures life expectancy, education and GDP (Andrews & Withey, 2012). This index still links the wellbeing of people to economic growth and Western education, which is inherently tied to a notion of teaching skills being needed to grow the economy. The HDI perpetuates the notion of wellbeing being tied to economic values, instead of living in a healthy environment (Boff, 2009).

Sumak Kawsay is not only a current practice within the Quechua communities of Ecuador. It is also a transitioning discourse that helps to move people to a World with many knowledge systems. It has provided an alternative to the development paradigm in Ecuador, and has inspired legislation changes in other countries, as is explained in the next section of this document.

Sumak Kawsay: the transitioning discourse

The introduction of neoliberal policies in Ecuador during the 1980s led to a series of economic, institutional and political crises that intensified a decade later. Many social movements emerged, and the Indigenous movement was consolidated as a political

participant in this setting (Simbaña, 2011). After years of enduring the consequences of extractivist practices that had damaged the people and Nature of their communities, Indigenous people started promoting the Sumak Kawsay as an alternative to development, an alternative centred in living a 'good life' based on strengthening community ties and respecting the harmony of Nature (Acosta, 2013).

The Indigenous movement was not the only sector of society seeking to transition away from the development paradigm. Rural organisations, students, academics, and environmentalists joined IPs in looking for a different paradigm (Simbaña, 2011). Of special importance was the role of academics, activists and politicians, who were debating and analysing alternatives to development. These debates discussed the impact of neoliberalism, and sought ways to move away from the logic of economic growth (Acosta, 2013; Gudynas, 2011a; Simbaña, 2011). In this context, different academics positioned the Sumak Kawsay discourse of the Indigenous movement in the decolonial debates of the time (Escobar, 2012).

In 2007 (approximately 20 years after the introduction of neoliberalism in Ecuador), in an attempt to strengthen the institutions of Ecuador, the recently elected government called for a Constituent Assembly to set objectives and goals to overcome the economic, institutional and political crises they were facing. Organised by the Coordinator of Indigenous Nationalities of Ecuador (CONAIE, in Spanish), the Indigenous people gave a presentation to the Constituent Assembly and the people of Ecuador. The proposal of *sumak kawsay* or *Buen Vivir* or good living was put in place as the foundation of the new constitution of the Republic of Ecuador.

Thus, on September 28, 2008, Ecuadorians participated in a referendum and, with 65 per cent of votes in favour (Simbaña, 2010), Ecuador approved the inclusion of Sumak Kawsay in the political Constitution. The Ecuadorian Constitution now states:

WE, the sovereign people of Ecuador

RECOGNIZING our millenary roots, wrought by women and men of distinct cultures,
CELEBRATING Nature, the (Earth Mother), of which we are part and which is vital to our existence,

INVOKING the name of God and recognizing our diverse forms of religion and spirituality,

APPEALING to the wisdom of all the cultures that enrich us as a society,

AS HEIRS to the social struggle for liberation against all the forms of domination and colonialism, and with profound commitment to the present and to the future,

We have decided to construct

A new form of coexistent citizenship, in diversity and in harmony with Nature, to achieve the good life, the *sumak kawsay*;

A society that respects, in all its dimensions, the dignity of individuals and collective groups

To guarantee a new way of citizen coexistence, in diversity and harmony with [N]ature to achieve *Buen Vivir*, *sumak Kawsay* (Mt translation, Asamblea Nacional Constituyente, 2008, p.15).

The Constitution goes further to recognise the rights of Nature. In Article 71, the Ecuadorian Constitution states:

[N]ature or Pachamama, where life is reproduced and carried out, has the right to have its existence fully respected and the maintenance and regeneration of its life cycles, structure, functions and evolutionary processes.

Every person, community, town or nationality may demand from the public authority the fulfillment of the rights of [N]ature. To apply and interpret these rights, the principles established in the Constitution will be observed, as appropriate.

The State will encourage natural and legal persons, and collectives, to protect [Nature], and promote respect for all elements that form an ecosystem (Mt translation, Asamblea Nacional Constituyente, 2008, p.52).

The recognition of the rights of Nature constituted a historical event. As León T. (2008) argued, "it can be said that 'Buen Vivir' appears as a possible alternative paradigm within the new century" (p.106). The *sumak kawsay* provided a decolonising 'crack' in the Modernity paradigm from which the entire globe can start imagining a different relationship between humans and Nature (Martínez, Acosta, Martínez, & Acosta, 2017). With the recognition of the rights of Nature, Ecuador was the first country in the world to adhere to a development model that must respect, recover and conserve Nature and, with this, recognise that economic forces cannot endanger and harm the natural environment. In the Constitution, Nature is no longer understood as the commodity that it has been over the

past 500 years. Legal protection is no longer something pertaining only to human beings (Acosta & Martínez, 2009; Martínez et al., 2017). Other countries in the periphery have also added recognition of the rights of Nature in their legal systems. The Bolivian constitution included the rights of Nature in 2010 and the Constitutional Court of Colombia granted rights to the Atrato River in 2017 (Salazar, 2016).

The inclusion of Buen Vivir in the Constitution allows for a counter-narrative that helps the centre recognise the capacities and the contributions that stems from the periphery (Martínez 2017; Leon, 2008). This constitutes an opportunity to build another society, based on the recognition of the cultural values present in the world. The discourse of Buen Vivir has a potential to decolonise knowledge in both the periphery and the centre, since it invites people to think of Nature from outside a modernity paradigm (Acosta, 2013; Martínez et al., 2017). As such, its official recognition in the Ecuadorian Constitution inspired a global revolution.

In 2017, New Zealand recognised the Whanganui River as a living entity subject to rights, which were granted (Hutchison, 2014). Currently, the Australian Earth Laws Alliance (AELA) studies the constitutions of Colombia and Bolivia, as well as the recognition of the rights of the river granted in Colombia to argue for the granting of rights for the Great Barrier Reef in Australia (AELA, 2018).

The recognition of the rights of Nature is the most radical environmental proposal that has emerged in the last decades, as it challenges modernity in two different ways. On the one hand, it denies the exploitable resource role given to Nature since the 1500s. On the other hand, it challenges the established logic of transmission of knowledge from the centre to the periphery. This has huge implications as it shows how the centre is open to "learn that the South exists, learn to go to the South, and learn from the South to the South" (Sousa Santos, 2009, p. 287), as Sousa Santos refers to the periphery. This shows the potential of what can be achieved when listening to knowledges denied by modernity.

Since the international visibility of the *sumak kawsay* in 2008, a great diversity of academics, activists, NGOs, and scientists of different nationalities and ethnicities have taken up the discourse of Buen Vivir and have enriched it with feminist, decolonial, environmental and other visions of change. In this sense, Buen Vivir is not a concept already defined in its entirety, but it is still under construction (Salazar, 2016). Buen Vivir is not a single static transitioning discourse. From its Kichwa origins, Buen Vivir has evolved into

many different understandings, or Buenos Vivires (plural for Buen Vivir), that contribute to the Pluriverse. The Buen Vivir discourse has also been enriched by alternatives that have originated from the centre, such as de-growth and environmental justice. As such, transitioning discourses emerging from Latin America, such as Buen Vivir, do not ignore proposals emerging from the centre, but is a meeting point of several different knowledges (Escobar, 2011).

Buen Vivir is a transitioning discourse that does not claim superiority to any other paradigm. As Castro-Gomez (2007) argues, replacing the hegemonic knowledge system would only “promote a new epistemic obscurantism.” In contrast with Eurocentrism, the Buen Vivir must be considered as only one of many perspectives from which reality can be understood. The scholars that gave visibility to Buen Vivir argue it is necessary to recognise the important role of other knowledges in order to leave the development paradigm behind (Acosta, 2013; Simbaña, 2011).

Other knowledges informing the Pluriverse

The Kichwa people argue that other Indigenous people in Latin America hold similar philosophies to that of Sumak Kawsay (Salazar, 2016). The IPs of Latin America are quite diverse and have different perspectives on what living a good life means. Common to this diversity is the understanding of the world as a series of relations (Escobar, 2016). For Indigenous people, life is composed of a set of reciprocal relationships in which the energy of creation is recognised in all of the beings that form part of these relations (Hall et al., 2000). In this relational worldview, the individual, Nature and the world do not exist as separate entities, but as a relational continuity (Escobar, 2016). It is this view of the inherent connectivity between humans and the rest of the elements of Nature and the world, that informs Indigenous peoples’ notions of well-being across the lands of Abya Yala.

Despite 300 years of colonisation and 200 years of oppression under the independent nation-states, Latin America is home to 522 recognised Indigenous groups (Sichra, 2009). Each of these groups possess a unique knowledge system who can play an important part in the decolonisation of the One-World World. Each Indigenous group contains knowledge systems from which other realities can be imagined. They provide a basis from which different transitioning discourses can emerge (Escobar, 2011, 2014). Examples of these Indigenous paradigms are the *Suma qamaña* of the Aymara people in

Bolivia; the Kyme mogen of the Mapuche people of Chile; the Vivir Bien of the Kolla people of Argentina and Chile; the Vida Dulce of the Mochica people of Peru; the Nued gudisaed of the Kuna people of Colombia and Panama; the Ti nûle kûin of the Ngäb people of Panama; the Ronojerl K'o uchak upatan; and the ronojerl jastaq ki chapon kib of the Maya people of Belize (Salazar, 2016).

Possibilities from Mexico

Within Latin America, Mexico has great potential in terms of the emergence of transitioning discourses that might inform the pluriverse (Toledo, 2011). The land, now called Mexico, has been inhabited for thousands of years by cultures that consider themselves a part of Nature, and that have developed complex worldviews founded on sustainable ways of living. Today, between 12 and 17 million Mexicans identify as Indigenous (Navarrete Linares, 2008). This accounts for more than 10% of the population of the country. This makes Mexico the Latin American country with the most Indigenous peoples in Latin America, with approximately a third of the Indigenous population in Abya Yala (INEGI, 2010). The IPs of Mexico speak one of 364 recognised Indigenous languages (Serrano Carreto 2006), making Mexico one of the more culturally diverse countries in Latin America (Sichra, 2009). Maffi (2005) claims language captures the ways different societies understand and express the world. In Mexico, then, the modernity paradigm is just one of the 364 ways that the Indigenous people of Mexico 'know, be and do' life, as each of these languages captures the different beliefs, knowledge, traditions, ideologies, environmental management practices, and so on, that exist to express Indigenous culture and what it is to live Vivir Bien (Boege, 2008; Navarrete Linares, 2008).

To understand the origin of the knowledge systems that inform these worldviews, it is necessary to look at two historical events that happened before the introduction of Eurocentrism with the colonisation of Abya Yala (Navarrete Linares, 2008). These events are the moments in time when Indigenous people came to the territories approximately 10 thousand years ago (Navarrete Linares, 2010; López Austin & López Luján, 1996), and the way Indigenous people adapted to the different ecosystems in the places they established (Boege, 2008; Toledo & N. Barrera-Bassols, 2008).

Cultural diversity: the cultural zones

Ten thousand years ago, people first settled in what is now called Mexico (Navarrete Linares, 2010; López Austin & López Luján, 1996). The presence of IPs in Mexico before the Spanish Colonisation in 1521 is divided into three cultural zones. These zones are Mesoamerica, Aridoamerica and Oasisamerica (López Austin & López Luján, 1996). Navarrete Linares (2008) suggests that IPs developed very different ways of life between these cultural zones. The location of the three zones is shown in Figure 10.

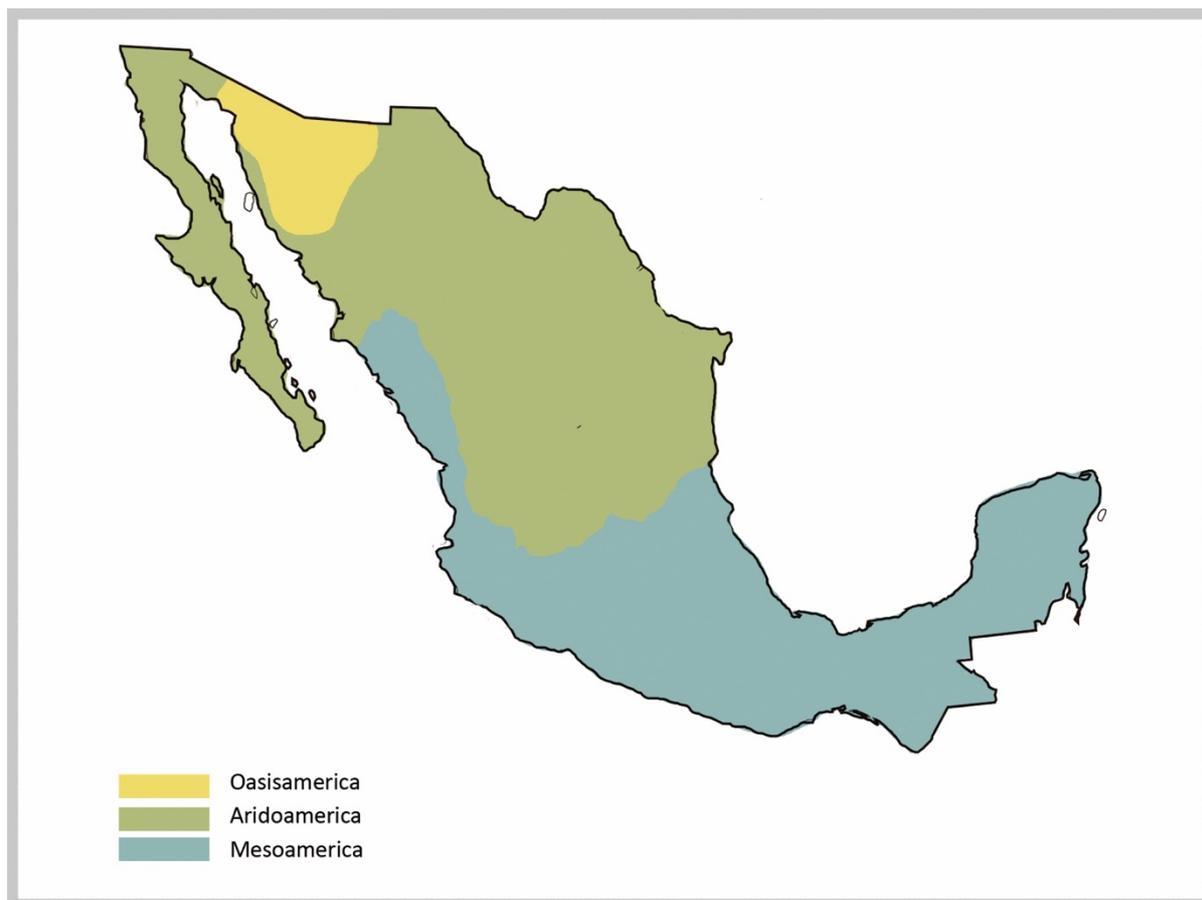


Figure 10 Distribution of Mesoamerica, Aridoamerica and Oasisamerica in what is now called Mexico.

Figure 10 shows that the northern half of the Mexican territory belongs to Aridoamerica, and the bottom half to Mesoamerica. Oasisamerica is located within Aridoamerica. The cultural zone of Mesoamerica is characterised by the presence of rich soils, plenty of fresh water, high levels of biodiversity, and good weather with mild variations throughout the year (Navarrete Linares, 2008). These conditions made it possible for the IPs of this area, as they established themselves, to develop agriculture. The constant access to food from agriculture led to a sedentariness that allowed the IPs of this cultural zone to develop complex societies that led to great civilizations (Navarrete Linares, 2008).

The five major ancient civilizations of the country are: Aztec, Mayan, Teotihuacan, Olmec and Toltec, all developed in Mesoamerica. Each civilization sought to build an internal political hierarchy, as well as to dominate the region. In this cultural zone, the lower classes of the hierarchy, as well as the dominant groups, were forced to pay 'tribute' or tax to the governors of the area (Navarrete Linares, 2010; López Austin & López Luján, 1996).

Contrastingly, Aridoamerica is located in a dry area of the country, where access to water is limited and the predominant ecosystem is the desert. The IPs who established their lives in this cultural zone did not encounter appropriate conditions to develop agriculture. Instead, they developed societies based on the natural cycles of the area, with complex hunter and gather strategies. In Aridoamerica, no tribute (tax) had to be paid (Gorostiza et al., 2012; López Austin & López Luján, 1996; Navarrete Linares, 2008).

The establishment of the IPs in Oasisamerica started approximately two thousand years later than the establishment of Indigenous people in Mesoamerica and Aridoamerica (Navarrete Linares, 2008). This land is notable for being a dry territory, with access to the water streams of four large rivers: the Yaqui, Bravo, Gila and Casas Grandes (and, hence, it has been called a desert with a green spot). The presence of these water streams allowed the IPs to complement their hunter and gatherer diet with agricultural techniques developed in Mesoamerica (Hills, 2012). Oasisamerica is rich in turquoise, a material highly appreciated by Mesoamerican civilizations. This allowed the establishment of commercial relations between Oasisamerica, which provided turquoise, and Mesoamerica, who provided agricultural supplies (Navarrete Linares, 2008; Hills, 2012). Oasisamerica did not form complex political societies (López Austin & López Luján, 1996; Navarrete Linares, 2008).

The presence of conditions for developing agriculture in Mesoamerica and Oasisamerica led to a fast growth in their populations. This is still reflected today, as the majority of the IPs of Mexico currently live in Mesoamerica, followed by Oasisamerica and lastly by Aridoamerica (Serrano Carreto, 2006). Figure 11 shows this distribution.

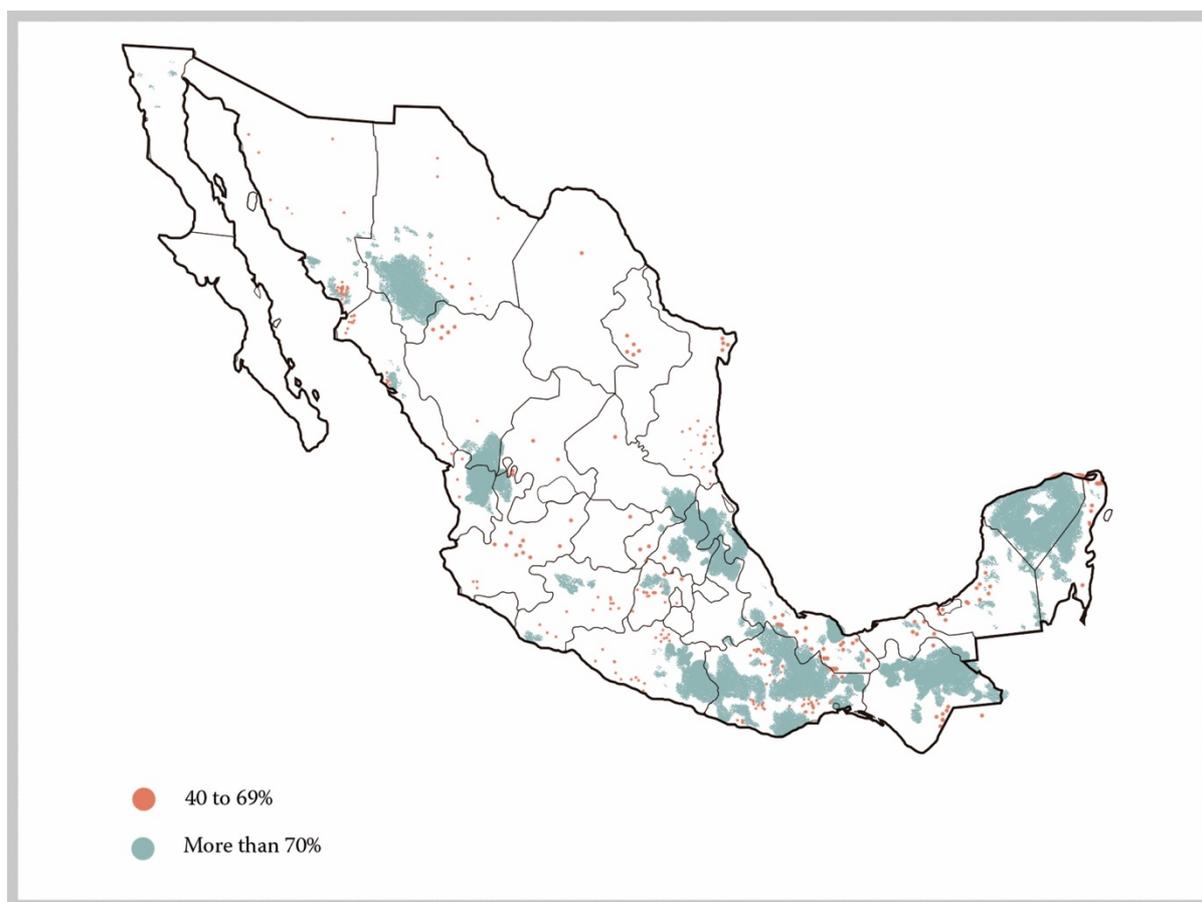


Figure 11 Current distribution of IP in Mexico.

Figure 11 illustrates the localisation of the municipalities inhabited by more than 40 per cent of the Indigenous peoples of Mexico. The map shows how the current distribution of Indigenous regions corresponds to the cultural zones of Mesoamerica and Oasisamerica (see Figure 7). The different cultural zones gave way to very different political and economic systems between the three regions, all of them complex in various ways. The adaptation of different Indigenous communities to specific ecosystems and particular habitats within these ecosystems, led Indigenous people to develop different production systems, resulting in different ways of life.

Cultural diversity: ecosystems diversity

The second event behind the different ways of life of the IPs of Mexico is the diversity of ecosystems present in the region (Navarro Linares, 2008). The Mexican territory holds nine out of eleven types of ecosystems recognised worldwide (Challenger, 1998). To survive, IPs developed strategies for the particular ecosystem in which they were living. In accordance, Navarrete Linares (2008), claims that the heterogeneity of the IPs of Mexico is deeply related to the different practices developed by different groups, and specifically

created in order to adapt to a particular ecosystem. The biggest diversity in ecosystem type is found in Mesoamerica (íbid). Figure 12 shows the relationship between the cultural zones and the distribution of its ecosystems.

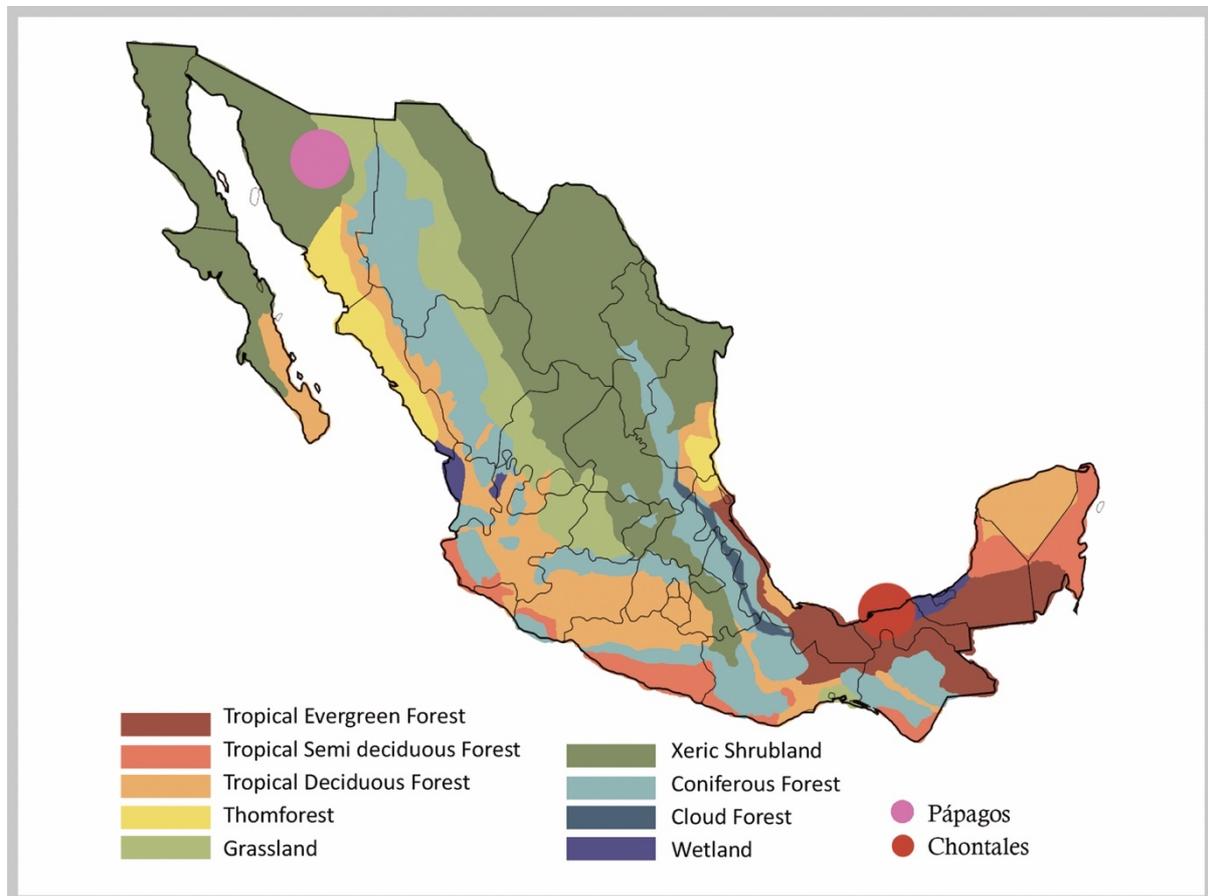


Figure 12 Distribution of the ecosystems present in the country

Figure 12 shows the wide range of ecosystems in Mexico, most of which are located in Mesoamerica. A study conducted by the ICUN Office for Mexico, Central America and the Caribbean (2016) determined that the healthiest ecosystems in Mexico are located where Indigenous communities are distributed. Ituarte Lima (2006) suggests that Indigenous communities are the owners and *the protectors* of much of the biodiversity of the country. The majority of the lands owned by Indigenous peoples are well preserved. This situation can be explained through the ecocentric ideologies that Indigenous peoples in the country practice (Navarrete Linares, 2008).

The Indigenous worldviews of the region emerged from the observations of constellations, plants, animals, fungus, rocks, water, soil, landscapes, vegetation, etc. According to the ecosystem in which they are located, different IPs have developed understandings about different complex natural phenomena such as “geophysics, biologic

and ecologic processes, like Earth movements, climate and hydrologic cycles, life cycles, floration periods, fruitification, germination, and phenomena of recuperation of ecosystems and landscape management” (My translation, Toledo & and Barrera-Bassols, 2008, p.75). The knowledge gained from these observations informs Indigenous ways of being. While the epistemologies of the IPs of Aridoamerica have stronger spiritual ties to the animals they hunt or fish, the epistemologies of the IPs of Mesoamerica have closer spiritual ties to the crops they have domesticated (Navarrete Linares, 2008).

Indigenous knowledge systems

The knowledges of the IPs of Aridoamerica, Mesoamerica and Oasisamerica are interwoven with spiritual explanations (Navarrete Linares, 2008). Within these worldviews, there is no divide between Nature and humans. There is a common understanding that all the components of the world are spiritual entities. The land is sacred and provides sustenance, protection, interaction and spiritual space. It constitutes an essential part of history, identity and life itself. What happens in one has consequences for the other (Montes, 1999).

Within most of the Indigenous knowledges of Mexico, the idea of equilibrium is crucial. For IPs, the cosmos is in continuous motion and perpetual changing. It is the task of the people to maintain this change with relative harmony. This harmony leads to the equilibrium necessary to support all aspects of the community. It is needed for life, health and peace. Indigenous people believe they cannot exceed the capacity of ecosystems to sustain themselves, and resist threats, when managing natural resources (Ramos Vázquez, 2011). Hunting without permission or wasting crops causes damage to the community. This causes IPs to actively prevent deterioration to their environments (Navarro Linares, 2008).

These knowledges, along with the knowledges of the IPs of the rest of the globe, are being referred to as ‘Indigenous science’ by Indigenous and non-Indigenous academics, such as Snively and Williams (2016) and Ogawa (1989). Snively and Williams (2016) argues that every culture is able to generate knowledge through “empirical data, observation, curiosity, experimental procedures, rationality, intuition, predictability and cause and effect relationships.” Berkes (Berkes, Colding, & Folke, 2000) acknowledges the similarities between Indigenous Knowledge Systems (IKS) and Western science because of their common basis in observation. Like Western science, IKS responds, adjusts and evolves to environmental and social changes (Berkes, Folke, & Colding, 2000). Both the natural and

social environments are subject to unpredictable changes to which IPs have to adapt (Simpson, 2004; Shava, 2013). The Subcomandante Marcos, former spokesman of the Zapatista Army explains “we have to be able to change in order to survive” (EZLN, 2015, p. 355). The knowledges of IPs are not frozen in time, but are dynamic and have the capacity to evolve in the same way Western knowledge does (Hall et al., 2000; Snively & Williams, 2016).

Ogawa (1989) recognises: “every culture has its own science ... Western Science is only one form of science among the sciences of the world” (p. 248). Snively and Corsiglia (2001) remind us that there are scholars demanding the definition of science be broadened to include non-Western ways of knowing. Snively and Williams (2016) recognises that Indigenous and Western knowledge systems were developed as a way to experience and make sense of the natural environment, and therefore, should be considered parallel models of acquiring knowledge about the universe.

Each of the different epistemologies of the IPs of Mexico offers the possibility to become ‘germs of the society of tomorrow’, and to inform emergent transitioning discourses that could ‘crack open’ the modernity paradigm. Some of these epistemologies are already informing social movements that propose an alternative to neoliberalism (Toledo, 2011).

Alternatives emerging from Indigenous epistemologies in Mexico

In Mexico, the territories of IPs are located within the most highly biodiverse ecosystems of the country. Boegue (2012) says that estimating the total size of Indigenous territories in Mexico is challenging due to its location being immerse within lands that belong to non-Indigenous campesinos (people that live in rural areas and sustain themselves by working the land). The most recent study published by Boege (2012) estimates that the IPs of Mexico possess more than 14 per cent of the land of Mexico. An important percentage of these territories includes rainforests, forests, cloud forests and other ecosystems with high levels of biodiversity (Ramos Vázquez, 2011). As an example, more than 50 per cent of the rainforests of the entire country are located on IPs lands (Boege, 2008). The same is true for freshwater availability, where 81 per cent of territories are considered crucial to the collection of freshwater (Ituarte Lima, 2006). 70 per cent of

their territories are considered priority areas for terrestrial and hydrological conservation, as well as for the conservation of birds (Boege, 2008).

Since the entrance of neoliberalism into the territories, both the IPs and their territories have been severely affected by a growing number of extractivist activities (see Chapter three). This has caused Mexico to become what Toledo (2011) has described as “a vast scene of battles between citizen forces and hundreds of mining, hydraulic, energy, tourism, agricultural, forestry, chemical and even biotechnological projects (My translation, p.1)”.

These ‘battles’ can be found in virtually every state of the country and offer alternatives to extractivist practices and the Eurocentric logic that underpins economic growth. These alternatives range from autonomous communities and alternative currencies, to agri-ecological cooperatives and forest community management programs. There are more than two thousand of them, and each offers alternative pathways and ways of living and thinking about being in harmony with Nature (Toledo, 2011). Civilians, NGOs, academics, teachers, students, and even branches of the Catholic Church have joined the IPs, and other rural communities, in their epistemological fight to defend Nature. These epistemic fights seek a radical transformation of society from within their own collective, and are organised as a bottom-up popular response to the political vacuum around the safety of the people and Nature (Escobar, 2011). Each of these movements offers a ‘germ of the future societies’ (Ouviña, 2013) with the potential to become a ‘transitioning discourse’ (Escobar, 2011) that could open ‘cracks’ in the modernity paradigm (Walsh, 2013), like the Sumak Kawsay.

Within these movements, the one with the most visibility, both nationally and internationally, is that offered by the Zapatistas. The Zapatistas rose as an army under the name of Zapatista Movement of National Freedom (EZLN). This army is composed of Tzetzal, Tzotzil, Chol, Tojolobal and Mam Indigenous women and men whose ways of living have been legally denied. The army had the purpose of bringing attention to the south of the country; the poorest and most forgotten region. The Zapatista army never intended to take control of government institutions to bring change to their communities. In the book *Marcos, la Dignidad Rebelde* (Ramonet, 2001), the Subcomandante Marcos, former spokesman of the EZLN (in Ramonet, 2001) has argued:

a revolutionary mainly proposes to transform things from the top, not from the bottom, which is the opposite of what a social rebel does. The revolutionary argues: 'we are going to make a move, I take power and from there. I transform things.' And the social rebel does the opposite. The social rebel organizes the masses and starts a transformation from the bottom, without having to consider the question of taking power (My translation, p.15).

The Zapatistas are social rebels who have sought to decolonise the One World-World from the bottom. And they have advanced significantly in this transformation. As Concheiro Borquez and Nunez (2014) argue, the rise of the EZLN has meant a rupture in the history of Mexico. For the first time, a voice emerged from the south of Mexico that said that another world is possible. The Zapatista movement claimed that the current world did not have a place for them, so they were going to build another world. As the Subcomandante Marcos expressed in 1996:

There is a place for all of us in the world we want. The world we want is one in which many worlds can coexist. The homeland that we are building is one where all the peoples and their languages have a place, where all the steps walk on it, where everybody laughs, where everyone finds dawn (Subcomandante Marcos, 1996, Pt. III, para. 3) .

The Zapatistas argue that decolonising the epistemic sphere is the only way to bring change. A crucial component of their crusade is the education of their communities (Ouviña, 2017). In order to develop their own educational materials and pedagogies that might break with the logic of Eurocentric thought, the Zapatista communities deny the intervention of the Ministry of School. Today, they have more than 500 hundred Autonomous Zapatistas Rebel Schools, in which students learn that the epistemic fight is a territorial fight. This contrasts with the views of the non-Indigenous population, who think of land and education as two separate things (íbid). Figure 13 shows one of the autonomous Zapatista schools.



Figure 13 Photograph of a mural on the wall of an Autonomous Zapatistas Rebel School

The text in yellow says Autonomous Zapatistas Rebel School, and the book reads “Autonomous Education Builds Different Worlds in which Many Different True Worlds can co-exist with Truths.” The bright colours are a characteristic of the Zapatista murals.

The Zapatista discourse awoke a national movement to seek other possible worlds that could break with Eurocentric logic (Concheiro Bórquez & Núñez, 2014). Hundreds of movements started to emerge, and the ones that were already consolidated started to gain visibility. The Zapatista uprising also attracted the attention of several academics. Within the many research topics around the EZLN, the good living paradigm garnered attention. Two of the five Indigenous groups that composed the movement have been studied. These are the Jlekilaltik of the Tojolobal people, which translates as ‘good life for everyone’ (Castellanos Nájera, 2013) ; and the Lekil kuxlejal of the Tzetzal people, which translates as ‘life harmony’ (Quilaqueo & Sartorello, 2018). Aside from the paradigms that inform the way of life of some of the IPs of the EZLN, only the Mayan paradigm, the Utz K’aslemaal, which translates as ‘living life plenty’, has been studied (García Ixmatá, 2010). The remaining paradigms remain unexplored or unpublished.

The coloniality of knowledges

Despite the viability of the alternative and transitioning discourses emerging from the knowledge systems of IPs, the coloniality of knowledges (where Western knowledge is

help up as *the only* valid way to think), continued to obstruct the visibility of Indigenous alternatives. It did this by imposing a (thought) barrier between the people in the cities, and the people in the rural areas. The Subcomandante Marcos (2007) explains it with the following analogy:

...there was a moment when the paradigms were marked from a geographic centre and from there they spread towards the periphery, like a stone thrown in the centre of a pond. The conceptual stone touched the surface of the theory and produced a series of ripples that affected and modified the various scientific and technical tasks adjacent to it. The consistency of the analytical and reflective thinking made, and continues to make, these waves remain defined ...The same density of theoretical production could perhaps explain why the waves, more often than not, do not reach the shore, that is, reality (My translation, 2007, para. 13).

It is from the shore of the pond where 'reality' remains outside of the modernity paradigm. This is where the IPs of Mexico are offering alternatives. However, these alternatives remain hidden from the majority of the Mexican population, who are not even aware of the existence of the shore. The shore constitutes an opportunity to understand the world in different ways from that of modernity. However, the urban population –who according to the most recent census accounts for 80 percent of the population which accounts for 80 per cent of the population of Mexico (INEGI, 2010)– rarely gets exposed to any of these experiences. When the urban population do get exposed to alternative thinking constructed from Indigenous epistemologies, like the Zapatista project, they discard them under the guise that Indigenous epistemologies do not have the capacity to offer anything beyond the local sphere (Concheiro Borquez & Nunez, 2014).

Sousa Santos (2010) argues that this lack of valuing of other knowledge systems is a feature of Eurocentric narratives underpinning Western knowledge systems. The author claims Western knowledge prevents us from valuing other knowledge systems, as it actively works to make them appear non-existent. The 'monoculture rationality' of modern thought disqualifies every alternative that is not produced through a Western knowledge framework by labelling it prehistoric, backwards, and inferior (Shiva, 1993). As a result, the alternatives proposed by IPs are perceived as not valuable, and discarded before looking at them (Sousa Santos, 2010). The alternatives considered capable of offering 'real' solutions to complex

global problems are perceived to be the ones informed by Eurocentric epistemologies only, thus reinforcing the coloniality of knowledges.

The perceptions of non-Indigenous Mexicans regarding Indigenous knowledge systems are explored next.

Non-Indigenous Mexican perceptions of Indigenous knowledge systems (IKS)

Souza Santos (2009) argues modern institutions continue to reproduce the perception of Western science having a “monopoly on the universal distinction between what is true and false” (p. 162). Since the colonisation of the Americas, one of the Western institutions responsible for denying the value of IKS and imposing Western knowledge systems (WKS) as the only way of understanding the world, has been education (Grosfoguel, 2015). There is only one recent study analysing the way in which IKS are portrayed in the materials and curriculum of the Mexican education system.

The study, conducted by Pacheco Ladrón de Guevara et al. (2011), argues that the notion of the non-existence of alternatives outside of Western knowledge is perpetuated by the Mexican education system. The authors analysed the ways in which the IPs of Mexico were portrayed in free education books, which are mandatory in Mexico, except in Indigenous communities. The books have a strong focus on a unified national identity, that is, a mestizo identity. Indigenous peoples are often absent and their non-existence in the present is even implied. The authors find an example of this is the history book for the 4th year of elementary school, which states:

As the Spanish moved northwards, the Chichimeca tribes of San Luis Potosí, Zacatecas, Aguascalientes, Coahuila, Durango [these are the names of five Mexican states], mingled with each other and with the Spaniards and the indigenous people (sic) of the centre, who began to become that mestizo population we the Mexicans are today (Pacheco Ladrón de Guevara et al., 2011, p.530).

The history being taught at school in Mexico today implies that IPs participated in the mestizaje project and now Mexico is a country with mestizos, with no IPs. The book also inferiorises Indigenous communities by calling them “tribes.” Accordingly, the free education books claim the Spanish language “unites” us all as Mexicans, and reinforces the idea of language homogeneity as something positive.

Further, Pacheco Ladrón de Guevara et al. (2011) argue that in all subjects, the books focus on the IPs of 500 years ago, and the Indigenous groups of Aridoamerica are discriminated against. The heritage of the IPs is reduced to that of the 'big civilizations' only. However, the knowledges of the big civilisations are reduced to beliefs, and are mostly referred to in the past tense, "the mesoamericans believed" (p.534). The books claim the biggest 'heritage' we have from IPs is Mesoamerican agriculture. The use of the past tense and words like 'heritage' instead of 'contributions' implies that IPs and their knowledges do not exist anymore. The recognition of the domestication of crops, fruits and vegetables is linked to an advanced knowledge of the land. However, these books portray the domestication process as something that happened thousands of years ago. and do not mention the current role of IPs in generating crop and fruit varieties that can adapt to current patterns. The books do not mention any other aspect of Indigenous knowledges such as their socio-economic systems, their place-based pedagogies, the values that inform their ways of being. The only other aspects recognised are their folklore and their beautiful crafts.

The study of Pacheco Ladrón de Guevara et al. (2011) shows how the representations of IKS in the Mexican education system perpetuate the hegemony of Western knowledge, and with it, prevent non-Indigenous population looking for alternatives in the 'shore of the pond'. Most non-Indigenous peoples in Mexico do not have direct contact with Indigenous people, except with impoverished individuals that have migrated to the city. As such, the representations children learn at school, along with in the media, contribute to shape the public perception of IKS.

The most recent study on discrimination, including perceptions about IKS, was conducted by the National Commission for the Development of the Indigenous Peoples (CDI), more than 10 years ago (CDI, 2006). The study revealed that even when Mexico is a mestizo country where virtually all the population has Indigenous heritage, the mestizo and White populations have almost no knowledge, that is know little, about Indigenous people living in contemporary times. The study shows Mexicans are proud of their Indigenous heritage, even more so than their European heritage. However, the participants only associated 'Indigenous' with the glorious past of the Aztec, Mayan, Olmec and Teotihuacan civilizations. The objects of pride identified were the ruins of past civilisations and Indigenous contribution to Mexican and international cuisine.

When asked about knowledges, the story is very different. While the participants identified the Spanish colonisers as the ones responsible for introducing 'civilisation' to the Americas, they associated historical Indigenous people with savagery. The study showed that the asymmetries between the value of Eurocentric and Western knowledges was not perceived as discriminatory by the participants, since the superiority of Western knowledge is considered an undisputed fact (CDI, 2006). The current Mestizo and White populations are associated with having superior knowledge while Indigenous people are seen as ignorant and uneducated. Western education is understood as the only education worth having and Indigenous approaches to education are not perceived as 'real' education. Accordingly, Indigenous languages are perceived as 'simpler dialects' (CDI, 2006).

Another common misconception is that Indigenous knowledges belong to the past, and these knowledges belong in a museum. At best, Indigenous knowledges are perceived as valuable only within their own communities, or for pointing Western science to medicinal plants (CDI, 2006). Shava (2013) criticises this approach since it portrays IKS as a resource that can be "utilised, decontextualised, institutionalised, commodified and universalised" (p. 392). This further reduces IKS to a 'treasure box' of clever ideas that can be used by Western science (Hoppers, 2001).

The study also shows that the participants in the study could only identify an average of 1.6 Indigenous groups. The participants had rarely been in contact with Indigenous communities. This meant the results of the study did not come from people being in contact with IP on their lands, but with the Indigenous population who had migrated to cities (CDI 2006). Some participants were not aware of the presence of Indigenous communities who, before colonisation, were living in big metropolitan areas and continue to do so today, like the Nahuas of Mexico City. According to the participants, very few Indigenous groups are located in secluded areas away from "civilization". The study revealed that when Indigenous people adopt Western traditions or technology, some participants thought Indigenous people were no longer 'pure'. As a participant stated: "I was in touch with people from a small town in the Mayan zone. I do not know what classification to give it because they were civilized Indigenous peoples" (My translation, CDI, 2006, p.15).

The results of the discrimination study (CDI, 2006) provide evidence of how the alternatives proposed at the 'shore of the pond', independently of how great they might be, have an almost absolute chance of being discarded a priori. The urban population do not

have to look at them to know they are not valuable. The fact that there is only one study about how IKS are represented in the Mexican education system, and that the most recent discrimination study that includes perceptions about IKS was conducted in 2006, is evidence of how IKS do not have a place in the collective discourse of Mexico. While this situation continues, the alternatives being proposed by IPs will continue not to be heard and will not have an opportunity to become 'germs of the future societies' (Ouviña, 2013) and inform transitioning discourses. As Toledo (2011) explains:

One way to neutralize the anti-systemic struggles, the battles against neo-liberalism, is to keep them isolated, restricted to their local or regional spheres. This prevents larger actions, especially those of a political Nature (My translation, p. 5).

To build a *pluriverse*, it is first necessary to make non-Indigenous people aware of the coloniality of knowledges that sustains the privileged position of Western knowledge above the Other knowledge systems present in the world. Only then will pathways for bringing change – that do not perpetuate a modernity/coloniality paradigm in which we are immersed – be possible. Decolonial pedagogies can guide participants to unlearn the knowledge hierarchies imposed by the modernity/coloniality project. This process needs to occur in order to, then, re-learn from the *plurality* of knowledges that have been produced as non-existing by the current *One-World* World paradigm.

Decolonial pedagogies guide students to become aware of the colonial side of modernity, and the racism, epistemic racism and anthropocentrism it entails. These pedagogies analyse how the coloniality of knowledges reproduces the socio-environmental problems of everyday, even when looking for solutions. Following the Subcomandante Marco's analogy, decolonial perspectives introduce participants to the knowledge systems present in the 'shore of the pond'. Looking at the shore opens up a world of previously denied possibilities for creating change. This is further explained in the next chapter.

Conclusion

This is the final chapter of '**Part II: Learning to un-learn**' which contained the literature review needed for *learning to un-learn* the Eurocentric narratives that have been presented as universal truths. It explored literature offering alternatives to the socio-environmental crisis in the knowledge systems that have been marginalised and invalidated by the

hegemony of Western knowledge. The literature review presented in this chapter shows the infinite possibilities of change that arise from thinking from a non-Eurocentric knowledge system. The chapter analysed how the most recent radical transformation in the way we understand our relationship with Nature – the rights of Nature – emerged from a logic that is not limited by Western epistemic boundaries. This chapter also explored how the cultural, natural and political situation of Mexico provides an adequate context for the emergence of alternatives that moves thinking away from modernity. The chapter concluded by showing that these alternatives remain hidden under the colonality of knowledges, which perpetuates the notion of Western knowledge systems as the only true knowledge, and the only knowledge from which solutions to current problems can materialise.

In the following **Part III: learning to re-learn**, the chapters introduce the reader to the epistemologies of the Nahua people of Cuetzalan, and to the alternatives they are proposing for living outside of the logic of modernity/coloniality. Subsequently **Part IV: Empowering**, brings together the three counter-narratives presented in this part of the thesis, and the epistemologies of the Nahua people of Cuetzalan, that inform the design of the proposed decolonial pedagogy.

PART III: LEARNING TO RE-LEARN

The process of **learning to re-learn** involves learning from non-Eurocentric epistemologies in order to widen the perspectives from which to understand the world. Learning to relearn allows learners to surpass the ‘thinking’ borders imposed by Eurocentric knowledges, and to rethink with the alternatives available to bring about change to the socio-environmental crisis.

In the decolonial pedagogy designed in this thesis, participants are introduced to the epistemologies of the Nahua people of Cuetzalan. Relearning from the Nahua people of Cuetzalan opens pathways to bringing change that are unthinkable within the modernity/coloniality paradigm. The narratives shared in **Part III: learning to re-learn**, are consistent with the claim made in **Chapter five** regarding the potential of Mexico to find the “germs of the society of the future”, as Ouviaña calls the Indigenous paradigms that have the potential to transform the sphere of knowledge, such as the Buen Vivir of the kichwa people of Ecuador.

The following chapters, **Chapters six and seven**, introduce the reader to the insights I gained from re-learning from the epistemologies of the Nahua people of Cuetzalan through a series of yarnings. These yarnings led to establishing a partnership with members of the Nahua communities. Both chapters share valuable insights into the Nahua epistemologies, which are the epistemologies that guided the design of the learning to re-learn process. This design underpins the decolonial pedagogy of this research and teaching project.

In **chapter six**, I discuss the Nahua epistemology, and describe their knowledge system as it concerns the relationship between people, and between Nature and people. In **chapter seven**, I discuss how this epistemology has evolved as an alternative to modernity. I also introduce the reader to the two partnerships I developed through my three visits to the community.

It is important to remind the reader that the aim of the yarnings conducted with the Nahua community was to establish a partnership with some of its members that could outlast the duration of this study. This way, the Nahua people involved in this project possibly will continue to guide the participants who wished to participate in the decolonial pedagogy into the future.

Chapters six and seven show the possibilities that arise from learning from the Nahua people from Cuetzalan. Please note that these chapters should be interpreted as *insights* gained from *re-learning* from the Nahua community. They should not, by any means, be understood as *narratives* that describe Nahua epistemologies. If seeking narratives or direct quotes from Nahua community members, go directly to primary sources, that is, narratives written *by Nahua people themselves*. The narratives written by Nahua people – which were provided to me by the Nahua community – are referenced throughout both chapters.

Chapter six: Re-learning from the epistemologies of the Nahuatl people of Cuetzalan

“In taol, tonelilis” (Nahuatl)
El maíz es nuestra vida (Spanish)
Corn is our life.
Taller de Tradición Oral, (2016).

Introduction

This chapter explores Nahuatl epistemologies as these knowledges express the way the Nahuatl of Cuetzalan understand their relationship with Nature, and with people. These epistemologies constitute the basis of the Nahuatl alternatives, and/or transitioning discourses from modernity, that are being proposed in Cuetzalan as a response to the extractivist practices present in the region. In order to understand these epistemologies, I positioned myself as a learner when undertaking this project.

Following the premise of decolonial thinking and decolonial pedagogies, the temporal-spatial context in which knowledge is produced, along with the people that are creating knowledge, are as important as knowledge itself. As such, this chapter first introduces the reader to the context of Cuetzalan, and then introduces the participants of the yarnings. Only after this information has been introduced, do I discuss the insights I learned. In this last part of the chapter, I use corn as a conductive thread, as corn is a common element in my identity and for the Nahuatl.

This chapter connects with **Part II. Learning to un-learn**, as it explores how Nahuatl epistemologies conceive of Nature and humans in a different way to that offered by modernity and subsequently practicing very different ways of living. The chapter also shows the way yarnings facilitate a deep understanding of the Nahuatl epistemologies. The narratives presented in this chapter continue in **Chapter eight**, where the alternative pathways offered by the Nahuatl people, along with their connection to the Nahuatl epistemologies, are explored further.

Context: extractivism and the Sierra Norte

Cuetzalan is located in the State of Puebla, in Mexico (see Figure 14). The Sierra Norte is a mountainous region where different types of climate, vegetation, topography, and sedimentary soil converge, making it one of the most biologically rich areas of tropical Mexico (Beaucage & Taller de Tradición Oral, 2012). The Sierra Norte is culturally different from the rest of the state of Puebla, as the Indigenous population make up the majority of the population. The IPs are mostly Nahuatl, followed by a smaller number of Totonacos, with a Mazateco minority. Cuetzalan is the most populated municipality in the Sierra Norte. Its Indigenous population accounts for more than 80 per cent of the total 47, 000 inhabitants. Most of the Indigenous population of Cuetzalan is Nahuatl, who live mostly off their complex agri-ecosystems (agri-ecosystems are ecosystems managed by humans for the production of plants and animals that can be of use to the community) (Beaucage, Durán Olguín, Rivadeneyra Pasquel, & Olvera Ramírez, 2017; Beaucage & Taller de Tradición Oral, 2012). The Nahuatl people call themselves maseual, which is Nahuatl for campesino (people that live in rural areas and sustain themselves by working the land). The mestizo minority lives and works in the City of Cuetzalan, the capital of the municipality (Taller de Tradición Oral, 1994).

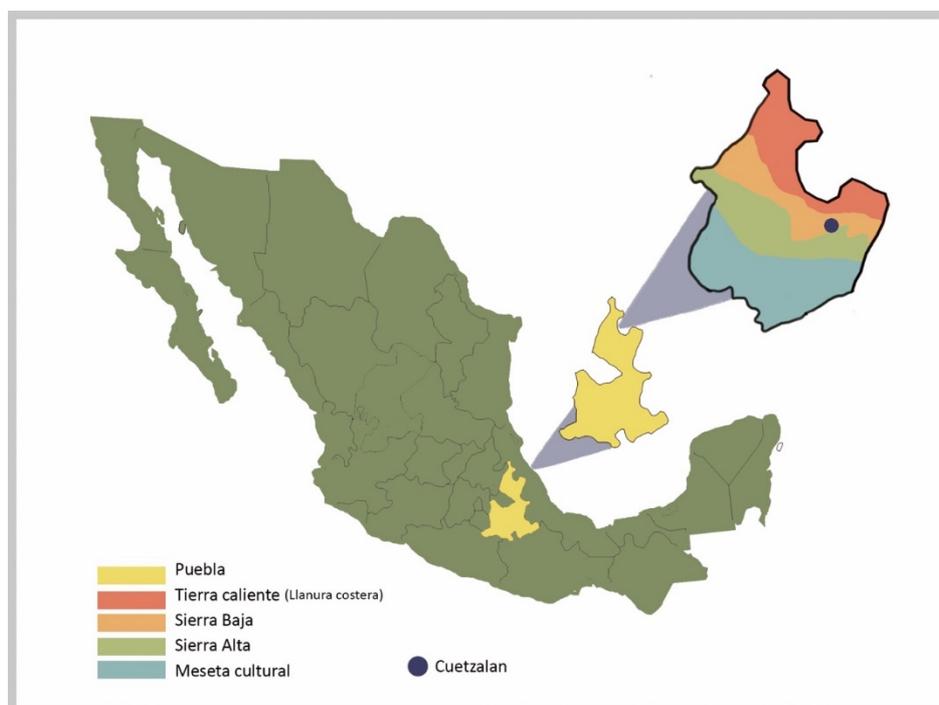


Figure 14 Map of the localisation of Cuetzalan in the Sierra Norte. Figure elaborated for this thesis based on Beaucage & Taller de Tradición oral (2012).

Figure 14 shows the geographical distribution of Cuetzalan, as well as the area that comprises the Sierra Norte. The Sierra Norte is divided into four zones, according to elevation: The Sierra Caliente; the Sierra Baja (the lower Sierra); the Sierra Alta (the higher Sierra); and the Meseta Cultural. Cuetzalan is part of the Sierra Baja. The different colours indicate the three zones which the Sierra is divided into, according to its elevations. Cuetzalan is part of the Sierra Baja, the lower Sierra, that is, the part of the mountain chain with lower elevation. The weather in this region supports agriculture all year-round.

The Sierra Norte is one of the regions most affected by extractivist projects in the country (Linsalata, 2017). In less than 10 years, approximately 20 per cent of the territory has been granted to mining companies that belong to seven different countries: Mexico, Canada, Belgium, Ireland, Italy, the United States and China. Within the municipality of Cuetzalan, the federal government granted three mining concessions for the exploitation of gold, silver and copper (íbid). The three concessions could have a devastating impact, as they are located in an area of crucial importance for aquifers. This area is also where the main springs, that provide water to Indigenous communities, are located. The federal government has also previously granted permits to build a series of hydroelectric dams that are yet to be build. These dams would provide the water and energy needed in both mining and hydrocarbon exploitations (Monteros, 2015; Robledo Guerrero & Cerros Chávez, 2015).

The recent entry of mining and hydrocarbon megaprojects to this impoverished region is being faced by an unexpected, yet successful resistance, led by the Indigenous peoples of the region. In order to defend their land from the “proyectos de muerte” (death projects) as they call the extractivist practices, Indigenous organisations have managed to shield the territory through the current legal framework of the country. More specifically, IPs, in collaboration with the Autonomous Benemerit University of Puebla (BUAP), have found a legal loop hole that has served as an effective legal tool to stop both mining, and the hydroelectric dams (González, 2018; Linsalata, 2017).

This loop hole is found in the law that establishes the way the committees of territorial ordinances should be organised. Territorial ordinances are a legal tool to guide the direction in which a territory is transformed, in order to bring wellness to its inhabitants. To draft the plan for the territorial ordinance of Cuetzalan, Indigenous organisations of Cuetzalan, along with the BUAP, organised dozens of community meetings and workshops for the consultation, and negotiation, of the direction in which Cuetzalan should grow. The

territorial ordinance draft was approved unanimously by the community, and later approved by the federal government in 2010 (BUAP, 2010; COTIC, 2011; González, 2018).

Mexican law states that committees need to be constituted to monitor the territorial ordinances. Such committees must be integrated by regional, local and federal authorities, and “preferably” by representatives of the population. The law did not foresee a limit in the number of local representatives. The Indigenous peoples of Cuetzalan used the vagueness of the law to constitute the Committee of their territorial ordinance with more than 80 local members, most of whom are involved in politically-active Indigenous organisations (Linsalata, 2017). As such, the local representatives of the community of Cuetzalan outnumbered the number of representatives of the three levels of government, substantially. This makes the territorial ordinance of Cuetzalan the only one in the country in which the decisions are made by the Indigenous community. The ordinance has become the most important legal tool of Cuetzalan to limit the private appropriation of Indigenous lands (González, 2018; Linsalata, 2017; Robledo Guerrero & Cerros Chávez, 2015). The three mining concessions and the hydroelectric dams have been ruled illegal by the supreme justice court (González, 2018).

Due to the high numbers of community members on the committee, it is also the territorial ordinance with most civil participation in the country (González, 2018). There are Indigenous organisations involved in the committee, and territorial representatives offering continuous workshops of different duration to engage the population in the relevant matters of Cuetzalan. To keep the population informed in these matters, the committee has a communal radio station and a local newspaper. Additional communication materials are prepared for the most urgent matters (Íbid).

Yet, for the IPs of Cuetzalan, the process of defending their territory through the territorial ordinance has been far from easy. The extractivist companies, along with the local and federal governments, have found ways to criminalise the local representatives of the ordinance committee, and the violence directed towards the environmental activists has escalated. The Nahuatl people claim they have received death threats from the local government, and one of their members, Manuel Gaspar, was assassinated in June 2018 (Aristegui Noticias, 2018). Antonio was a Nahuatl leader who opposed the hydroelectric plant being pushed by the government and the extractivist companies. Academics and

postgraduate students conducting researching in relation to the extractivist activities have also been subject to harassment. See for example, Paneque-Gálvez et al., (2016).

Learning to re-learn

The resistance struggle of the Indigenous peoples of Cuetzalan is a common topic of academic studies. The increasing number of extractivist enterprises in the Sierra Norte, along with the resistance fight of the Indigenous peoples has been widely documented (see, for example, Beaucage, Durán Olgúin, Rivadeneyra Pasquel, & Olvera Ramírez, 2017; Linsalata, 2017; Paneque-Gálvez, Vargas-Ramírez, & Morales-Magaña, 2016; Robledo Guerrero & Cerros Chávez, 2015). Most of the studies conducted about the Nahua and Totonaco struggle of the Sierra Norte are what Ouviaña (2013) describes as “studies about” the Indigenous peoples and their fights. That is, studies that seek to understand the resistance of the Indigenous peoples from Western frameworks in which the fights are understood as subjects of study. Moving away from this approach, and in accordance with Ouviaña (2015, 2017), this study considers the resistance movements as “political-pedagogical subjects” from whom the researchers should learn. For this step of the thesis (learning to re-learn), I approached the individuals and collectives of Cuetzalan who are fighting to defend their lands as *pedagogues* who are proposing alternatives to move forward from the current “civilizational crisis” (Wallerstein 2003). In accordance with the arguments put forward in the previous chapter, this study is conducted with the aim of finding “germs of tomorrow's society” (Ouviaña). Seeking to empower myself by finding alternatives pathways to those established by modernity, I engage in a journey to learn to re-learn from Nahua epistemologies. This journey was guided by the research question: *How do the Nahua epistemologies understand the relationships between people and Nature, and between people.*

To answer this question, I followed Indigenous scholar Simpson's (2004) advice of “step outside of their privileged position (as academics) and challenge research that conforms to the guidelines outlined by the colonial power structure” (Simpson 2004, p. 381). As such, I selected yarnings as the method for re-learning from Nahua epistemologies. Conducting yarnings – informal talks with no prepared questions in advance – allowed me to position myself as a student, as participants guided the conversations to what they thought is important.

Yarnings

A total of three visits to the Nahua people of Cuetzalan were conducted during the months of January 2017, October 2017 and July 2018. Yarnings of different durations were performed during each of these visits. Yarnings took place in different locations of Cuetzalan. This was an important factor as the strength of Indigenous cultural identity varies between towns, and with it, the epistemologies that inform ways of living (Taller de Tradición Oral, 1994). Figure 15 shows the geographical distribution of each of the localities in which the yarnings with Nahua people were conducted, including the numbers of yarnings conducted in each locality.

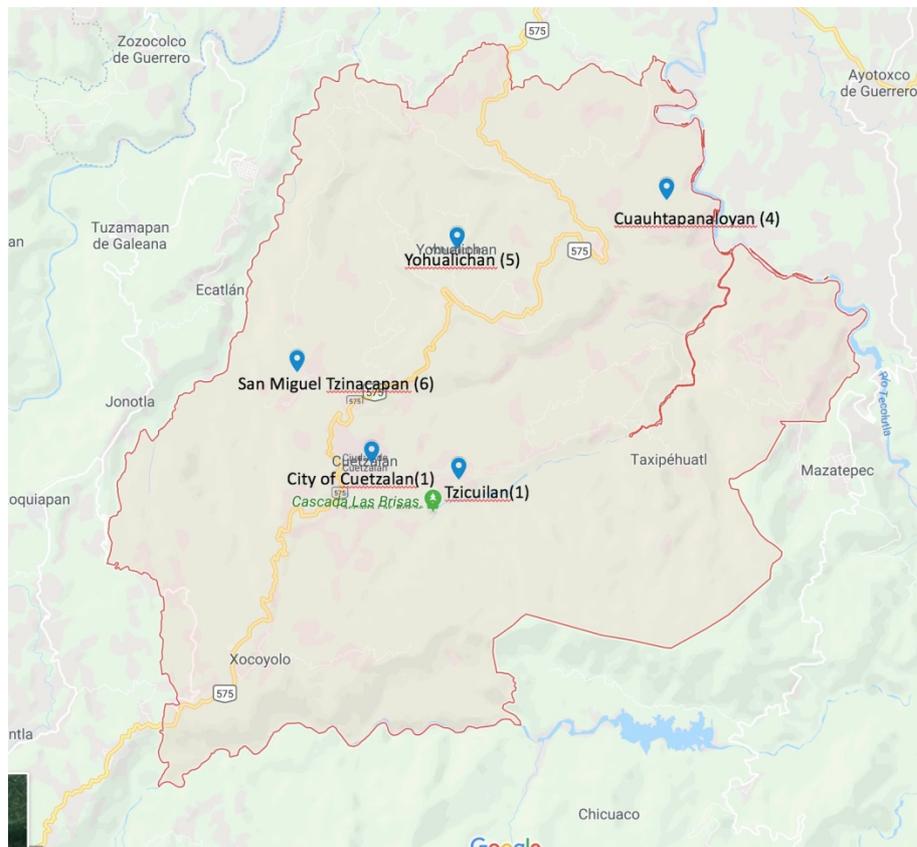


Figure 15 Map of the localities of Cuetzalan visited for conducting yarnings with the Nahuas.

Figure 15 shows the geographical location in which yarnings were conducted. The numbers of yarnings conducted in each locality is specified. A total of 17 participants were involved in yarnings. 13 were adults, and four were children. 16 of the participants lived in towns of the municipality, and one yarning was conducted with a participant from the City of Cuetzalan. This is consistent with most of the Nahua people living primarily in the towns of the municipality. In the following section, the participants in the study are introduced.

Participants and their locations

It is necessary to present a picture of the participants and their localities together, since the latter plays an important role in the identity of the Nahuas. A brief background of each of the community members that inform this study is included, as the construction of this counter-narrative (that is this thesis) is the result of a reflection/action process that emerged from the dialogues between the participants and me.

Recognising the participants by giving them a name and a story is important as the knowledges and experiences of each of the people that participated in the yarnings were decisive, as they led the direction of the conversation. It is also important to recognise the members involved in the story-sharing as the perspectives of the Nahua people inform this counter-narrative. Due to the ethics protocol that informs this research, the last name of the participants has been removed, yet the original name was kept as a way to recognise how these narratives (**Chapters six and seven**) are the result of a dialogue in which I am positioned as a learner. These narratives are not the result of studying Nahua epistemologies, but are the result of re-learning *from* Nahua epistemologies.

The participant's backgrounds illustrate the great diversity of resistance initiatives present in Cuetzalan, and give the reader an opportunity to become acquainted with the daily life of the Nahua people. The 'meters above sea level' of each community are included to highlight the rugged terrain of the region. In what follows, I present the localities and the individuals who participated in the yarnings. To help the reader navigate this section, Table 5 shows the participants and their locations has been included.

Table 5 Localities visited for the yarning sessions, and the initiatives they participated in and the participants.

| Locality | Initiative/occupation | Participant(s) |
|-----------------------|-----------------------------|--------------------------------|
| San Miguel Tzinacapan | Tosepan Tititataniske | Octavio |
| | Telesecundaria Tetsijtsilin | Coral, Griselda and Rubí |
| | Taller de Tradición oral | Don Pedro |
| | Canadian Anthropologist | Pierre |
| Yohualichan | Yohualichan A.C. | Iván, Lucila and Lucero |
| | Food market cook | Aracely |
| | Local Musician | José |
| Cuauhnapanaloyan | Meliponario Escuela | Roque, Rosa, Rosa Jr. and Rafa |
| Tzicuilan | Taller de Cera de Melipona | Eugenio |
| City of Cuetzalan | Ranchito Colibry | Verónica |

Town of San Miguel Tzinacapan (6 participants)

The town of San Miguel Tzinacapan is situated at 820 meters above sea level and has a population of 2,939 inhabitants, of which 99.25 per cent is Indigenous (Pueblos América, 2017). It is the town with the largest population, and it is also the one with the strongest Indigenous identity. Yarning sessions were conducted with six members at this locality. San Miguel Tzinacapan is the locality in which the Tosepan Titataniske Union of Cooperatives started. Tosepan Titataniske means “unidos venceremos” (together we will succeed) in Nahuatl. Started in 1977, today the Tosepan is integrated by 40,000 families, (most of whom are IPs). It is the largest cooperative in the State of Puebla (DeJesús-Amayo & Sánchez-Ramírez, 2017). I conducted several yarnings with Octavio, a member of the Tosepan Titataniske.

Another initiative to protect the Nahua knowledge of the region is the Escuela Telesecundaria Tetsijtsilin (telesecondary school Tesijtsilin). Tetsijtsilin means “stones that sing” in Nahuatl. The secondary school is one of the educational institutions with the most national and international recognition due to its “culturally pertinent” pedagogical proposal (Morales Espinosa, 2012). Tetsijtsilin was founded in the 1980s and combines Western education requirements by the Ministry of Education with practices that strengthen the Nahua identity. Some of those practices include active learning, place-based education and seminars to discuss the world from a Nahua perspective, in Nahuatl. It is the only secondary school in the state of Puebla that teaches Nahuatl (Íbid). The school incorporates a strong focus on agriculture, since it is the basis of the town. Students cultivate corn, coffee, medicinal plants, and honey from the native bees, amongst other products. I conducted yarning sessions with the director of Tetsijtsilin, Dr. Coral, who is originally non-Nahua but has been directing Tetsijtsilin for many years. She has learned the Nahua language and is now considered part of the community. Griselda and Rubí, two students who are 13 years old, also participated in a yarning session, the longest one I conducted, as they were very proud to share all their knowledge. “We have taught you a lot”, Rubí told me by the end of the yarning.

In Tetsijtsilin, I also conducted a yarning with Don Pedro, who is a Nahua Elder and teaches Nahuatl in the school. Don Pedro is one of the founders of another initiative that emerged in San Miguel Tzinacapan, the Taller de Tradición Oral (Oral Tradition Workshop), an initiative that seeks to document the stories of the Nahua people. Since its foundation in

1981, the Taller has been actively working to rescue, reflect on, and share the oral traditions of the region through publications and theatre (plays). See, for example, Taller de Tradición Oral, (1994).

In Tosepan Kali, I conducted the last yarning with Pierre Beaucage, a Canadian anthropologist that has been very involved with the people of San Miguel Tzinacapan since the 1970s, a decade when he started conducting research in the region. His work is appreciated by the Nahua community, and he has co-written several publications with the Taller de Tradición Oral. See for example Beaucage and Taller de Tradición Oral (2012).

The Town of Yohualichan (5 participants)

The town of Yohualichan is situated at 574 meters above sea level and has a population of 574 inhabitants, of which 99.65 per cent is Nahua (Pueblos América, 2017). The town is known for its pyramids, which are a reminder of the great empire of the Totonacapan before colonisation (Taller de Tradición Oral, 1994). Although originally a Totonaco area, it is now inhabited by Nahuas. Yarning sessions were conducted with five members of this town. Yohualichan is the base of Yohualichan A.C., a non-government organisation that seeks to improve the quality of life of the children of Cuetzalan. They have several programs, some of which aim to strengthen the cultural identity of the region. I conducted a yarning with the directors of the organisation, including: Lucila and Lucero, who are Nahuas, and Ivan, who is non-Indigenous but shares the same vision of the rest of the directive board.

Another Nahua participant from Yohualichan was Aracely. Although she is from this locality, I met her in the City of Cuetzalan, where she works every day preparing food at a market stand. All of her items in the menu are made of corn dough. I had most of my meals during my three visits from her stand, and would yarn after I had finished eating every time.

The last yarning participant from Yohualichan was José, a local musician who played the Violin in the City of Cuetzalan for tourists. We met at Aracely's stand. Like most musicians in rural towns, he did not learn to play the violin at school or through classes, but through observation, by watching the local musicians from his town. His music has been recorded and played in other states of the country.

The Town of Cuauhnapanaloyan (4 participants)

The town of Cuauhnapanaloyan is situated at 360 meters above sea level and has a population of 556 inhabitants. 100 per cent of the population is Indigenous (Pueblos América, 2017). Cuauhnapanaloyan is very close to the border between the states of Puebla and Veracruz. Yarning sessions were conducted with four members of this town. There is only one initiative to strengthen the Nahua identity in this locality, the Meliponary-School. The aim of the school is to preserve the meliponas, or native bees, while improving the quality of life of the Nahua women. It's founder, Roque, has been awarded the NAPPC Pollinator Advocate award, an international award given to people involved in meaningful efforts to preserve pollinator species.

After our first yarns, Roque introduced me to his wife, Rosa, his daughter, also called Rosa, and to his son, Rafa. Roque also took me to his meliponary (beehive) to see his bees. Aside from the yarnings conducted with Roque and his family in Cuauhnapanaloyan, Roque took me to other communities so that I could see other aspects of the Nahua way of living. We visited Santiago and Yohualichan. Although I did not conduct proper yarnings in these locations, I exchanged short conversations with some of the locals.

The town of Tzicuilan (1 participant)

The town of Tzicuilan is situated at 868 meters above sea level and has a population of 1293 inhabitants, of which 64.42% is Indigenous (Pueblos América, 2017). It is in this town where the first melipona wax workshop of Cuetzalan was established by the Méndez family. Eugenio. Since then, the workshop has been producing intricate ornaments for the religious festivities of Cuetzalan. An entire wall of the workshop is dedicated to all the awards and recognitions the family has received for their art. In their workshop, I had the opportunity to look at the family doing their work, and to look as the small museum in which they show some of their wax art. In the workshop, I had a yarning session with Eugenio, who showed me the workshop and took me to see the native bees that they keep in the back, as well as the blocks of wax used for their ornaments.

City of Cuetzalan (1 participant)

The City of Cuetzalan is situated at 932 meters above sea level and has a population of 5957 inhabitants, of which only 42.44 per cent is Indigenous (Pueblos América, 2017). The

rest are mostly mestizo, or koyomij as the Nahuas call them. This term originates from the Nahuatl word coyotl, which means coyote. The aggressive character attributed to this animal is transferred to the mestizos, who are thought of as taking advantage of the Indigenous population (Taller de Tradición Oral, 1994). Contrary to the farming Nahua populations, the mestizos of the City of Cuetzalan work in the services industry (Íbid). It is a popular tourist destination and is flooded with hotels, restaurants, stores, and travel agencies. In the City of Cuetzalan, I conducted one yarning with Veronica, a koyomi with Nahua ancestry, who comes from a family that owns many hotels and restaurants in Cuetzalan. She left Cuetzalan for many years and recently moved back with the sole aim of preserving the natural and cultural capital of Cuetzalan. She is a member of one of the cooperatives of the Union of Cooperatives Tosepan Titataniske.

The yarnings and the corn

Yarnings allowed for a deeper interaction with the Nahua community since it led to an exchange of life experiences. An exchange in which I would share stories of my childhood, how I became interested in the socio-environmental crisis, and what it is like to live in Australia. Conducting yarnings allowed for meaningful conversations to emerge. In particular, the Nahuas and I had meaningful memories around the same food dishes. Both Nahua women and I had learned how to prepare traditional Mexican dishes from our grandmothers. Finding a shared identity in food allowed for a deeper understanding of the epistemologies that underpin the Nahua way of life, as I could relate to some of their life experiences. At the core of this shared identity was corn, an element that appeared in absolutely all the yarnings I conducted.

Corn is central to Mexican identity as maize is entwined in life, history and tradition. Corn was first domesticated in Mexico in what is now the state of Puebla, approximately 200km south of Cuetzalan (MacNeish & Eubanks, 2000). The profound knowledge of the land allowed the IPs of Mexico to start a domestication process involving teosinte, the wild ancestor of corn. A long process of selection, diversification, adaptation, exchange with other regions, genetic improvement, and management of crops led to the current varieties of corn present today (Bellon, 1991). 350 generations later, the IPs of Mexico are still involved in the recombination of the current varieties of corn to improve the efficacy of the harvest (Toledo & Barrera-Bassols, 2008).

Mexicans with different ancestry claim they are the children of corn. The population of Mexico consumes 196.4 kg of corn per capita per year, the highest in the world (SAGARPA, 2017). Mexican families spend 20.9 per cent of their total spending related to food, beverages and tobacco on corn, mostly prepared as tortillas (Íbid). According to Calleja Pinedo and Valenzuela (2016), tortillas play a big role in the development of family identity, as family life revolves around cooking and eating dishes cooked with tortillas. Tortillas play an important role in the life of Mexicans living in rural and urban areas of Mexico, and even abroad (Íbid).

In rural areas, Indigenous people and campesinos (people that live in rural areas and sustain themselves by working the land) are continuing with the genetic recombination process of seeds that give origin to the corn varieties present in Mexico today. Corn is planted in a complex agri-ecosystem called the milpa. The word milpa comes from the Nahuatl word *milpan*, which means “plot sown on top of”, and is used to refer to the agricultural system developed in Mesoamerica by Indigenous peoples. The corn is the main axis of the milpa, and is planted in conjunction with other plants that favour reciprocal growth. The corn is the common element, and the rest of the plant species depend on the characteristics of the soil, the climate, the available species, local traditions and knowledge, as well as the tastes and needs of traditional farmers. The milpa provides a harvest that can be used for cooking, rituals and for commercial purposes while, at the same time contributing to the conservation of biodiversity. Different species of corn planted in the milpa provide the dough for different types of tortillas that vary in colour, texture and flavour (Bartra, 2008).

In the cities, most tortillas come from the tortillerias, or tortilla bakeries, which provide the urban population with freshly made tortillas of good quality. These tortillas, however, are made of only one variety of corn. The urban population values the hand-made tortillas made from other corn varieties and are willing to pay a higher price for them when available (Calleja Pinedo & Valenzuela, 2016). Internationally, tortillas are a clearly identified element of Mexican food. Its production is increasing globally as new markets open due to Mexican migration as corn “evokes experiences, meanings and emotions in reference to the past,” providing comfort when being away (Íbid).

In this chapter, I use corn as the thread to understand the way in which the Nahua epistemologies understand the relationship between people and Nature and between

people. Corn is an element that ties together the identities of Indigenous, mestizo, White and Afro-Latino Mexicans and it is also the central element of the way of life of the Nahuas of Cuetzalan. To build this narrative, I used insights gained during the yarnings, and incorporated specific literature that was suggested to me by the Nahuas. Most of these sources are primary sources written by members of Taller de Tradición Oral, who argue that having their stories in writing, both in Nahuatl and Spanish, allows for the Nahua's "silenced history to emerge as a spring of life ... [that] contribute to the creation of the national history" (My translation, Taller de Tradición Oral, 1994, p. 11). The written primary sources are marked with an * so the reader can identify them.

The Origin of the Corn according to the Nahuas of Cuetzalan

For the Nahua people, the story of corn is also the story of the origin of the people. This story is contained in "Sentiopil, the son of the corn", an oral tradition story of the Nahuas of Cuetzalan. According to Don Pedro, remembering the oral stories of grandparents (as they call ancestors) is crucial because they contain the wisdom from which the Nahua people have been able to organise and defend themselves. These stories are to be shared both with Nahua and non-Nahua people, so that the latter can learn about the hidden stories of Mexico and respect and appreciate their ancestors.

The story of "Sentiopil, the son of the corn" is long, so here I present a summary of the aspects related directly to the corn.

According to the story, the world was first inhabited by ogres. One ogress was "stung" by a hummingbird, a bird that symbolises love within Nahua culture. The hummingbird then mixed the blood of the ogress with its own blood and deposited it in a natural spring. From this mix of bloods, an unknown plant started growing. This was corn. The ogres took what they thought was the fruit of the plant but, instead, it was a ball of blood, so they threw it back into the spring. The ball of blood was the foetus of Sentiopil. Sentiopil grew and became the first human, a human that was also a God. He had been born from a red corn. The story tells how the ogress tried to kill Sentiopil but he outsmarted them and killed them all. He then proceeded to plant the milpa, or maize field, for the first time. To prepare the field, Sentiopil called all the animals that eat corn today. "Sentiopil ... made the squirrel, the badgers, and the raccoon work. He made the birds work. Yes, they also worked. Mhm." They helped him to prepare the land, to plant the seeds, and to harvest the grain. Once they

finished, they picked up all the seeds and hid them in a hill.

Aside from telling the origin of the corn, the story of Sentiopil illustrates two elements that are fundamental to understanding the epistemologies of the Nahua people. The first one is the Catholic religion. As the story of Sentiopil explains:

This man (Sentiopil) was a son of God. There was still no priest, there was still nothing, but he was a child of God. He thought and did things, he blessed them and they also paid off. Just as when Jesus came to live on earth, so was that man, it was the same. (Taller de Tradición Oral, 2009*).

This Catholic influence is a heritage of colonial times. Almost all Indigenous communities in Mexico were evangelised by Spanish Catholic missionaries. As a result, Indigenous epistemologies today are a combination of some of elements of Indigenous worldviews and Catholic symbols (Navarrete Linares, 2008).

The second element present in the story of Sentiopil is the racism faced by the Indigenous peoples and their knowledges. This is depicted as the story continues. After hiding the corn, Sentiopil decided to build a city. Originally, he was going to build it in San Miguel Tzinacapan, but his snake escaped to what is now Mexico City. He caught the snake and built Mexico City, and then Puebla. After building the two cities, Sentiopil went to live in the middle of the ocean with the snake, to wait for the people of those cities to appear. When the cities became inhabited, Sentiopil went to see what was happening with all of his work. He quickly realised that “the people of the city thought too much of themselves. They saw themselves as superior to the rest” (My translation, Taller de Tradición Oral, 1994*, p. 46). He decided to ask them for some money, although he did not need it, since he could not use money in the middle of the ocean. The people of Mexico City told Sentiopil that they would not give him any money because they did not know him. Sentiopil said he created both Mexico City and Puebla, but the people did not believe him. So he opened a hole in the ground and the city started to flood very quickly. The mestizo people asked him to stop the water:

Go close the hole that you opened. Because if you do not do it, you are going to kill us.

But it was you who said I do not know anything. No, I built this place and built the other city. You see other people – he said – as if they were not worth anything. But all of us have worth.

You see someone, he said, as if it was not worth anything

So he made the koyomej think. They started saying:

Now we are going to give him all the money he wants, we will give him what he asks.

But did he want something? No, he did not want anything

I'm not going to take the money. I will not take anything. I just came to see why you think so much of yourselves. You believe you are worth more because you came to live here. You arrived when the houses were already made, you did not build them.

And this story (of Sentiopil) ends here (Taller de Tradición Oral, 2009*).

It is significant that the conclusion of such an important oral story finishes with Sentiopil being discriminated against and his knowledge being discarded by the mestizo population. The story reveals that the Nahua people of Cuetzalan are clearly aware of how they subsidise urban life, and how they are seen with disrespect by the peoples of Mexico City and Puebla. Since the colonisation of Mexico, Indigenous knowledges have always been considered inferior to Eurocentric knowledges. This structural discrimination was present in the education system until recently. As Don Pedro explains, “at the time of my school age I suffered a lot of abuses against my language. My teachers forbade me to speak my own language in the classroom.” Public schools now offer bilingual classes and have become a helpful tool to fight the discrimination still faced outside of school. Don Pedro himself teaches Nahuatl. The school is now the place in which Nahua children from Cuetzalan can strengthen their language. As Octavio argues:

I learned the Nahuatl in the town because my mom spoke to me in Spanish. She suffered discrimination when she worked in the city as a house cleaner. It was a time in which she was strongly discriminated against so she did not want to me to experience what she went through. So she spoke to me in Spanish and I strengthened Nahuatl at school. That's where I learned how to write it.

The Story of Sentiopil connects with another oral story called “When the corn appeared.” This story is important in order to understand the origin of the four varieties of corn present in the Sierra Norte. Don Pedro says the story goes like this:

Two woodpeckers began to peck on a hill and found the corn, you see? The stories link Because Sentiopil saved it there and the birds found the corn on that hill and begin to peck and start throwing the corn, and the corn was picked by the leaf-cutter ants ...The men saw that one of the ants was carrying maicito (little corn), so they

wonder where the seed came from, so they followed the ant and got to see where the corn was coming from. They have found it and said, well, now let's tell the entire population to come for the corn ... The first people to get to the corn were those from above (from the high part of the Sierra Norte) ... they put their sacks on to catch the maicito without crushing it. That maicito is white and long. It is long because it was piled up in the hill by Sentiopil. Those from below (the lower elevations of the Sierra Norte, and where the municipality of Cuetzalan is located) arrived later when the corn was already crushed. That corn was wider because it got crushed when it fell from the hill and it was yellow because the sun had been shining over them. There were very few red corns that were red because one of the woodpeckers was hit by a rock when he was pecking the hill, so his blood stained the corn. Also some corns were stepped over and were hurt, they were bruised, that is why they are purple ... They are the four varieties and the four cardinal points, the four directions.

The four corn seeds described in the story: white, yellow, purple and red, continue to play a crucial role in the life of the maseualmej. For a more detailed version of the stories of Sentiopil, the son of Corn and When the corn appeared see (Taller de Tradición Oral, 1994*) and (Taller de Tradición Oral, 2009*).

The current role of corn for the Nahuas of Cuetzalan

Corn seeds are considered a treasure from the grandparents (the ancestors). Before planting seeds, they are hand selected to ensure the quality of the harvest. An exchange of seeds between members of the community takes place every year. The seeds are blessed in a ceremony that merges Indigenous and Catholic rites. The seeds are smoked by burning a local resin and then sprinkled with holy water. Once the seeds are ready, the soil is prepared, and the seeds are deposited in it with the help of a sharpened stick used to make a hole in the ground.

While the white, yellow and purple corn varieties are planted for consumption as food, the red corn has a special meaning. Aracely tells me "...the red one takes care of the milpa because it is always machito (male). So we put it in the milpa because every time there is red corn between the other corns nothing bad happens to the corn." Red corn also needs to be planted following a specific pattern, as Don Pedro explains, "my father always planted corn in a square shape, and the maíz rojito (little-red corn) had to be planted in the

corners and in the middle.” Apart from its role in taking care of the milpa, the red corn is used to protect children and homes. The red corn also has medicinal properties (Taller de Tradición Oral & Beaucage, 2017; Zamora Islas, 2017*). In accordance with the oral stories, the red seeds are scarce and are not easy to find. As Aracely tells me, “not anyone is going to give you red corn ... we also eat it. It has a stronger flavour than the rest.”

Once the corn is planted in the soil, it requires a lot of care. The growing herbs must be removed from the milpa to guarantee the corn has all the nutrients it requires. But the toughest part is protecting the corn from animals. As José explains:

I plant the corn and the squirrels take it from me. They are very crafty. They thresh the milpa to get the seeds and then get the seeds from the adult plants. Once they start, they no longer stop eating. I have dogs, but the squirrels do not mind. They are very clever. They jump the trees when the dogs get close.

Aracely argues:

We take good care [of the corn] so that nothing happens to it. We take care of it so that the birds don't take out the seed from the ground. My father or my brother had to take care of it since six in the morning to protect it from birds. When the corn starts to grow, the birds pull out the plant. It is hard because it involves getting up early and then spending the day in the cornfield. We have to take care when it is little and when it is about to be harvested. When it turns 20 days, it is no longer necessary to take care of it because it can take care of itself. But when it is little, it cannot be left by itself. We have to take care of it.

When the corn is three months old, the Nahuas perform the “doblada”, that is, a process in which they bend the corn plants to prevent the wind and heavy rains from breaking it. It also prevents the water from entering the cob. Four months after it is planted, the corn is ready to be harvested. Corn is planted and harvested in two different seasons in every year. For the tonamil, or milpa of the sun, the seeds are planted in December. For the Xopamil, or milpa of the water, the seeds are planted in June.

Once it has been harvested, corn cannot be wasted as it is considered alive, and it is very sensitive to the behaviour of the maseualmej. In order to comprehend this, it is first necessary to understand the three levels of the universe according to the Nahuas. The top level is occupied by Heaven, the place in which the (Catholic) God and saints live. The middle level is the taltikpak, which translates as “above the soil” (for more detail see

Zamora Islas, 2017*). It is the place in which humans and mother Nature live. Mother Nature is known as talmanik and all of the elements that compose it are considered alive. The bottom level is the talokan, and it inhabited by supernatural beings. The most important supernatural beings are the creator couple, Talokan mama and Talokan papa. Octavio explains to me that the talokan is:

like another supreme level in which the Talokans live. Talokan mama and Talokan papa. They are the parents that provides us with seeds and animals to eat. They provide us with all of our food. For some it's like paradise, but it's not paradise. Is more like where these parents live. They are under us and the caves are the entrance to the talokan.

Octavio explained to me that the corn is a gift from the Creator Couple that lives in the talokan. As an element of the talmanik (mother Nature) corn is alive in a deeper sense to the Western classification of living beings. As Don Pedro explains "when you get close to the plant, the plant feels you and you feel the plant, you make it alive and it makes you alive." The soil in which the corn grows is also considered alive. As Griselda, one of the Nahua students explained me, "the soil is alive because if you plant something and then if it doesn't grow, it would mean that the soil is dead." "Yeah – her friend Rubi agrees – if the soil was dead nothing could grow from it. Soil is alive."

For the talmanik (mother Nature) to provide, the Nahuas need to respect all of its elements. The creator couple of the talokan supervise if the maseualmej are respecting the land. Talokan mama and Talokan papa never leave the talokan but they send beings to the taltikpak (the level in which humans live). These beings are known as the "owners." Examples of them are the owner of the mountain, the owner of the forest and the owners of the water. There are many owners. Octavio explained to me:

They [the owners] are beings that are in charge of the equilibrium. If you do a wrong action like cut down a tree you don't need, the owner of the mountain is going to make you sick or is going to cause you to cut yourself. If you hunt something you don't need, [the owner of the mountain] will do something to your dog. If you are a fisherman and you catch fish that you don't need, the owner of the water is going to make you go inside a cave. They give you messages that make you reflect so that you can rectify your behaviour. We need to have that equilibrium, that respect.

In order for talokan mama and talokan papa to continue to give crops and animals as

presents to the maseualmej, Nature has to be respected. As Rubi explains “Nature is giving us, and if we don’t use it wisely, Nature takes it away from us. We must take care of what has been provided by talokan mama and talokan papa.” In order for corn to continue growing, the Nahuas have to take care of it. As such, corn can never be wasted. Roque explained to me that “when corn is thrown away, the corn is crying ... It is not written anywhere but it is followed as a principle. It needs to be respected. You know you cannot throw away your corn because you are going to need it tomorrow.” Aracely explained “when you throw away the corn it finishes, that who doesn’t take care of the tortillas and will later want more, won’t be able to get any.”

The snake of Sentiopil is the guardian of the cornfields. He is the spiritual being that supervises the corn that is being taken care of. Octavio explained to me that the children are told to not waste the tortillas because a snake will appear to them and will bite them. “The mission of the snake is not to bite, but to notify people of their behaviour. Only when people do not change their behaviour, the snake and the owner of the mountain will cause you harm.” In the same way to the messages given by the “owners”, the snake is there to make people reflect on their actions.

These beliefs, as the Nahuas refer to them, also ensure the community follows certain moral rules, most of which are underpinned by Catholic dogma. When a maseual is involved in Infidelity or greed, the wild animals do not allow themselves to be hunted, the totoles (turkeys) die and the native bees run away from their owner. Octavio explained me, “if you have bees, you cannot have infidelity, domestic violence or excesses. There should be harmony and respect, because if not, they leave. In the end, all these moral rules are related to the value of respect. It’s the believes we have. What our grandparents taught us.”

Roque argues:

The indigenous community continues to preserve many traditions. For example, if you have a family conflict, it is said that bees will not take care of you. If you misuse the bee’s products or by-products, the bees will not relate to you, that is, you will have affectations. This helps to educate you as they begin to give you rules as criterions to follow. There is always respect involved, care.

This respect and care is extended to all of the elements of the milpa, the complex agricultural system developed by the Nahuas and in which the corn grows surrounded by many other species of both domestic and wild plants. This is explained in detail in what

follows.

Kuojtakiloyan: the forest where the corn grows

The milpa of the Nahua people of Cuetzalan is called the *kuojtakiloyan*, which translates as “harvesting forest.” At first glance, it looks like a forest with a few crops planted in an unorganised way between native vegetation. Octavio explained to me that “in the well diversified plot (of each family), you find more than 150 species of plants, most of which are useful to us.” He then pointed me to a study that analyses the floristic richness of their agricultural system.

There are two studies that document the plant diversity of the *Kuojtakiloyan*. Moguel and Toledo (2004) conducted botanical surveys in *Kuojtakiloyan* plots in the Sierra Norte and found an estimated total of 250–300 species of plants, of which 96% are considered useful species by the Nahuas. Octavio explained that the *kuojtakiloyan* provides them with most of the food they consume: “corn for tortillas, coffee for beverages, radishes for meals.” Rubi and Griselda showed me many medicinal plants that grow in the *kuojtakiloyan*. Some plots even grow bamboo that is used for the construction of homes.

The location of the plants is not aleatory. Corn is always planted in the soil with the highest quality since it is the most important crop for the Nahuas. The rest of the plants of the *kuojtakiloyan* are carefully distributed according to the properties of each plant. Such properties are known by all members of the family as they all work in the *mipla*, including children. The most obvious knowledge that community members share is expertise regarding plants and rates of water consumption. As Rubí, one of the students, explained to me, “this is bamboo. If you put the plant up the hill, it will drink all the water, and so the other plants won’t be able to drink water. So you have to plant it at the bottom of the hill.” Virtually every plot has a ‘top’ and a ‘bottom of the hill’ due to the rugged terrain of the Sierra Norte.

Other ‘knowledges’ include the consumption of nitrogen and other elements of the soil to avoid competition within plants. Pierre explained that this complex understanding of the relationship of the 300 plants growing in the *kuojtakiloyan* is based in the Nahua knowledge system, that understands cold and heat as the two main forces of the universe. Some plants are cold and some plants are hot (for more detail see (Beaucage & Taller de Tradición Oral, 2012*). The red corn is hotter while the other three varieties are cooler. An equilibrium must be reached between these two forces. There are many factors involved in

what makes a plant hot or cold, such as stem texture, the texture of the fruits produced by the plant, and the environment in which the plant grows. The equilibrium between heat and cold also allows the land to replenish its nutriment between crop harvests. The cooler soil becomes warmer with the clearance because it gets exposed to the sun, and this is what allows corn to grow. To avoid overheating, the land has to be cooled down by the regrowth of the forest vegetation. This process allows the land to recover.

The similarities between the cold and heat forces that underpin the Nahuatl epistemology and Western science has been explored for the Nahuatl's food pyramid. As Beaucoque and the Taller de Tradición Oral (2012*) argue, although this classification system seems far removed from Western science, it has similar outcomes. Beans are considered "very hot", so they always have to be consumed with tortillas, because tortillas are "a little bit hot." Accordingly, Western scientists claim corn helps the amino-acids of the beans to 'become available' when eaten together. Another example is the consumption of fruits, that, although available year-round because of the weather, are not recommended to be eaten in large quantities because they are considered 'cold'. To remain healthy, they should be eaten in small quantities, while most vegetables are suitable to be eaten in large quantities.

The *kuojtakiloyan* also provides the *maseualmej* with year-round commercial products to sell. There are four valuable commercial species: coffee, ground pepper, honey produced by native bees, and cinnamon. Of these products, coffee and ground pepper are the most important ones, as they are exported to larger cities, and to Europe. Honey production as a commercial activity is relatively new, but has already found a market. Cinnamon trees are not found in every plot. Rubí told me: "If one day you find this tree (a cinnamon tree), you have to really take care of it. You have to take care of it a lot. It's really hard to find." The remaining three products: coffee, pepper and honey, grow in a cycle that provides year-round income to the *maseualmej*. Figure 16 depicts this cycle.

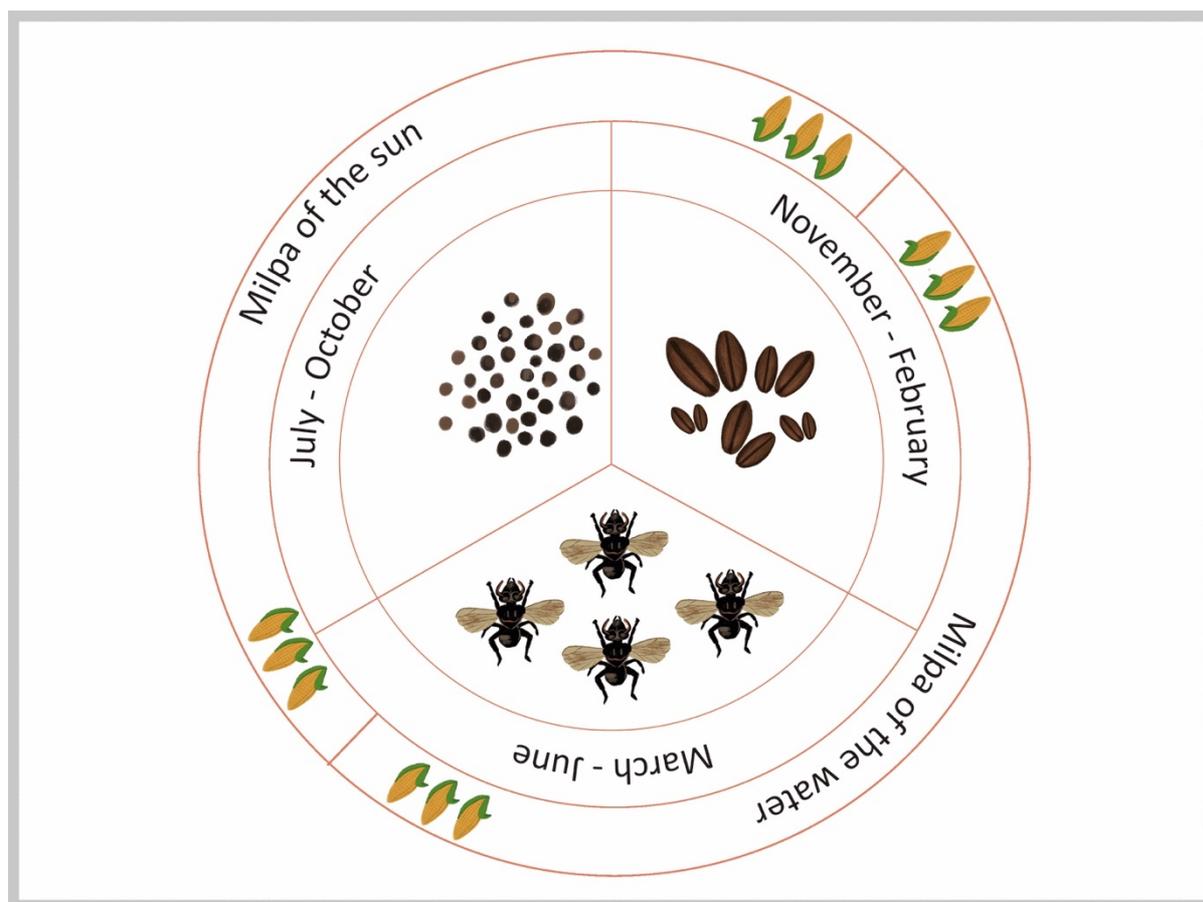


Figure 16 Agricultural cycle of the kuojtakiloyan

Figure 16 shows the coffee harvest is from October to February; the honey harvest is in March and June; the ground pepper harvest is from July to October. Aside from the plants for self-consumption, the kuojtakiloyan provides income for the maseualmej every month of the year. With the kuojtakiloyan, the Nahua people of Cuetzalan have been able to satisfy their dietary needs for hundreds of years. More recently, the introduction of commercial species to the plots have generated a steady year-round income for the traditional farmers that has allowed them to buy goods that cannot be produced within the plots.

The Nahua people of Cuetzalan understand the kuojtakiloyan as a system sustained by connections between multiple elements, including human beings. The actions of each of these elements have an impact on the rest of the system. This understanding of the interrelationships between the elements of the kuojtakiloyan has led the Nahua people of Cuetzalan developing a way of life based on reciprocal relationships. The maseualmej way of living is based on cooperative practices that revolve around the interrelationship between the elements that compose the kuojtakiloyan. These cooperative practices are also the foundation of the vision of 'good living', which is the epistemology of the Nahua people of

Cuetzalan. The way in which these cooperative relationships take place is explained in what follows.

Interrelation and cooperation: elements that underpin the milpa

At the heart of the interrelationships of the kuojtakiloyan (the harvesting forest) we find the corn. It is the plant that gave origin to maseualmej (the Indigenous community) and the grain that has sustained them since its domestication. As such, it constitutes a crucial part of their identity, “without maize the maseual could not live, it would lose its identity” (Taller de Tradición Oral & Beaucage, 2017*, p. 40). More importantly, corn cannot live without the maseual as it cannot grow naturally. Its domestication process involved becoming dependant on humans as corn is no longer capable of reproducing independently. Over thousands of generations, the maize cob was transformed into a leafy sheath that does not open naturally in order to protect the seeds. For it to grow, humans need to open the sheath and manually separate the seeds from the cob. The subsistence of both the corn and the maseual relies on the practice of reciprocity in which the maseual reserves the best soil for the corn, takes good care of it while it is growing, and selects the best seeds to plant the next harvest. In return, the maize grows and produces good cobs. The entire relationship between corn and the maseualmej is a relationship of cooperation.

In the kuojtakiloyan, cooperative practices between corn and the maseualmej are extended to all of the other elements of the system. As Don Pedro explained to me “we are all interrelated. Nature with humans, humans with humans, humans with the species harvested in the plot, and Nature and the harvested species.” The actions of any of those elements has an impact on the rest of the system. As such, cooperative practices must be followed. Figure 17 shows the elements involved in the cooperative basis of the kuojtakiloyan.

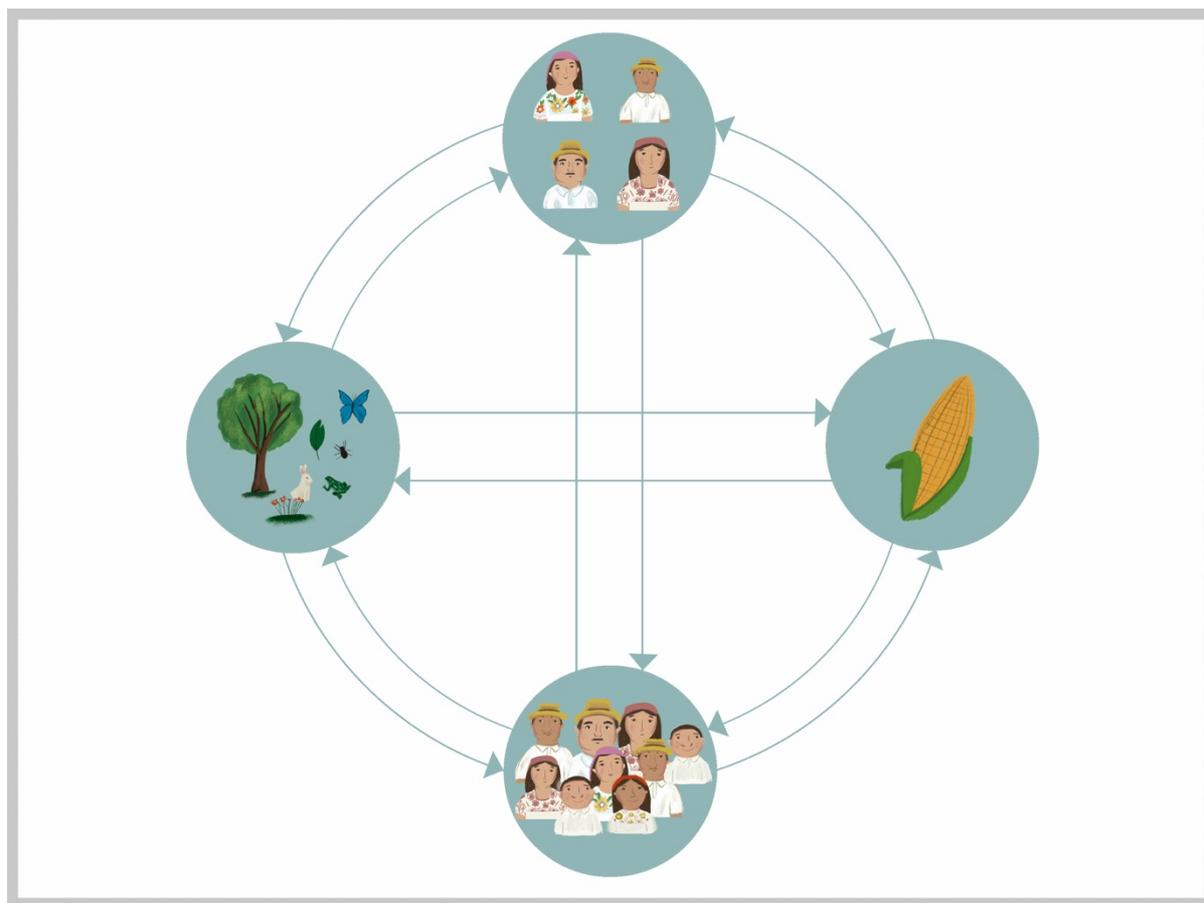


Figure 17 Inter-relationships between the different elements that compose the kuojtakiloyan

Figure 17 shows the interrelations that sustain the four elements of the kuojtakiloyan: individuals, community, useful species and Nature. The lines indicate how the different elements that compose the parts are all part of one system, in which all of the elements are engaged in cooperative practices. The way in which the cooperative relationships take place between people and crops, people and people, and people and Nature is explained in what follows.

Cooperation between humans and the harvested species

The cooperation between the maseualmej and the harvest is informed by the Nahuas understanding of their dependency on the kuojtakiloyan. As Roque argues, “even though now I work fulltime at the municipality, which brings me joy, I never stop taking care of my plot. I am here working every week because I know it is my main support. I depend completely on it.”

The species' harvested are not treated as a commodity. Instead, they are seen as the other side of a two-way relationship. The success of the *kuojtakiloyan* is seen as the result of cooperation between the two parts. As Roque explained to me:

One of my grandparents taught me that you need to talk to the plants, you go down to where the plants are and tell the coffee plant: "hey Mr. coffee, you need to produce because do you remember we are friends? I come here and prune you, I add you to compost so now you need to put enthusiasm into growing." People used to communicate with the plants, well, you also need to talk to the bees. They won't respond but, you know, in your heart that you love them and that you care for them.

Rubí agreed: "each plant needs love and care to grow."

For this relationship to work, the plant or animals (bees and turkeys) need to be happy.

Roque explains:

The bees have helped me a lot ... so I have to understand what they need to survive. We have to do our part, you understand? We need to collaborate with them by planting flowers and by making sure they are comfortable ... It's not enough to give them a place to live. I need to make a nice field for them so that they can be happy.

This sometimes involves sacrificing extra income. An example of this comes from the bees. The retail price of honey is seven times higher than the honey produced by European bees. Although the bees can produce honey two seasons every year, Roque prefers to harvest the honey once a year only, so that the bees can have enough reservoirs and not be stressed. Octavio told me: "for us it's easier to understand our relationship with the bees, but outsiders usually see them as a means [to make money]."

Another example is the prioritisation of the land that is the best quality for corn, and is never reserved for commercial species. The way the Nahuas understand their dependency on corn, they would rather sacrifice income in order to have a reciprocal relationship with corn.

The cooperative relationships between the *maseualmej* and these useful species' involve a deep knowledge of the interrelationships between the species' that live in the *kuojtakiloyan*. As Octavio explains, "even though the bee is over there, it is important to understand that it is connected to the apple, it is connected to the mango, because everything here is interrelated. So you have to take care of the rest to take care of the bee." For the bees to produce honey, different species of flowers need to be planted to guarantee

they bloom in the different seasons of the year. The bees and the flowers are also engaged in a cooperative relationship, since they both provide valuable help to each other.

Cooperation between humans and humans

The work in the *kuojtakiloyan* requires cooperation between people. These reciprocity relations are underpinned by a long tradition of collective work that is reflected in the practice of *mano-vuelta*. In *mano-vuelta*, the owner of a plot receives help from neighbours, family and friends for the arduous tasks involved in the harvest. In return, that person needs to return the favour by working in the plots of the people who helped them in the first place. For the harvest of the corn, the owner of the plot that is receiving help is expected to prepare food and provide drinks to the volunteers. It is believed that if the people working in the harvest are hungry or thirsty, the cobs will have fewer grains (for more detail see (Beaucage & Taller de Tradición Oral, 2012).

Although the *mano-vuelta* originated in the *milpa*, it is now a common practice in other areas, such as the constructions of houses. It is also practiced when someone dies. As Octavio explained to me:

When someone dies, everything that is going to be needed by the family is going to be provided for them. Depending on your income, you can bring corn, chicken, sugar. Here the funeral lasts two days and the family has to feed the people that come to the ceremony. So the community takes care of the food for those two days. It is a strong expense for the family of the deceased, but with solidarity, the community pays for the food expenses.

Another reciprocity practice found within the Nahua people of Cuetzalan is the *faena*. In the *faena*, members of the community organise to perform collective works of interest like the repairing of important buildings or churches. Normally the chore is carried out once a week, and the duration depends on the work that needs to be carried out, sometimes lasting several weeks. The main roads of the town of San Miguel Tzinacapan, for example, were built through the volunteer work of the *faena*.

Although the *mano-vuelta* and the *faena* involve hard work, they also provide an opportunity for celebration. Social events, where people get together to have a good time, are fundamental for the Nahua people. This community work is key for maintaining the way of life of the *Masualmej*. Roque explained to me that “you should never fight with your neighbour because you never know when you are going to need him.” He uses the bees to

demonstrate the importance of community work:

the bees pollinate many plots. They don't say no, I won't pollinate the garden of that person because I do not like him. They understand the importance of carrying out their work as the work of all the bees is needed for the hive to be okay.

This tradition of community organisation practices is also what led to the constitution of the COTIC, the committee of the territorial ordinance of Cuetzalan. It is also what explains why the ordinance of Cuetzalan is one with most civil participation in the entire country (González, 2018). Being organised as a community has contributed to the strong opposition that the Nahua people of Cuetzalan have raised to the neoextractivist projects. Their communitarian political involvement is what has allowed them to keep their land and, with it, their way of life.

Cooperation between humans and Nature:

Nahua identity involves being responsible for the environment as it is only when the people show respect that the talokan couple will continue to provide for them. As Roque argues "the environment is our responsibility, we need it to live a good life and no one else is going to come and take care of it for us." For the Nahua people of Cuetzalan, Nature is considered a living being that must be respected. When the maseualmej take more than they need, the earth sends them messages through the owner of the mountain and other beings. Don Pedro tells me this idea of taking only what you need has led other people to disregard the knowledge of the traditional farmers. He argues:

The engineers come and, even though people here already knew how to produce their corn, their coffee, without help from outsiders ... the engineers come and say you are producing very little, it is not enough, you need to produce more, we need to add fertilisers ... and later the soil dies and with it, we are killing ourselves.

Roque understands Nature as the mother who supports us, carries us and endures everything we do to her. And yet, we need her to live a good life. For the Nahuas, taking care of Nature is a responsibility. As such, the agricultural practices of the kuojtakiloyan system seek to respect Nature and to take only what is necessary. Octavio tells me there are two Western studies documenting the environmental benefits of the kuojtakiloyan: the x and the y.

The study of Toledo and Moguel (2012) shows how the *kuojtakiloyan* helps preserve the quality of the soil and water runoff. The plots described earlier also serve as corridors for threatened plants and constitute a germplasm reservoir for useful plant species that preserve the genetic variability of many tropical fruits. In terms of wildlife conservation, the *kuojtakiloyan* ensures the growth of flowers that produce nectar for both the native stingless bee (*Scaptotrigona Mexicana*) and the European bee (*Apis mellifera*). Within vertebrates, birds are the class to benefit most due to the fruit variety found in the plots. According to the study of Leyequién, Boer and Toledo and Toledo (2010), 124 bird species have been recorded in the *kuojtakiloyan*. These account for approximately twenty per cent of the total birds distributed in Mexico. Of this, 57 correspond to migratory species, making the plots an important habitat for energy consumption.

Conclusion

This chapter discussed how Nahua epistemologies are underpinned by a series of cooperative relationships between Nature, individuals, the community and the ‘useful species’ that compose the *kuojtakiloyan*. The chapter highlighted that re-learning from epistemologies that are not limited by the boundaries imposed by Western knowledge enables an appreciation of other ways in which people can relate to Nature and to other people. The Nahua people understand their relationship with Nature and other people as a series of interrelationships of cooperation that benefit all the elements that form a part of the *kuojtakiloyan*. This contrasts with Western knowledge, which is informed by a modernity/coloniality logic, that considers Nature a commodity, and people from the periphery as human capital who need to exploit Nature in order to bring progress (see Chapter three). Re-learning from the Nahua epistemologies was a deeply moving experience, as I was able to understand the deep interconnection between corn – an element that also informs the identity of non-Indigenous Mexicans like me – and the *campesinos* that grow it in the countryside. This experience also made me realise that inadvertently, I had internalised some of the romanticised representations of Indigenous peoples. I now understand how often times, the motivation of the Nahua people for taking care of Nature is not necessarily informed by an intrinsic wish to protect Nature, but because taking care of Nature is what allows them to continue with their ways of living.

This narrative continues in **Chapter seven**, which explores the learnings I gained about the way the cooperative relationships (that underpin Nahua epistemologies of Cuetzalan) are reflected in the alternatives that are being proposed in the region.

Chapter seven: Understanding a pathway ‘other’ to bring change: Yeknemilis, the Nahuatl proposal for living a good life

“The territory is sacred and with our life is defended”

My translation, Tosepan Titataniske en De Jesús Amayo

Y Sánchez Ramírez, (2017)

Introduction

Chapter six explored the way the Nahuatl epistemologies of Cuetzalan understand the relationships between people and Nature, and between human members of the community. Such relationships are based in the understanding of the interrelatedness of the elements of the *kuojtakiloyan*, that need to be reciprocated. The Nahuatl way of life is, then, founded on a series of collaborative relationships between individuals, community, useful species and Nature.

In **this chapter**, I explore how the cooperative relationships that underpin the Nahuatl ways of knowing are informing their decisions about alternative ways to live from that dictated by modernity. This chapter was guided by the **research question**:

- what viable worlds can be imagined from the Nahuatl epistemologies?

and by the **research aim**:

- to establishing a partnership with the members of the Nahuatl community so that they can guide the participants of the proposed decolonial pedagogy in learning to re-learn from IP alternatives to the modernity/coloniality paradigm.

As such, the present chapter also introduces the reader to the members of the community which whom I established a partnership, along with the alternatives they are proposing.

The insights presented in this chapter were mostly shared to me by Roque and Octavio, who were introduced in the previous chapter and who became my partners for co-facilitating the decolonial pedagogy that unpins this study. **This chapter is the continuation of Chapter six**, as it continues to offer insights into my process of learning to re-learn from

the Nahua epistemologies. The chapter also introduces the reader to the partnerships established, which are crucial to the design of the decolonial pedagogy, addressed in the following chapter (**Chapter seven**, which is the first chapter of **Part IV: empowerment**).

The native bees of Cuetzalan

Taol, the Nahuatl word for corn does not have an equivalent in either Spanish or English. *Ta* means substance, heart, existence, subsistence, pre-existence, coexistence, to live. *Yol* means centre, heart, main axis, uterus, caterpillar, nucleus. For the maseualmej, corn is “the vital energy both for sustenance and for human protection. It is the origin of fertility and the foundation of existence” (Zamora Islas, 2017*, p. 47). The link between people and the maseualmej and the corn is reflected in the Nahuatl language, in which there are no Nahuatl words to say *the* corn. Instead, the corn is always referred to as *my* corn, *nataol*.

Corn is the axis of the ways of living of the Nahuas of Cuetzalan and the element that led me to understand their epistemologies. I thought corn would also introduce me to the Nahua proposal of what it means to live a good life. However, yarning takes you to unimaginable places as you do not have control of the direction of the conversation. It was through the native bees, a species I was unaware of, and its distribution in the region, that I could grasp Nahua alternatives to Eurocentric notions of development. Octavio first talked to me about the native bee during my first visit to the community. At the time I was volunteering in Australia in a wildlife rehabilitation facility that treated mostly flying foxes. Flying foxes are megabats and are considered the most important pollinators of the Queensland eucalyptus forests. This provided a context for conversations about the importance of pollinators.

The *Scaptotrigona* stingless bee is a small bee that does not have a sting and is black. In Nahuatl it is called Pisilnekmej. Pisil means bee and Nekmej means chiquitita (super small), so the translation is super small bee (abeja chiquitita) (Maya, Zepeda, & Arnold, 2018). Although the pisilnejmek is used as a commercial species, there are another three species of native bees in Cuetzalan. Octavio explained:

There are five subspecies here. The pisilnekmej is the most commercial one because it produces good quality honey for consumption. We are looking to work with the xalneksin, another species, in the future. It doesn't produce honey but its hive is

made of sand, so it could be potentially used in the future. Then there is the one that makes the hive of manure, and the thief bee, which steals the honey of the other ones.

After learning there were native bees in Cuetzalan, I contacted Dr. Laura Espinoza, my former lecturer at the Vet School at the National Autonomous University of Mexico, who put me in contact with Roque Arroyo, who is a Meliponicultor of Cuetzalan and was introduced in **Chapter six**. From vet school, I remembered native bees were distributed in the Yucatan Peninsula, where Dr. Laura is from, which is also the part of the country where the Meliponas honey has been harvested in tree logs since the Mayan empire. Octavio explained to me “yes, those are the most known ones, but we also have the native bees here. It is a different species though. This one is the *Scaptotrigona mexicana*. It was domesticated by the Aztecs.” Although the native bees do not fall strictly into the category of a domesticated animal, their honey has been harvested in ceramic pots since the Aztec empire, and this technique has been handed down until today. The Nahua traditional hive is shown in Figure 18.



Figure 18 Top left: representations of native stingless bees, ceramic pots for beekeeping and beekeepers in Aztec codes. Top right: Nursery section of the colony. The queen bee can be seen in the second level of the nursery from top down. Bottom: meliponary in Cuetzalan.

Figure 18 shows representations of bees in different Aztec codex, an open bee pot showing

the nursery section and a “meliponary”, the place in which the bee pots are kept. Each hive is formed with two pots. One is collocated on top of the other, connecting by the opening of both pots. It is sealed with a glue made out of ashes, and a little hole is left in the union of both pots to serve as the entrance hole for the bees. The bees build a wax tube that extends from the hole to the exterior of the pots. In the bottom pot, the bees will build their nursery, and in the top one, they store the honey.

When I was back in Australia, I realised there were also native bees present in the city I am living in. The native bees of Mexico and Australia have a common origin as they appeared millions of years ago before the continents split. That is why they are found in the tropical regions of the Americas, Africa, Asia and Oceania (Maya et al., 2018). In Australia, the native bees are only distributed in warm places such as Queensland (Heard, 2015). Stingless bee honey is called *Sugarbag* and was prized by Aboriginal peoples, who collected it from wild nests (‘Ibid). Today, the honey is produced in especially designed wooden boxes. As with the Nahua pots, the Australian boxes include a separation to divide the honey storage from the nursery. I took some pictures of how they are harvested here (in Australia), in little boxes, and on my next visit I showed them to Octavio and Roque (in Mexico). Figure 19 shows the pictures I took for sharing how the native stingless bee honey is harvested in Australia.



Figure 19 Boxes for harvesting the honey of the Australian native stingless bee.

Figure 19 shows educational displays containing live bee colonies of Australian native stingless bees at the botanical gardens of Mount Coot-Tha, in Brisbane, Queensland, Australia. The pictures led to more in-depth conversations about the bees. Talking about the bees was very appealing to the three of us. While Roque and Octavio are beekeepers, the bees made me feel that my research was not that removed from the veterinary field. I love being a veterinarian and I missed my vet school days of traveling around the country learning how to provide care to animals. During those practices, I spent a week working with the European bee. The difference in the management between both species also provided more room for conversations around the topic. Through these conversations, I was introduced to the Nahua conception of what living a good life is. It is explained in what follows.

Yeknemilis

Roque explained to me that “living a good life is a common practice here in the countryside (of Cuetzalan).” He argues that living a good life, like the moral rules that keep you from wasting corn “is not found in writing, but is followed as a guideline.” Octavio describes it as “a value. It’s a belief that we have. Everything used to be this way. The abuelitos

(grandparents) used to tell us ... the rules that need to be followed in order to behave, to take care of yourself.”

Octavio and Roque use different terms to describe the concept of living a good life. Roque calls it Chipauak talmanik nemilis. Chipauac is clean, ordered; talmanik is the level in which humans live; and nemilis is “our life.” In Spanish, he refers to it as buen ambiente. Octavio calls it yeknemilis, which means a life with dignity. In Spanish, he refers to it as buen vivir. Both Roque and Octavio agree that living a good life is the result of practicing the valores de campo (values of the countryside). These are the ancestral values that have guided the Nahua way of life for thousands of years. Such values are informed by the cooperative relationships that inform their ways of being and that are contained in their epistemologies. Octavio explains some of these values are “solidarity, mano-vuelta, taking care of Nature.” He argues that there is not a list of values because they are not written, but are embedded in their practices.

Both Octavio and Roque argue that the Nahua way of living a good life is equivalent to the notion of Buen Vivir of the Kichwa people of Ecuador (see Chapter four). In this chapter, I refer to the buen vivir as yeknemilis, as it is the term most widely used in the region, but it is important to note that there is not a consensus about the name.

The bee provides a way of understanding the meaning of the Nahua concept of living a good life. In yeknemilis, each element of kuojtakiloyan (see chapter six, Figure 17) is responsible for the wellbeing of the other elements. The four elements that compose the kuojtakiloyan are the usefu species (such as the native stingless bee), the individuals, the community, and Nature. As such, individuals, community, useful species and Nature must comply with their responsibilities to sustain the wellbeing of the entire system.

The bees and individuals

In order to live a good life, a maseual must have both physical and spiritual health. Physical health is achieved by a series of good habits such as good nutrition, having access to medical services, practicing exercise and making healthy lifestyle choices. Spiritual health is related to the Nahua spiritual beliefs, and to living in a moderate environment. The bees contribute to fulfil most of these needs.

Physical health

In terms of nutrition, the pisilnekmej help the Nahua people improve their nutrition. Pollen contains approximately 40 per cent protein in the form of highly assimilable amino

acids, as well as vitamins and minerals. Roque explained to me that pollen is very nutritious as “it is the food that is given to the queen so that she can lay her huevitos (little eggs).” He handed me some pollen to try, and told me he and his family normally consume pollen in form of a beverage called “atole de polen.” Rubi tells me the beverage is called “nexoshi” in Nahuatl.

Another benefit to the Nahuas from the bees comes from the honey of the native bees being mostly used for medicinal purposes. The honey is different from European bee honey, as it is more liquid, clearer, and sour. Octavio confirmed this, telling me: “this honey has more medicinal properties than the honey produced by the European bee.” This knowledge regarding the medicinal properties of honey has been passed down through oral tradition. The medicinal properties of honey are often explained through the Nahuatl principles of heat and cold. As Roque explains:

Historically our grandparents told us that honey was the main traditional medicine for births, or if you have cough or a cold or those sorts of diseases, you took the honey in a tea. There were no doctors, so if you had a gastric problem you used honey ... mixing honey with aguardiente heat your stomach and cures you.

Roque says various years of hard work has demonstrated the properties of the honey. “Now we can tell people about real things and not make up things. They used to be beliefs, but they turned out to be true.” Due to the discrimination the Nahuas have faced in relation to their knowledge systems, they now mention Western studies that confirm their knowledge every time they have a chance. As it is important to the Nahuas, it is also a part of this narrative.

Western science has confirmed the medicinal properties of the honey of Cuetzalan. According to Vit, Medina and Enríquez (2004) the *pisilnekmej* honey has antioxidant, antimicrobial and anti-inflammatory properties that have proven to be effective in treating a variety of conditions such as burns and gastrointestinal, respiratory and dermatological infections. Octavio argues some of the medicinal properties of the honey are the result of the plants the bees ‘visit’. He explained to me “for example this tree here, which is called the Chiapas tree, has medicinal properties ... the bee visits this tree and as such, inherit those properties.”

Honey is not the only medicinal by-product of the bees. Octavio tells me the propolis is also used in traditional medicine. It is used to cure wounds. Western studies have

confirmed its antimicrobial effect against pathogens such as *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aureginosa* and *Candida albicans* (Maya et al., 2018).

The bees also provide an economic benefit to the Nahuas, as their honey has a higher commercial value than the European honey due to its medicinal properties. Yet, the bees are a reminder to live a measured life as it is necessary to take only what is needed in order for the bees to stay in place and continue producing.

Spiritual health

The Nahua people of Cuetzalan consider Nature to be alive, and, as a consequence, they attribute a spirit to all of the components of the Earth. For them, the land is filled with spiritual power and can help heal the mind and the soul. As Don Pedro explained me:

The doctor used to tell me whenever you are sick, not physically but mentally, seek out the biggest tree and lay down under it and ask it for all of the energy, but you have to ask it with the heart, he said. First looking upwards and then looking downwards, to the soil. Trees are constantly receiving energy from the air and the soil.

The Nahua people of Cuetzalan find strength in the spiritual relationships they hold with all the elements of the *kuojtakiloyan*. Roque explained that looking at the bees pecking in the flowers brings him tranquillity and inner peace. Spiritual health is particularly important amongst the youth, as it keeps them from becoming involved in wrongful activities.

Another important part of spiritual health is having a healthy relationship with your family. This is facilitated by the bees as they serve as a reminder of complying with the moral rules that provide the guidelines for living as a member of a family. When there is family conflict, the bees leave, as they are very sensitive to the behaviour of the *maseualmej*. "They make us reflect", says Octavio.

The bees and the community

For the Nahuas of Cuetzalan, a crucial aspect of living a good life is the community, a place in which people can find support and love. Community practices that stem from the communal work in the *kuojtakiloyan*, strengthen relationships between Nahua members. Although the *mano-vuelta* and the *faena* are some of the most researched communal

practices, Octavio explained that the harvest of honey is equally important, as it reinforces the practices of grandparents:

The harvest (of honey) is very important. It takes the place the stove used to have. The stove used to be on the floor on top of three stones and the family used to gather around it. There were no rooms or anything. It was like a big room only so it was important for socialising and now the harvest provides us with that socialising...even the children participate in the harvest, as the bees don't sting so it's not dangerous.

Socialising has a crucial role within the Nahua way of life. Numerous festivals and parties are put in place throughout the year. Dance, traditional dishes and alcohol are part of the celebrations. Celebrating is a very important part of the *yeknemilis* or good living, and numerous festivals and parties are put in place throughout the year. Dance, traditional dishes and alcohol are part of the celebrations. Important local parties were taking place in two of the three times I visited. Most of these parties are related to Catholic events, and the most important one is the one dedicated to the patron saint. Every town has a different patron saint and so many festivities occur in the municipality throughout the year.

An important part of the religious celebrations are the religious ornaments dedicated to the saints, Jesus, God or Mary. These ornaments are made out of native bees' wax. The wax ornaments are a complex art and bring pride to the artist that makes them. In the workshop of Eugenio, I could see the artist working. The grandchildren of Eugenio showed me the raw wax and explained to me that the process of production is different, depending on whether the bees are European or native. While the former uses pure wax to build the hive, the latter mixes it with tree resin. As such, it comes in different colours and has a different texture. Making the ornaments also provides time for socialising, as the entire family is present in the workshop.

Apart from getting together to socialise, the cooperation and support between members of the community plays a crucial role, as it makes it possible to provide for the needs of everyone. Labour is oriented to meet the collective needs and interests of the community and not to fulfil individual needs. In this sense, every member is responsible for the wellbeing of the other members of the community. Participating in activities that require the collaboration of different members of the community is part of the motive for celebration. Different ways of collaborating together are sought by the community, with

two of the most recent ones being the initiatives in which Octavio and Roque participate.

Octavio explained to me that there is now a cooperative in which the honey and other by-products of the bees are transformed into “cosmetics ... health products like syrups, ointments, creams, exfoliating soaps, gel.” This has increased the income of the members of the cooperative. Roque explained how women are becoming empowered in the process of harvesting and selling the honey, as they can now provide for their families. Both the cooperative and the empowerment of women are explained further in the ‘Initiatives’ section of this chapter.

The bees and Nature and useful species

Octavio tells me the pisolnekmej visits more than 500 native plants. These stingless bees are considered to be the most important pollinators in the tropics for a number of reasons: they are the most common bees; their small size allows them to pollinate small flowers; and they can perform ‘buzz pollination’, a pollination carried out through vibrations (Maya et al., 2018). As such, the reproduction of an important number of plant species of the Sierra Norte relies on these bees. This makes the bees a crucial element in the health of the overall ecosystem of the region.

Besides providing an ecosystem service, the pisolnekmej are also responsible for the reproduction of a variety of commercial species such as coffee, avocado, tomato, pumpkin, chilli, strawberry, alfalfa and rambutan (Maya et al., 2018). This benefits both native and migratory birds (Leyequién et al., 2010). Octavio explained that the native bees also help with the pollination of many of the medicinal plants used in Cuetzalan.

Providing a good living for the bees

In order to continue to benefit from the services provided by the bees, the bees have to live in good conditions. Roque told me “for me living a good life involves a responsibility ... for us to be OK ... we need to take care of the bees. So good living is all of the means that can be used so that the bees can be happy.” As Roque explains, providing them with a home (the pots) is not enough. For the bees to survive, it is crucial to have a healthy forest in which they can forage for food. This means beekeepers need to have a healthy parcel of land in which crops are combined with the forest’s native vegetation. This prevents the use

of dangerous pesticides, along with monoculture practices that harm both the ecosystem and the bees. Flowers need to be planted. This practice benefits all of the other species of stingless bees of the area that, although they do not produce honey to harvest, contribute to sustain the four elements of the kuojtakiloyan in other ways.

Taking care of the bees also involves monitoring the pots throughout the year to make sure they are in good condition. As Octavio explains “we need to check that there are no ants, no spiders or no flies that can harm the bees.” It also involves making sure there are enough available flowers close to the colony. The better cared for they are, the better they will reciprocate. As Octavio explained to me while pointing at a pot “you can see that these colonies are going to have a lot of honey. They look pretty healthy.” He tells me he can evaluate the health of the colony by the colour and the length of the wax pipe the bees build at the entrance of the pots. The bee approach presented here illustrates how living a good life is directly related to the cooperative relationships explored in Chapter six. This is explained in what follows.

Cooperation, the heart of yeknemilis

In yeknemilis, every element of the kuojtakiloyan needs to fulfil their duties so that the rest of the elements can enjoy a good life. In return, their wellbeing is also ensured. Living a good life is underpinned by a sense of responsibility, since the wellbeing of the entire system relies on every element performing their tasks. Yeknemilis or good living, then, is the fruit of the work invested in the relationships of cooperation between individuals, the community, useful species and Nature. As Griselda explained me, “in the country side it’s different. You need to be willing to make an effort.” Figure 20 shows how yeknemilis is sustained by the interrelated connections of the kuojtakiloyan.

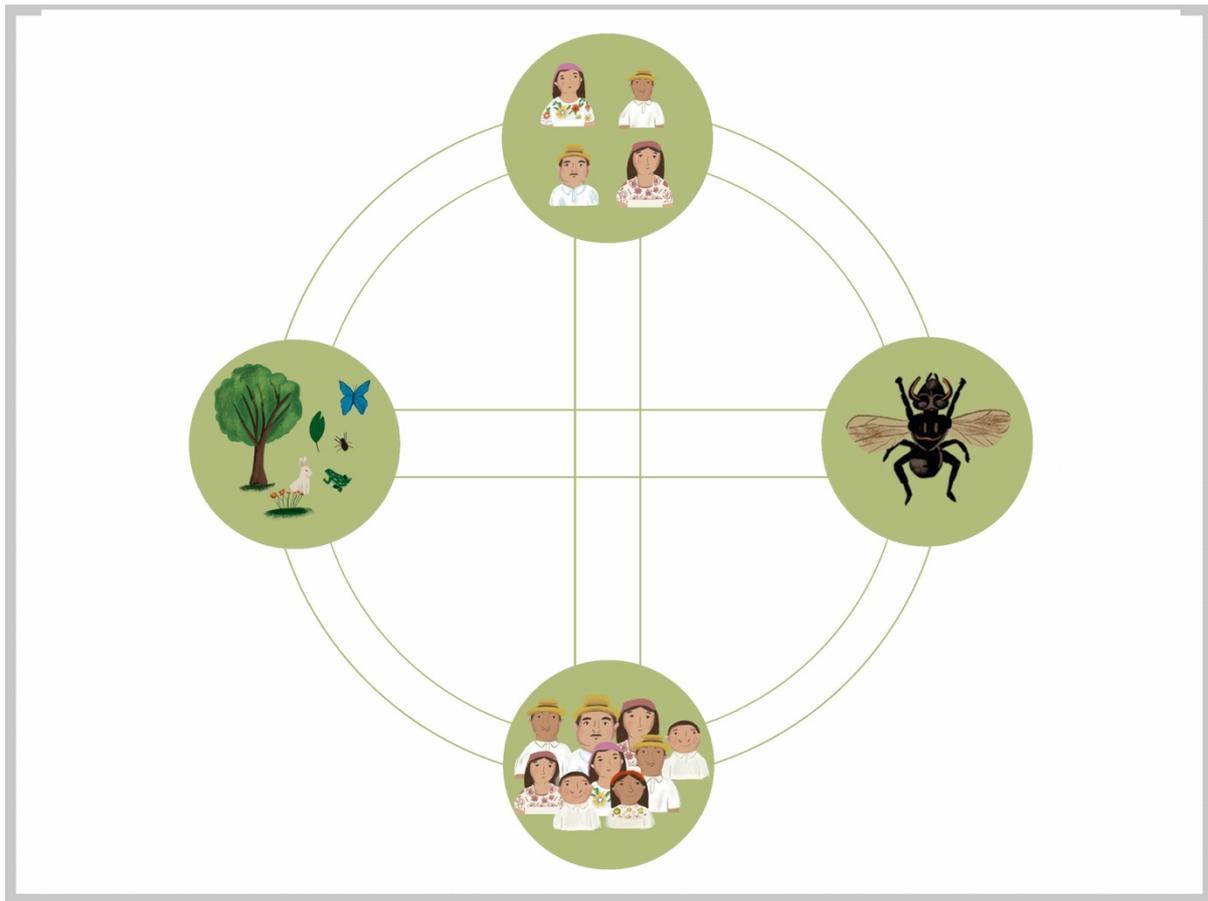


Figure 20 Interrelationships between the wellbeing of the Nahua people and the wellbeing of the elements of the kuojtakiloyan

Figure 20 shows how the wellbeing of the Nahuas is interrelated with the wellbeing of the rest of the elements of the kuojtakiloyan. If the bee has a good life, it contributes to the good living of individuals, people, other useful species and Nature. The same applies to the rest of the elements of the system, which are inextricably interconnected.

As Figure 20 shows, *yeknemilis* follows the same kind of cooperative relationships between people and the environment that emerge from the cultivation of corn. This is because *yeknemilis*, or good living, results from the cooperation of the elements that compose the system.

Living a good life is never dependent on the individual only, but is the result of a system composed by elements that are doing their part. *Yeknemilis* surpasses Western notions of wellbeing as it is extended beyond humans, to the rest of the elements that compose the system. An important aspect of *yeknemilis* is the sense of security it provides, as it is understood that your needs will also be taken care of by other members of the system. *Yeknemilis* allows the Nahua people to find fulfilment in the present, as the present brings joy and security. If the cooperative relationships underpinned by respect and care are

good today, they should continue to be good tomorrow, even if the entire system is subjected to stress. This significantly reduces anxiety, feelings produced by uncertainty. The capacity of yeknemilis to cope with adversity is explored in the discussion that follows.

Yeknemilis and resilience

Resilience is the ability to recover or adjust easily to adversity and continue to thrive. The Nahua people have endured severe hardships derived from colonisation and from the current coloniality. Throughout this time, they have managed to cope and flourish successfully. Thanks to their capacity for resilience, they have been able to continue with their cultural identity and to continue their knowledge system for hundreds of years.

The system of interrelations that underpins the discourse of yeknemilis is also resilient. These cooperative relationships provide a resistant net that can overcome certain levels of stress. Figure 21 illustrates the net that supports the yeknemilis discourse. When the net is subject to stressful conditions, the system can continue to have yeknemilis, as other cooperative relationships will compensate for the ones that are being affected.

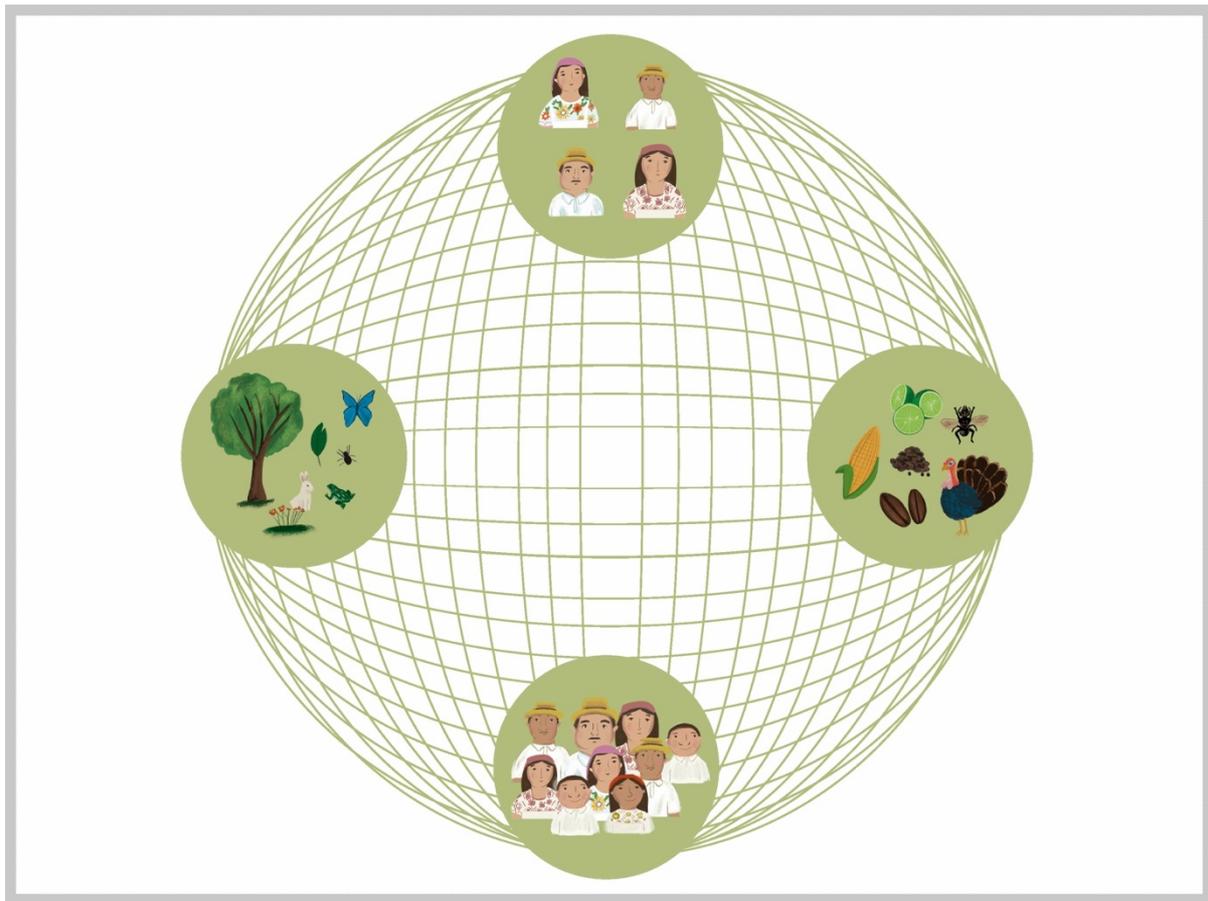


Figure 21 system of interrelations that underpins the yeknemilis

Figure 21 shows how the cooperative relationships that inform the yeknemilis provide a shared network of support between all of the elements of the kuojtakiloyan: the individuals, the community, the useful species and Nature. This system allows the yeknemilis to continue under situations where Western notions of wellbeing cannot. The yarnings revealed four stressful events in which the Nahua people have been able to continue to enjoy a good life when the peoples of the city have not. These are explained in what follows.

Yeknemilis and recent stressful events

The first example is the ability of the system to cope with adversities that can affect their *crops*. The kuojtakiloyan provides a variety of agricultural products throughout the year. When it is hit with a plague or disease, the diversification of crops and fruits prevents the totality of useful species becoming affected. If a few are affected, the rest will continue to grow and can be later bartered. The system also protects against extreme weather conditions, as the species grow in different seasons throughout the year. If one season has an extreme event, the Nahua people can recover in the following season, instead of having

to wait an entire year. The diversified plot allows the system to accommodate *biological and meteorological events*, while continuing to provide a good life to its four elements.

Closely related to this is the ability to provide the Nahuas with *income* throughout the entire year. As Roque explains:

The (Kuojtakiloyan) allows us to have safe harvests, that is, you are growing the whole year, and you are earning throughout the year, when they do not give you one thing, they give you something else and something necessarily survives. With monocultures you only have a single product, so if it goes wrong, it goes wrong for you too.

The cycle of commercial species in the kuojtakiloyan is safer, as they can sell different products throughout the year to guarantee a constant income. Contrastingly, monocrops can provide a single-income throughout the year, and if the crop were to not grow, the people will not earn any income for more than a year. Octavio explains, “when the monoculture gives you an income, it is a short-term one, that’s why we rather cycle between the harvest of the coffee, the ground pepper and the honey.”

In the event of *financial hardship*, individuals can still enjoy support from *yeknemilis*. This is the third event reported, *financial instability*. Rubi explained to me that the kuojtakiloyan continues to provide wellbeing to those who find themselves in a bad economic situation. She explained it as:

Here is a world of crops. It’s not like a city. Because in the city if someone does not have money, they don’t eat anything. And here if I don’t have money I walk and I find a mandarin and I eat it. And so we have everything. If we don’t have money we have corn, we have beans. We have everything to eat.

In this regard, Griselda adds “we can grow crops and feed ourselves. You don’t necessarily have to have money. We also have barter. It’s when you have something you don’t need, another person has something you need. You can exchange things.”

Aside from the food that grows in the soil and barter, the community provides for those that are in need due to situations such as *disease or death*. The amount of help provided by the members of the community depends on the economic situation of each one. Being able to give is an expression of Indigenous cultural values, and as such, it brings pride to the members of the community. It also brings reassurance as people must reciprocate if you are ever the person in need.

The last example is the capacity of the system to provide *yeknemilis* in the event of *isolation* from the rest of the country. Octavio explained to me that in 1999, a natural disaster reminded the Nahuas of the uncertainty involved in buying food with money instead of growing it. In 1999, the heavy rains caused the municipality of Cuetzalan to become isolated as the roads and bridges were destroyed. The *kuojtakiloyan* provided all the food needed while the roads were rebuilt. As Octavio explained:

The people from the city work as traders and so the products of the stores ran out, but the people that lived here (in the Indigenous towns) could kill a little chicken, looked for a mushroom, eat their corn. We didn't suffer as much as the people from the city. So we are aware of the importance of planting.

However, when the cooperative relationships are removed from the system by continuous or extreme events, the system can no longer recover and the good life of the elements that form the *kuojtakiloyan* will be lost. This is what happens with extractivist practices, and why the Nahua people are willing to “defend their territory with their life.”

This situation is explained in further in the section that follows.

Yeknemilis and extractivism

Extractivist projects severely damage the interconnected relationships that sustain the *yeknemilis*. A neoliberal, global economic system has been accompanied by a decline in the native stingless bee population (Maya et al., 2018). This decline has also been accompanied by a decline in the traditional beekeeping practices by Indigenous groups (Íbid). According to Maya et al., the main factor behind the decline in the stingless bee populations are changes in vegetative cover and soil use, pesticides, exotic species and climate change.

In the Sierra Norte, this change in the vegetative cover and soil use is happening at an accelerated rate due to mining extractivist projects. As Octavio explained to me: “when land concessions are given to the megaprojects, the vegetable cover is removed, and with it, our crops, affecting the bee directly.” This change in soil use includes the destruction, degradation and fragmentation of the natural habitats of pollinator species. Aside from reducing nectar sources from where the bees feed, their breeding sites are destroyed.

Octavio explained to me that mining is not the only extractivist project the Nahua community are resisting:

For example, (in the Sierra Norte), there are now problems because of the introduction of potatoes, and also for the avocado farming. Avocado is no longer only planted in Michoacan (the state with permission to export avocados to the U.S. and Canada), it is entering Puebla and this requires entire clearing of the land. Some people are renting their land because it is more profitable. The avocado growers rent the land of the people for ten years, fill it with fertilizers and when the land is no longer good, they rent another parcel. But that has not happened here in Cuetzalan because of the presence of the organisation (the committee of the territorial ordinance) is very strong. But it is already happening in the higher parts (of the Sierra Norte).

An often overlooked consequence of the entrance of extractivist projects, that is primordial to this thesis, is the destruction of local epistemologies. Extractivist practices bring with them another logic - the logic of modernity in which Nature and useful species stop being parts of an intricate net of cooperation to become mere commodities. As Don Pedro explains:

Modernization causes many things to become lost ... the youth start learning a foreign language before their own ... the youth stop going to the kuojtakiloyan ... I believe the theory has dispossessed us greatly from what is ours, you know what comes from the outside and you leave what is yours behind ... it dominates, it tries to convince ... and that is what is going to destroy us, and not only us but the soil with us.

Modernity introduces other ways of thinking that break with the cooperative relationships that sustain the yeknemilis discourse. The modernity logic is not only being introduced by extractivist practices, but by the school system and the media. This has caused practices of beekeeping in Cuetzalan to almost disappear, because children have not been interested in learning it from their grandparents. Octavio explained: “[modernity] is very strong. If you are not certain of who you are, it is easy to fall into it. You lose your identity, you become absorbed.” As a metaphor for modernity, Shiva (1993) argues the introduction of monocultures to the land brings with it a monoculture of people. According

to Shiva, the introduction of Eurocentric logic causes local cultures to “disappear by erasing and destroying the reality they ... represent” (p. 12).

Roque explained that one of the extractivist projects that raises a concern with the population of the Sierra Norte is the introduction of genetically modified organisms. GMOs put both corn, and bees at risk. Roque explains:

the problem with transgenics is that they eliminate our local seed varieties ... they would make us dependant on the companies, as we would have to buy the seeds every time we want to grow corn ... it would alter the ancestral genetics of our local seeds. That is why I defend our seeds.

Transgenics constitute a risk of contamination to the four local varieties of corn: white, yellow, red and purple. The pollen of the corns can travel in the air, causing genetic contamination which would result in the alteration of the native varieties of corn, which are the result of thousands of years of manual selection. In addition, transgenic varieties of corn are engineered to produce sterile grains. As such, traditional farmers are no longer able to select the seeds that they will plant every harvest. Instead, they would have to buy it from the companies that produce the transgenic seeds. The entrance of transgenics would severely damage the corn, the axis of the *kuojtakiloyan*, and the resilience of the *yeknemilis* would be lost.

Transgenic corn has also been shown to damage the health of bees. The study of Nicodemo et al. (2018) demonstrated how transgenic corn decreases the total and key storage and lipid transport protein levels in honey bees. The study also shows how the seeds treated with imidacloprid (an insecticide), also affected the health of the honey bees in the study. According to Maya, Zepeda and Arnold (2018), agrichemicals are one of the main reasons for the decline of the population of native stingless bees. As the authors argue:

Insecticides, depending on their toxicity and level of exposure, can have direct lethal or sublethal effect on bees. Herbicides reduce the abundance and diversity of forests, which can result in the malnutrition of bees, which weakens them and makes them more vulnerable to insecticides (my translation, p. 97)

Due to the resistance fights of Indigenous peoples, GMO corn has still not entered the Sierra Norte, and the community is certain they will also succeed in defending their land from other extractivist projects. As Octavio tells me, “there is hope, we are going to keep

fighting, we are going to continue to take on Nature here.” Roque agreed: “good living is very related with your spiritual part ... you always have to think positive and never think of the worst.” This hope underpins the resistance of the Sierra Norte, one of the most successful resistance movements in Mexico.

The Cuetzalan resistance movement is, at its core, an epistemological fight. By resisting the privatisation and unsustainable exploitation of Nature, they are resisting the modernity logic that would ultimately destroy their way of living. Although it might seem like a fight inherent with philosophical underpinnings only to the Nahua people, it is a fight for the possibility of other worlds to exist into the future. This is a world informed by logics that do not ascribe to modernity. A crucial part of the resistant struggle is the emergence of initiatives that seek to strengthen Nahua epistemologies, so that the communities can continue to enjoy living a good life. Two of these initiatives are the Meliponary school and the Tosepan pisilnekmej. Both work to strengthen the motivation for the beekeeping tradition that has been passed down from before colonial times more than 500 years ago and, with it, ensure another way of living is possible.

The meliponary school

Roque became interested in the conservation of the bees because he realised that the tradition he had learned from his grandparents was disappearing. In the 1980s he looked for support from the local government to revive this ancestral practice. However, all of the local programs to promote honey production targeted the European bee, as it was recognised as a commercial species. There was no knowledge around the stingless bee, its biology or its cultural importance. Roque tells me “It wasn’t written. There were no books. Not like in Yucatan where the Mayans had a lot of books.” Maya, Zepeda and Arnold (2018) support this, arguing there is scarce literature about the antique beekeeping practices of the Sierra Norte.

Roque has played a crucial role in increasing the literacy about the Nahua beekeeping tradition. He explained the way in which the government came to help him in such task:

I had some contacts in the regional government who were interested in the native bees ... Fortunately, they did a very good job at their workplace and, years later, they were promoted to the local government ... So, we started a regional organisation. I was one of the founders of the organisation, which started in 1994 ... In this

organisation, we distinguished the local varieties of stingless bees and, finally, were able to conduct a diagnosis of the species.

Roque was involved in naming the local stingless bee, *pisilnekmej*. He explains:

To present the project of rural extensionism (of beekeeping to the local government) you had to have a name. For example, if you have a project of rabbits you had to call it 'the rabbit project'. So we called it 'pisil nekmej' because they are small. They are smaller than the other ones.

Once the bee was recognised, the team started the project by rescuing bee hives from the trunks of trees that had been cleared and were discarded. In collaboration with Western biologists, both Mexican and international, Roque improved the beekeeping technique that had been passed down to him. The team then started delivering presentations at specialised conferences and started travelling to the Yucatan peninsula to raise awareness about the *pisilnekmej*. As a result of these efforts, the *pisilnekmej* was recognised as a species, and was classified as *Scaptotrigona mexicana* in the year 2000. All this led Roque to earn international recognition in 2013, when he was awarded the NAPP pollinator Advocate. He explains having the award has given him credibility: "It is institutional and international recognition. It is a giant step because with anything less, people don't believe you."

In addition to his work in raising awareness of the *pisilnekmej* within the scientific community, Roque teaches the beekeeping tradition to the Nahua people in the States of Puebla, Oaxaca and Veracruz. So far, he has guided more than 200 people in 15 localities. He only gives workshops in rural areas, as "you cannot put the bees in an urban area because it is going to be hard for them to find food." He explained to me that he does not give the bees to anyone:

Every year I go to a different location to share the seed of how to become a beekeeper. I tell them "I am giving you my bees, so I will come back to see how they are doing. There has to be a commitment to taking care of them. If you take care of them, I will give them to you. If not, tell me you'd rather not get a bee colony." There has been people that have stood up and told me "you know what, if I am being sincere, I won't be able to take care of them." I always start with that talk, as the bees cannot be treated like a disposable cup that can be easily replaced. It is crucial to understand that the bees are alive, they are alive and people have to be prepared

and know which elevation they need to be comfortable, which vegetation, which social environment.

Recently, in 2018, Roque started the Meliponary School, a school that seeks to facilitate his job as a native beekeeping advocate. The aim of the school is to offer training and support workshops to current and future beekeepers. Through the school, he seeks to increase the *yeknemilis* of the people that live mostly from the land. Roque works mostly with women, who become empowered when they bring income to their families. He explained to me that although he has done a lot for the bees, the bees have given him even more. The bees have brought him *yeknemilis*, recognition and the opportunity to live doing what he does.

Tosepan pisilnekmej

Octavio is also passionate about bees. He became interested in them when he heard they could pollinate over 500 plants. He is a beekeeper in Tosepan Pisilnekmej, one of the cooperatives of the Tosepan Union of Cooperatives. In what follows, I explain the history of the Tosepan according to the information I learned through yarnings. However, detailed descriptions of the Tosepan Unions of Cooperatives had been published by members of the cooperatives and academics, and are available to access as primary sources of the story of Tosepan in (Unión de Cooperativas Tosepan, 2016*), or a detailed description of the history of Tosepan is available in (De Jesús-Amayo & Sánchez-Ramírez, 2017).

The origin of the Tosepan Union goes back to 1977, when they organised a large fund, composed of small contributions, to collectively purchase sugar, a daily necessity, directly from producers instead of paying three times the price through intermediaries. This led to the formation of a cooperative to institutionalise cooperation within the community. In addition to enabling the community to purchase goods collectively, the Co-op was employed to sell locally produced coffee and ground pepper to the European and Asian markets. The Co-op set a fixed and fair price for farmers who had previously been exploited and exposed to the turmoils of commodity price fluctuations. The cooperative is named Tosepan Titataniske (Together we will succeed), to reflect the Nahua tradition of cooperation. Through the formation of the cooperative, the community asserted their collective power. They then decided they could collectively resolve the needs of the community. This marked the beginning of a movement that is now comprised of 15

initiatives grouped under the Tosepan Union of Cooperatives. The 15 co-ops are shown in Table 6. Originating in San Miguel Tzinacapan, the Tosepan has now grown to address the needs of 14,000 families (which account for more than 100, 000 members), it has become one of the most successful cooperatives in the world. Most of the members are Nahua, followed by Totonaco, and a mestizo minority. Its presence has reached almost 400 Indigenous communities in 26 municipalities distributed in the states of Puebla and Veracruz. The 15 cooperatives that compose the Union of Cooperatives Tosepan, along with a brief description of what they do, is provided in Table 6.

Table 6 Description of the Cooperatives of the Union of Cooperatives Tosepan based on information gathered from yarning sessions with Octavio, and from De Jesús-Amayo & Sánchez-Ramírez (2017) and Unión de Cooperativas Tosepan (2016).

| Name | Function |
|---------------------------|--|
| TOSEPAN TITATANISKE | Organic fertilizer and compost to displace agrichemicals |
| TOSEPAN SIUAMEJ | Development of projects directed at women so that they can generate income for their families. |
| TOSEPANTOMIN | Supports the economic needs of the campesinos. Savings, credit, life insurance. |
| TOSEPAN PAJTI | Traditional health with a strong focus on prevention of diseases. |
| TOSEPANO OJTASENTEKITINIJ | Production and transformation of bamboo. |
| TOSEPAN KALI | Offers tourism and a place to stay for the members of the community that are attending training. |
| MASEUAL XICAUALIS | Transformation of products and market placement. |
| KALTAIXPETANILOYAN | Training centre for the members of the cooperatives. |
| TOSEPAN LIMAKXTUM A.C | Strengthening cultural identity through radio stations, TV and newspapers in a bilingual way. |
| FUNDACIÓN TOSEPAN | Raising funds to support the non-profitable cooperatives and offering training to bring sustainability to the Sierra Norte region. |
| TOSEPAN PISILNEKMEJ | Harvest of the native stingless bees honey and production of by-products. |
| TOYEKTANEMILILIS | Construction of housing. |
| TOSEPAN TICHANCHIUAJ | Making housing sustainable (water collection, solar panels, etc.). |

| | |
|-------------------------|--|
| YEKNEMILIS A.C. | Contributes to the rural development of the region keeping in mind the interconnections between people and Nature. |
| Tosepan Kalnemachtilyan | Montessori school system adapted to local needs. |

Table 6 shows the diverse concerns of the co-ops that cover many aspects of community life, ranging from: the commercial trade of community products; financial services, such as providing investment capital raised from within the community and invested in new initiatives; ecologically constructed housing; and education tailored to preserve the cultural identity of the Nahua and Totonaco people. Octavio explained to me that not every co-op is expected to return a financial profit:

The profits of the co-ops that are profitable are distributed amongst the members, but not all of them make a profit. For example, the health cooperative is not economically sustainable, so it requires subsidies ... So some cooperatives can generate profit and some can't, so they require more resources.

This is because the union of co-ops was conceived as a family in which all the members should be treated as family members. As such, the Union channels some of the profits of the profitable cooperatives to fund healthcare and education. A non-profit organisation has also been established to help raise funds to pay for the cooperatives that are not economically sustainable. In addition to organising cooperatives, the Tosepan advocates the *Mano Vuelta* and the *Faena*. Through these cooperative practices, the community has built infrastructure such as an electrical grid, roads and medical facilities.

The most recent of the initiatives of Tosepan is the Tosepan *Pisilnekmej*, a cooperative concerned with the production of honey from the native stingless bees. Although constituted in 2018, the cooperative has been actively working for the past ten years. Octavio explains that:

In the honey cooperative, we are between 250 and 300 producers. Before the cooperative it was mostly the grandparents that practiced beekeeping as a tradition. Now, there are also parents and children. Each beekeeper can have between 2 and 400 bee colonies. If someone wants to become a member you have to come to the assembly where it is decided if you are accepted or not ... if you are accepted there is a commitment to come every month to the meetings.

As in the other cooperatives, Tosepan *Pisilnekmej* does not work in isolation from the rest of the initiatives. As Octavio explained to me: "we produce by-products like wax, propoleum,

honey and then the health cooperative turns it into pollen capsules, makes syrups, and also cosmetic products like shampoo and gel.” Those products are sold at Tosepan Kali, the ecotourism cooperative. Finally, the Kaltaixpetaniloan training centre provides continuous training to improve the production of the harvest.

The Tosepan has significantly increased the quality of life of its members by following a cooperation model that has allowed them to raise themselves out of poverty. The power of Tosepan resides in reminding the inhabitants of the region that the communal organisation is their best strength. This is why it continues to grow and has become an attractive alternative for non-Indigenous people living in the Sierra Norte who have joined different cooperatives.

Since its beginnings, the Tosepan have sought to intervene in the political life of the country. The Tosepan is very active in the defence of the Indigenous territories of Cuetzalan. As they claim, “the territory is sacred and with our life it is defended.” They are part of the organisational members of the committee of the territorial ordinance, and some of its members have been criminalised by the government. In addition to opposing the mining concessions in their territories, the Tosepan has been proactive in looking for solutions that can keep mining away from their territories in the long term. The government is pushing to build hydroelectric dams and high voltage power towers to theoretically guarantee the future provision of electricity to the municipality. The Sierra Norte has seen an increase in the production of energy due to the large amount required by the mining extractivist projects. In order to prevent the future entrance of mining, they are now trying a pilot of solar energy to become self-sufficient in electricity.

De Jesús Amayo and Sánchez Ramírez (2017) argue the Tosepan has given the people of the Sierra Norte a voice they have not had for centuries. The most recent attempt to get their concerns heard was the putting forward of an independent candidate to run as head of the local government of Cuetzalan in the 2018 elections. The initiative sought to imitate the way Indigenous communities choose their authorities, that is, selecting them for their work and performance for the people, and representing the wealth of knowledge of the people in government matters. The image of the independent candidate was a purple corn (one of the four varieties of local corn). Figure 22 shows the political propaganda generated for the independent candidate.



Figure 22 Political propaganda of the independent candidate for the municipality of Cuetzalan

The left picture in Figure 22 shows a local newspaper in which the local independent candidate is pictured next to a purple corn. The right picture shows her name, Silvia Guerrero Molina, with a simulated vote by crossing the cob. Under the crossed cob it reads “the people governing for the people.” Under the square, it reads “this first of July cross the cob over.”

Silvia Guerrero, the independent candidate, did not win. By talking to people in Cuetzalan City, it seemed that being a woman played against her. As a traditional and Catholic community, most of the population of Cuetzalan follows strict gender norms in which women are the ones who stay at home, while men work. This shows how the Nahuatl people of Cuetzalan, as in many other societies, has a traditional view of gender. Along with it, some of the local leaders of the Tosepan have been accused of taking advantage of the rest of the people. Although there is still work for improvements ahead, it is undeniable that the Tosepan has radically increased the quality of life of the people of Cuetzalan and other councils. This was reflected in the yarnings I conducted during my three visits, as all the participants expressed their gratitude to the organisation. Veronica, for example, said:

The cooperative of women is really good. It really helps women and offers them training in what is most important to the community. It is a great support system.

The resistance movement

The efforts of Roque, the Tosepan Pisilnekmej, and other local organisations led to Cuetzalan being declared as “the sanctuary of the pisilnekmej native bee” by the local government and the Committee of the Territorial Ordinance. Since 2005, Cuetzalan has become the region of Mexico that produces the most stingless bee honey, surpassing the production of the Yucatan Peninsula, a region that has had an uninterrupted native beekeeping tradition.

The Meliponary school and the Tosepan Pisilnekmej, along with all the events that preceded them, demonstrate the heart of the resistance struggle. Roque and Octavio, like many other Nahua people of the region, are regular parents and husbands that work hard every day in their commitment to the preservation of their ways of being so that their children can also continue to live a good life. Both initiatives have served to promote the yeknmeilis and have raised awareness of the risks of extractivist projects.

Although it is not a unified written discourse like the Sumak Kawsay of the Kewchua people of Ecuador, the Yeknemilis is a “common practice here in the croplands” that is being defended by the Indigenous population of the Sierra Norte. In the region, dozens of alternatives have been developed and implemented to preserve specific elements involved in the yeknemilis, like corn, water, bees, and education, all of which are crucial to maintaining the resilience of the kuojtakiloyan and with it, continuing living a good life founded in their epistemologies. These alternatives contain elements that can inform traditional discourses that can offer an alternative to the dominant agenda of sustainable development, as I argue in the next section.

Elements of a transitioning discourse

The yeknemilis offers an alternative pathway from that of Sustainable Development. Informed by the Nahua epistemologies, the vision of a good life is a vision that is not founded in economic growth but in cooperative relationships between the community, Nature, and the economic activities (the production, transformation and commercialisation of useful species). The yeknemilis understands that Nature must be respected, and its wellbeing must be sought in order for the system to work. As such, the natural limits of the planet constitute the limits of their socio-economic system.

The community as a whole is very important for the Nahua ways of living, as their strength as Indigenous peoples relies on the strength of their community ties. As such, economic activity must be performed to satisfy the needs of the entire community, and it can never exploit any of its members. In this model, society, as explained, becomes the limit for economic activity. These economic activities, which rely mostly on agricultural species, must also be respected in order to provide for the community. A comparison of the models proposed by SD and the yeknemilis is shown in figure 23.

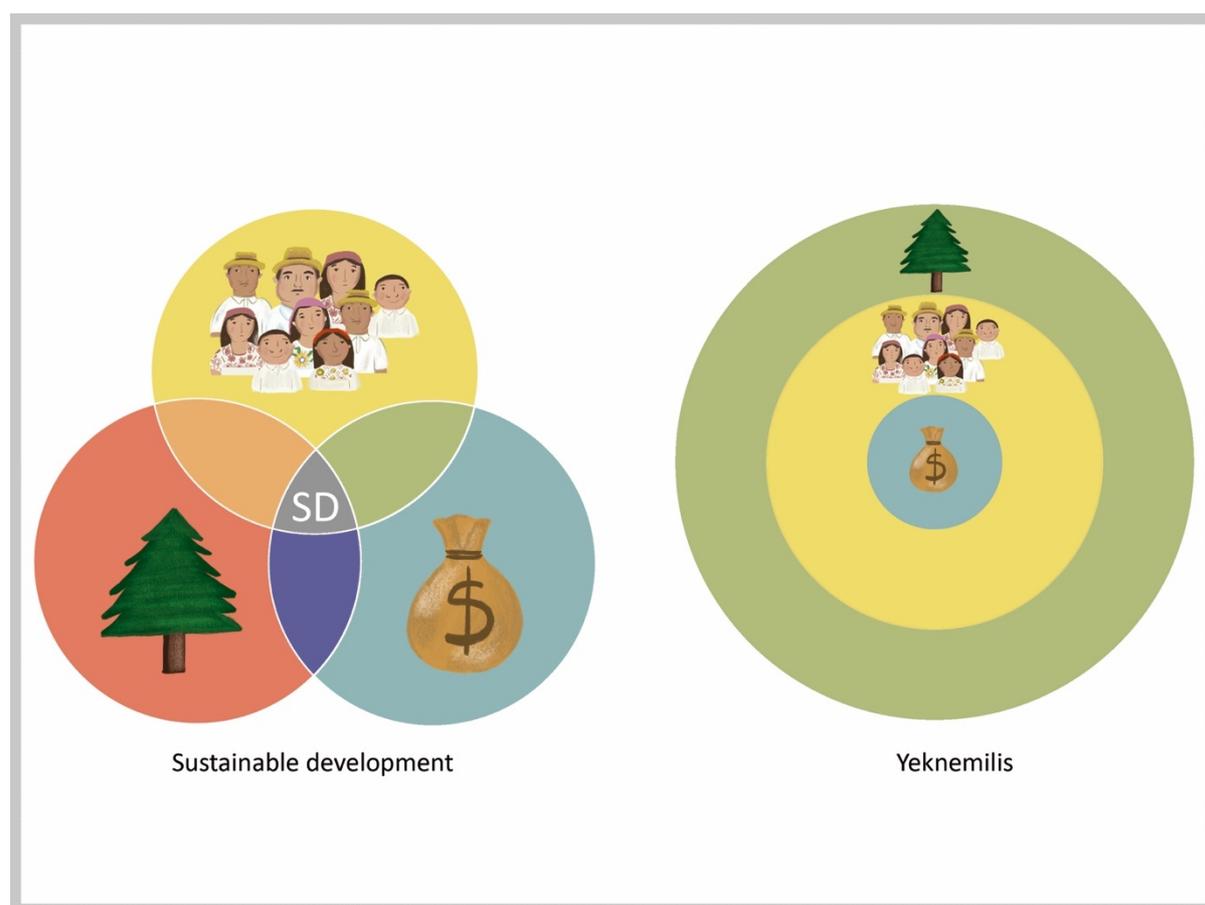


Figure 23 sustainable development and yeknemilis models

Figure 23 compares the models of sustainable development and yeknemilis. The difference in the models show that the connections between Nature, society and the economy are understood differently between Western and Nahuatl epistemologies. While the sustainable development model understands the three elements as independent elements that when brought together, generate a development that is sustainable (Ciegis et al., 2015), the yeknemilis understands these elements as an interconnected system that work together in a web of strong, harmonious relations.

The SD model gives the same importance to Nature, society and the economy, all of them represented as the same size. The model does not show any limits to the system. Under sustainable development, Nature is seen as a commodity for improving the well-being of people, which is measured according to Western standards of living. As such, in order to increase the well-being of the people, SD proposes sustained economic growth through the extraction and transformation of Nature. SD seeks to diminish the negative environmental impacts that result from this process, but only to allow for the system to continue to grow the economy (Banerjee, 2003; Doyle, 1998; Kopnina, 2016) (for a deeper analysis of SD, see Chapters three and four).

Contrastingly, the *yeknemilis* model gives different sizes to each of the elements that compose the system. The largest circle encompasses Nature, which is considered alive, therefore, it is crucial to respect it. As the outer circle, Nature establishes the limits to the next circle: society. The wellbeing of society then, can never surpass the limits established by Nature, which leads the Nahua people to take no more than what they need. The wellbeing of society is not understood in terms of economic growth. Living a good life means the four elements of the *kuojtakiloyan* –that is the individuals, the community, the useful species and Nature –must live a good life and, as such, it is a concept underpinned by responsibility. The community spends important amounts of time in voluntary reciprocal activities to improve the life of the community such as, *mano-vuelta* and *faena*, as they are responsible not only for their well-being, but for the well-being of the community. The circle of society established the limits of the economic system, which is mostly integrated by the ‘useful species’ of the *kuojtakiloyan*, such as the choice to focus on bees and ground pepper as productive and sustainable crops to meet the needs of the community.

The economy is the smallest circle because for the Nahua people, the notion of progress and accumulation of wealth is not understood to bring a good life and, as such, non-profitable activities that bring wellbeing to the community are prioritised over those that produce revenue. Examples of this are reserving the land with best quality for growing corn for self-consumption, instead of for commercial species (see Chapter six), and having cooperatives that do not produce revenue, but need to be funded by the profits of other cooperatives, such as the Montessori school and the traditional medicine clinic. The useful species are never considered commodities, but they are considered to have intrinsic value. An example of this is all the effort and time that goes into “making the bees happy” and

only harvesting their honey during the summer months. Some of the main aspects in which the discourse of sustainable development and the yeknemilis paradigm of the Nahua people have different positions, is summarised in Table 7.

Table 7 Comparison of Agenda 2030: transforming the world and the yeknemilis proposal of the Nahua people of Cuetzalan

| Agenda 2030: transforming the world | Yeknemilis |
|---|--|
| Nature, humans and the economy are independent systems | Nature, people and the useful species that generate income are considered interrelated parts of the same system |
| Nature is considered a commodity and does not have intrinsic value. | Nature is considered alive and has intrinsic value. |
| Focuses on infinite progress to bring well-being. | Focuses on living a good life in the present. |
| Understands well-being as something dependant on economic growth | Understands living a good life as the result of reciprocity practices between all the elements of the system |
| The concept of well-being applies to humans only | The concept of living a good life applies to all the elements that compose the system. |
| IPs are considered a vulnerable community that needs help | IPs value their ways of being and try to maintain them |
| Considers Western knowledge as the only knowledge capable of bringing solutions to the socio-environmental crisis | Considers both Indigenous and Western knowledge capable of bringing solutions to the socio-environmental crisis. |
| Propose decoupling economic growth from environmental degradation | Propose a system underpinned by responsibility towards Nature |
| Based on a right-based ethic in which humans are entitled to take as much as you can | The system establishes limits that guide people to take no more than what you need |
| Extractivist practices are permitted as they increase GDP and lift people out of poverty | Extractivist practices are not permitted as they damage the good life |
| The system is not resilient to adversity | The system is more resilient to adversity |
| Regular citizens cannot find opportunities to create change | The entire community can create change |

Note: The left column is from insights gained in Chapter seven. The right column is informed by the literature review conducted in Chapters three and four.

Table 7 shows how SD reproduces the logic of modernity/coloniality and continues to understand progress as the only pathway for humanity, and with it, continues to perpetuate the exploitation of Nature and people from the periphery. Contrastingly, the Yeknemilis is underpinned by Nahua epistemologies that are based in an understanding of Nature, humans and useful species (that generate income) as interrelated parts of one system. As such, it is a proposal that moves away from an economic focus and, with it, breaks with patterns of exploitation of Nature and people from the periphery.

The yeknemilis is similar to the *sumak kawsay* paradigm of the Kichwa people of Ecuador. Both the yeknemilis and the *sumak kawsay* are founded on an understanding of humans and Nature as interdependent parts of one system, and both are a common

practice within the Nahuas and the Kichwas, respectively. As systems that emerged from outside the Eurocentric borders imposed by the modernity/coloniality knowledges, both paradigms are not underpinned by the logic of progress that perpetuates the exploitation of Nature and people in order to generate economic growth, without limits. Instead, they are underpinned by responsibility towards the elements of their lands, including humans. As such, they have to stick to the limits imposed by Nature.

Conclusion

This is the final chapter of **Part II: Learning to re-learn**, which contains the insights I gained from *learning to re-learn* from the Nahua epistemologies of the Nahua people of Cuetzalan. It introduced the reader to the Nahua proposal for living a good life, the *yeknemilis*, which is based in the epistemologies explored in **Chapter six**. The chapter showed how the *yeknemilis* offers another way in which to understand the notion of living a good life and, with it, another way of imagining other possible worlds. Although hidden by the coloniality of knowledges, the *yeknemilis* constitutes an alternative pathway through which to create change. The *yeknemilis* constitutes a seed of what Ouviaña (2015) calls the “germs of tomorrow’s society”, as it has the potential to inform transitioning discourses that might decolonise the sphere of knowledges, as was the case with the *sumak kawsay* of the Kichwa people of Ecuador.

The insights shared in **Chapter six** and **Chapter seven** are consistent with the findings of the literature review that informed **Chapter five**, where it was argued that Latin America is a place where Indigenous peoples are offering alternatives to modernity/coloniality. This chapter also highlights Mexico as a place from which transitioning discourses have emerged, due to the Indigenous resistance movements to defend their lands from extractivist projects. Together with **Chapter 6** this chapter showed how the *yeknemilis* of the Nahua people of Cuetzalan have proposed an alternative to development that is growing locally, and that has the potential to inform a transitioning discourse that might contribute to the decolonial turn.

The following **Part IV: Empowerment**, describes the process of design and enactment of a proposed decolonial pedagogy, as an effort to bring visibility to this alternative, which is hidden from non-Indigenous peoples because it lies outside of the borders imposed by Western knowledge. This pedagogy was designed with the express

purpose of finding real solutions to the socio-environmental crisis currently facing the planet.

PART IV: EMPOWERMENT

It is in **Part IV** of the thesis that the reader can see how the previous three parts that inform this thesis come together with the aim of empowering people who are trying to create change through the epistemologies “other”. The decolonial turn seeks to empower people to transform society through a critical reading of the Eurocentric narratives that are presented as reality, to then engage with the epistemologies that remain hidden under the colonality of knowledges. It is from the margins in which Eurocentric and non-Eurocentric knowledges meet, where we can formulate new ideas that can lead to other ways of imagining and building societies. Decolonising the sphere of knowledges through bringing light to the hidden ways of understanding the world can lead to new ways of knowing, thinking, and living and with it, to deeply transform society.

Chapters **eight** and **nine** present the design and enactment of the decolonial pedagogy developed in this study, respectively. Such pedagogy is informed by my loci of enunciation (**Part I**) and guides the participants to learn to un-learn the Eurocentric narratives that sustain and perpetuate the colonality of knowledge and with it, the socio-environmental crisis (**Part II**). After the participants are able to recognise the colonial structures of oppression, they are guided by the Nahua people of Cuetzalan, with whom I established a partnership (**Part III**), to look at the world from a different epistemology. The proposed decolonial pedagogy was designed to empower people that are actively trying to find solutions to the current socio-environmental crisis so that they can bring about change by decolonising the sphere of knowledges.

Chapter eight introduces the reader to the design process of the decolonial pedagogy. It presents the rationale behind 13 learning activities designed to promote an active learning by which the participants a) become encouraged to recognise the colonality of knowledges, and what it entails, by themselves; and b) understand the power of non-Eurocentric epistemologies for transforming society. **Chapter nine** revisits the pilot program of the decolonial pedagogy, and analyses the findings of the decolonial journey underwent by the four participants.

Chapter eight: Design for learning

“A small portion of all possible worlds appropriates the right to be 'the world'”
Enrique Dussel, (1975).

Introduction

This chapter describes the process of designing the proposed decolonial pedagogy, which seeks to achieve the overarching aim of this thesis – **to design a decolonial pedagogy for people who are working to find solutions to the socio-environmental crisis, by introducing them to the colonality of knowledges and epistemologies from the periphery, to empower them to find solutions outside of the epistemic borders imposed by Western knowledge.**

The proposed decolonial pedagogy was designed for the oppressors, a sector of society that plays a crucial role in the unfinished task of decolonisation (Fanon, 2001), but that is not often considered within decolonial pedagogies (See Walsh 2013 and 2017). The target audience for the design are scientists and social scientists whom, with their work, inadvertently perpetuate the colonality of knowledge in their pursuit to bring about change to the socio-environmental crisis. This pedagogy seeks to guide the participants in a decolonial journey by which they can recognise the existence of a colonality of knowledges, as well as be introduced to the power of thinking from the margins. As such, through the proposed pedagogy, those who were once “oppressors” can contribute to the advancement of the unfinished task of decolonisation, alongside the oppressed.

Built as a process of learning to un-learn and learning to re-learn, the proposed pedagogy is informed by two main objectives:

- a) That the participants become aware of the existence of the colonality of knowledges; and
- b) That the participants understand that thinking from the margins opens a viable pathway for creating change.

To achieve both objectives, the design process for the decolonial pedagogy followed the activity-centred analysis and design (ACAD) framework (Goodyear & Carvalho, 2014). This chapter is organised following the ACAD elements of design.

The chapter is informed by the three previous parts of the thesis: **Part I: Positioning myself**, which presented the rationale behind decolonial pedagogies and the role they play in contributing to the decolonial turn. **Part II: Learning to un-learn**, reviewed the literature that underpins the first objective of the pedagogy: the participants become conscious of the existence of the coloniality of knowledges. **Part III: Learning to re-learn** introduced the reader to Nahua epistemologies, and to the two partnerships made through the yarnings. These partnerships are crucial to the design of this pedagogy, as Octavio and Roque guide the participants in achieving the second objective of this pedagogy: the participants understand that thinking from the margins opens a viable pathway for creating change.

The ACAD framework

The activity-centred analysis and design (ACAD) framework (Goodyear & Carvalho, 2014) provides opportunities to incorporate important design features into decolonial pedagogies: active learning; cross-cultural learning; flexibility to accommodate unplanned activities by the participants or the facilitators as needed; bringing previous knowledges of the participants into the activities; and breaking down paradigms. These design features are depicted in italics throughout the design of the epistemic (tasks), the set (physical place) and the social (social interactions) components of the ACAD framework presented below. Figure 24 offers a reminder of the elements of design of the ACAD framework, introduced in Chapter two.

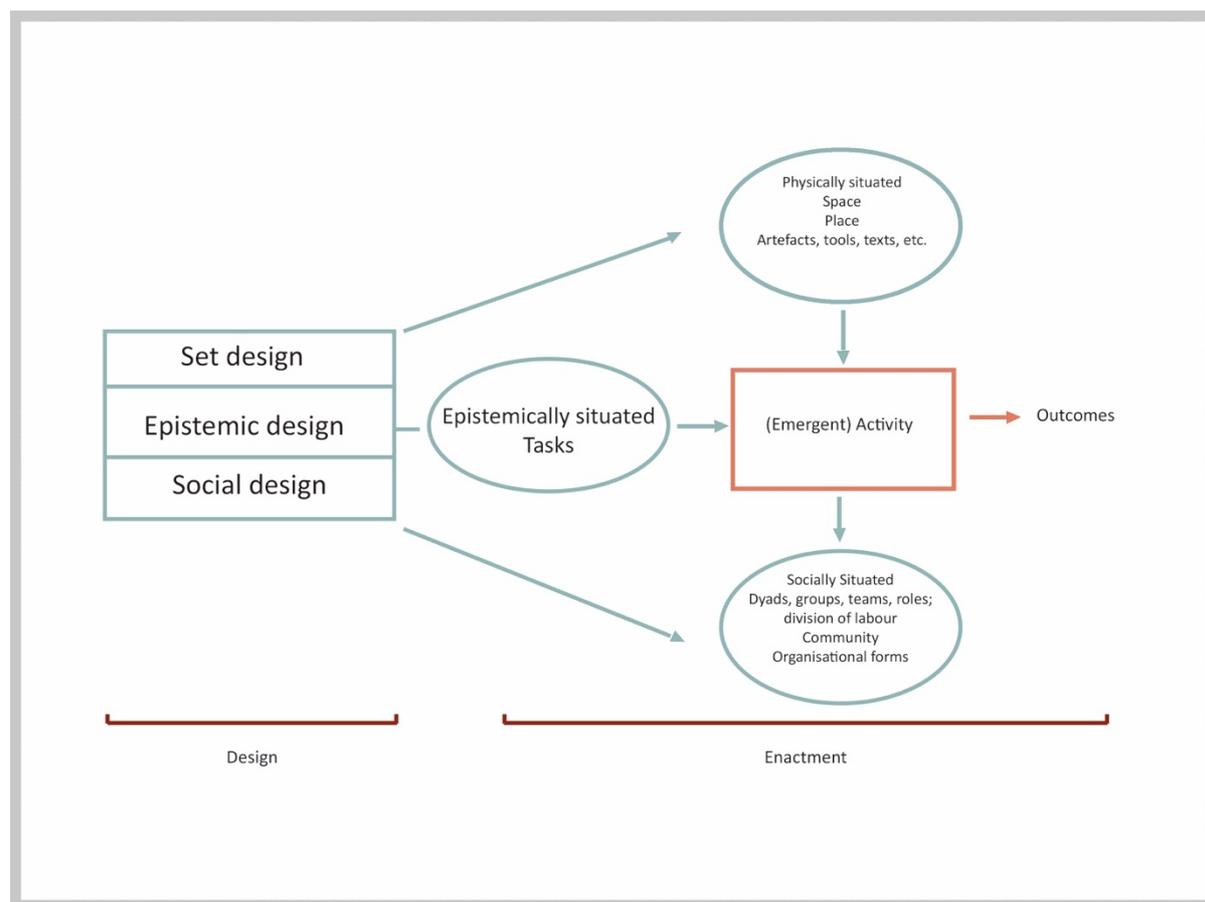


Figure 24 An illustration of the activity-centred analysis and design (ACAD) framework. Source: Produced by the author of this thesis, based on the design by Goodyear & Carvalho (2014).

Figure 24 shows the activity-centred analysis and design (ACAD) framework elements of design: the set design (where learning occurs), the epistemic design (the processes of knowledge creation that occur) and the social design (the human engagement that occurs).

The ACAD framework is underpinned by considering that learning cannot be ‘designed’, but recognises that learning is physically, epistemically and socially situated (Goodyear & Carvalho, 2014a). As such, the framework suggests the designer can *influence* learning through shaping the physical, epistemic and social environment in which the pedagogy will take place, *but the facilitator of learning does not construct knowledge*. Instead, knowledge *emerges* from this pedagogy.

In what follows, the design decisions of this study, that influenced the selection of epistemic design, social design and set design, are explained in more detail.

I. Design of the Epistemic

Epistemic design refers to the design of knowledge-oriented tasks that inform the ACAD framework. The ACAD framework considers learning activities to be emergent and dynamic (Goodyear & Carvalho, 2014). As such, the ACAD framework can facilitate what Freire (1977) called *active learning*, a crucial element of decolonial pedagogies. Decolonial pedagogies are founded in the work of Freire and Fanon, who argue that participants need to *actively* participate in the decolonisation process, as it should not be learned passively (Walsh, 2013). The ACAD framework suggests that it is not the learning in the delivery/facilitation phase that should be planned or designed, and instead, design should focus on the tasks given to the participants, the space where the learning takes place and the social interactions of the participants in order to provide learning opportunities (Goodyear & Carvalho, 2014).

Epistemic design involves the selection of information, its delivery and its sequence amongst other things (Goodyear & Carvalho, 2014). The epistemic design process that informed the proposed decolonial pedagogy was guided by the work of Fanon (2001, 2008), Freire (1977, 1986, 1993), and by the recognition of Indigenous communities fighting extractivist and neo-extractivist projects, as collectives of pedagogues (Walsh, 2013; Ouviaña, 2017).

For the design process undertaken for the design of this pedagogy, it was acknowledged that Freire did not address the oppression resulting from coloniality until the very end of his work (Walsh, 2013). As such, the pedagogy was ultimately guided by Fanon's (2001) understanding of decoloniality as a process that:

...never takes place unnoticed, for it influences individuals and modifies them fundamentally. It transforms spectators crushed with their inessentiality into privileged actors, with the grandiose glare of history's floodlights upon them. It brings a natural rhythm into existence, introduced by new men, and with it a new language and a new humanity. Decolonization is the veritable creation of new men (p. 103).

In accordance with Fanon and from a decolonial perspective, the socio-economic oppression recognised by Freire is moved to a recognition of oppression in the form of coloniality (Walsh, 2013, 2015). Following this, design decisions were made to facilitate the *un-learning* of Eurocentric narratives and the *re-learning* of epistemologies from the

periphery. In order to do this, different methods suggested by Freire in his works *Pedagogy of the Oppressed* (1977), *Towards a Pedagogy of the Question* (1986), and *Pedagogy of Hope* (1992) were explored during the design of the proposed pedagogy.

Freire's (1977, 1986, 1992) critical pedagogy is a philosophy of education and social movements to help students develop a consciousness of freedom. To free the oppressed and re-humanise them, Freire understood education could be transformed into an emancipatory tool (Freire, 1977; Walsh, 2015). Freire (1977) argued all education should be a domain of transformation, contestation and resistance. Freire's understanding uses critical pedagogy to help students and teachers to question, challenge and undermine oppressive structures, and the thinking and practice that sustains these. Freire's pedagogy is defined by two premises: oppression exists, and the liberation of the oppressed is possible (Yedaide, 2016). Following this thinking, the coloniality of knowledges becomes internalised and naturalised (Walsh, 2013). This leads the oppressed to believe that there is nothing they can do to change society (Fanon, 2001, 2008).

In order for the decolonial process in this project to begin, participants need to recognise that coloniality exists, and understand that the transformation of reality is possible. This step is crucial if the participants are to become empowered. Freire (1977) argued that this awakening is only possible through a process of *conscientização*, or consciousness. This process must not be confused with 'consciousness raising' (or raising awareness), as the latter cannot be attained through the transmission of information but requires 'praxis'. For Freire (1977), praxis meant pupils should be prepared to transform the world. The role of the educators is, then, to guide the students in developing a critical reflection of the world, to question the structures of society and to help them free themselves so that they can follow their dreams.

Through a practical exercise, the participants are able to build connections between the problems affecting their context and the oppressive structures of society. Critical pedagogy involves significant reflection. Freire (1977) argues the liberation process involves making the participants recognise the oppression to which they are being subjected. To achieve this, it is important to have reflections and dialogues with participants where *knowledge and personal experiences* are brought into the group (Freire, 1977, 1986, 1992). This is because each member of the group already has *knowledges and experiences*. It is from the *knowledges and experiences* of the group that knowledge advances.

A design decision was made to follow Freire's (1977) method of problem posing. Problem posing is a response to "banking education", which is based on the traditional lecture-style where participants sit passively and accept transferred knowledge without engagement (Íbid). In order for students to become critical and transform society, Freire (1986) proposed a form of learning through questions. These questions are a specific type of question directed at the problems the participants face in their daily lives. The questions are asked by all the participants, not only by facilitators. This process of questioning leads the oppressors (and the oppressed) to begin to perceive society as deeply problematic, they are encouraged to act upon the insights gained, in an effort to transform society, starting with important issues in their own lives within their local community (Freire, 1977, 1992). The result is a process of decolonisation of both the self and society (Walsh, 2013).

Following Freire's critical pedagogy, Fanon understanding of the decolonial process, and the optimism of the Indigenous movement, the epistemic tasks of the decolonial pedagogy were designed as a series of problem posing exercises. It is expected that the participants will be engaged since they will undergo an entire decolonisation process, as part of this pedagogy, by resolving problems that matter to them. To facilitate the decolonisation process of the participants, the decolonial pedagogy tasks were organised following four modular steps. These four steps are informed by my own decolonising process, experienced through the research I conducted to inform this thesis. The four steps are also informed by key theoretical aspects of decolonial thinking, as well as key *pensar-hacer* (theoretical-practical) aspects of decolonial pedagogies, highlighted by Walsh (2013). Figure 25 shows the four steps that inform 're-understanding change.'

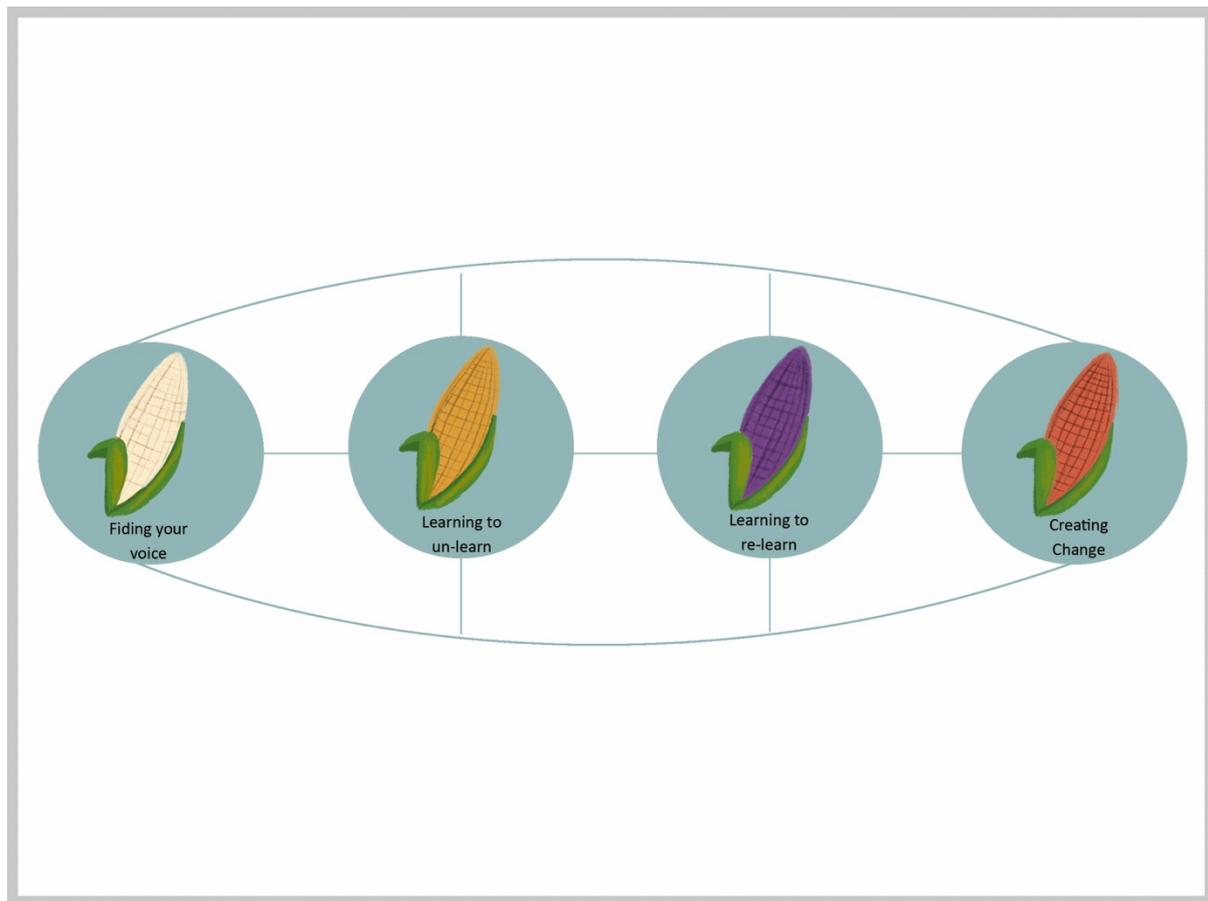


Figure 25 Steps that inform the decolonial pedagogy 're-understanding change' Source: Produced by the author of this thesis.

Figure 25 shows the four steps that inform the decolonial pedagogy: finding your voice, learning to un-learn, learning to re-learn and bringing change. Although the steps are introduced gradually, the pedagogy is designed to work in a circular way. That is, the generation of new knowledge does not follow a linear path, but a spiral path. Each step is designed to generate reflections that help deepen the understandings gained through previous steps. Deeper understanding of the previous stages lead to deeper reflections of subsequent stages, that then help to deepen the understanding of previous stages, and so on. This circular process is represented in Figure 25 through the blue lines that connect every step to each other.

The decolonial pedagogy underpinning this project has been designed to start the participants off on their decolonising journey. It has been designed so that participants can find a pathway to bring change *from* the margins.

The **first two steps** are designed to achieve the first objective of the decolonial pedagogy: the participants become conscious of the existence of the coloniality of knowledges. The **third and fourth steps** were designed to achieve the second objective of

the decolonial pedagogy: that the participants understand that thinking from the margins opens a viable pathway for creating change. It is expected that these four steps will continue to accompany the participants for life. This is the reason why the verbs that inform the names of the steps are named in gerund. As Fanon (2001) argues, the decolonisation process is a transformative process that changes people. The way in which the knowledge-oriented tasks guide each of the steps is explained below.

Finding your voice

The knowledge-oriented activities prepared for the step, **finding your voice**, were designed for two purposes. The first purpose was *to understand the thinking of the participants* in terms of three issues: the attributable cause of the environmental crisis, their view of what kind of change is possible (radical through to non-radical), and the feelings that have resulted from their journey to try to create change, to this point. The second purpose was to allow the participants to imagine other worlds that are not defined by the borders imposed by Eurocentric knowledge, but that reflect the stories of the participants. To find their own voice, the learning activities designed for this step guide the participants to look within the context of their own lives to understand what social transformation should look like. This introductory step is crucial, as it is the voice of the participants that will become the connecting thread of the next three steps. 'Finding your voice' allows the process of decolonisation to be indeterminate, producing a different outcome for every group. This is consistent with Freire's (1977) arguments of pedagogies being unpredictable and building up on the previous experiences of the participants.

Learning to un-learn

Through the knowledge-oriented activities designed for *learning to unlearn*, the participants understand that what is perceived as reality is no more than discourse. Instead, participants begin to see that knowledge is the result of historical and social conditions. This is a 'liberation' exercise (Freire, 1977; Fanon, 2001) that leads to discovering that parts of the participants' worldview are not 'true', and the structures supporting this worldview, then, become untenable. In order to change reality, *learning to unlearn* is crucial because it allows people to become liberated from hegemonic ways of thinking and, with this, prevents them from inadvertently reproducing dominant discourses (Walsh, 2013).

The activities designed for this step challenge the participants as they move away from the Eurocentric ‘comfort zone’ from which they have previously understood the socio-environmental crisis. The activities designed for *learning to unlearn* allow the participants to de-link from the world “reality”, constructed by Eurocentric narratives, and become open to discovering possibilities that had earlier been marginalised, hidden and suppressed. Such possibilities are explored in the following step, *learning to re-learn*. This step is informed by **Part II: learning to un-learn**.

Learning to re-learn

The knowledge-oriented activities prepared for learning to re-learn introduce the participants to epistemologies that sit outside the borders of knowledge. This step is guided by the Nahua Indigenous peoples, who share the ways in which they understand the world with the participants. This is consistent with Walsh (2013) and Ouviaña’s (2017) claims that IPs are collective pedagogues proposing alternatives from outside the modernity paradigm. The activities prepared for this step expose participants to alternative ways of thinking that are emerging from outside the boundaries of Eurocentric knowledges. These activities were designed to help participants understand how these alternatives are shaped by the epistemologies that underpin them. Through these learning activities, participants *break down the paradigms* they hold about Indigenous peoples lacking capacity to propose alternative pathways for non-Indigenous people. This step is informed by **Part II: learning to re-learn**.

Bringing change

After **finding their own voice, learning to un-learn** and **learning to re-learn**, through the means of a *cross-cultural* dialogue, in this step of the pedagogy, **bringing change**, the participants are exposed to the transitioning discourse of Buen Vivir. Through this step, the participants now start to understand how radical alternatives are a viable way of decolonising the modernity/coloniality paradigm. This step is characterised by the optimism and hope that has underpinned the Indigenous fights against colonial structures over the last 500 years (Walsh, 2013), and that accompanying Freire’s work (1977, 1986, 1993). The step of bringing change liberates the participants so that they can begin to think of their

own alternatives. These results, by corollary, in *breaking down the paradigm* of alternatives proposed at the centre that are passively transferred to the periphery.

Bringing change is a *transformative process* that takes the participants from a place in which they could not bring about change to the socio-environmental crisis, to a place in which they can start to *pensar-hacer* (to think and to act) by thinking from the margins (Walsh, 2013). This is consistent with Fanon's (2001) argument of undergoing a decolonial journey. Bringing change is about re-understanding change, as the participants understand that 'real' change is about targeting the epistemic *roots* of the socio-environmental crisis.

II. Design of the Set

Within the ACAD framework, the design of the set involves modifying the structures of place in order to create "what constitutes a productive learning space" and to "draw connections between the physical context ... and the emergent learning activity" (Yeoman, 2015, p.57).

Informed by Lave and Wenger's (1991) concept of 'situated learning', which considers learning is necessarily situated as it is a process of participation that takes place in communities of practice, the ACAD framework considers learning to be physically situated. And the consideration of space during design for learning can promote opportunities for learning (Goodyear & Carvalho, 2014). As decolonial pedagogies emerge from the practical struggles of resistance to coloniality, the ACAD framework used in this study was adapted for its context, and the decisions made about this are described below.

This program was developed in a geographical location where an Indigenous resistance struggle is taking place. The alternatives proposed to the modernity paradigm are situated and founded in the context in which they are built. The land is an integral part of the resistance struggle and cannot be separated from the struggle itself (Escobar, 2016). To understand the alternatives, it is first necessary to understand the context from which they emerge: the people and the Nature that live there, the epistemologies of the place, and the ways of living of the community. All of these shapes the learning experience of the participants.

The second design consideration concerns the 'alternative/s' (ways of thinking, doing and being) emerging from the resistance struggles who are (normally) made to appear non-

existent (Souza Santos, 2010). Normally, if 'alternatives' are removed from their context when introduced to non-Indigenous people, it is possible that they might be discarded through colonial arguments. To explain, this might occur when Indigenous people are sometimes 'invisible' in cities by virtue of their small number, or alternatively, be hyper-visible as a result of their Indigeneity. By changing the location of the learning from a classroom in the city to Indigenous lands, we acknowledge the people who are thinking, resisting and proposing 'alternatives' in defence of their lands and territories. We are recognising Indigenous people (IPs) as collective pedagogues in this project (Ouviña, 2017).

The third consideration is that when the learning takes place in spaces inhabited by a different logic, the participants are exposed to different ways in which to explain reality. This situation leads to a broader understanding of reality that is no longer underpinned by Eurocentric knowledge (Oiviña, 2017). It involves challenging internalised stereotypes of IPs as disempowered communities that need development.

The fourth consideration concerns types of learning occurring in these contexts, that open up the possibility to learn through Indigenous learning methods such as orality, through the participation of daily community activities, through the engagement in a topic of interest, and via hands-on methods, for example. Some of these learning methods are not possible to implement when removed from 'place'. It is the specific context in which the program is taking place that provides the space for the pedagogical practice. As such, *context* plays a crucial role in design decisions (Goodyear and Carvalho, 2014a).

A crucial and indispensable element of the context of the design of the decolonial pedagogy is having a previous relationship between the IPs of the region and the facilitators of the program. This relationship must be built on trust, respect and reciprocity (Bessarab & Ng'andu, 2010). These relationships start from a decolonial starting point. As such, these are relationships founded on an understanding that the participants of the decolonial pedagogy will value the knowledge of the community, and will seek to advance the common goal of decolonisation.

The members of the community are the people responsible for explaining the Indigenous initiatives to the participants, not the main facilitators. The IPs are the 'intellectuals' of the 'alternatives' in this project. They recognise that knowledge is theirs and it is needed in order to be respectful. This knowledge is passed to those who

participate. This limits accidental or unwitting misinterpretation by the main facilitator, who can never fully understand the epistemologies behind the alternatives proposed by the IPs.

The place

This pedagogy was designed to take place in the City of Cuetzalan, Puebla, with visits to other localities within the municipality of Cuetzalan planned. This context builds on relationships with Octavio, from the Tosepan Titataniske, and Roque, from the Meliponary School. We shared an understanding that people from the city need to be exposed to other ways of understanding their relationship with Nature and other people. We all thought that this context should inform the creation of any solution to the socio-environmental crisis (for a detailed description of the context, see Chapters six and seven).

The space

When implementing a decolonial pedagogy, it is important to have a space for the participants to think, discuss and reflect on the insights gained, as well as a place where activities can take place (Walsh, 2013). The space is different to the place, in that it is a contained space immersed in a larger place. For this, a house was rented in the centre of Cuetzalan City. This specific house was selected because:

- The house was located in the centre of the City of Cuetzalan, providing walking access to all of the city's services. This was necessary as it allowed the participants to go out for every meal, provided major immersion in the Nahua ways of being. It was expected that many conversations would take place between the participants and the Nahua people who work in the city centre.
- The house did not have a kitchen, which would encourage the participants to go outside and interact with the population of the city.
- The house had no wireless internet, which would encourage the participants to disconnect from social media and other distractions that might deviate their attention from the designed activities.
- The house was built in the middle of a big garden with native species, such as orchids, that would help the participants relax and get closer to Nature.
- The house had a garden large enough to allow the participants to spend time separately in different areas, without interference from the others. This was important for individual reflections.

- The house had places to conduct the activities, both indoors and outdoors, allowing for *flexibility*.
- The house had a proper environment for relaxation, as it had many different places in which to ‘hang out’, including hammocks.
- The house had space on the walls to hang resources made by the participants (such as posters), as reminders of what they had shared and created.

Resources

Resources were designed to play a key role in supporting the learning sequences. The resources were designed, taking into consideration that the focus of decolonial pedagogies is never in content, as such, but on *the context* in which alternative practices are emerging. The pedagogy also considers that people are thinking these alternatives *in context*, so it highlights engagement between context and people. As such, a variety of resources were designed to guide the participants to understand the *knowledge they already have* from a decolonial perspective.

In what follows, the resources prepared for each of the four steps that inform the decolonial pedagogy are explained below. The resources are presented in relation to the part and chapters of the thesis that informed the design of such resources:

Finding your voice

The step, finding your voice, is the only step where there were no pre-made resources. In this step, participants had to create their own poster based on their reflections on their stories and *their previous knowledges*. In the jointly-created poster, the participants drew their ideal world. This resource was designed to guide the discussion of the steps that followed. As such, the reflection of each group throughout the entire pedagogy will be different, as it will be based on their own experience of creating the poster, engaging in reflective processes as an individual, and so on.

Learning to un-learn

Learning to unlearn is a key step of the pedagogy as this is where the participants recognise the coloniality of knowledges where they are immersed. As such, the engagement in the following steps of the pedagogy depends on passing through this step. Because of this, numerous resources were prepared for this step.

Informed by Chapter three: the epistemic roots of the socio-environmental crisis, a timeline was designed as a resource to explore the coloniality of knowledges. Numerous cards listing different historical events, and different crucial thinkers from around the world were written on the cards. The cards included important events and thinkers from Eurocentric narratives – such as the French Revolution and Descartes – and from non-Eurocentric narratives – such as the Haitian Revolution and Cuogano. It was intended that participants engage with the resources by building a timeline of history according to *their own knowledge*.

Informed by Chapter four: socio-environmental costs of living under the One-World World, several resources were designed to help the participants understand the impacts of the socio-environmental crisis as shaped by the coloniality of knowledges. These resources include:

- Images of activities that have resulted in an increase in the world's GDP and images that did not result in an increase.
- Figures 4, 7 and 8 presented in this thesis.
- A summary of the socio-environmental costs, presented in Chapter four, divided into four mini-narratives: inequality; the impacts of mining; the impacts of agriculture; and the health impacts of mining and agriculture.
- A political cartoon of colonialism and coloniality.
- The objectives and targets of the SDG 1, SDG 8, SDG 9 and SDG 14 (see chapter four).

Learning to re-learn

Before being introduced to the Nahua people, a documentary produced by the Nahua community of Cuetzalan was used as an introductory resource. The documentary shows the current struggle of the Nahua people and their resistance movement to protect their territories from the proyectos de muerte (death projects). The film, titled 'Sierra Norte por la Vida' (Ramírez Cuevas, 2014) is available in YouTube with subtitles in English. After having learned from Roque and Octavio, it was intended that the participants could create their own posters, based on the understandings they had learned.

Creating change

Creating change is informed by Chapter five. Key aspects of the transitioning discourse, Buen Vivir, or Sumak Kawsay of the Kichwa people, or the discourse of good living as it translates in English, were prepared as resources. It is in this step that all the resources connect in the minds of the participants, as explained in the 'co-configuration and co-creation' section below.

Stationary items

It was important to consider the stationary items that would be needed to facilitate learning. Not planning in advance can interrupt learning processes. The stationary items prepared in advance were:

- Individual notebooks for each of the participants so they could write their reflections;
- A box of pens. Extra pens were carried in cases of any losses;
- Large posters so participants could reflect on what they had learned;
- Large posters to conduct some of the planned activities;
- Tape to attach the posters to walls; and
- Colourful pens, crayons and colours.

A diversity of items was selected to allow the participants to use the ones they liked the most, and to inspire participants to be creative.

Vehicle

Due to the rugged terrain of Cuetzalan, and the long distance between council locations, having a vehicle to transport participants was crucial for the project. This also allowed for *flexibility*.

Documentation

A device that could take photos and record conversations was needed to document the co-creation and co-configuration of the activities. A phone was selected and used to perform both activities.

III. Design of the Social

The ACAD framework draws on the understanding of learning as a process embedded in a broader culture and as it is influenced by the people around the learners: what people say, to whom they speak, how people feel. As such, the ACAD considers learning to be socially situated (Goodyear & Carvalho, 2014). Designing the social groups in which learning is conducted also guides the activity. With decolonial pedagogies, designing the social configuration has two additional challenges. The first one is that undergoing a process of decolonisation of the self puts people in a very vulnerable position, as many 'thinking set-ups' and 'ways of thinking about and doing life' or 'paradigms' are *breaking down* (Lugones, 1992). People come to stop looking at reality in the way they have done throughout their entire life. This generates a lot of questions, so it is important that the participants are surrounded by a supporting environment during this transitioning phase.

The second challenge is that this decolonial pedagogy involves *learning to re-learn* from other epistemologies. Indigenous epistemologies have their own learning methods, which often differ from the ones used in Western education (Yunkaporta, 2009). As such, the social interactions between Indigenous and non-Indigenous peoples had to be carefully planned to allow for a respectful environment in which the participants could become exposed to Indigenous methods of learning for the first time, and would still be able to gain deep insights.

For the group to feel comfortable, it necessary to build a supportive and respectful social environment. This the selection of the participants the most important decision of the entire social design process. Otherwise, the decolonisation of the participants may not occur. Participants must *already be open* to learn from IPs, even if they come from a colonial perspective.

The participants

In this decolonial pedagogy, it is important to understand *who* is thinking, as a person's way of thinking and producing new knowledge is influenced by their context. Because knowledge emerges from the interactions between participants and facilitators (Freire, 1977), it is important to situate the participants. The facilitators of this project have already been introduced: Octavio and Roque (see Chapters six and seven) and me (see Chapter one).

This decolonial pedagogy is designed to provide a pathway through which to bring change to people who are already looking to create change. Based on this design decision, four participants were selected: three biological scientists, and one social-scientist. All of them had a history of working to create change by improving the problems caused by the socio-environmental crisis, although from different angles. All of them had experience working with, or had founded, non-profit organisations. They were passionate about creating change. All of the participants had previously interacted with Indigenous peoples in their communities. Some had a lot of experience working with IPs, some very little.

Sofia was the youngest participant of the group at 25 years old. She is originally from the City of Puebla and had recently graduated from a Bachelor's in environmental sciences. She had spent a lot of time in direct contact with Nature growing up. Her school would organise trips to see different ecosystems in Mexico, and her grandmother lived in a neighbourhood with a natural spring. For as long as she could remember, it had always been important to her to do something about the environmental crisis. For a long time, she has been trying to find a path to create change. At the time of this course, she was working in Chiapas, the poorest state of Mexico, giving water conservation workshops.

The second participant was Julio, who was 28 years old. He is originally from Mexico City and his story is very similar to mine. He has loved wildlife since he was a kid. His older brother was a wildlife veterinarian who would bring his patients home to take care of them. In veterinary school, he realised conservation could not be done without considering the people who live in rural areas, as opposed to federal strategies of declaring natural protected areas. While working to create change, he became interested in 'One Health', the research field that connects the emergent diseases of wildlife and people. It provides an opportunity to generate data that can influence legislation. He is still not convinced that it is the way to bring about change and, as such, he has recently started to participate in an environmental education non-profit organisation.

The third participant was Marcela, who was 33. She is originally from Mexico City and is an anthropologist. She has always been interested in the behaviour of people, particularly when it comes to attachment to land and territories. She is currently finishing her masters research on ritual landscape with the Cora Indigenous people. She is interested in the interactions between IP and their land, focusing on documentation, so that decisions made are in accordance with perception. In the selection of participants, Marce was

thought of as a facilitator when questions about Indigenous people emerged, as she had more answers than me due to her long history working with IPs.

The fourth participant was Daniel, who was 27 years old. He is originally from Mexico City. He spent his childhood in a school located on the borders of one of Mexico's City national parks, so he grew up playing in the forest. This experience made him want to do something related to the conservation of Nature. He is a veterinarian and, at the time of the course, he was finishing his master's research, focused on the 'One Health' initiative. At the time of the course, Daniel was convinced the best way to bring change was through environmental education, and that this change was not going to be the result of the actions of the next generation. This is why he is the director of an environmental education non-profit organisation. He is also a teacher in a junior high school.

Social interactions within the participants and facilitators

Designing for social interactions (situations where humans meet in a group and engage) should allow participants to facilitate the *sharing of their own knowledge* (Freire, 1977). These groups must be small, so that everyone has a chance to share and listen. In terms of *cross-cultural* learning, one of the design considerations was that the social environment is important to account for Indigenous ways of transmitting and generating knowledge through social interaction. Within Indigenous communities, knowledge generation and learning are not confined to 'school-like' spaces or 'teachers', but are considered a collective task (Ouviña, 2017). Aside from the information learned at school, children learn the ways of being of their communities by being immersed in daily activities. As such, the entire community is involved in teaching (Íbid). Following Ouviaña (2017) argument of Indigenous collectives being pedagogues, the social design must accommodate the involvement of the participants in the daily social activities of the community during the program. This facilitates the participants can learn from the Nahua people as a pedagogical collective. Accordingly, all of the meals were planned outside, in the food markets.

Interactions within the group

As part of designing for the social interactions within the group, it was necessary to allow the participants to learn from each other, from the facilitator, from Roque and Octavio and from the community. The decisions made about the interactions between these people are explained in the discussions that follow. It was necessary to keep the number of

participants small, so that each person could learn as much as possible from the other members of the community in relationships of reciprocity. For this to happen, interactions that could allow for emerging questions between the participants and the facilitators and for meaningful conversations to emerge, were planned as part of the social design. Consequently, the social environment was designed to ensure that the participants could engage in a continuous exercise of “walking and asking” (Walsh, 2015). In order to achieve this, the structure of the participants’ interactions were configured to facilitate the social and, at the same time, to provide time for individual self-reflection. These social interactions included: individual activities favouring *self-reflection*; group activities for facilitating discussion; free-social configuration spaces so that the participants could engage with different members, other participants, the facilitator, and IP according to their own interests; social activities that could strengthen the links between the participants and the IP were also designed.

Dialogue

For Freire (1986), knowledge is never transmitted from one person to another, but is constructed through dialogue. Through the ‘pedagogy of the question’, the author argues that no one has the ‘truth’, but that truth emerges from dialogue. The truth is a process of searching that does not obey knowledge hierarchies, where ‘teachers’ are not considered the only holders of knowledge. As Freire (1982) argues: “maybe I have part of the truth, I do not have it in its entirety, part of it is with you - let's look for it together” (p. 2). Freire (1986) argues it is only through a dialogue informed by questions that the development of a political consciousness can emerge. It is this political consciousness that the educator and the student can free themselves from the oppressive structures of colonialism.

Following this cycle of thinking, the social interactions of the participants in this study are based mostly on questions asked by the facilitator, the same participants, and the IPs. The ‘pedagogy of the question’ (Freire 1986), allows pedagogies to be developed *with* the students and never *for* the students. The result is social-interactions where facilitators are not considered to be in ‘higher’ positions of knowledge. In order to learn, the participants have to learn from and with each other. Dialogue was the main form of interaction for three of the four steps: finding your voice, learning to un-learn and bringing change.

Learning to re-learn, however, is about learning from Indigenous epistemologies. As such, these parts of the pedagogy must be presented by Indigenous peoples to facilitate a *cross-cultural dialogue*. Based on my experience when conducting yarnings with the Nahua community, yarning was included as the way to guide the interactions between the participants and the Indigenous people. This guided the social design decisions of the *cross-cultural* social environments.

The social environment was designed to allow for *flexibility* for spontaneous reflections or dialogue between two or more of the participants; for spontaneous social activities of celebration. As a result of the decisions made, it is expected that the participants will build a community, as they recognise themselves as part of a group that is seeking a similar social transformation. Finding a community of different people who are working *actively* to transform the world also brings encouragement to each of the individual participants.

IV. Bringing the set, the social and the epistemic aspects of the design together

The design decisions made to modify the set, the social and the epistemic aspects that influence learning were brought together in a series of learning situations. For each learning situation (LS), the specifications of the set, the social and the epistemic were combined to anticipate how the situation would unfold. The response of the learners is always emergent, so in this sense, the LS cannot be planned, but imagining participants' reactions allows for modifications in the design to adapt the design and bring the LS closer towards the objectives of the pedagogy (Goodyear & Carvalho, 2014; Yeoman, 2015). In this case, the learning situations were adapted based on the two objectives of:

- c) The participants become conscious of the existence of the coloniality of knowledges; and
- d) The participants understand that thinking from the margins opens a viable pathway to create change.

The following Figure (Figure 26) shows the model I used to create the design exercise explained above. This process was based on the inquiry approach to design outlined by

Thompson et al. (2016) and Alhadad & Thompson (2017), which combines the ACAD framework with the conjecture mapping of Sandoval, (2014).

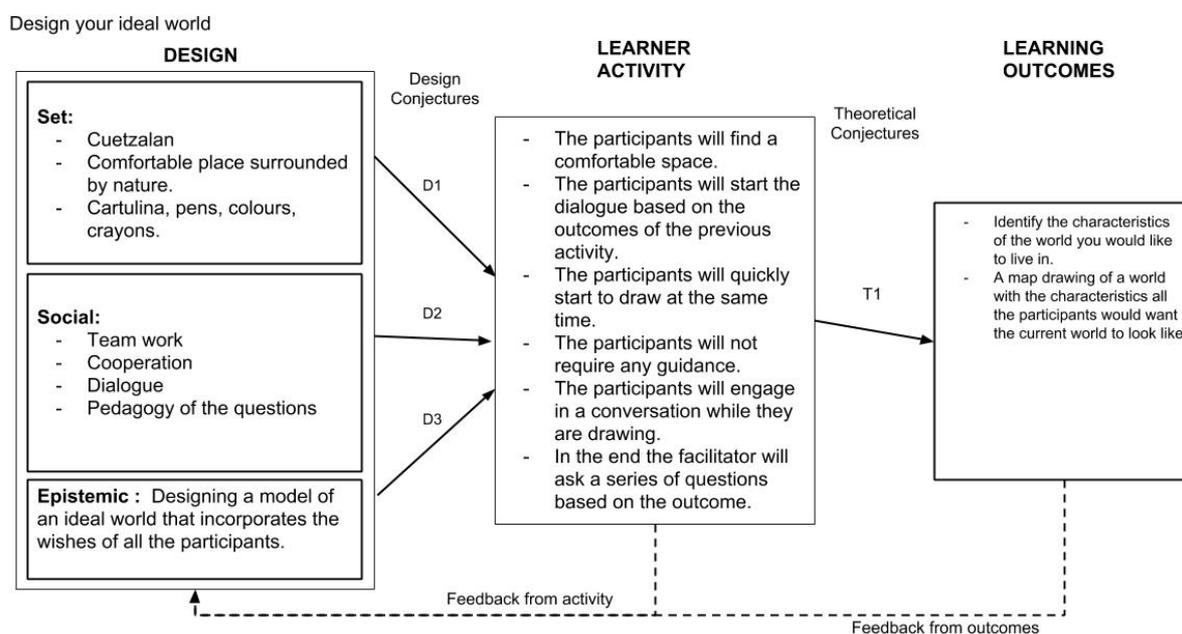


Figure 26 Shows the design process for the "your story" activity. Source: Produced by the author of this thesis, based on the process designed by Thompson et al. (2016) and Alhadad & Thompson (2017), which combines the ACAD framework with the conjecture mapping of Sandoval, (2014).

Figure 26 illustrates the design process for the LS titled "your story", which is the first situation of the pedagogy. The Figure 26 shows the design decisions made for the set, the social and the epistemic spheres, the anticipated LS, and the anticipated learning outcome. Design conjectures were made to measure the effectiveness of each of the aspects involved in the design decisions.

Designing for learning

As part of the process of designing 'your story', information was identified to inform decisions made by the facilitator during the remainder of the program. The goal that informs the design of 'your story' is to encourage the participants to share the feelings associated with their personal journeys as Latin American people. It is anticipated that negative feelings may be identified due to the lack of opportunities offered by the progress paradigm to bring about meaningful change.

For the design of the epistemic set, the following task was designed:

- The participants would be told to go and find a place they found relaxing, separate from the other three participants, to think of their personal journey to try to create change, and reflect on the feelings they have encountered through this journey.

They would also be told they would be sharing some of the insights of this self-reflection exercise after they were finished. After this exercise, the facilitator would inform the participants that they would meet to share some of the insights gained about their journeys.

The design decisions made for the set included:

- a) That the learning situation had to take place in Cuetzalan, as being outside Mexico City and Puebla would facilitate the participants disconnecting from their daily responsibilities and rushed rhythms. Being in Cuetzalan would mean the participants would need to have everything ready in Mexico City and Puebla so that they could concentrate on the situation without distractions.
- b) As all the participants enjoyed Nature and felt relaxed around it, the design of the set considered having a place in Nature, sufficiently big so that each of the participants could find a preferred spot in which they could relax and think about their journey. The place would have to be secluded from outside distractions and would have to provide enough room for each participant to not be distracted by the other three participants.

Designing for the social included:

- a) Individual self-reflection: it is expected that the participants need to concentrate to be able to reflect on their journey, and that they would return to their childhood memories.
- b) Group dialogue: after every participant has thought on their individual journey, social interactions were designed to start a dialogue between the participants. As such, participants would see how, although coming from different places and having different experiences, they all share similar feelings and similar stories. This was an important goal for the beginning of the course, as understanding how the other participants had experienced similar struggles would help create a comfortable atmosphere.

Anticipating the participants' reactions to adjusting the design

The exercise of anticipating the reactions of the participants revealed necessary improvements to be made to the design of the epistemic, and to the design overall. In terms of epistemic design, I anticipated if the participants were to be told they would share their journey with other participants before the self-reflection exercise, they might become apprehensive about what to share. This could turn the LS into a stressful activity in which the participants might not engage in sincere self-reflection, as they would be more

concerned about what the rest of the group thinks of them. As such, the design was modified to tell the participants they would share *some* of the insights only after they had conducted the self-reflection LS. Time would still be allocated so that they could decide what to share, but this way each one would be aware of their own journey.

In terms of the set, I anticipated that some of the participants could potentially need time to write specific events of their journey to help them to remember later in the sharing circle. It was also anticipated that participants may not be prepared with notebooks and pens, so these were added to the resources list. The set was then modified to include notebooks and pens as a resource that would be handed to each participant before they could start the activity.

Activities calendar

The design process explained above was conducted for a total of 13 LS that were designed to guide the participants to achieve the two objectives of the decolonial pedagogy. These LS, however, were designed to be *flexible* to accommodate the circumstances that presented themselves. The LS designed for the proposed decolonial pedagogy is shown in Figure 27.

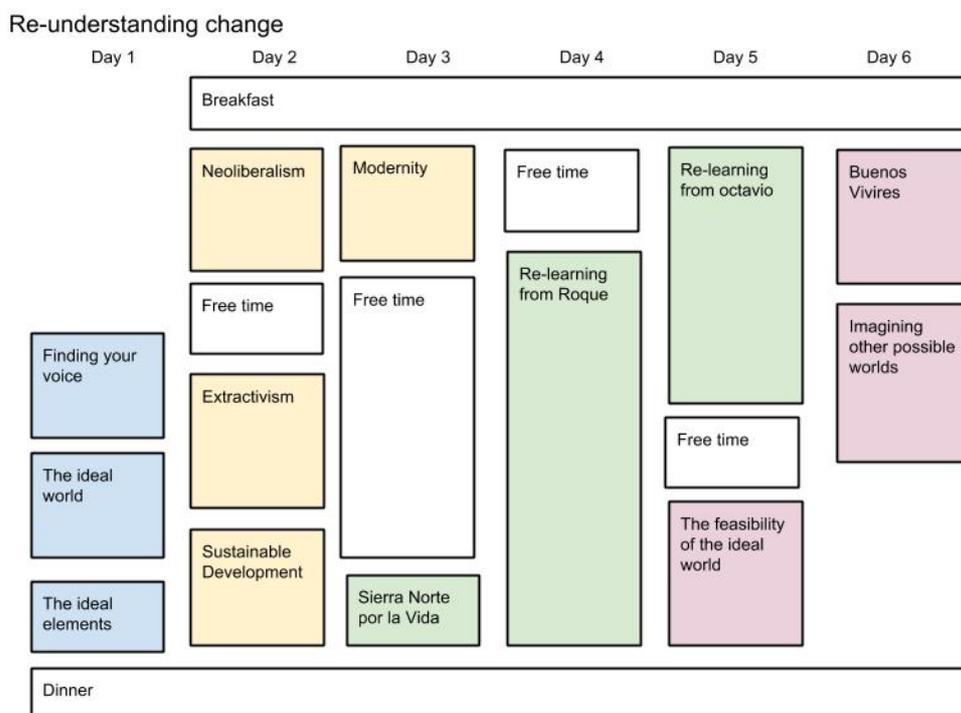


Figure 27 Calendar of learning situations designed for the proposed decolonial pedagogy.

Figure 27 shows how the final design was composed of 13 LS distributed over seven days. For *finding your voice*, three LS were designed (these are marked in blue). For learning to un-learn, five LS were designed (yellow). For learning to re-learn, five LS were designed (shown in green). For bringing change, six LS were designed (pink). Free time has been allocated so that the participants can have time to interact with the Nahua people of the City of Cuetzalan as the pedagogy was designed to take place on site. Although the configuration of LS shown in the picture is ideal, it was also designed to be *flexible* so that the LS could be conducted in less or more time. As *flexibility* is crucial, the LS needed to accommodate the calendar of the participants, and the Nahua facilitator and myself. The activities were also designed to be able to occur in different orders. This last design decision involved anticipating different ways in which the LS might be re-arranged. Planning design modifications to ensure possible 'new orders' or new ways of doing' was a conductive thread towards achieving both objectives of the pedagogy.

Conclusion

This chapter introduced the reader to the research design process undertaken to build the proposed decolonial pedagogy. The design decisions were made based on the two established objectives of: 1) the participants becoming conscious of the existence of the colonality of knowledges; and 2) the participants understanding that thinking from the margins opens a viable pathway for creating change. Following the ACAD framework, the epistemic, the set and the social aspects of the design were modified to guide the participants in the four stages that inform the decolonial pedagogy, which are: finding your voice, learning to un-learn, learning to re-learn and creating change. A total of 13 learning situations were anticipated as part of the pedagogy.

However, learning can never be planned, as it is emergent. Carvalho and Goodyear (2014) explain this design process as 'an enactment' through a metaphor of how theatre works. The design of the epistemic corresponds to a script, the design of the set to the stage and scenery, and the design of the social to the roles given to actors. However, the play can never be planned in advance, it influences the actors, but does not determine their actions. The play *emerges* when the actors re-interpret the play and bring their own experience into the performance, which always has room for improvisation. This chapter has explained the

script, the stage and scenery and the social roles planned before the performance of the play took place.

Chapter nine analyses the live performance of the play, that is, the way in which the participants co-designed and co-configured the LS prepared. It covers the co-design and co-configuration of the 13 LS designed resulting from the four steps of the decolonial pedagogy: finding your voice, learning to un-learn, learning to re-learn and bringing change. The chapter also shows the decolonial process through which the participants became conscious of the existence of the colonality of knowledges. It demonstrates the way that thinking from the margins can provide a viable pathway to create change.

Chapter nine: co-design and co-configuration of the decolonial pedagogy.

Decolonisation never takes place unnoticed, for it influences individuals and modifies them fundamentally.
Franz Fanon (2001)

Introduction

This chapter analyses the results of the co-design and co-configuration of the decolonial pedagogy carried out by the participants of this study and implemented during the pilot. In what follows, a brief description of the conditions of the pilot program is provided. This is followed by an outline of the four steps that comprise the decolonial pedagogy: finding your voice, learning to un-learn, learning to re-learn, and creating change. For each step, an introduction to the design, the results of the enactment by the participants, and the design decisions that influenced the co-design and co-configuration of learning situations (LS) is presented. A table describing how the participants evolved after completing each step of the decolonial pedagogy is offered.

This chapter is the continuation of the decolonial pedagogy designed in chapter eight, and describes the journey of the participants in relation to learning activities described in the findings in parts II and III of the thesis. This chapter describes the journey of the participants in relation to the following objectives: 1) becoming conscious of the existence of a coloniality of knowledges; and 2) understanding that thinking from the margins opens a viable pathway for creating change. Throughout this chapter, the reader will recognise the insights presented in part II and part III of this thesis, as they informed the learning activities designed for this pedagogy.

In this chapter, the participants of the pilot program are identified by name, as the knowledge generated through the co-configuration and co-design of the LS was the result of a continuous dialogue by which every participant nurtures the group with their previous knowledge and experiences. This is consistent with Freire's (1977) argument of pedagogies of freedom being constructed *with* and not *for* the people. As such, the data contained in this chapter is not only the result of my research but also includes the perspectives of the participants, who deserve credit. However, as the decolonial journey of the participants is

personal, the evolution of the participants is kept anonymous. To ensure anonymity, the decolonial journey is not discussed individually but collectively. In alignment with the ethics protocol, the lastnames of the participants have not been included.

The pilot program

The pilot study took place from the 4th to the 8th of July 2018. Although originally designed to be executed in six days, unexpected time constraints reported by one of the participants caused the study to be shortened to five days. Arranging the LS to be conducted in five days instead of six was only possible due to the flexible design of the pedagogy. To accommodate these changes, instead of one, two stages were introduced during the first day: finding your voice and learning to un-learn. The participants, introduced in chapter eight, are shown in Figure 28.



Figure 28. The participants in the pilot program.

Figure 28 shows Sofia, Julio, Marce and Daniel, the four participants in the pilot program taking a break from activities in the City of Cuetzalan. Behind them is the main church of the City, with a pole in front of the church which is used in traditional Indigenous dances. All of the participants but Marce (in white), have studied and work in the field of biological sciences. Marce studied and works in the social sciences.

Co-design and co-configuration: Finding your voice

The epistemic design of this first step of the pedagogy is aligned with Walsh's (2013) argument that decolonial pedagogies are not concerned with the transmission of content, but with the emergence of new insights. As such, it builds on Freire's (1977) method of problem posing, which asks the participants to build connections between the problems affecting their context directly and the oppressive structures of society. Starting the pedagogy with the personal experience of the participants facilitates the process of consciousness-raising as this promotes active engagement. As such, this step is designed to bring the personal experience of the participants into the pedagogy.

A summary of the LS presented to the participants in this step is shown in Figure 29. This is followed by the co-design and co-configuration of the learning activities by the participants. Elements of the epistemic, the set and social design that facilitated the learning are then analysed.

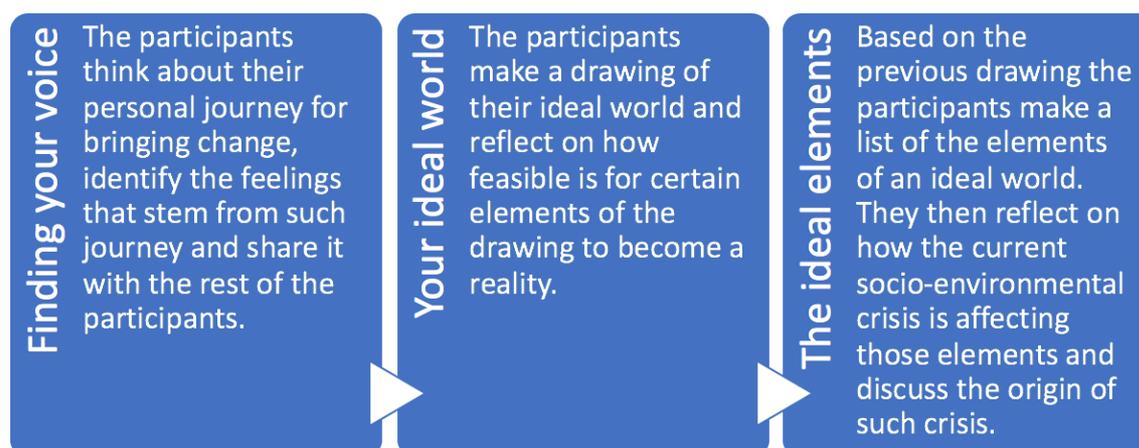


Figure 29. Summary of the tasks presented to the participants for the step of finding your voice.

Figure 29 shows how the step of 'finding your voice' is based entirely on the personal journey each of the participants has undertaken to bring about change and provides a space for imagining other possible worlds. That is, an 'ideal world'.

For the first LS, **finding your voice**, the participants found a relaxing place, separated from the other three participants, and considered their personal journey to try to create change. They thought of the feelings they had encountered through that journey. Figure 30 shows two of the participants considering their journey in the places and positions they found relaxing to conduct this LS.



Figure 30 Participants reflecting on their personal journey

Figure 30 shows two of the participants making use of the natural spaces provided by the learning space in Ranchito colibri. The big garden allowed the participants to conduct this activity in isolation from the rest of the group. One participant reported the LS was aided by the design decision to conduct the pedagogy in this place/space, saying: “being in Cuetzalan was great as it allowed me to disconnect from the pressures of every-day life in Mexico City.” The stationary provided also helped to facilitate the learning process. Three of the four participants used the note-books and pens given to them to write notes about their self-reflection journey.

To share their stories and the feelings that stemmed from these journeys, the participants sat at another learning space provided by Ranchito colibri; a table located in the palapa area. Julio was the first person to volunteer to share his story. He shared it with so much detail that the other participants also joined the conversation, sharing very personal details about their journeys as well. I also participated in this exercise to show the participants how, as a facilitator, I was not in a ‘higher’ or more ‘superior’ position of knowledge. Every time the participants could identify something similar in another participant’s story, they would say “me too!” or “yes, exactly”, or similar reinforcing statements. The group was very focused throughout the entire sharing activity, which lasted for about one hour. All the participants reported that they felt safe sharing their story with the other participants. This was facilitated by including a selection of the participants in the design for the social roles and rules, as participants with similar journeys were selected for the study.

In the dialogue that unfolded, participants reported that they were still looking for a pathway for creating change. One of the participants argued for better education of the next generations so that this population might become more familiar with the flora and fauna that live close to them. This was one of the pathways discussed, but he thought this change would not happen in his lifetime. Table 8 shows the participants' feelings, stemming from their journey of trying to create change. As age was considered to be a determinant in the amount of hope held by each of the participants in terms of creating change, the age of each participant is included.

Table 8 Feelings reported by the participants during their journey to create change and improve the socio-environmental situation in Mexico

| Participant | Age | Feeling |
|-------------|-----|---|
| Sofia | 25 | Hopeful, but still could not see a clear pathway for creating change. Started to see how most of her friends who wanted to create change had become convinced that there is no way to bring about change. Feeling anxious about not knowing how to create change. |
| Daniel | 27 | Motivated to pursue change yet, at the same time, frustrated, tired and feeling pain. |
| Julio | 28 | Feeling pain about the overall state of the world, angry about not finding a viable pathway, but still persevering in looking for how to bring about change. |
| Monica | 32 | Before coming across the field of decolonial thinking throughout my PhD was feeling exhausted and demoralised about working towards change, yet not making any difference. |
| Marce | 33 | Disenchanted, discouraged, disillusioned. After many years of actively pursuing change through different pathways, is convinced she will not be able to create change. |

Table 8 shows how the participants are experiencing negative feelings that go from anxiety in the youngest, to disillusionment in the oldest. The younger participants showed more hope about the future. Four of the five participants reported that they would still persevere in their journey to find a pathway to bring about change, as they could not watch the impacts of the socio-environmental crisis unfold without doing something. The oldest participant reported that she had passed this stage, and she was no longer optimistic. She felt she had exhausted all options for creating change.

In the second LS, **your Ideal world**, the participants had trouble with the process of *starting* to draw their ideal world. They asked for more precise directions about what kind of drawing was needed, and what elements I was expecting. As this activity needed to emerge from participant insights, I followed Freire's (1986) pedagogy of questions to guide the participants' thinking. Instead of providing detailed instructions, I asked questions.

Examples were: “What do you prefer to draw with: markers or pencils?” (In response, the participants would grab the one he/she liked most and start drawing.) “What is something that is really important to you?” (The participants would respond and I would suggest that he or she draw their response).

The stationary items gathered to support this activity included: crayons, colour pencils and markers. Each participant had a different style of drawing and, consequently, the people who wanted to draw ‘details’ chose to work with pencils, while the participants who had a more ‘abstract’ style picked the markers. The learning space also aided this activity as it provided room for the participants to sit on the floor while doing it, as shown in Figure 31.



Figure 31 Participants drawing their ideal world.

Figure 31 shows the participants using a variety of stationary items for drawing their ideal world. Through dialogue (Freire, 1986), the participants became excited as they were hearing ideas they had not imagined individually. The participants exclaimed phrases such as: “Oh yes, how did I not think of that? That is a great idea!” Two participants reported that drawing was a very engaging LS. One of them suggested it was “liberating” as she could just draw whatever came to mind. Another argued the LS reminded him of when he was a child and was free to draw or share his thoughts without fear of being judged. Being in a small group helped as participants had time to discuss the elements they were drawing. The drawing of the ideal world of the participants is shown in Figure 32.



Figure 32 Ideal world drawing made by participants and the same image displayed on a wall.

Figure 32 shows the drawing, which was used as a visual resource for the study. Once hung on the wall, it acted as a departure point for discussions in the other three steps that inform this pedagogy.

While the participants were relaxed and engaged in their drawing, following the pedagogy of questioning (Freire, 1986) I asked them how feasible they think their ideal world is (or elements of it). For example, I asked: “Do you think such or such an element can become a reality?” “Why not?” The four participants agreed their drawing was “naive” and “utopic” and it would be different if they had to draw their ideal world within the constraints of what was possible. The participants argued that radical change, such as most of those proposed by their ideal world, were not feasible as “they go against the way in which the world works”, or “they do not follow the way in which the system is designed.” This shows that the participants were aware of imposed limits that do not allow their ideal world to become a reality. They did not relate this to systemic colonial structures, but to capitalism.

Using Freire’s pedagogy of questions, I pushed the participants to reflect more deeply on how a capitalist system is responsible for the current environmental crisis. At this point I did not mention a social crisis. One participant argued “it’s because we don’t respect Nature and we think we can extract from it whenever we want.” I then asked: “and why is it that we don’t respect Nature?” Finally, a participant said: “It is because of the way we think now. We have stopped caring about Nature. We decided that we were separate from it and now, since we think we are separate, we don’t value it.” All the participants agreed. I asked the participants what had caused the separation between Nature and humans in the way

we think. The participants concluded it is something that is unknown by the current society, as it had happened a long time ago.

A supportive social environment was crucial for this LS to explain what the participants understood was the cause of socio-environmental crisis. It put the participants in a vulnerable position in which they might be judged by the rest, yet the participants reported that they never felt fear of being judged and that everyone was very open.

For the third LS, **the ideal elements**, the participants started listing the elements they had drawn in the previous LS. As drawing turned into words, participants thought of more elements than those present in the drawing. Through dialogue, this LS allowed those partaking in the study an opportunity to learn from each other, as some of the proposed elements were unknown to the rest of the group because they were very specific to certain fields, as is shown in Figure 33. Figure 33 shows the list made by the participants and its translation to English.

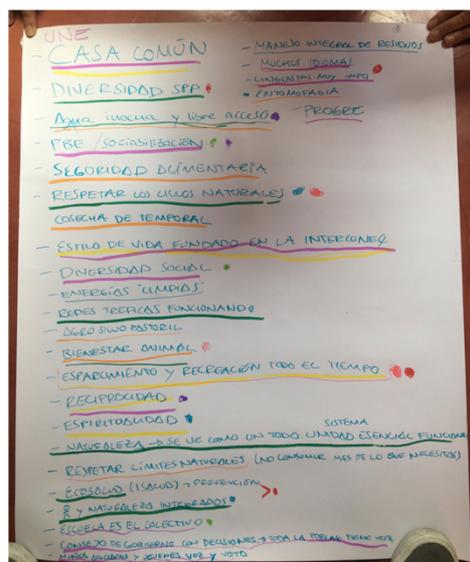
| | | |
|---|--|---|
|  <p> CASA COMÚN - DIVERSIDAD SPA - Agua limpia y libre acceso - FBE / SOCIALIZACIÓN - SEGURIDAD ALIMENTARIA - RESPETAR LOS CICLOS NATURALES - COSECHA DE TIEMPO - ESTILO DE VIDA ENFOCADO EN LA INTERCONEXIÓN - DIVERSIDAD SOCIAL - ENERGÍAS LIMPIAS - CIUDES TROPICAS FUNCIONANDO - BIENESTAR ANIMAL - ESPARCIMIENTO Y RECARGACIÓN TODO EL TIEMPO - RECIPROCIDAD - ESPERANZA - RESPETAR LÍMITES NATURALES (NO CONSUMIR MÁS DE LO QUE NUESTROS) - FORTALECIMIENTO (SALUD) + PREVENCIÓN - R + NATURALIDAD INTERCONECTADA - ESCUELA ES EL COLECTIVO - CONSEJO DE GOBIERNO (CON DECISIONES Y TODA LA COMUNIDAD) </p> | <ul style="list-style-type: none"> Common space for running community activities Species diversity Free and clean water Socialising Food security Respecting natural cycles Extensive farming Lifestyle based in interconnection Social diversity Clean energy Healthy trophic chain Healthy Trophic network Agro-Silvopastoral system Animal welfare Opportunity for recurrent amusing activities Reciprocity | <ul style="list-style-type: none"> Spirituality Nature is seen as a whole Respect natural limits (do not consume more than what you want) One-health Nature and people interconnected The collective is the school Government based in representation: the entire population has a voice Kids, young and old people have a voice and a vote Integral management of waste Many languages Linguists are very important Insect eating diet Progressive ideology |
|---|--|---|

Figure 33 List of the elements that compose the participant's ideal world and translated text to English.

Figure 33 shows the list made by the participants in relation to the ideal world they drew in the previous LS. The list shows aspects of interest by both biological and social scientists. It includes specific biological concepts such as 'one-health' which is a new research area that understands the relationships between the health of humans and other species. Another specific element was 'agro-silvopastoral system', which is a sustainable proposal for conducting agriculture in the forest with a variety of domestic species together. The list also has aspects informed by the perspectives of the participants exposed to

Indigenous communitarian practices such as ‘kids, young and old people have a voice and a vote’ and ‘the collective is the school’ (this concept is explained in chapter five).

For this LS, the elements could not be written down until the four participants could understand the meaning of each element and its purpose. This gave the participants the opportunity to draw on their previous knowledges and to co-construct new insights based on the knowledge of the four participants. The participants started to see each other as ‘experts’ on certain topics. From this point on, when the participants had a specific question regarding some of these specific areas, they would not refer to me, but to the newly constructed ‘expert participant.’

As a facilitator, I also learned new knowledge from each of the participants. This list was also hung on the wall to allow further reflections based on the insights of the participants to further facilitate active learning.

This first step of the pedagogy: finding your voice, allowed for a diagnosis of the starting point of the participants. This diagnosis was focused on three areas: identifying the feelings each of those partaking in the research were having as a result of their journey trying to bring about change; identifying what the group considered to be the cause of the socio-environmental crisis; and identify initial perceptions of the feasibility of radical change. These areas are outlined in Table 9.

Table 9 Evolution of the participants after the stage of finding your voice

| Initial participant’s feelings | Initial identified cause of the socio-environmental crisis | Initial perception of the feasibility of radical change |
|---|---|--|
| General negative feelings related to the incapacity for creating change that has the capacity to address some of the problems of the socio-environmental problems they directly see through their line of work. | The group attributed the cause of the socio-environmental crisis to abuse in the extraction and exploitation of Nature that results from the way we think, where Nature is considered separately from humans. | The entire group agreed that most of the elements that informed their ideal world was utopic and the only changes possible were the ones that followed the logic of “the system.” Radical alternatives were still considered to be impossible within “the system”. |

Table 9 shows how the participants started the pilot program with mostly negative feelings associated with a lack of opportunities they have encountered in their journey towards creating change. The table also shows how the participants are already aware that the crisis is the result of the way we think, but they lack tools to be able to say when in history (Western and westernised) humanity started thinking we were separated from Nature. Finally, the table outlines the thinking of the group at the end of the process, which

was that the only alternatives for change the participants considered viable were those that fit within “the system”, as radical alternatives were considered too utopic to “go against the system.” The participants understood “the system” as capitalism, and did not link it with neoliberalism or with colonial structures.

Co-design and co-configuration: learning to un-learn

To learn to un-learn, five learning situations were designed with three inter-related aims: that the participants could become conscious of the existence of the colonality of knowledges underpinning their thinking; that the participants could have a clear understanding of the origin of these knowledges; and the participants might clearly identify the links between the colonality of knowledge and the perpetuation of the socio-environmental crisis affecting us today. Following Walsh (2013), Fanon (2001) and Freire (1977, 1986, 1993), and understanding the cruciality of active learning in the decolonisation process, these tasks were designed to follow an inverse chronological order. By starting with current events and going back in time, the participants were engaged in active learning as the current events they experience became the starting point for understanding the colonality of knowledges. As such, the colonality of knowledges was not taught passively, but the participants discovered it by analysing problems that they are in contact with in their daily lives.

Starting with current problems allowed for designing the tasks following Freire’s (1977) method of problem posing. Following Freire’s method, the participants were never given any content or information in a passive way, but were given resources and asked a series of questions through which the participants would reach their own conclusions. Although the LS were goal-oriented, there was no correct answers, so the answers generated through the problem-posing LS were generated by the participants.

A summary of the tasks presented to the participants in this step is shown in Figure 34. This is followed by the co-design and co-configuration of the LS by the participants. Elements of the epistemic, the set and social design that facilitated the learning are analysed below.



Figure 34 Summary of the tasks presented to the participants for the step of learning to un-learn.

Figure 34 shows how the first LS: neoliberalism, extractivism and sustainable development (shown in blue) are based on aspects of the current contexts of the participants that they are familiar with, such as GDP, extraction of Nature and the ‘Agenda of Sustainable Development’ (see Figure 34). These three learning situations enabled the participants to recognise the existence of oppressive structures as they could recognise oppression because they had witnessed it in their daily lives. Once the oppressive structures had been recognised, the participants were ready for the fourth LS, modernity (shown in orange, above), which guided the participants to link the recognised oppression with the colonality of knowledges. This last LS is also conducted through active learning, as is explained later in the thesis.

In the first LS, **neoliberalism**, the participants were shown a series of images from magazines. The participants were asked to classify the images according to the events or scenes that might contribute to the making of their ideal world, and the ones that would not. That is, those events or scenes that would *re-move* people and Nature from an ideal world relationship. These images included extractivist activities, such as intensive agriculture and mining. The four participants classified the images fairly quickly into two groups, and some of them were placed in between. They were then asked which ones would contribute to an increase in Gross Domestic Product (GDP). The participants quickly pointed at the group of images that moved Nature and people away from the ideal world. Up until this point, the participants were not very engaged in the LS as they were all familiar with what economic activities increase GDP and which do not. As one participant argued: “yes, it’s always like this. You can only find support for the activities that increase GDP. This is why wildlife conservation programs never get funding. It is so frustrating.” Another

participant added: “what is also frustrating is how the world keeps thinking capitalism is OK when it causes all this inequality and destroys the environment.”

Following the pedagogy of questioning, I asked them to explain to me the inequalities caused by capitalism. The participants engaged in a dialogue about how the income gap is becoming larger between rich and poor in Mexico and in the wider world. A participant also mentioned how capitalism favours white people and men. Throughout the discussion, the four participants named the consequences of capitalism globally, without a distinction being made between the impact of growing the economy in the centre or in the periphery. I asked them how the entire world had agreed on pursuing infinite economic growth. A participant did mention it was because of development. When I asked when development started, they were unaware of how it had become a global aspiration.

I then showed the participants a resource map outlining the natural resource rents of the GDP of each country (Figure 4 of this thesis) and explained how the map summarises the current neoliberal system. The participants were surprised by the map, which made a very clear distinction regarding the way the centre and the periphery grow their economies. It was the first time that the participants could see that while nations in the centre grow their economies mostly through industries and services, the periphery does it via extraction from Nature. The participants, who had been looking tired and not very engaged at the beginning of the LS, then became really engaged, which served as preparation for entering the next phase of the LS.

For the second LS, **extractivism**, the participants picked one of the five topics of extractivism available: Sofia picked health; Julio picked mining; Daniel picked monocultures; and Marce picked land grabbing of IPs. Each participant was given a summarised literature review of the topics they had selected, based on the literature review presented in chapter four of this thesis. Each literature review handed out included visual resources in the form of maps or graphs that focused on crucial arguments. Participants had varying levels of insight into their topics. Some were familiar with the topic they picked, some had little knowledge of it, some had a very deep knowledge. Each participant then had time to read their literature review and present the topic to the rest of the group. They could add their own knowledge and experiences to enrich the presentation. Figure 35 shows the participants preparing themselves to present their topic to the rest of the group.



Figure 35 Participants preparing to present the topic they selected to the rest of the group.

Figure 35 shows how each participant selected a different place to sit, as well as different stationary resources to highlight and prepare their presentation. On the table are the images of the magazines that were classified by the participants in the previous LS.

This activity started at 10pm, after a full day of learning situations, which was a risk for the co-design and co-configuration of this exercise. However, the participants were committed to the task and presented their topics with passion and engagement. They had each experienced the negative consequences of the topics they had selected as part of their journey to create change. As one participant argued when talking about his own experience with extractivist activities “It is very painful. It is terrible to watch. It breaks your heart.”

As discussed, the group included professionals from the biological and social sciences. Both veterinarians had direct experience of the fields of mining and agriculture. Another participant had direct experience of the field of human rights, and one had direct experience of the field of land-grabbing. Most of the participants were not aware of land-grabbing, so hearing the facts presented in a literature review, along with a presentation by a participant who had actually witnessed it herself was moving for the entire group. Similarly, some participants were not very familiar with the environmental impact of mining and agriculture at such a deep level. This task, for which 50 minutes had been allocated, lasted more than two hours. Through the LS, I learned a lot from the perspective of the participants, especially about mining, as I had not had direct experience of it.

Through this exercise, the participants could clearly see the relationships between the environmental and social crisis as we are currently experiencing it in Latin America, and its direct relationship with the neoliberal system. As a participant said:

I considered myself someone that knows a lot about the environmental crisis as I had worked with it for many years. But I now realise I knew about deforestation and those other 'narrow' causes. In the sciences, they never link the problems affecting the environment to the socio-economic system. This was an eye-opener.

Another participant added:

I remember I had to learn about capitalism and stuff in high-school and I was so bored by it because they never show you the links with our reality. They just tell you about John Smith and England. Why would I be interested in that? But this totally makes sense. I think that it is not possible to understand the environmental crisis anymore without the socio-economic system. I really enjoyed the readings about the links between neoliberalism and extractivism.

The initially most demotivated participant argued this LS filled her with motivation. In her words:

I find it very positive that the other three participants are really well informed. Of all of the issues around us, they know the topics in depth and can easily jump from there to the social context, and they are ready to create change. It made me think that if I had met people like them ten years ago we would have definitely achieved something by now. I found it inspiring and it has filled me with emotion to see them so motivated.

For the third LS, **sustainable development**, each participant could pick a sustainable development goal (SDG) to analyse from the *UN's Agenda 2030: transforming the world* (2015). The options were SDG 1, SDG8, SDG9 and SDG14 (see chapter four). Participants chose an SDG, and associated targets, suited to their ideal world. Before looking at the goals, all of the participants argued that, based on their experiences, the agenda of sustainable development, as outlined in the UN's Agenda, is incapable of offering the solutions they want as it is deeply anthropocentric. As it was very late, we did not analyse the goals in detail as the participants were already sceptical of them.

To introduce the participants to coloniality, I showed them a political cartoon (see Figure 36) that compares colonial times with the current era of economic growth. I asked

them to analyse the SDGs they selected in relation to the political cartoon. The first participant to share his insights was very upset with target number 23 of SDG1, which states “people who are vulnerable must be empowered”, such as “people living with HIV/AIDS, older persons, indigenous peoples, refugees and internally displaced persons and migrants.” He argued:

It is surprising how they [IPs] are put at the same level as a person that is sick. I think this is terrible. What will the readers think? That IPs always *need* our help? But their needs are different. The SDG are imposing on them another vision. It also isolates them from the rest of society when they are put in that category. That is very different than how we perceive ourselves ... I can't believe this was written in the 21st Century.

This comment started a discussion around how Agenda 2030 understands wellbeing as the result of economic growth only, and how they automatically assume poor people are suffering. A participant argued: “Costa Rica always appears in the highest position in rankings of happiest countries, above other rich countries.” Another participant added:

I think it's making everything worse because according to this, it is a given that we all want money to have well-being, but there are many other ways to have well-being. The individualistic culture of making money is not only destroying the planet, but it is also making people very unhappy not only here, but in developed countries.

Other aspects of the Agenda highlighted by the participants was an emphasis on developing Sub-Saharan Africa, the economic rationale of the conservation of the oceans, the emphasis on increasing productivity, and providing infrastructure ‘needed’ by developing countries. A participant concluded: “all of these targets are directed at achieving a subjective idea of what well-being is.” The participants started to grasp how patterns of exploitation of people and Nature from the periphery that started in the colonial times were being repeated today.

A poster with each participant's conclusions of the first 3 learning activities: neoliberalism, extractivism and sustainable development, was created and hung on the wall, as shown in Figure 36. The poster was hung next to the ideal world drawing to provide a comparison of both worlds.

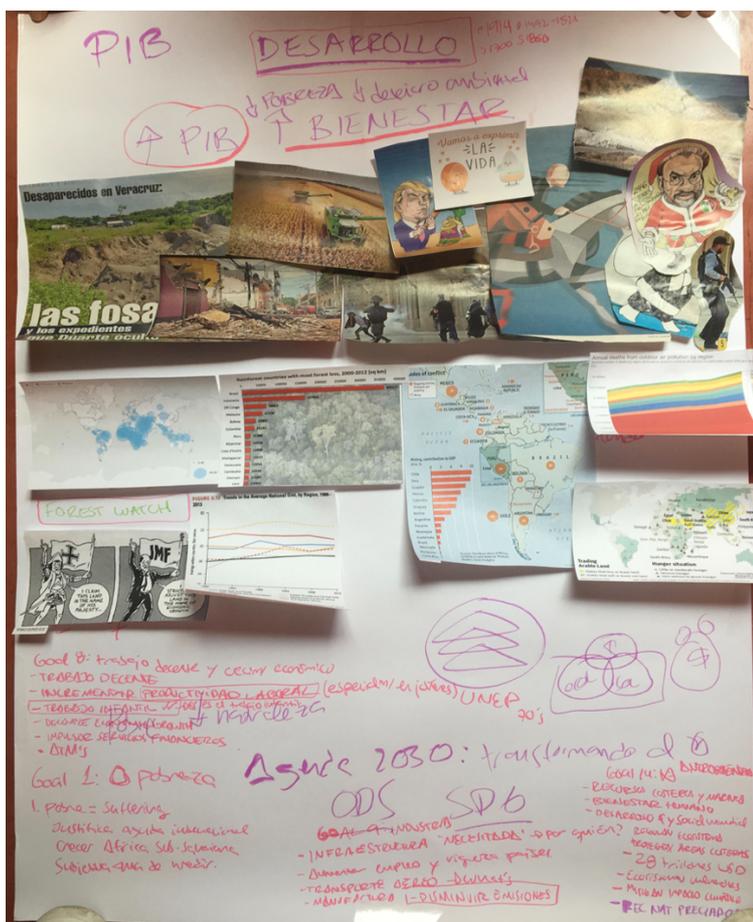


Figure 36 Poster made by participants detailing the insights gained through the step of learning to un-learn.

Figure 36 shows the poster made by the participants. The participants could now look at both posters and compare their ideal world with the world we live in today. Reflecting on the poster and the resources in it, a participant argued:

the map of the land-related struggles impacted me deeply, particularly seeing all of the conflicts that exist in the territory. I think that the socio-environmental crisis goes far beyond what we can imagine. The amount of conflicts caused by this crisis can be multiplied in the future by a thousand and we are going to be amongst the people that will be harmed the most.

The emphasis on “we” highlights how during this task, participants began to change their position and how and when they started to understand the problem from the periphery. They realised that under neoliberalism, the periphery –us –were going to be more affected than the centre. Thinking from the periphery was also starting to change the negative feelings they reported having in the previous step – finding your voice. Although these learning situations focused on the negative impacts of extractivism in Latin America, and how these are not being addressed by the UN’s SD agenda, the participants started to

feel more hopeful. The negative information shared was not entirely new to the participants, as they had already experienced the consequences of extractivism first hand. What was new for the participants was a clear understanding of how the current socio-environmental crisis is the result of a system. The “way in which the world works” was no longer an abstract concept, but the result of a system that could change, because systems do change. The participants reported this LS brought them peace of mind because, as one participant explained, “everything makes sense now. It is so clear now.”

The next morning, the participants co-designed and co-configured the last LS. This concerned the step ‘learning to un-learn’. For this fourth and last LS, **modernity**, the participants were given a series of small cards with different historical events or important historical figures written on them. I then asked them to organise them in chronological order to form a timeline. In the beginning, the participants were very nervous and even felt ashamed when they realised they could not recognise many of the cards. I explained that it was expected they not be able to recognise some of the cards. Some participants recognised some cards that others did not, so a colour code was used to distinguish the cards that were recognised by all the participants, the ones recognised by some of the participants, and those recognised by none of the participants. Figure 37 shows the classification of some of the cards made by the participants.

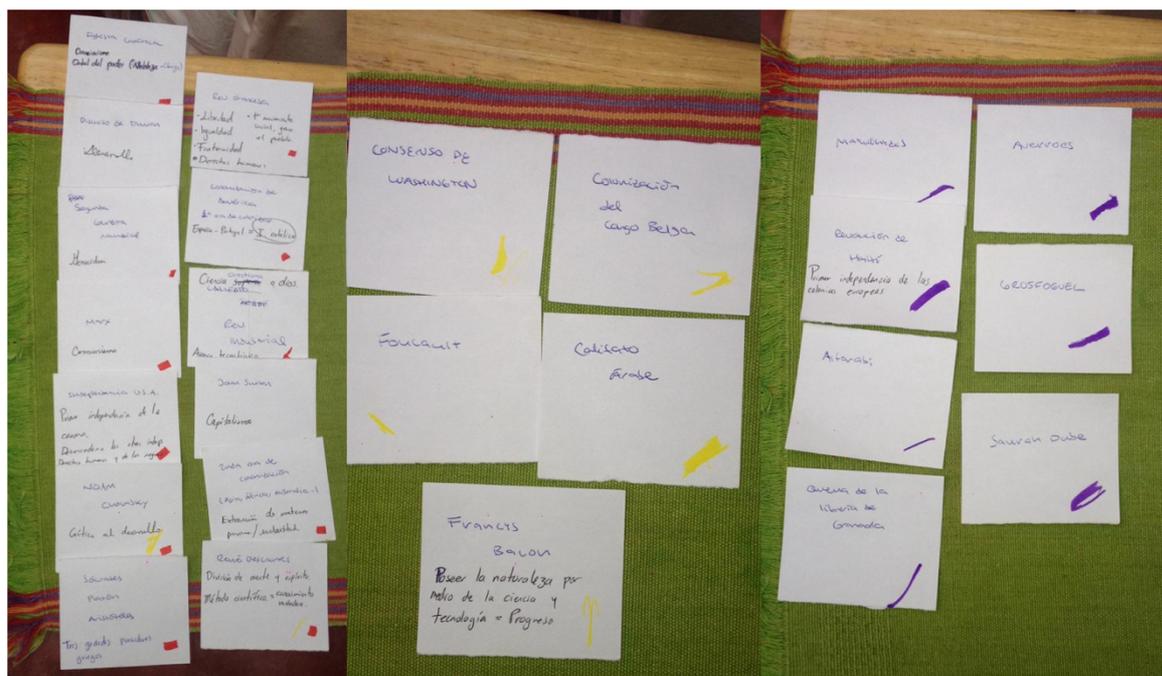


Figure 37 Classification of cards given to participants according to their ability to recognise the names and events shown on the cards.

Figure 37 shows the cards recognised by all the participants in red. Some of them include names that were recognised but where participants did not know what a contribution was. The cards recognised by some of the participants are shown in yellow. The cards that were not recognised at all are shown in purple.

Once they positioned the cards they could recognise as events of thinkers that are part of the narrative of “universal history”, the group decided to write down what they knew about some of those events. They then were able to quickly divide the events into Antiquity, Middle Ages and Modernity. Participants then positioned the cards related to genocide, but could not position the ones for epistemicide, as they did not know the meaning of this concept.

The timeline created by the participants reproduced the Eurocentric narrative of universal history. I asked them to explain the importance of some of the events shown in the timetable. The French revolution card had written on it that it was the first social movement in which the people had overcome their oppressors. Haitian independence was in the pile of cards not recognised by any of the participants. Only some of the participants could recognise the name Rene Descartes and none of the participants knew who Francis Bacon was. None of them knew what their contributions were to history. Some of the

participants recognised the names Foucault and Chomsky, but none recognised any of the Latin American decolonial thinkers such as Grosfoguel, or Castro-Gómez.

The time line started in the Antiquity with the Greek philosophers. There were no cards for the Middle Ages as none of the philosophers and thinkers of the Arab world were recognised. Most of the events they were able to recognise were positioned within Modernity. There was no clear understanding that there were two waves of colonisation, or their links with the globalisation of the capitalist system and the modernisation of the centre. They associated genocide with WW2 before realising it also belonged in the discovery of the Americas and the imperial race to colonise Africa, Asia and Oceania.

The participants did not anticipate what would happen next. They were so engaged in the LS that they did not have time to think where it was going. After I re-arranged the timeline to include all of the cards that were missing, I explained the relevance of the cards they did not recognise. They were surprised they had not heard of such important events as the Independence of Haiti or the brutal colonisation of the Congo. They also realised the Middle Ages was an era with a lot of advances.

I then asked them if there were several cards that said “genocide” why they had only put one under WW2 and not in the colonisation and imperial processes list. One of the participants said:

somehow those deaths are completely normalised. Like, we know it happened, but we are not upset it happened in the same way we are about the holocaust. It’s like when people get shot in Paris and people go crazy. I’m not saying it’s not horrible, it clearly is, but 100 dead French people causes a global commotion while the death of thousands of Syrians and Iraqis is sort of, like, expected. It’s so horrible I can’t even ...

I then explained the concept of epistemicide and asked the participants to place them in the timeline. The timeline was filled with epistemicide cards. This moment had a very big impact on the participants as they had never considered the reach colonisation had in the sphere of knowledges. I then explained the origin of what we now consider to be the universal history of humanity and explained how modernity was used as a discourse to legitimise colonisation, and how modernity had started with the colonisation of the Americas. I then explained how the discourse of modernity was founded on the belief of neutrality and universality of Eurocentric knowledge. None of participants knew how, or when it was decided that Eurocentric knowledge was objective and universal, or the implications of this.

For the first time, the participants began to consider the implications of understanding the world from one knowledge system, and how the world would be without the hegemony of Western knowledge systems.

Hearing this for the first time was eye opening for the participants. Through the time-table LS, the four participants were able to recognise how they were being inadvertently oppressed by the coloniality of knowledges. Three factors were crucial in recognising the coloniality of knowledge: not being able to recognise crucial events from the periphery; realising you have a history of attributed novel ideas to Europe (such as the French Revolution) when such events actually started in the periphery; and being very familiar with the colonisation of the Americas and the historical power of the Catholic church, as well as of the epistemicides carried out to destroy the codex of the Aztecs and the Mayans.

This LS guided the participants in discovering the coloniality of knowledges, and the way in which such coloniality was perpetuating a socio-environmental crisis. Active learning in this LS played a crucial role, as it gave the participants *eyes to see and ears to hear* that they only knew a ‘Eurocentric perspective’ on ‘universal history.’ About this, a participant claimed:

I love timelines because they are a very visual way of learning. This LS allowed us to go back to events we know and realise how they were covering other ideas in different times in history across the world. It was crazy to see how not listening to other knowledge systems has been going on since Spain expelled the Arabs.

The impact of active learning was also commented by another participant who said, “if [this LS] was taught as a lecture, it would have been impossible to pay attention and to understand anything”. Through this LS, the participants gained a clear understanding of the coloniality of knowledges and the perpetuation of the exploitation of Nature and people from the periphery. A participant said:

The timeline made it clear to me how the separation of people and the environment and the separation between the centre and the periphery happened. Now it seems very logical how we got to this point. It is not like it suddenly happened and now we are in this chaos randomly. I now see how it was decided who is was going to be at the centre and who was going to be the periphery, who was going to be developed and who developing, who rich and who poor, and who is benefiting from this crisis.

In agreement, another participant added:

I particularly liked the LS on modernity. I liked to see the modernity discourse reflected in all of the different periods exactly in the knowledge sphere, how this theoretical-methodological structure has been generated and where they are directing it at. The ideology, the ways of thinking. This LS was something that if not new [knowledge], it had some shades that I had no idea about. There were many new aspects to it that I did not know about.

The success in bringing out the participants' coloniality of knowledges was aided by a series of design decisions made especially for this step of learning to unlearn. These decisions were:

- a) Choosing participants who had direct experience of the impacts of extractivist practices; and
- b) Offering a supportive environment that allowed the rest of the group to feel safe. The small size of the group helped, allowing time for each participant to share their knowledge and experience;
- c) Designing learning situations following the problem posing method (Freire, 1977) so that information was important in relation to the context of the participants;
- d) Facilitating active learning by asking questions instead of transmitting content (Freire, 1986);
- e) Offering the visual resources, which offered a clear understanding of the neoliberal system and its links to the coloniality of knowledges;
- f) Drawing their ideal world, which served as a constant reminder of the kind of change they would like to see in the world;
- g) Making use of the variety of learning spaces offered at Ranchito Colibri (Hummingbird Ranch) to ensure the different learning situations could be carried out in harmony with Nature.

Each of these decisions to modify the epistemic, set and social aspects of the design guided the participants to engage in a series of reflections – founded on dialogue – that allowed them, as a group, to recognise the colonial structures behind the socio-environmental crisis. Table 10 shows how, by the end of this step, participants had significantly advanced in their decolonial journey.

All of these decisions resulted in a variety of learning learning situations that were very different from each other. Often times, when frequently ‘changing up’ learning situations, the participants said it was “cool” that change was afforded them. As one participant said of steps one and two:

I liked that it was dynamic. That is very important to me because there’s way too much information all the time, so it’s dynamic. Now we are going here, now we are going there, and changing the way of interacting. Let’s do questions! Now, let’s do this other thing. No, let’s draw! That is very important because even though we are adults, it prevents us from getting bored. Especially because we do a lot of things every day. So we’re tired.

Table 10 Evolution of the participants after the stage of learning to un-learn.

| Participants’ feelings | Initial identified cause of the socio-environmental crisis | Initial perception of the feasibility of their ideal world |
|--|--|---|
| The participants reported they had started feeling more hopeful by the end of this stage, and that the negative feelings were being replaced by motivation and excitement. | The coloniality of knowledges and the resulting socio-economic system. | Possible, yet unaware of how to change the paradigm. |

Table 10 shows that by the end of the four learning situations prepared for the step of learning to un-learn, the participants’ initial negative feelings were transformed into motivation and excitement. They could now recognise the coloniality of knowledges as the cause of the socio-environmental crisis, and they had started to believe “the way in which the world works” could change. After the step of learning to un-learn, the participants became conscious of the existence of the coloniality of knowledges and with it, had achieved the first objective of the designed pedagogy.

Co-design and co-configuration: learning to re-learn

Now that the participants were able to recognise the coloniality of knowledges, they were still yet to understand that thinking from the margins opens a viable pathway for creating change. As the design required that participants learn to re-learn directly from the Nahua people of Cuetzalan, the design of the learning situations that inform this step is different from that of the previous two steps. Figure 38 shows the three learning situations

that inform this step. A summary of the learning situations presented to the participants in this step are illustrated below. This is followed by details of the co-design and co-configuration of the learning activities as carried out by the group. Elements of the epistemic, the set and social design that facilitated the learning are analysed.

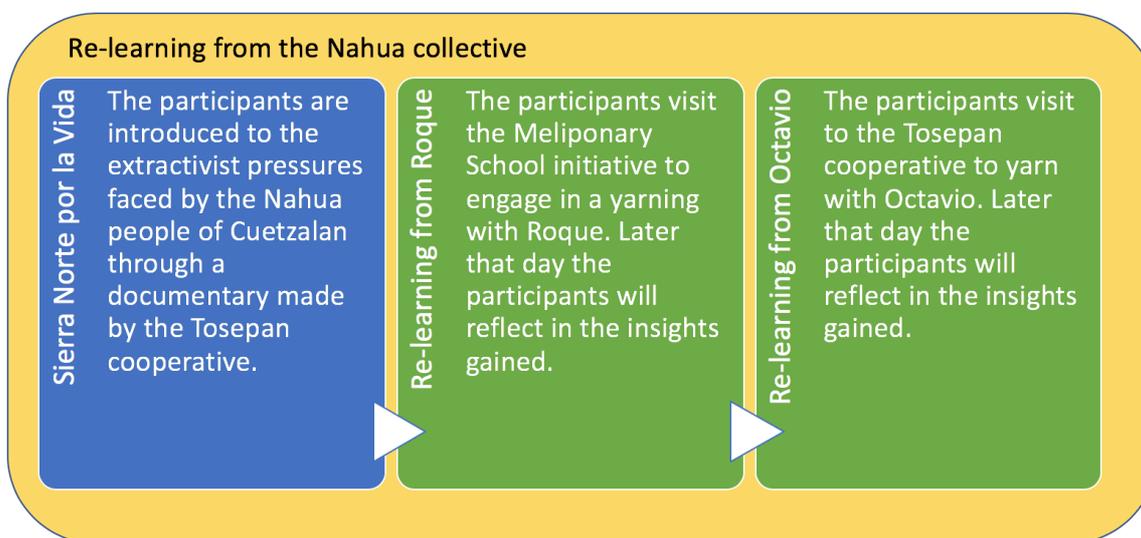


Figure 38 Summary of the tasks presented to the participants for the step learning to re-learn.

Figure 38 shows the first LS in blue, the following ones in green, and all of them enclosed in a yellow square. The LS in blue is an activity I designed to introduce the participants to the Nahua struggle before they re-learn from Roque and Octavio. The next two learning situations, shown in green, were designed to be guided by Roque and Octavio, members of the Nahua community, introduced in chapter six, whose initiatives, the Meliponary school and the Tosepan Titataniske, were introduced in chapter seven. The yellow represents all of the Nahua people of Cuetzalan who the participants would meet during the duration of the pilot study, and from whom they would be constantly re-learning.

Re-learning from the Nahua community is explained first, as a crucial decision about the design of the pedagogy was to conduct the decolonial pedagogy on-site, so that participants could be immersed in Nahua ways of living. Ouviaña (2013) argues learning from Indigenous peoples involves considering the collective as pedagogues. As such, the participants were not expected to learn from Roque and Octavio only, but from all of the Indigenous members the participants interacted with.

Conducting the learning situations in the municipality of Cuetzalan gave the participants an introduction to the context from which the Meliponary school and the

Tosepan emerged. Upon arrival, the participants became immersed in Nahua culture. Before we even got the opportunity to unpack the car once we arrived in Cuetzalan, the owner of Ranchito colibri started telling us about her story. She defines herself as a mestizo but explained her grandparents were Nahuas. She received us with the special alcoholic beverage made by the Nahua people of Cuetzalan, which is made with medicinal plants. The participants engaged in a dialogue with her about the medicinal plants of the region and about the drink she offered. This arrival story shows how from the participants' first moments, they were involved in and with the socio-cultural context of the area and its people.

Intentionally, the program was planned so that most meals would be eaten outside. This provided an opportunity to talk to the people cooking in the markets or selling products, as they are always inviting people to have a friendly chat. Through these chats, the participants learned about the daily lives of the Nahua people. They also provided an opportunity for the participants to understand the political climate of Cuetzalan. The group were particularly curious about the agenda of the independent Indigenous candidate. The whole study group ended up becoming friends with Aracely (introduced in the yarnings in chapter six), a Nahua woman who prepares corn-based food at a market stand. Figure 39 shows one of the participants carrying Aracely's nephew. To facilitate the participants talking to the community about different topics that were important to them, free time was included in the design of the program so that the participants could go to the City to have a coffee, a beer or a snack, and while doing so, talk to different members of the community, as these people most often operate these establishments.



Figure 39 One of the participants holding Aracely's nephew.

Figure 39 shows a participant entertaining Aracely's nephew while Aracely cooked. For the LS, **Sierra Norte por la Vida**, the participants watched the documentary titled *Sierra Norte por la vida*. The documentary is an effort of the Tosepan to bring attention to the Sierra Norte movement to defend their territory from extractivist enterprises. The participants were engaged through the duration of the documentary. After it finished, they engaged in a passionate dialogue discussing their thoughts about the struggle of the Nahua people against mining companies. Although the participants were familiar with mining, most of the participants did not expect it to be happening so close to Mexico City and Puebla. They also remarked on how the majority of the IPs talking in the video were women. Of the documentary, one of the participants said in an interview:

Having seen the clashes that exist in the country between the IPs and the mining companies, and how the developing countries benefit from this, it opened my mind. I want to know more about this. I want to read more about this. I want to do something about it.

This LS served as an introduction of the problems faced by the communities of Cuetzalan so that participants could gain an understanding of the context from which the Meliponary School and the Tosepan Union of cooperatives emerged, before they met Roque

and Octavio. The small size of the group allowed for those involved to share their insights in detail.

The learning situations that I call, '**re-learning from Roque**' and '**re-learning from Octavio**', were guided by Roque and Octavio themselves. As such, these tasks were not planned in advance because they were contingent on personal calendars, the parts of the agricultural cycle that were taking place during the pilot, the participants' personal interests and additional activities or festivities that were happening in Cuetzalan. Roque explained to me this is a way of learning from the community – you do not plan in advance like you do in school. Within Indigenous communities, you learn what is relevant in the moment, so things are not planned. As a result, I was unaware of what the participants would learn from Roque and Octavio at any given time. I only knew the participants would engage in yarnings.

Separating learning situations into epistemic, set and the social design decisions that shaped the learning of the participants is not possible for these particular learning situations as they were underpinned by Nahua epistemologies. As Walsh (2013) argues, decolonial pedagogies that emerge from Indigenous resistance movements do not separate *what* is being thought from the place *where* it is being thought and from the people *with whom* it is being thought. As such, the analysis of the learning situations where the participants re-learned from Nahua members considers the epistemic, the social, and the set as a whole.

For the LS **re-learning from Roque**, Roque picked the group up in Cuetzalan City, and then took us to the Meliponary School. Once there, he asked the participants to introduce themselves one by one, including their interests. This gave Roque insight into what participants were interested in and allowed him to plan the learning situations accordingly. What was initially planned as a one-day re-learning experience was instead three days of re-learning, as Roque was excited to share Nahua insights with us. As he explained: "I am very happy that you are interested in learning from our knowledges, as we hardly get any visitors interested in them. When we do, they are international visitors." Having designed the decolonial pedagogy to be flexible, it was possible to accommodate the extra days spent with Roque. To optimise time, the participants reflected on the insights gained from spending time in the Meliponary School *and* in the Tosepan, as one LS, after they had finished re-learning from Roque and Octavio.

During the three days, we spent numerous hours with Roque engaged in learning situations that the participants initially thought had no specific learning purpose. We 'hung

out' with Roque and his family for three days, and accompanied them in their daily activities. These included: looking at the bees, learning to identify the queen bee, drinking traditional alcoholic and non-alcoholic beverages, going to the kuojtakiloyan, seeing the composition of the kuojtakiloyan: seeing the land reserved for corn, coffee, pepper, the citrics. We also spent time in Nature, walking to a natural spring, discussing politics, talking about the Meliponary school, talking about the yeknemilis (which Roque calls buen ambiente, as explained in chapter seven), looking at recently harvested native corn, having a contest to see who could make the best tortilla, eating home-made food and coffee with ingredients from Roque's kuojtakiloyan, playing with his dogs and his chickens, going to the high-school graduation of his daughter, going to celebrate with her to a restaurant in the neighbouring state to have good seafood, and many more learning situations. All of the learning situations were very amusing and did not feel like a task. Figure 40 shows the participants and me engaged in some of those learning situations.



Figure 40 The participants learning to re-learn from Roque and his family.

Figure 40 shows on top left: the participants, Rosa and myself walking on Roque's kuojtakiloyan. Top centre: the participants and me attending Rosa's high school graduation. Top right: a corn of the kuojtakiloyan of Roque. Lots of corn can be seen in the background. Bottom left: Roque demonstrating the native bee harvest. Bottom centre: the queen of the colony of native bees on top of the nursery of the hive.

Spending time with Roque made evident how little ‘conocimiento de campo’ (knowledge of the land) we have. We could not identify any productive species other than the corn and the coffee. Rosa (Roque’s wife, introduced in chapter six) would say things like: “Look at the pepper tree. The pepper is almost ready. It looks very pretty.” Yet, we, the environmental scientists, could not see the pepper even though it was in front of us. We did not know what pepper looks like when it is still in trees. Or what kind of tree to look for when trying to find pepper. Rosa was having a good time laughing a lot about our lack of basic knowledge. Roque’s entire family, and our group, had a great time laughing about what we did not know. For example, we had to go down the mountain through a steep path and one of the participants grabbed a corn to hold on to. Roque’s family started laughing and Rosa explained that the corn has superficial roots so she would fall with the entire corn plant in her hand. Similarly, there was a tree with what looked to be limes and a participant said “Mmmm, I love limes.” A group of local kids started laughing right away because they were unripe oranges instead.

Re-learning from Roque involved resistance by some of the participants. Being formed by the field of biological sciences, some of the participants were not convinced of the *kuojtakiloyan* as a model for conservation due to the presence of introduced species, such as lychee. This resistance started to subside due to two factors. The first was presenting the participants with Western science articles that had measured the positive impacts of *kuojtakiloyan* on Nature (see chapter six). The second was Roque was open to putting wildlife cameras in his *kuojtakiloyan* to see vertebrates distributed on it and, based on this, think of joint efforts to improve the conditions for wildlife.

Being only four participants allowed for individual yarnings between the participants and different members of Roque’s family. As every participant had different interests, the yarning topics the participants engaged in were different. The participants reported that they talked about the topics shown in Table 11.

Table 11 Topics of the yarnings conducted between the participants and Roque and his family.

| Participant | Topic |
|---------------|--|
| Participant 1 | The future plans of Rosa jr., her role in the community and her political views, as well as her involvement in politics. How did they start the Meliponary school project? |
| Participant 2 | The importance of corn, why are they interested in taking care of Nature and their understanding of the value of Nature. The importance of corn. |

| | |
|---------------|--|
| Participant 3 | The history of Cuetzalan and the Indigenous groups that live in it. How did they decide which species to plant in the kuojtakiloyan, the species of vertebrates they see in the kuojtakiloyan. How do they process the corn? |
| Participant 4 | The daily life activities and the relationships between the neighbours of Cuauhnapanaloyan. The role of corn in daily life. |

Table 11 shows the topics of the yarnings conducted by each participant. Having individual yarnings allowed the participants to re-learn about areas of the community each participant found engaging. To protect their anonymity, the number of the participants do not correspond to the numbers assigned for introducing the participants.

For re-learning from Roque, the car was crucial as Cuauhnapanaloyan, where the Meliponary School is located, is about an hour's drive from the City of Cuetzalan. The car also allowed us to visit other locations like Santiago, the place in which Rosa's graduation took place. During the three days, the car became an extension of the learning space. Many reflections happened in the car, and it provided a good environment for bonding as we spent so many hours in it. It also provided time for naps in between learning situations. Figure 41 shows a time of bonding in the car between learning situations.



Figure 41 Commute in the car between the learning situations designed for learning to re-learn.

Figure 41 shows the group and Rafa, Roque's son, in the car. In the background, the lush vegetation of Cuetzalan can be appreciated.

For **re-learning from Octavio**, we walked to the Tosepan Titataniske, where we met Octavio. The re-learning process through a long yarnning with Octavio was shorter than the amount of time spent with Roque, yet, it was as impactful. After arriving at the Tosepan, Octavio showed us a powerpoint presentation that started with the history of the Tosepan. It outlined attempts to increase the quality of life of the campesinos through cooperative practices (shared in chapter seven). The participants payed close attention to what Octavio was saying. The presentation of Octavio continued with the objectives the Tosepan has for the next forty years. One of them is “to defend our territory from the threats of mining, hydroelectric and oil projects.” Figure 42 shows the slide depicting this objective and a map of the extractivist projects presently occurring in Mexico.

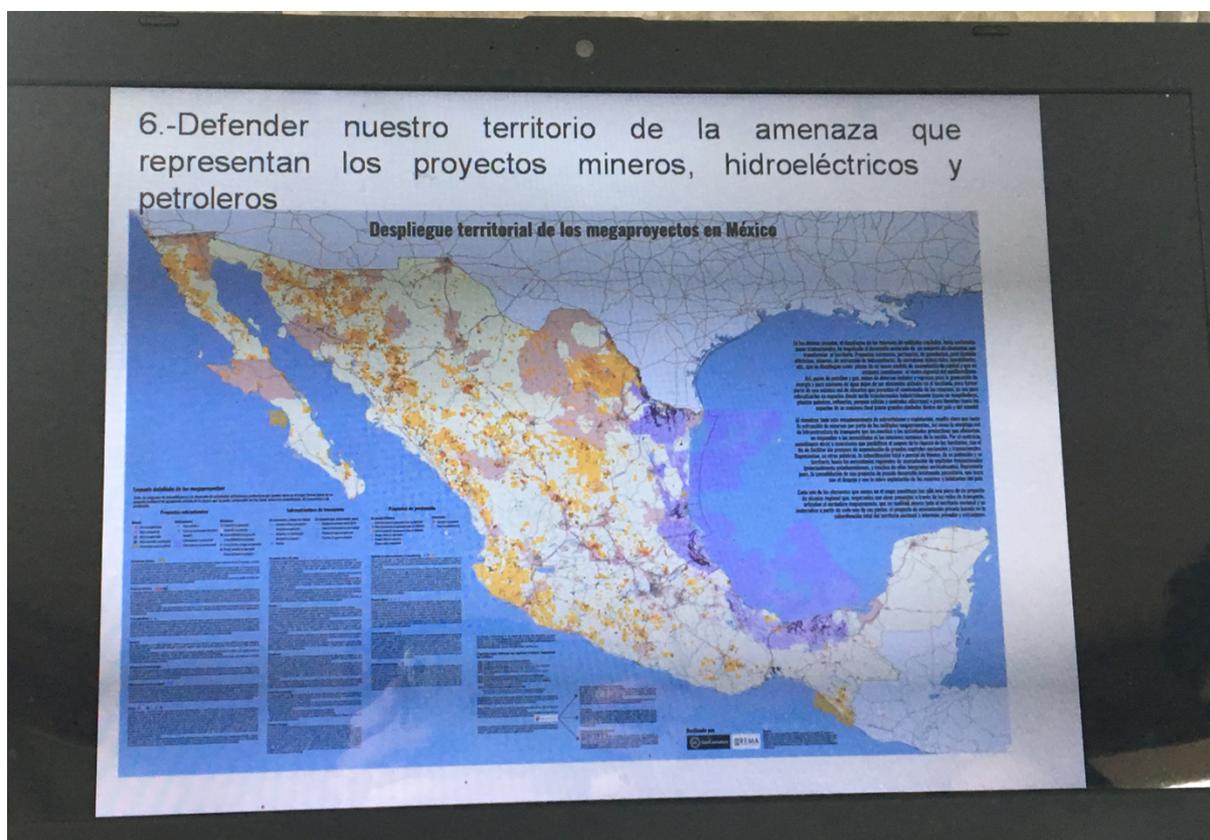


Figure 42 A slide of presentation given by Octavio about the Tosepan.

Figure 42 shows the map shared by Octavio with the threats of mining, hydroelectric plants and oil extraction facilities. This map had an impact on the participants, who were unaware of the scale of mining projects taking place in Mexico. The participants asked Octavio for further information about this. Octavio gave us an overview of the situation of the country, which included the Indigenous organisations that are currently fighting to defend their territory throughout Mexico. He then explained in detail the story of the

defence of the land in Cuetzalan, and the processes for establishing the territorial ordinance that has allowed them to shield themselves from extractivist projects (explained in detail in chapter six). The participants kept explaining “wow”, “that’s unbelievable”, “congratulations”, “how amazing”, etc.

Octavio then continued with his presentation and showed the participants an organisational chart of the cooperatives that inform the Union of Cooperatives Tosepan. This slide is shown in Figure 43:

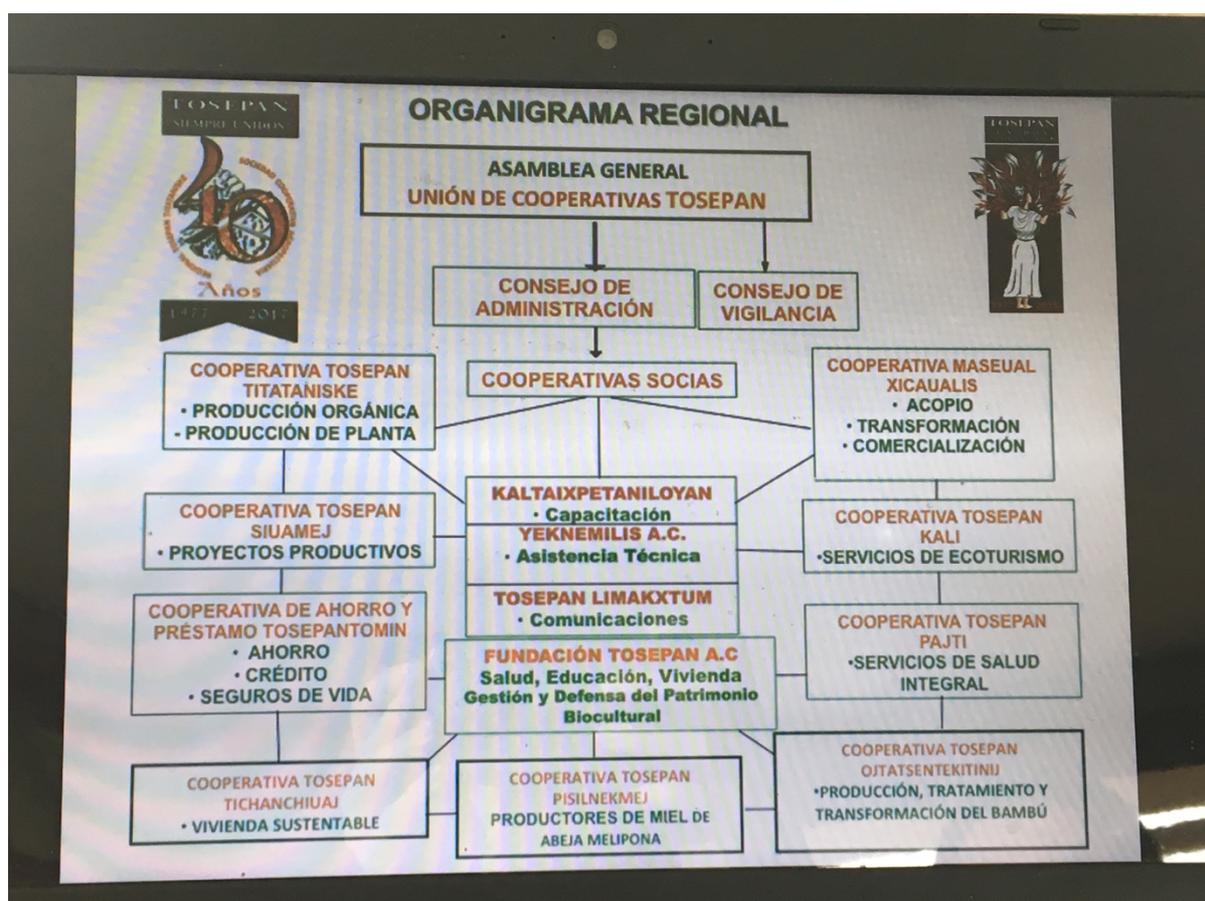


Figure 43 A slide in the presentation given by Octavio about the Tosepan.

Figure 43 shows the organisational chart shared by Octavio. The participants were surprised to see the number of cooperatives that made up the Union of Cooperatives Tosepan and started asking questions about them. One of the initiatives that generated the most interest was the education cooperative, where the Montessori school model was adapted to include the needs of the community. In kindergarten, classes are given by a teacher from Mexico City who speaks Spanish and English, along with a local teacher who speaks Spanish and Nahuatl.

Some of the participants were very interested in the Montessori school, as they were familiar with the model, as well as with the elevated costs of running a Montessori school. A participant asked how the community managed the extra expenses of the school. Octavio explained how education and health are crucial areas for the community and as such, part of the revenue of the other cooperatives is being used to subsidise and strengthen these areas. He explained how maintaining cultural identity is crucial for community survival and therefore, the school in the community is a pilot program that they will then use to try to expand to more communities.

Although it was school holidays, Octavio offered to show us the building and the classrooms at the Montessori school. The walk to and from the building gave the participants an opportunity to discuss with Octavio the topics they were interested in in regard to the Union of Cooperatives Tosepan. Amongst the topics discussed were the yeknemilis, the sexism still present in the communities, and the role of the government. Of the topics discussed, the one that caused most impact with the participants was the role the Tosepan played in the reconstruction of rural communities after the earthquake that had taken place the previous year – the worst earthquake in Mexico in the past 33 years. Octavio then explained how the Tosepan, through their construction cooperative, helped a community rebuild their houses. The participants were impressed with the power Indigenous communities can have, as the Tosepan were able to help those communities before the government, who has a fund reserved for acting in cases of natural disaster. The participants also learned about the Tosepan initiative for producing their electricity through solar energy, as this would allow them to push the need to build a hydroelectric plant, as the government argues.

The visit lasted about two hours. On our walk back to Ranchito Colibrí, the participants share thoughts like “It’s an inspiration”, “they are politically very active and I did not know that. I perceived IPs as indifferent or submissive”, and “I was very surprised with Tosepan, I think they are an example for everyone.” The participants wanted to know what other members of Cuetzalan had to say about the Tosepan, and went to the City of Cuetzalan to have a snack to have an opportunity to discuss what they had learned with members of the community. This was possible due to the design decision to conduct all the learning situations in Cuetzalan.

The **reflections on the insights gained from re-learning from Roque and Octavio** took place in Ranchito Colibrí. The LS was conducted in the indoors learning space as it started late. To start the reflection, I asked the participants: ‘What have you learned from Roque and Octavio?’ The participants decided to start with the insights gained by the visit to the Tosepan, and each one outlined what aspects they had found most impactful. The process was then repeated with the insights gained from Roque. Having conducted individual yarnings focused on different projects allowed the participants to share insights that were unknown to the rest of the group. Table 12 shows the insights the participants reported they had gained through the three days they spend re-learning from Roque and Octavio.

Table 12 Insights gained by the participants from learning to re-learn from Roque and Octavio

| Insights gained by the participants from re-learning from Octavio and the Tosepan | Insights gained by the participants from re-learning from Roque and the Meliponary school |
|---|--|
| <ul style="list-style-type: none"> • The recognition the organisation has with other members of the community that are not part of the Tosepan. • The size. How 40 thousand families are now affiliated with the cooperative unions. • The strong social focus of the organisation. • Their internal organisation. How they have managed to become an alternative for 40 thousand families in only 40 years. And how 40 years ago they could not afford sugar and today they export their products to Europe. • How they are very open to other people and not only Nahuas, including mestizos who are also part of the organisation. • How non-Indigenous people have joined the cooperatives. • Their organisation shields themselves from mining companies. • How it is a model that considers social, environmental and economic aspects. • That they were building houses for the people of other municipalities affected by the earthquake that took place in 2017. • Their Montessori school proposal. | <ul style="list-style-type: none"> • How hospitable the entire family of Roque is. The participants compared how people in the city are not as hospitable, and even less with people they don't know. • The amount of time they have. They really valued the amount of time Roque had for his family and his friends. • How they are open to other knowledge systems and to working with Western scientists for conservation initiatives like the entire plan for conserving the native bees. • The value placed on conviviality. How Roque, his family and friends talk a lot about the importance of conviviality with neighbours and other members of the community. • Spiritual health. How they refer to spiritual health and said that when they are not feeling good spiritually, they just go and walk in Nature and they relax. • The strong attachment to his community. How Roque has such strong ties with his community. • Stepping away from materialism. • Enjoying his daily work at the kuojtakiloyan. • His perseverance. |

| | |
|---|--|
| <ul style="list-style-type: none"> • How their discourse of yeknemilis was a local alternative to that of economic growth. | |
|---|--|

Table 12 shows how the participant re-learned different, yet crucial aspects from Octavio and Roque. The participants kept repeating that they were impressed with the achievements in the Tosepan and how their image of IPs had transformed, as they now realised they had internalised Eurocentric narratives that depict IPs as incapable of proposing alternatives for both Indigenous and non-Indigenous peoples. An element that was mentioned repeatedly was how the Tosepan is offering an alternative that allows them to live under the capitalist system without ascribing to capitalist values. Another element that surprised all of the participants is how non-Indigenous peoples from the City of Cuetzalan who have higher incomes still joined the Tosepan as they consider it increases their quality of life.

During the discussion, the participants mentioned how surprised they were because they had never heard of any of the initiatives of the Nahua people. The two veterinarians were very surprised they had never heard about the Nahua conservation initiatives around the pisilnekmej bee, given their success. One of the vet participants had even worked in a (Western) bee conservation project for about a year. This reflection reinforced the participants' understanding of the coloniality of knowledges.

Learning about the reach of the Tosepan made the participants question the way in which they had imagined bringing about change, as they could see the feasibility of creating change in a local sphere. A participant reflected:

I now see the power of starting to create change with your close community. We are always used to thinking of change in a global sphere, like the sustainable development agenda. But the Tosepan started buying sugar and now they have grown to 40 thousand families and have managed to keep mining out. I believe thinking in a global way limits us. For example, now I can see how starting a cooperative in Cuajimapla (a neighbourhood in Mexico City) could have a huge impact after some years.

When discussing the insights gained from re-learning from Roque, the participants said that spending time with Roque and his family had made them think of their own lives. A

participant reflected on how it would be nice to live in a community as hospitable as the community of the Nahuas. He suggested:

In Mexico City, if you have a flat tire not many people will want to help you. In Cuetzalan, the family of Roque spent three days of their week talking to us, showing us their *kuojtakiloyan*, and giving us food and drinks. And it was the first time we met him. I want to be more hospitable now. I think it is important.

Another participant queried whether this relates to how much free time Roque has for doing the things he likes. As she explained:

Roque argues time is a very valuable resource. We in the city never have time for anything because we are always running to meet deadlines of all sorts. Like if I want to see my friends, sometimes we have to coordinate weeks in advance to make sure everyone has time. Whereas here, every activity is an opportunity to see your friends and relax afterwards.

All the participants were surprised by the attachment Roque had with his community. He has been to other countries, won an international award, appeared on television in Japan and still he wanted to live in his town, and build an initiative to transmit the cultural identity of the Nahuas. One participant concluded: “you can see that he really does love what he does. And what he loves is spending time with his family and his friends and taking care of his bees. It makes you reflect on why we are never satisfied with what we have.” Along the same lines, a participant argued, “spending time with Roque makes you realise how we are distracted with material things that are not worth it. Some people are consumed by materialism without ever thinking about things that could actually make them happy, such as spiritual health.” Another participant added “it made me rethink how I want to live my life. I feel like Roque and his family have less unnecessary stress. We have all the stress of succeeding in a very individualistic way and it can get very tough.”

The yarnings conducted with Octavio and Roque complemented each other. While from Octavio, the participants learned about the power and reach of the proposal of the *yeknemilis* of the Tosepan, the participants were able to experience a glimpse of what living a life with *yeknemilis* meant by spending time with Roque and his family. The participants were so excited with the insights gained from re-learning from the Nahua people that they forgot about their ideal world as they were discussing the *yeknemilis*.

Having built a partnership with members of the Nahua community that were involved in alternatives to the modernity paradigm was key. The process of learning to re-learn would not have been possible without Roque and Octavio, as the participants could experience what it felt like to live a life with *yeknemilis*. In addition, the partnerships allowed the participants to ask questions about the struggle of the land in the region directly with the people involved in its defence. This perspective could hardly be transmitted by an outsider. By the end of the yarnings, both Roque and Octavio offered the participants the possibility to work together on projects in the future. This was key, as the participants not only discovered a pathway for creating change in non-Eurocentric epistemologies, but established a direct channel for change with the Nahua people of Cuetzalan.

Crucial for this step was the selection of yarnings as the method for a) establishing a partnership with the Nahua people of Cuetzal before designing the pedagogy; and b) facilitating trust between the Nahua facilitators and the participants of the pedagogy. In agreement with Yunkaporta (2009) and Singh and Major (2017), yarning led to the establishment of a relationship built on trust, as it allowed for a mutual sharing of knowledge. Sharing experiences through yarnings also allowed the participants to position themselves as learners of the Nahua epistemologies. This is consistent with Simpson (2004), Walsh (2013) and Ouviaña's (2015) recommendations.

By the end of the learning situations designed for guiding the participants in re-learning from Nahua knowledges, the participants could see a pathway by which to create change, as is shown in Table 13.

Table 13 Evolution of the participants after finishing the step of learning to re-learn.

| Participant's feelings | Identified cause of the socio-environmental crisis | Perception of the feasibility of their ideal world |
|--|---|---|
| The participants argued they were feeling excited and motivated. | The coloniality of knowledges | The participants perceived radical change was possible at a local scale |

Table 13 shows how, by the end of the learning situations prepared for the step of learning to re-learn, the participants were feeling excited about having discovered radical change was possible at a local scale, when understanding is positioned outside the coloniality of knowledges.

Co-design and co-configuration: creating change

This step was designed with the purpose of linking the learnings of the three previous steps, and connecting them with the narrative of buen vivir, so that the participants could get a clear understanding of the radical possibilities that arise from thinking from the margins. For this step, three learning situations were designed: the first LS guides the participants in recognising elements of their ideal world in the Nahua proposal of yeknemilis. The second step supports an understanding of the potential of the yeknemilis as a transitioning discourse through the sumak Kawsay. And the third step promotes the participants creativity so that they can think of ways to bring visibility to the yeknemilis. A summary of the tasks presented to the participants in this step is outlined in Figure 44. This is followed by the co-design and co-configuration of the learning situations by the participants. Elements of the epistemic, the set and the social design that facilitated the learning are then analysed.

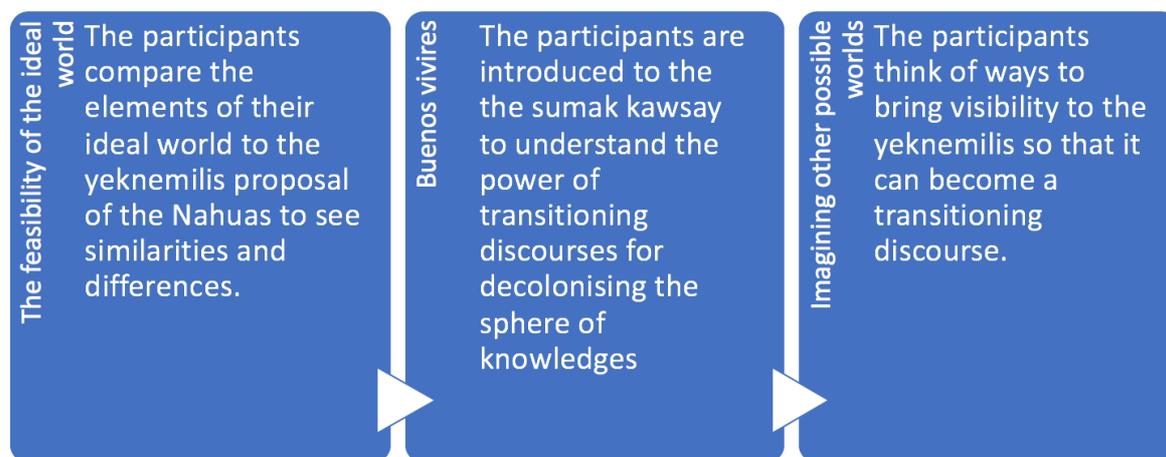


Figure 44 Summary of the tasks presented to the participants for the step of creating change.

The first LS to create change, introduced in Figure 44, **was the feasibility of the ideal world**. This LS starts with the list of elements of the ideal world the participants had imagined. The participants had to compare their list to the yeknemilis proposal for the Nahuas. When designing the LS, I anticipated the list (see Figure 33) would be shorter. As the list of ideal elements created by the participants was longer than anticipated, the participants found the goals of the LS hard to accomplish. One of the participants came up with a solution. He suggested we make a classification of the elements of the list under

broader categories. This suggestion worked really well, as the long list was now classified into six categories. Figure 45 shows the original list and the six categories created by the participants, which they called the 'axis'.

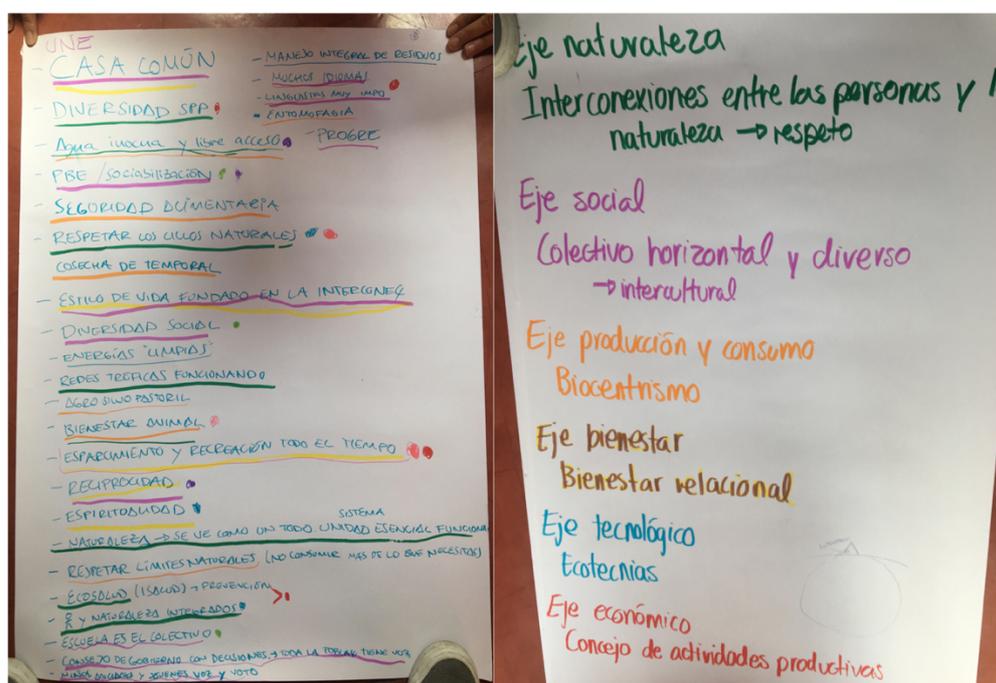


Figure 45 Axes that inform the participants ideal world.

Figure 45 shows the six categories or axes with a brief description. These are:

- 1) Natural – Interconnection between people and Nature based on respect;
- 2) Social – Horizontal and diverse collective. Intercultural - meaning based on a dialogue between different cultures;
- 3) Production and consumption – biocentrism (meaning these learning situations are centred in respect for the life of all the elements of the planet);
- 4) Wellbeing – Relational well-being (meaning well-being is expanded to other species);
- 5) Technological – green technologies; and
- 6) Economic – council of productive learning situations (meaning the community has to decide in a horizontal or cooperative way the learning situations allowed for growing the economy).

Once the participants had identified the axes, they were given time to think individually, to see if they could recognise these axes in the Meliponary school and/or in the Tosepan. Then each participant shared their insights on which aspects of the Meliponary school, or the daily life of Roque, resembled their ideal world. Although some aspects were repeated by the participants, other aspects were mentioned by different participants. The

designed free time for conducting individual yarnings with Roque and members of the community allowed them to go deeper into different topics. As such, this sharing experience also constituted a LA as the participants learned more about the Meliponary school and the Tosepan through the other participants insights.

All the participants became really excited with this LS as they realised their utopic world was not looking utopic anymore. They understood it was only utopic when thought about from a Western perspective, as the Nahua vision of their ideal world was very similar to theirs. As a participant added:

Yesterday, well all the days we spent with Roque and Octavio, I thought the yeknemilis was pretty awesome and I was very impressed, but I didn't realise it actually has a lot of the things of our ideal world.

Another participant added, "we never turn around to see what the Indigenous peoples are proposing, and the yeknemilis looks like a way better proposal than the ones we get in touch with."

Along with the aspects of the yeknemilis that resemble their ideal world, the participants also noted some of the axes that were missing were not consistent. The participant discussed this and concluded that at least three things noted in their ideal world were missing in the yeknemilis, as follows:

1. Social axis: the role of women. Although both the Meliponary school and the Tosepan seek to empower women, the participants perceived Nahua society as still being very sexist.
2. Social axis: the role of religion. – A crucial part of the identity of the Nahua community is their Catholicism. As one of the participants is a member of the LGBTIQQ community, the group was concerned about how open and accepting the community might be in this regard.
3. Wellbeing axis: the treatment of snakes. – Through the program, it became evident how some members of the community (not Octavio or Roque and his family) valued some wildlife for their intrinsic value yet not all species. We were shown a manual made by Nahua children as an exercise to document their local knowledge. The manual showed that the children have a wide knowledge of the different ways to kill snakes.

This exercise served to talk about romantic versions of Indigenous peoples portraying them as “the noble savage.” I guided a discussion explaining how Indigenous societies are like any other society that faces challenges and problems. As such, their epistemologies were not going to be able to provide all the answers and, therefore, re-learning from the Nahua perspectives does not mean copying their way of life, but understanding other ways in which to look at the world for imagining different worlds. This discussion continued in the next LS.

For the second LS, **buenos vivires**, I asked the participants if they thought the yeknemilis could influence the decisions of the federal government. After a group discussion, the opinion of the participants was divided in two:

- a) no, the system is never going to allow something that goes against it; and
- b) yes, but it will happen with other generations. We might not see it.

I was then going to play a short podcast explaining the Sumak Kawsay paradigm of the Kichwa people and how it became a transitioning discourse that was incorporated into the Ecuadorian constitution in collaboration with the Kichwa people, academics and activists. However, due to technology malfunctions I personally told the participants the story, and then read the article on the rights of Nature. I asked the participants if they had heard about the rights of Nature. They were all familiar with the recognition of the rights of a river in New Zealand. I explained how Ecuador was the first country in the world to recognise the rights of Nature and, with it, provided a decolonising crack in the modernity paradigm, allowing for the world to start imagining a different relationship between humans and Nature.

From the recordings, it was noted that despite having finished this LS after midnight, the participants had several questions and the discussion continued for an additional 25 minutes. Amongst the questions were: When did that happen? Has that happened in any other country? How do transitioning discourses start? How do non-Indigenous people add their voice to the buen vivir? This was followed by a discussion of how it is important to think from the margins in order to decolonise the sphere of knowledges. The margins allow us to look into other knowledge systems, without discarding the rich knowledge of Western science. Thinking from the margins through a cross-cultural dialogue leads to finding solutions that could not be thought from one knowledge system only, like the transitioning discourse of Buen Vivir that resulted in the recognition of the rights of Nature.

Discussing how the Indigenous struggles for resisting extractivist practices offer the foundation to build transitioning discourses was especially impactful to one of the participants, who pointed at a map on the poster hung on the wall that summarised the step of learning to un-learn (see Figure 36) and said, “then the map of all the conflicts in the region is also a map of possibilities.”

In relation to the posters hung on the wall, another participant added:

I liked the sequence of the course. I like how step one was related to the rest and everything has a sequence, but we had to find it. Like, you gave us a guide, but you were not explaining much and we had to keep it going in the right direction. You would say: ‘Now look back at point number five, now connect it with this other one.’ It is better that way because with monologues you understand at that moment, but you don’t retain it for long.

The unexpected

For the last LS of the program, **imagining new worlds**, the participants were asked to think individually about how to bring awareness to the yeknemilis, so that it could grow into a transitioning discourse that could help in decolonising the sphere of knowledges. After they thought about it individually, we went out to have our last breakfast in the City of Cuetzalan, as is shown in Figure 46.



Figure 46 Participants enjoying one last corn-based breakfast while discussing the insights gained through the learning situations that inform the step of creating change.

Figure 46 shows the participants and me waiting for our corn-based breakfast, which can be seen in the bottom of the picture.

During breakfast, the participants were very excited and kept commenting on aspects that had surprised them during the course. Once back in the car to drive back to Mexico City, I asked the participants to share their reflections about how to bring awareness to the *yeknemilis*, or other Indigenous proposals of *buen vivir* that remain hidden. Initially, the proposed ideas were very diverse, and included: teaching, modifying the education system, wildlife conservation programs, environmental education, and generation of public policy.

Eventually, a participant said: “people should be exposed to these alternatives. We could act as a group that could give visibility to the transitioning discourse ... I can literally think of at least five people that would take this course.” All the participants agreed and said they would be interested in becoming facilitators of the decolonial pedagogy. As a participant argued, “75 per cent of the population of Mexico lives in the cities and they never get exposed to this. I think workshops like this are important so that people can change their way of thinking ... We should start growing and incorporate more people and organise us in different work areas.” Reflecting on these ideas, another participant added “I think we tend to underestimate the way people think, but people now actually want change. They want life to improve and to live in a more communitarian way so they should be able to listen to these discourses.” The participant added: “If you give people a new point of view, things might change. It is necessary to have transitioning discourses to stop having Agenda 2030 as the only way, and with it continuing to exploit half the world.”

The participants wanted to become facilitators of this decolonial pedagogy, which was an unexpected finding, as I anticipated the participants would take the insights gained and apply them in their personal projects. It was unforeseen that the decolonial pedagogy would result in a small community of people committed to becoming change facilitators by bringing awareness to the *yeknemilis* and with it, contribute to decolonising the sphere of knowledges.

This step was designed to link the learnings of the previous learning situations, hence, crucial to the development of this step were the epistemic and social design decisions made for the three previous steps. Problem posing, the pedagogy of questions, and dialogue between the participants were all important, as they allowed the participants

to undergo a decolonisation journey which, according to Freire (1977, 1993), can only happen through active, 'discovery' learning. As such, non-passive learning was encouraged throughout the development of the course, so that the participants could recognise the structures of colonial oppression, along with the pathway for decolonising the sphere of knowledges through features they recognised in their everyday lives. As a participant argued, "we have much of this knowledge but, like, in the background and you never put it together in a clear way, so I really liked it." Another participant claimed:

The content was really cool. Every participant agreed we did something really cool in this course. There are things we already knew, like, you know you've heard about them somewhere, read a bit about it, but when you put it like 1, 2, 3, 4 it is very clear and I thought, everybody needs to know this. When I finished the course, I was very happy.

As the learning situations of the decolonial pedagogy were based in problem-posing (Freire, 1977), the decolonial journey of the participants was based on their previous knowledges and experiences. Through the four steps, the participants could recognise the colonality in their personal journey for creating change. As such, more than teaching them something new, this pedagogy gave them the tools to re-learn to think of the same things in a different way. By the end of step four: creating change, the participants had reached a renewed understanding of change – of the kind of change that is possible - and had considered potential pathways for creating change.

The participants now see radical change as something possible and consider the decolonisation of the sphere of knowledges as the pathway for creating such radical change. The participants agreed that the decolonisation of knowledge is not possible from Western knowledge, but understand it is necessary to think from the margins of knowledge, as it is from the margins that transitioning discourses like the one of *buen vivir* can emerge. After seeing the decolonising journey of the participants and the way in which they re-understood change, I named the pedagogy *re-entendiendo el cambio: una pedagogía decolonial para pensar desde los márgenes* or re-understanding change, a decolonial pedagogy to think from the margins. The way in which this pedagogy affected the participants is outlined in Table 14.

Table 14 Evolution of the participants after finishing the stage of creating change.

| Participant's feelings | Identified cause of the socio-environmental crisis | Perception of the feasibility of their ideal world |
|---------------------------------|--|--|
| Excitement, motivation and hope | The coloniality of knowledges | Radical change is possible at a local and global scale when thinking from the margins. |

Table 14 shows how, by the end of the step **creating change**, the participants were feeling excited, motivated and hopeful. This is consistent with the hope and joy that underpins the Indigenous struggles of defending their lands from extractivist activities (Walsh, 2013), as well as with the pedagogy of hope of Freire (1993). The transformation of the negative feelings into hope, excitement and motivation follow Espinoza et al.'s (2013) claim of decolonial pedagogies having a healing component. The four participants not only understood that thinking from the margins opens a viable pathway for creating radical change, but wanted to empower more people to think from the margins by becoming facilitators of this pedagogy. This is in agreement with Fanon's (2001) description of the decolonising process.

Reflections of the participants of the pedagogy

A few days after the pilot I interviewed the participants about the decolonial journey they had experienced through the designed learning situations: finding your voice, learning to un-learn, learning to re-learn and creating change. In an effort to understand the ways in which the program impacted the participants, I analysed the reflections shared by the participants in relation to Fanon's (2001) description of the process of decolonisation. According to the author,

Decolonisation never takes place unnoticed, for it influences individuals and modifies them fundamentally. It transforms spectators crushed with their inessentiality into privileged actors, with the grandiose glare of history's floodlights upon them. It brings a natural rhythm into existence, introduced by new men [sic], and with it a new language and a new humanity. Decolonization is the veritable creation of new men [sic] (p.36).

To analyse the decolonial process of the participants, I compared three elements founded on Fanon's words (transformative character, identified opportunity for change, and modification of ways of thinking and being) with the experiences described by the

participants during the interviews. The questions asked of each participant (see Appendix H) during the interview were in no way intended to be related to the quote, as that could affect the feedback obtained by the participants.

When analysing Fanon's quote, the first aspect found is how the decolonisation process is transformative, as it "never takes place unnoticed" as it 'influences' and 'modifies' the subject in a fundamental way. This transformation was evident in the feedback shared by the participants. Three participants reported the program had impacted them in an emotional level. As a participant explained, "this trip was...an unparalleled experience and I think it will change our lives, at least I was deeply moved and have millions of things to reflect on." Similarly, another participant argued, "Since I graduated I wanted to go in certain direction and now I can say there is a way to get there...This course helped me understand what I want. It has provided a pathway for what I understand it is I want to do, like a compass."

A participant reflected about how the program has caused him to reflect on what he thought he knew. In his words, "my understanding of the environmental crisis changed drastically...I considered myself an expert in the environmental crisis but now I see I only had one vision of what the crisis was." Finally, the last participant recognised how the program resulted in a new way of understanding the environmental problems and its causes and solutions...which opens the possibility for thinking of problems from another perspective."

The second aspect investigated was that of how the process of decolonisation results in a clear pathway for bringing about the change needed to transform society, as "it transforms spectators crushed with their inessentiality into privileged actors". The transformation of 'crushed spectators', as the participants were feeling at the beginning of the program, into actors capable of transforming society was shown in the feedback offered by the participants. All of them were filled with hope and were convinced change is possible. This process is reflected in the words of one of the participants who argued, "since some time ago I was thinking that fighting against the economy is not bringing great results. I see a lot of people, like, lost about how to do something these days. Many of my friends were saying "there is no way out of capitalism" and this course ...made me see that there is a way out".

The remaining participants also expressed opinion that change was possible. As one participant argued, “yeknemilis and sumak kawsai are a viable alternative at this point in time. It is something about which we can learn a lot... It gave me great satisfaction to know that it is possible, not only for me but for everyone to bring change”. Similarly, another participant added “I think it is a viable way to proceed both in politics and in economic terms. It is a way to diminish the socio-environmental crisis”. Finally, a very excited participant expressed “I see change as 100% viable. Literally, today I was telling the Uber driver about what I learned in the course in Cuetzalan... I mean, it is something I literally can’t stop talking about”.

The third aspect is that the decolonial process results in new ways of thinking, being and acting, “it brings a natural rhythm into existence, introduced by new men [sic], and with it a new language and a new humanity.” Accordingly, the feedback of the four participants shows how the insights gained in the course has transformed the previous colonial way in which they were working to create change into a decolonial way directed to decolonise the sphere of knowledge and with it, continue with the unfinished project of decolonisation. As one participant argued,

It [the program] opened my perspective a lot. I have been reading about the Sumak Kawsay and about the transitioning discourse from Bolivia and it is a really beautiful ideology and it is really cool that there are public policies, at least in the Andes. It has great potential. It is important to turn around to see how the IPs of Mexico are directing this.

In agreement, two participants reported they were already thinking of ways in which to implement the new insights gained. As a participant argued, “the course made me think of ways of generating public policies from another perspective, a more communitarian perspective”. The other participant argued, “whenever I start something I am going to think it from another place, I mean, from an understanding that we need to change the discourse and we need to understand that what we have been educated to believe is only one way [of thinking].” The participant then expanded into explaining how,

The decolonisation of knowledge is what we should be targeting, so it is important to re-direct our efforts and not have all of the fights directed against the system. Like, with the people fighting for the environmental crisis there are people fighting for all these different causes and, in the end, many of them are small doomed fights.

The last participant claimed he had already started to share the insights gained on the program. As he explained,

It [the course] empowered me as an educator to transmit these knowledges. It gave me a lot of motivation and I was eager to transmit it to other people, so that people start talking about it, and so that other people can become aware that there are other ways of thinking... I want to share with my students that there are other alternatives - that it is not the only one. And then they can decide which one they want to use.

During the interview, the four participants mentioned their desire to become facilitators of the pedagogy, as it not only is necessary to “raise awareness about how we live under a coloniality of knowledges”, but also to “gain deepen my understanding of the coloniality of knowledges and of transitioning discourses.” Seeking to aid with these two aspects, the thesis has been written as a pedagogical tool, as it is explained in what follows.

The thesis as a pedagogical tool

In relation to the desire of the participants to become facilitators of the decolonial pedagogy, one finding became evident throughout the interviews. The participants formed in the biological sciences were struggling with the seminal decolonial thinking literature. The participants found the vocabulary very specialised and did not have the background knowledge needed to understand many of the arguments presented in the literature. This caused the participants to, instead, focus on the readings about buen vivir only, as they were found to be more accessible. This caused an imbalance between the topics they needed to know to guide future participants to achieve the two objectives of the pedagogy. The struggles the participants reported that they were having with the seminal literature included:

- The specialised vocabulary.
- They could not find a timeline of world history events like the one created during the modernity activity in step two: learning to un-learn.
- They could not find literature that provided clear links between the coloniality of knowledges and the exploitation of Nature throughout history.

- It was not easy to find information about the role of the non-Indigenous population in bringing awareness to the *sumak Kawsay*.
- The economic literature around neoliberalism used specialised vocabulary.
- There was no literature around the *yeknemilis* proposal for the Nahua people of Cuetzalan.
- The literature about decolonial thinking and decolonial pedagogies was challenging to understand.

To address the aspects described above, this thesis was written as a pedagogical tool to prepare participants to become facilitators of the proposed pedagogy. As such, it was written not only for examiners, but for the four participants in the pilot, as well as for future participants of the decolonial pedagogy who might then become facilitators and, by doing so, increase the size of the decolonial ‘crack’ generated by this pedagogy. As such, the feedback of the participants gathered through the interviews was considered in writing this thesis.

The results of incorporating feedback is shown in: the division of the thesis into four parts, which correspond to the four steps that inform the pedagogy, to facilitate the participants immersion in decolonial thinking and decolonial pedagogies; a long literature review conducted with the aim of providing a chronological review of the events that led to the coloniality of knowledges, along with its implication for Nature and people from the periphery; a literature review that explains the relationships between the current socio-economic system (neoliberalism) with the extractivist activities found in Latin America; a literature review on the impact of transitioning discourses, in which the process that led to the incorporation of the *sumak kawsay* in the Ecuadorian constitution is explained, along with the need to find transitioning discourses in Mexico; two narratives constructed to guide the participants into deepening their understanding of the *yeknemilis*; two detailed chapters explaining the epistemic, set and social design decisions made through the ACAD framework, as well as an analysis of the learning influence of such decisions during the co-design and co-configuration of the learning activities prepared.

Conclusions

This chapter showed the enactment of the decolonial pedagogy through a pilot program in which the participants co-designed and co-configured the 13 prepared learning activities. The analysis of the data presented in the chapter showed how the participants started the pilot program with negative feelings due to a historical lack of opportunities they had had to effectively create lasting and meaningful environment change. The analysis of the data also showed how they were unaware of the colonial structures that remain today that perpetuate the exploitation of people and Nature from the periphery. The analysis of the data showed how, after the four steps that inform the pedagogy, the participants gained consciousness of the coloniality of knowledges, began to understand the power of thinking from the margins to create radical changes, and expressed their desire to become facilitators of the pedagogy.

As the final chapter of **Part IV: Empowerment**, it brought together the previous three parts of this thesis into a decolonial pedagogy in the following way. **Part I: Positioning myself** acknowledged this study is influenced by my loci of enunciation as a Latin American researcher. As such, the pedagogy challenges the systems of values and beliefs held by the hegemony of Eurocentric knowledges. **Part I** presented the seminal authors of decolonial pedagogies, along with their arguments. Such authors and arguments guide the ACAD design process of the epistemic, the set and social learning environments that underpin this research. Part I also presented the research design used to build the decolonial pedagogy presented in the last part of this thesis.

Part II: Learning to un-learn provided the counter-narratives that would inform the epistemic tasks of the second step of the pedagogy, which shared the same title: learning to un-learn. **Part III: Learning to re-learn**, shared the insights gained through the process of learning from the Nahua epistemologies of the people of Cuetzalan through yarnings. These yarnings led to the development of a partnership with members of the Nahua community, who then became co-facilitators of the presented decolonial pedagogy.

In **Part IV: Empowerment, Chapter eight** presented the design process of the epistemic, the set, and the social learning environments through the activity-centred analysis design and framework (ACAD). The design process was guided by the two objectives: a) That the participants become conscious of the existence of the coloniality of

knowledges; and b) That the participants understand that thinking from the margins opens a viable pathway for creating change. The chapter also introduced the participants to the reader, who are scientists and social scientists and as such, occupy the role of ‘oppressors’ as they at first, unknowingly, but actively contribute to the perpetuation of the colonality of knowledges as they journey to create change. Chapter nine presented the results of a pilot program conducted for the enactment of the 13 co-designed and co-configured learning situations designed for this decolonial pedagogy.

In the following and final **Chapter ten**, the main aspects of the pedagogy are presented, along with the most relevant findings of this study. The chapter also states the significance of the contribution contained in the present thesis, along with the limitations of the study and future steps for the research and teaching program.

Chapter ten: conclusions

"And I have to put out the candle, but not the hope.
Never the hope."

My translation, Subcomandante Marcos
Former spokesman of the Zapatista Army, (1995).

Introduction

This study sought (see **Chapter one**): **to design a decolonial pedagogy for people who are actively trying to find solutions to the socio-environmental crisis, by introducing them to the colonality of knowledges and epistemologies from the periphery, to empower them to find solutions outside of the epistemic borders imposed by Western knowledge.**

The research aim has been a continuation of my long, personal journey to bring about change that might impact the (global) socio-environmental crisis. This journey is informed by my personal experience as a Latin American person who grew up having close contact with the amazing natural environment of Chiapas and experiencing the deep inequalities of Mexico. This journey is underpinned by a belief in Western academic institutions that equip me with the necessary knowledges to face the environmental and social problems that afflict us. I have spent almost all of my adult life at universities, trying to attain a deep level of understanding of the current crisis that affects both Nature and people. But the more I have advanced in my education, the more I have understood the limits of Western disciplines to catalyse a radical transformation of society that can bring about social and environmental justice.

This research sought to find a pathway from which to imagine and build a world that is not limited by the invisible, but entrenched boundaries of thinking imposed by Western disciplines. The study questioned the knowledges we have inherited through Western academic institutions, and how they have shaped our understandings of reality. In this research, which is positioned in decolonial thinking, I argued that the 'universal way' in which modern societies around the globe understand reality today is the inheritance of a global colonial history. The imposition of Eurocentric knowledge as the 'only way' to understand the world has brought with it a notion of progress. With this, the exploitation of

Nature and the people of the colonies, in order to reach modernity, has become naturalised in logic as 'normal' and everyday so that these events, historically, were rarely questioned and, in contemporary times, are only now beginning to appear problematic. Today, the logic of modernity underpins the paradigm of globalisation and perpetuates the socio-environmental crisis through exploitation of Nature and the people of the periphery.

Understanding the coloniality behind the hegemony of Western knowledge systems allowed me to liberate myself from internalised and naturalised understandings of the world from a Eurocentric perspective. After freeing myself from learned epistemic boundaries, I was still yet to empower myself to create change. To do so, I embarked on a journey to understand reality from other perspectives, other logics and other spaces. Inspired by the transitioning discourse of *sumak kawsay*, I approached the Nahua people of Cuetzalan in Mexico for their help to imagine other possible worlds *from* their epistemologies. It is with the Nahua people that I finally found a pathway to bring about change to the socio-environmental crisis that I had been looking for since I first enrolled at university. In a quest to bring about socio-environmental justice, this study challenged the authority of Western knowledge, the knowledge that, during many years, I considered to be the *only* pathway for finding answers to the current crisis. Acknowledging that there will not be other 'possible worlds' as long as we live under a coloniality of knowledges, this study seeks to contribute to the unfinished project of decolonisation through a decolonial pedagogy. This pedagogy is designed to promote epistemic openness.

Within this context, this concluding chapter begins by describing the proposed decolonial pedagogy, **re-understanding change**. The chapter then explains the methods chosen to establish a partnership with members of the Nahua community. Community members participated as facilitators in the decolonial pedagogy. The activity-centred analysis and design framework (ACAD), that supported the design of the learning situations and the enactment of this pedagogy is explained. The four steps of which the pedagogy is composed are then described, as an introduction to the findings for the section, re-understanding change. The decolonising journey of the participants is explained, along with the unexpected finding of the participants wanting to become facilitators of the pedagogy. The structure of the thesis as a pedagogical tool to prepare the participants to become facilitators of re-understanding change is then explained. After this, the original contribution

of this study is stated, followed by a statement of the limitations of the study and a suggestion for future steps for this project.

Re-understanding change: a decolonial pedagogy for bringing about change

Decolonial pedagogies must not be understood as regular pedagogies as they are political-pedagogical practices that bring light to the colonial structures of modern societies and challenge the global authority of Western knowledge as the only way to understand the world. Decolonial pedagogies offer a practical way in which to open pathways to move away from modernity though the postulates emerging from the periphery. As such, decolonial pedagogies consider the Latin American Indigenous movement as a pedagogical collective from which to imagine and build other worlds. Fanon (2001) argues that both the oppressed, and the oppressors, need to become aware of their role in coloniality in order to transition to a just society. However, there are no published decolonial pedagogies – understood as the concept developed by Walsh (2013) – targeting the oppressors, who were the population selected for the design of the proposed pedagogy presented in this study.

Re-understanding change was selected as the name of the decolonial pedagogy presented in this thesis, as it prepares participants for reaching a new or renewed understanding of how to create change, by thinking *from* the margins. The margins constitute the place in which both Western and Indigenous epistemologies meet. It is *the* place where cross-cultural dialogues can take place and contribute to a plurality of knowledges that can challenge the universal logic of Western knowledges and, with it, bring about socio-environmental justice. As such, **re-understanding change** is a pedagogical proposal of social transformation. It is a pedagogy designed to ***plant seeds that contain different ways to look at reality – seeds that can grow and become plants, people and other elements of Nature who will crack the hard veneer of the coloniality of knowledges.*** In doing so, it is hoped that this research contributes to advancing the unfinished project of decolonisation.

Informed by, and in accordance with, the alternatives emerging from the social Indigenous movements of Latin America, this pedagogy is characterised by a strong sense of hope and possibility. Seeking to empower the participants to bring about change to the

socio-environmental crisis *from* the periphery, the design of the proposed decolonial pedagogy was guided by two overarching objectives:

- a) That the participants become conscious of the existence of the coloniality of knowledges.
- b) That the participants understand that thinking from the margins opens a viable pathway to create change.

These objectives were formulated following Walsh (2003) and Fanon's (1977, 1993) claim that pedagogy is a tool to guide participants to recognise the colonial structures that oppress them, so that they can be challenged to free themselves from systemic oppression. As a decolonial pedagogy, **re-understanding change** guides the participants to undergo a process of decolonisation by which they de-link from 'reality' as constructed by Eurocentric narratives, and liberate themselves from the colonial structures that keep them from imagining a world of unlimited possibilities. It facilitates a deeply transformative experience, as the participants are able to look at the world from a critical perspective in which they recognise the legacy of colonialism in the current socio-environmental crisis.

Re-understanding change, then, guides the participants to look at the world *from* the knowledge systems that have been silenced, but are nonetheless actively constructing 'thought' alternatives. This is done to move participants away from Eurocentric notions of reality. To achieve this, the participants are immersed in the geographical space in which the Nahua Indigenous people of Cuetzalan live and work. These people are actively resisting the extractivist "proyectos de muerte" (death projects) that endanger their lands. Through a cross-cultural dialogue led by Nahua people, the participants are introduced to the Nahua epistemologies and to the *yeknemilis*, their project for transforming the world into a world of *buen vivir* or good living.

Necessary to the design to this pedagogy was the development of a partnership with the Nahua Indigenous people of Cuetzalan, as well as the design of the learning activities that inform the pedagogy. Both elements of this program sit under the study's overarching design framework, the activity-centred analysis design and framework (ACAD). Both processes are explained in the discussion that follows.

Yarnings: establishing a partnership with the Nahua people

To establish a partnership with the Nahua Indigenous peoples, I followed Simpson's (2004) advice of 'stepping outside my privilege' as an academic to root my work in a decolonial framework. To do so, I looked for a decolonial method that might allow me to challenge the authority of the centre as the only place from which knowledge can emerge, and that might allow me to recognise that both the Western and Indigenous knowledge systems are equal knowledges that inform the pluriverse.

Based on these arguments, I selected yarnings as a research tool, which is an Indigenous method from Australia that focuses on oral communication. I used the method to build a partnership with members of the Nahua community. During a yarn, the participants actively engage in sharing information about a certain topic or discussing ideas. It is an informal and relaxed conversation through which both the researcher and participant can engage in in-depth discussions in a relaxed and open manner, providing a source of rich data and thick descriptions related to a particular issue (Bessarab & Ng'andu, 2010). The meaningful yarnings I had led to the development and construction of a relationship from which the proposed decolonial pedagogy emerged, as it is a project that contributes to both my interests and the interests of the Nahua community.

As such, **re-understanding change** is not only informed by the overarching aim of this study, but importantly, also advances the agenda of the Nahua people.

ACAD: activity-centred analysis and design framework

The learning situations that underpin this pedagogy were designed following the activity-centred analysis design and framework (ACAD). The ACAD framework was conceived for complex learning situations as it provides a framework that supports the design and analysis of opportunities for active learning. It also facilitates the emergence of new knowledge by modifying the environment in which the activity is taking place (Goodyear & Carvalho, 2014; Muñoz-Cristóbal et al., 2018). The authors suggest that learning should not be designed, but the designer can influence learning through the designable elements (epistemic, social and set learning environments) as learning is physically, epistemically and socially situated. This allows for opportunities in which the learning emerges from the previous knowledges and experiences of the learners, as knowledge is actively transmitted between the participants whenever possible (Íbid). The

ACAD framework considers that learning is emergent and, as such, the participants play a role in co-designing and co-configuring the designed learning activities when they are enacting them (Íbid).

The ACAD framework (Goodyear & Carvalho, 2014) provides opportunities for incorporating important design features needed in decolonial pedagogies: active learning, cross-cultural learning, flexibility to accommodate unplanned activities co-created by the participants or the facilitators, bringing the previous knowledge of the participants into the activities, and breaking down paradigms. This led the design of the epistemic (tasks) to be based in critical pedagogy (Freire, 1977), problem posing (Freire, 1977) and learning through questions (Freire, 1986); the design of the set (physical place) to be immersed in the geographical location of the Nahua people's fight to defend their land from extractivist projects, as well as to find a suitable learning space and prepare adequate resources and stationary items; and the design of the social (social interactions) to include the number and selection of participants as a crucial element of the design, as well as to design the learning activities to allow for a dialogue that could facilitate a process of "walking and asking" (Walsh, 2013).

Informed by my own decolonising journey (undertaken through the research conducted for this study), the design process led to the design of 13 situations that were distributed into four different steps: finding your voice, learning to un-learn, learning to re-learn and creating change.

The four steps of re-understanding change

Finding your voice seeks to understand the participant's thinking on three issues: the cause of the environmental crisis, what kind of change is possible (for example, radical through to non-radical), and the feelings they experience as a result of their journey to try to create change. In step three, the participants imagine their 'ideal world', which will become the thread that will connect the four steps of the pedagogy. Using the 'ideal world' of the participants as a guiding thread causes the outcome of the decolonial pedagogy to be different for each and every group, as the elements a group decides to include in such a world depend on the participants and their identities and perspectives.

Learning to un-learn helps the participants become aware that what is presented as reality is only one of the many possibilities for understanding the world, and to become conscious of the epistemic violence that underpins the colonial project of modernity. As such, the participants are able to recognise the way solutions to the socio-environmental crisis perpetuate Eurocentric understandings of the world and, with it, the chasm between the centre and the periphery. Bringing awareness to the unfinished project of decolonisation liberates participants from the boundaries imposed by Western knowledge. Recognising the colonial structures that continue to shape reality and perpetuate the socio-environmental crisis allows the participants to understand that reality can be mediated and changed.

Learning to re-learn is guided by the Nahua people to expose the participants to the possibilities that have been hidden and suppressed under the colonality of knowledges. Through a series of yarnings and spontaneous activities, the participants can both hear and experience a glimpse of the *yeknemilis*, the Nahua community's way of living a good life, and whose principles for 'good living' are debated and espoused in this program. This step allows the participants to witness the impacts that extractivist projects are having in Nature, and on the people and knowledges of the periphery. More importantly, this step reveals Nahua alternatives to extractivism that escape the logic of modernity because they are *thought* from a different epistemology and, as such, are not based in progress but in living a good life.

Creating change connects all the learnings of the previous steps and links them to the story of the *sumak kawsay*, so that participants can understand the power of transitioning discourses to decolonise the sphere of knowledges. The role of the non-Indigenous Ecuadorians in bringing visibility to the *sumak Kawsay*, which led to the recognition of the rights of Nature, might be understood as the most radical environmental change of the last few decades. This step is undertaken so that the participants understand the vital importance of thinking *from* the margins. Thinking from the margins allows people to understand the way transitioning discourses are founded in Indigenous epistemologies but include Western perspectives, as is the case with the discourse of *buen vivir*. This step, then, reveals to the participants how elements of their ideal world can become a reality when they think *from* the margin of knowledges and target the decolonisation of knowledges. The standpoint of the participants at the end of this step is compared with

their initial standpoint. That is, at step one they were asked about the cause of the environmental crisis and other questions related to their beliefs regarding environmental change. At this point in the pedagogy, participants' standpoints on these issues are evaluated again to understand the impact of the decolonial pedagogy on learning.

The four steps led the participants to **re-understand change**, that is, to reach a renewed understanding of what change means and how to achieve it. The participants now understand that radical change is attainable through the decolonisation of the sphere of knowledges. To do this, it is necessary to think *from* the margins. This opens a pathway to creating change through engagement with the epistemologies of the Nahua people of Cuetzalan.

The pilot

In July 2018, a pilot version of the decolonial pedagogy was conducted with four participants: Sofia, Daniel, Julio and Marce. Their ages ranged from 25 to 33 years. In the first step of the pedagogy, **finding your voice**, the participants shared their journeys working towards the creation of change, as well as the feelings they had experienced as a result of their journeys, and discussed the causes of the socio-environmental crisis. All of the participants had completed a bachelor's degree and three of them were studying, about to start or had already finished graduate school. Three of the participants were involved in the field of biological sciences and one in the field of social sciences. They all had work experience other than their studies.

The four participants had deliberately chosen their fields of study and work to find solutions to the environmental and/or social problems afflicting Mexico. Yet, they all reported not having found a clear path through which to create change. This left them feeling disillusioned. This finding sits alongside Thøgersen's (2005) research that suggests that people have negative feelings as a result of a lack of opportunities to contribute to changing the problems that stem from the environmental crisis. The participants in this project reported feeling mostly negative. Feelings ranged from anxiety and anger to pain and disillusionment and demoralisation. When discussing the cause of the environmental crisis, none of the participants were aware that the cause of their feelings might be coloniality.

The participants then engaged in a collective drawing of their ideal world. They then argued that most of the elements that made up their ideal world were utopic and unattainable, as they did not 'fit with' the logic of the real world.

Through the activities prepared for the step of **learning to un-learn**, the participants were guided through a process by which they were able to recognise the colonial structures affecting their everyday lives as professionals trying to bring about change to the socio-environmental crisis. This step allowed the participants to gain consciousness (Freire, 1977) of the existence of the coloniality of knowledges. Through this process, participants began to grasp the critical idea that what they think of as (Western) 'dominant universal logic' is only one of many understandings of reality. This also helped them to understand how the hegemony of Eurocentric knowledge was perpetuating the exploitation of Nature and people from the periphery. This started with the colonisation of the Americas, which led to the current socio-environmental crisis. Recognising the coloniality of knowledge as the cause of the socio-environmental crisis moved the participants from feeling negative, to starting to feel hopeful and positive, as they started to think that change was possible. This is consistent with Karina's (2013) argument that decolonial pedagogies have "a therapeutic and healing dimension" (p.416).

As part of the step **learning to re-learn**, participants were guided by two Nahua community members. Being immersed in the Nahua way of looking at reality, and seeing the radical changes the Nahua community had achieved, caused the participants to confront their assumptions about Western knowledge and practices as the only way to bring about change to the socio-environmental crisis. The four participants reported feeling excited and motivated after completing this step, as the alternative ways of thinking and doing proposed, based on Nahua epistemologies, made it possible for other 'worlds' to exist. As a result, the four participants were now convinced that radical change was possible in a local sphere.

In the last step, **creating change**, the participants engaged in a discussion about the role of non-Indigenous Ecuadorians as catalysts of radical change to bring visibility to the *sumak Kawsay*. Exploring the global reach of the *buen vivir* paradigm, and the further recognition of the rights of Nature, the participants understood decolonisation of the sphere of knowledges as a pathway to bring about radical change. This led the participants to become excited, motivated and hopeful, as they understood global radical change as

possible though alternatives that emerge from a cross-cultural dialogue informed by a plurality of knowledges. This outcome is consistent with Fanon's (2001) claim of decolonisation moving the subject from "spectators crushed with their inessentiality into privileged actors (capable of changing reality)" (p.36).

The unexpected

An unexpected finding of the pilot program was that the participants expressed their desire to become facilitators of the decolonial pedagogy, **Re-understanding change**. Convinced that the only way to bring socio-environmental justice is through epistemic openness, the four participants saw the decolonial pedagogy developed in this thesis as a clear pathway for creating change. Seeking to embed themselves in decolonial thinking and decolonial pedagogies literature, the participants turned to the seminal authors of the field. However, three of the four participants reported having trouble following the arguments, as most of the literature pre-supposes the readers have the vocabulary needed to understand the claims made, as well as a solid foundation in the field. Recognising myself in their struggle, I wrote this thesis as a pedagogical tool that could serve as an introduction to the current and future participants in their preparation to become facilitators of **re-understanding change**.

The thesis as a pedagogical tool

This thesis is informed by *pensar-hacer* (to think and to do), the theoretical and practical rationale behind the works of Freire (1977, 1986, 1993) and Fanon (2001, 2008), which are the foundation of decolonial pedagogies. Informed by *pensar-hacer*, the current thesis constitutes a pedagogical tool that seeks to prepare the participants to become facilitators of **re-understanding change**.

Part I: positioning myself reminds the participants that knowledge is always influenced by the geo-political location from which the subject speaks, that is, the locus of enunciation. **Chapter one: introduction**, allows the reader to identify aspects of her/his journey for creating change by thinking upon the author's journey. Part I also provides a summary of the research problem that **re-understanding change** tackles. **Chapter two: research design**, introduces the participants to the main arguments of decolonial thinking

and decolonial pedagogies. The chapter also highlights the possibilities for decolonial pedagogies to *decolonise* the sphere of knowledges.

Part II: learning to un-learn was written as a series of counter-narratives that seek to help the participants become familiar with the vocabulary and arguments of decolonial thinking. Given that three of the four participants are biological scientists, this thesis has been written with accessible language, introducing decolonial terms gradually.

A second consideration in writing this section was the small number of narratives that offered links between the coloniality of knowledges, the exploitation of Nature, and a timeline of events that led to the coloniality of knowledges. As such, **Part II** was written to provide a clear understanding of the chronological links between the coloniality of knowledges, and the exploitation of Nature and the periphery, from the colonisation of the Americas to today.

Chapter three presents the participants with a chronological series of events – from the colonisation of the Americas until the universalisation of neo-liberalism – that led to the coloniality of knowledges. Such events are linked to the current socio-environmental crisis. **Chapter four** shows the participants the current impacts of neoliberal policies in Latin American so that participants can further understand the origin of these events in colonial times. **Chapter five** analyses the role of transitioning discourses as pathways for bringing radical change. These discourses emerged from the epistemologies of Latin America.

Part III: learning to re-learn allows the participants to deepen their understanding of the epistemologies of the Nahua people of Cuetzalan, along with the *yeknemilis*, the Nahua proposal of *buen vivir*. Along with the primary Nahua sources, the chapters presented in this part of the thesis offer a resource for building a solid foundation of the Nahua epistemologies, so that the participants can be confident when facilitating the pedagogy.

Chapter six allows participants to deepen their understanding of the way Nahua epistemologies understand the relationships between Nature and people. **Chapter seven** shows participants ways in which Nahua thought informs the *yeknemilis*. Aside from providing a detailed understanding of Nahua epistemologies and the *yeknemilis*, **Part III** shows the participants the importance of yarnings. Short narratives from these yarnings are woven throughout the chapters of this thesis.

Part IV: empowerment describes the process of design and enactment of the decolonial pedagogy which underpins this project. This part of the project allows the

participants to understand how the previous steps of the study came together to inform the decisions made about the 13 learning situations that composed **re-understanding change**.

Chapter eight gives the participants time to become familiar with the activity-centred analysis design and framework (ACAD), as well as with the decisions made for shaping the epistemic, the set and the social learning environments. **Chapter nine** shows the participants how the design decisions explained in chapter eight influenced the co-design and co-configuration of the learning activities. Throughout chapter nine, the participants can further understand the decolonisation process they underwent through the realisation of the learning activities prepared for re-understanding change.

Finally, in this chapter, **chapter ten**, the participants can understand the significance of re-understanding change, along with its limitations and its steps forward. In the **reference list**, the participants can find in the literature, in bold, articles and books that can facilitate their introduction to decolonial thinking and pedagogies. These texts are not necessarily part of the seminal literature, which was introduced in chapters one and two, but the recommended texts are *accessible readings* that can facilitate the transition from biological sciences to social sciences.

Significant contributions of this study

In seeking to decolonise the knowledge sphere to liberate local knowledge, to imagine and build different worlds that move away from the current exploitation of Nature and of people of the periphery, this study generated five significant contributions:

1. the synthesis and transformation of complex decolonial thinking arguments into simpler concised arguments that can guide the decolonising journey of people with no previous exposure to the field.
2. Insights about the process undertaken for establishing a partnership with Indigenous communities involved in epistemological fights that seek to defend their land and their ways of being.
3. The modification of the activity-centered analysis and design framework (ACAD) to accommodate for learning situations immersed in Indigenous movements to resist extractivist enterprises.
4. The design of a decolonial pedagogy directed at the oppressors, so that they can recognise the colonality of knowledges as the roots of the socio-environmental

crisis, and start to work towards an epistemic openness.

5. Theoretical insights that stem from the analysis of the practical aspect of decolonial pedagogies, and that suggest future directions for advancing the decolonial turn.

The first contribution of this study was the synthesis and transformation of decolonial thinking theory into practical arguments that could guide the participants in becoming conscious of the existence of the colonality of knowledges. To facilitate the decolonial journey of the participants, the complex theoretical postulates of seminal decolonial authors --such as Quijano, Dussel, Mignolo, Grosfoguel, Walsh and Escobar -- were transformed into simpler ideas that resonated with the participants, who had no previous exposure to decolonial arguments. As a result of the program, the participants were able to identify the root cause of the socio-environmental crisis as the imposition of Eurocentric knowledge as the only way to understand the world.

Along with the decolonial thinking arguments, crucial to the participants' decolonising journey was the immersion in an Indigenous resistance struggle. In order to introduce the participants to the alternatives emerging from the fights against extractivist enterprises, I established a partnership with the Nahua people of Cuetzalan, a community with a long history of resistance towards extractivism. This constitutes the second contribution of the thesis. This contribution is informed by Toledo's (2011) call for catalysing the transforming potential of the alternatives emerging from the resistant fights of IP by making them visible within other sectors of society. Seeking to bring visibility to the epistemologies that remain hidden, I approached the Nahua people of Cuetzalan, whose proposal for living a good life, the *yeknemilis*, has only recently been published by Mijares-Gonzalez (2018). The participants were able to recognise a pathway for creating change through the Nahua epistemologies. Additionally, the process I followed for establishing a partnership with members of the Nahua people offers valuable insights on how to approach holders of hidden epistemologies from a learner's, rather than a researcher's, position.

In order to design learning situations that could empower the participants to develop a critical reading of the Eurocentric narratives that are presented as reality, and to understand the power of Indigenous epistemologies for transforming society, I expanded the way in which the ACAD framework has been used to date. This constitutes the third contribution of the thesis, as I expanded the considerations of the epistemic (tasks), the set, the set (physical place) and the social (social interactions) components of the ACAD

framework to political space. More specifically, I expanded the design aspects to accommodate for learning situations that took place within the context of an Indigenous movement of epistemic resistance towards extractivist projects. This modification offers insights on the considerations needed to inform the design process when applying the ACAD framework to design for learning about and within political struggles.

Together, the three previous contributions made it possible to design 'Re-understanding change' (or 'Re-entendiendo el cambio'). This constitutes the fourth contribution of the thesis. Re-understanding change is a decolonial pedagogy that empowers the 'oppressors' to contribute to the unfinished project of decolonisation. The oppressors, who play a crucial role in bringing epistemic openness (Fanon, 2001), are often overlooked in the design of decolonial pedagogies (See Walsh, 2013 and 2017). By empowering the oppressors to imagine and build other worlds, 're-understanding change' contributed by having opened *a crack* in the hard veneer that sustains the coloniality of knowledges.

As a theoretical-practical study that brings decolonial theory into practice, this dissertation makes a contribution to both, drawing on theory, to inform practice. Insights that stem from practice, in turn, contribute to move the theory forward. The decolonising journey undertaken by the participants offers ideas for future directions to explore within the theoretical arena of decolonial thinking. As such, the contributions of this thesis follow a cycle, as it is shown in table 36.

Limitations

Three main limitations, which correspond to the three designable elements according to the ACAD framework were encountered during the design of the pedagogy. In terms of the epistemic aspect, that is, the ideas that inform the learning situations, *thinking* the study in Spanish but *writing* it in English constitutes a limitation of this study. Despite efforts to find adequate translations from Spanish to English, some words and ideas seemed to lose their meaning when translated to English. This situation primarily affected Parts III and IV of the thesis. In **Part III: learning to relearn** from the Nahuatl epistemologies, the Nahuatl people had already a difficult time trying to translate some concepts in Nahuatl to Spanish. Often they would explain a Nahuatl concept through an analogy in Spanish that

simply did not translate to English. Accordingly, in part IV of the thesis, some of the sentences and exclamations of excitement of the participants who took part in the pilot lose their meaning when translated to English. As a result, the exhilaration that resulted from participating in the learning activities is not fully captured here. However, this limitation is recognised in the work of Fals Borda (1999), who recommends making colonial differences visible in the Anglo speaking world through academic literature. I am doing this, in part, through this notation.

The second limitation was in terms of the set, that is, the place in which the learning situations take place. The distance between Cuetzalan and Australia made it challenging to coordinate the learning situations guided by the Nahua community. Octavio explained me that it might be possible to present the pedagogy at the monthly meetings of the Tosepan, where they discuss their education initiative. This would have resulted in the organisation of workshops for the participants where they could learn to transform the honey of the stingless bees into traditional medicine remedies or cosmetics. However, this would have required me to be in Mexico at least two months before running the pedagogy, which was not possible. However, there are now five facilitators of the decolonial pedagogy, so it is now possible to present the project before running the pedagogy again. This ensures the development of the workshops, which I believe will be very valuable for future participants.

The third limitation was in terms of the social, that is, the roles enforced by the participants. Although two participants and myself are women, it was not possible to position ourselves from a decolonial perspective in terms of gender. Exploring the way in which the patriarchal logic that underpins the modernity/coloniality is affecting the socio-environmental crisis by silencing the voices of women was not possible. Although as a woman I was interested in this aspect, exploring these dynamics would have been an additional complication to the yarnings conducted with the Nahua people, as Indigenous societies in Mexico continue to be deeply patriarchal. Additionally, the binary divide that reduces gender to male and female is also a colonial inheritance so including this aspect in the dissertation, although fascinating, was not feasible due to the time constraints of the project. However, by first drawing attention to the existence of the coloniality of knowledges and acknowledging its patriarchal logic, the decolonial pedagogy provides the participants interested in gender-based discrimination a foundation to later explore inherited colonial gender-dynamics.

Future steps

New exciting avenues arise from the theoretical-practical research presented in this thesis. As a study positioned within the field of decolonial thinking, the future steps for this research have been identified in terms of the areas identified as having potential to contribute to the construction of an epistemic openness and with it, to the unfinished, yet urgent, project of decolonisation. The first future step that was identified stemmed from the unexpected finding of the research, the desire of the participants to become facilitators of '**Re-understanding change**'. This finding is crucial for the continued widening of the crack generated through the design and enactment of the decolonial pedagogy proposed. The success of the alternatives to the modernity paradigm that are emerging from the epistemic fights led by Indigenous peoples in Latin America depends on their capacity to become visible beyond their context and, as such, the preparation of the participants to become facilitators cannot be taken lightly. The unexpected finding raises questions such as 'what are the implications that arise in the transitioning phase from participant to facilitator?', 'what elements can be offered to the participants to increase their confidence as facilitators of ideas that, although design to look simple, are in reality quite complex?', 'what aspects should be considered to keep the facilitators motivated so that they want to continue guiding new participants of Re-understanding change?' and 'will the new participants also be interested in becoming facilitators or was this a unique occurrence?'

Closely related to this area is the second identified step for conducting future research. Although the four participants were in Mexico City or the City of Puebla at the time the pilot program took place, all four tend to spend long seasons in remote areas of the country. This is not a unique finding, but is a common occurrence with scientists and social scientists working to bring about change to the problems derived from the socio-environmental crisis, as the Nature and people most affected are often distributed in rural areas. In Mexico, the areas with the highest biodiversity are also the areas with higher cultural diversity (see chapter five). As such, the professionals to whom this pedagogy is directed are often in contact with Indigenous communities. As the participants want to become facilitators of '**Re-understanding change**', exploring whether other Indigenous communities are interested in generating their own crack in the modernity paradigm, by bringing visibility to the epistemologies others that remain hidden would be essential.

Several questions arise from this possibility: 'is the design of **'Re-understanding change'** flexible enough to accommodate epistemologies other than the Nahuas?', 'are other Indigenous communities willing to participate in a similar way to the Nahuas?', 'can **'Re-understanding change'** grow into a national network of facilitators seeking to bring socio-environmental justice through the empowerment of people to think from the margins?' 'Is there potential for the movement to become regional and extend to other contexts in Latin America?' These scaling questions are based on the design process of the decolonial pedagogy, which draw on the common history of Latin America, to generate a sense of hope that stems from the optimism of all the Indigenous peoples of the region who are currently fighting to protect their land and their ways of being.

Finally, the third future step is informed by the limitation of not having explored the colonial dynamics in regards to gender. This situation was evident throughout the duration of the pilot program, as both the participants and the Nahua facilitators often engaged in interesting dialogues around topics such as sexism and women's empowerment. Similarly, the LGBTQIA rights were a common topic between the four participants. The co-creation and co-configuration of the program showed that there was a recurrent interest in the implications of coloniality for gender. In order to guide future participants to gain a wider awareness of the relationship between the coloniality of knowledges and the normalised dualistic conception of gender, as well as the role of the patriarchy in the socio-environmental crisis, it is necessary to conduct research to address this area. Such a pursuit would raise questions such as 'does considering the impacts of the coloniality on gender translate into an influx of suddenly interested oppressed members of society such as women and the LGTBQIA community?' If so, the new participants would most certainly identify themselves as oppressed members of society, which leads to another question, 'what are the different implications of conducting **'Re-understanding change'** with people identified as the oppressors in comparison with those identified as the oppressed?'

These three future steps are directed to solidify **'Re-understanding change'** so that it can become an ongoing place of social transformation from which other worlds can be imagined and build. The epistemic boundaries imposed by the hegemony of Eurocentric knowledges normalises the exploitation of Nature and people from the periphery in the name of progress and as the only way forward. **'Re-understanding change'** allows the participants to free themselves from those boundaries so that they can escape the confines

imposed by the coloniality and can realise that what is understood to be the universal truth is only one perceived reality. That perception of reality is sustained by the colonisation of knowledges, which has denied the opportunity for other worlds to exist. As reality is no more than a mental framework to understand experiences within a belief system, it can be changed, as it has been changed many times in the past. To change, it is necessary to be positioned from the margins of knowledges, so that reality can be experienced from the forbidden epistemologies that have the power to build alternative worlds to challenge the coloniality. The identified areas of future research seek to grow the pedagogy so that it can become a movement composed of people who actively widen and deepen old cracks and create new cracks. By pursuing an epistemic openness, **'Re-understanding change'** is supporting the vision the Zapatista Indigenous peoples have been working to make a reality since I was nine years old, that of constructing "a world in which many worlds can fit".

REFERENCE LIST

- Acemoglu, D., Johnson, S., & Robinson, J. (2005). The rise of Europe : Atlantic trade, institutional change and economic growth, *95*(3), 546–579.
- Acosta, A. (2011). EXTRACTIVISMO Y NEOEXTRACTIVISMO: DOS CARAS DE LA MISMA MALDICIÓN. *Más allá del desarrollo*, *1*, 83–118.
- Acosta, A. (2013). *El Buen Vivir. Sumak Kawsay, una oportunidad para imaginar otros mundos*. Barcelona: Icaria.
- Acosta, A. (2017). El Buen Vivir como alternativa al desarrollo: Algunas reflexiones económicas y no tan económicas. *Política y Sociedad*, *52*(2), 272–299.
- Acosta, A., & Martínez, E. (Eds.). (2009). *Derechos de la naturaleza. El futuro es ahora*. Quito, Ecuador: Abya-Yala. Retrieved from <https://www.rayuela.ec/l/derechos-de-la-naturaleza-el-futuro-es-ahora/31728/9789978228067>
- Adas, M. (1998). Improving on the Civilising Mission? Assumptions of United States Exceptionalism in the Colonisation of the Philippines. *Itinerario*, *22*(4), 44–66.
<https://doi.org/10.1017/S0165115300023500>
- AELA. (2018). Australian Centre for the Rights of Nature. An initiative of the Australian Earth Laws Alliance. Retrieved from <https://rightsofnature.org.au/gbr-campaign/about-gbr-legal-rights/>
- AFN. (1993). Nation Building Through Aboriginal Language and Literacy. Assambly of First Nations.
- Afonso, H. W., Marques, C., & Magalhães, J. L. Q. (2018). "O FARDO DO HOMEM BRANCO": O CONCEITO DO STANDARD CIVILIZATÓRIO NO DIREITO INTERNACIONAL NO SÉCULO XIX "WHITE MAN'S BURDEN": THE CONCEPT OF THE STANDARD OF CIVILIZATION IN

- 19TH CENTURY INTERNATIONAL LAW. *Duc In Altum - Cadernos de Direito*, 10(20).
<https://doi.org/10.22293/2179-507x.v10i20.693>
- Aleida Azamar, A. (2015). Extractivismo: la falsa promesa de desarrollo y crecimiento en América Latina. *Teoria e Pesquisa*, 24(1), 116–127. <https://doi.org/10.4322/tp.24110>
- Alexander, M. J. (2005). *Pedagogies of Crossing: Meditations on Feminism, Sexual Politics, Memory, and the Sacred*. Duke University Press.
- Alhadad, S. S. J., & Thompson, K. (2017). Understanding the mediating role of teacher inquiry when connecting learning analytics with design for learning, 33, 54–74.
- Alimonda, H. (2010). Sobre la insostenible colonialidad de la naturaleza latinoamericana. In G. A. Palacio Castañeda (Ed.), *Ecología política de la Amazonia. Las profundas y difusas redes de la gobernanza* (p. 36). Bogotá, Colombia: Unal-Ecofondo-Ilsa.
- Alimonda, H. (Ed.). (2011). *La naturaleza colonizada. Ecología Política y Minería en América Latina*. Buenos Aires, Argentina: Consejo Latinoamericano de Ciencias Sociales (CLACSO). Retrieved from <http://democraciaglobal.org/producto/la-naturaleza-colonizada-ecologia-politica-mineria-america-latina/>
- Alimonda, H. (2015). Mining in Latin America: coloniality and degradation. In R. L. Bryant (Ed.), *The International Handbook of Political Ecology*. Edward Elgar Publishing.
- Amin, S. (2010). *Global History: A View from the South*. Fahamu/Pambazuka.
- Andres Liebenthal Roland Michelitsch Ethel Tarazona. (2005). *Extractive Industries and Sustainable Development: An Evaluation of the World Bank Group's Experience*. The World Bank. <https://doi.org/10.1596/978-0-8213-5710-1>
- Andrews, F. M., & Withey, S. B. (2012). *Social Indicators of Well-Being: Americans' Perceptions of Life Quality*. Springer Science & Business Media.

- Aristegui Noticias. (2018). Causa suspicacia saña en asesinato de Manuel Gaspar, activista de Cuetzalan: Abogado. Retrieved December 29, 2018, from <https://aristeguinoticias.com/0712/mexico/causa-suspiciacia-sana-en-asesinato-de-manuel-gaspar-activista-de-cuetzalan-abogado/>
- Armenteras, D., Espelta, J. M., Rodríguez, N., & Retana, J. (2017). Deforestation dynamics and drivers in different forest types in Latin America: Three decades of studies (1980–2010). *Global Environmental Change, 46*, 139–147. <https://doi.org/10.1016/j.gloenvcha.2017.09.002>
- Asamblea Nacional Constituyente. (2008). Constitución Política de la República del Ecuador. Quito, Ecuador.
- Azzarito, L., & Kirk, D. (2013). *Pedagogies, Physical Culture, and Visual Methods*. Routledge.
- Bacon, F. (1857). *Meditationes sacrae*. Excusum impensis Humfredi Hooper.
- Bacon, F. (1960). *The New organon, and related writings*. (F. H. Anderson, Trans.). New York: Liberal Arts Press.
- Banerjee, S. B. (2003). Who Sustains Whose Development? Sustainable Development and the Reinvention of Nature. *Organization Studies, 24*(1), 143–180. <https://doi.org/10.1177/0170840603024001341>
- Banner, S. (2005). Why Terra Nullius? Anthropology and Property Law in Early Australia. *Law and History Review, 23*(01), 95–131. <https://doi.org/10.1017/S0738248000000067>
- Barnett, H. J., & Morse, C. (2013). *Scarcity and Growth: The Economics of Natural Resource Availability*. Routledge.
- Barrett, W. (1990). World bullion flows, 1450-1800. In J. D. Tracy & University of Minnesota (Eds.), *The Rise of merchant empires: long-distance trade in the early modern world, 1350-1750*. Cambridge ; New York: Cambridge University Press.

- Bartra, A. (2008). Hacer milpa. *Ciencias*, 92(092), 42–42.
- Battiste, M., & Henderson, J. [Sa'ke'j] Y. (2018). Compulsory Schooling and Cognitive Imperialism: A Case for Cognitive Justice and Reconciliation with Indigenous Peoples. In K. Trimmer, R. Dixon, & Y. S. Findlay (Eds.), *The Palgrave Handbook of Education Law for Schools* (pp. 567–583). Cham: Springer International Publishing.
https://doi.org/10.1007/978-3-319-77751-1_28
- Beaucage, P., Durán Olguín, L., Rivadeneyra Pasquel, I., & Olvera Ramírez, C. M. (2017). Con la ayuda de Dios. Crónica de luchas indígenas actuales por el territorio en la Sierra Nororiental de Puebla. *Journal de la société des américanistes*, 103(103–1), 239–260.
- Beaucage, P., & Taller de Tradición Oral. (2012). *Cuerpo, cosmos y medio ambiente entre los nahuas de la Sierra Norte de Puebla: una aventura en antropología*. Universidad Nacional Autónoma de México, Instituto de Investigaciones Antropológicas.
- Bebbington, A., & Bury, J. (2013). *Subterranean Struggles: New Dynamics of Mining, Oil, and Gas in Latin America*. University of Texas Press.
- Bellon, M. R. (1991). The ethnoecology of maize variety management: A case study from Mexico. *Human Ecology*, 19(3), 389–418. <https://doi.org/10.1007/BF00888984>
- Berkes, F., Colding, J., & Folke, C. (2000). Rediscovery of Traditional Ecological Knowledge as Adaptive Management. *Ecological Applications*, 10(5), 1251–1262.
[https://doi.org/10.1890/1051-0761\(2000\)010\[1251:ROTEKA\]2.0.CO;2](https://doi.org/10.1890/1051-0761(2000)010[1251:ROTEKA]2.0.CO;2)
- Berkes, F., Folke, C., & Colding, J. (2000). *Linking Social and Ecological Systems: Management Practices and Social Mechanisms for Building Resilience*. Cambridge University Press.
- Bessarab, D., & Ng'andu, B. (2010, January 1). Yarning About Yarning as a Legitimate Method in Indigenous Research [Text]. <https://doi.org/10.5204/ijcis.v3i1.57>

- Boege, E. (2008). *El patrimonio biocultural de los pueblos indígenas de México. : hacia la conservación in situ de la biodiversidad y agrobiodiversidad en los territorios indígenas*. Mexico City: Instituto Nacional de Antropología e Historia.
- Boege, E. (2012). La importancia de los Territorios de los Pueblos Indígenas y la cubierta Forestal. In *ESTADO DE LOS BOSQUES DE MEXICO*. Mexico: Consejo Civil Mexicano para la Silvicultura Sustentable.
- Boff, L. (2009). ¿Vivir mejor o «el buen vivir»? *Revista Fusión*, 1–2.
- Bolt, J., Inklaar, R., de Jong, H., & van Zanden, J. L. (2018). Rebasng ‘Maddison’: new income comparisons and the shape of long-run economic development. GGDC Research Memorandum 174.
- Bonilla, Á. (2004). La II Cumbre Continental de los Pueblos y Nacionalidades Indígenas de Abya Yala (Quito, 2004). *Observatorio social de América Latina*, 5(15), 257–266.
- Borda, O. F. (1999). Orígenes universales y retos actuales de la IAP (Investigación Acción Participativa). *Peripicias*, 110, 1–15.
- BUAP, C. (2010). Ordenamiento Ecológico Territorial de Cuetzalan. Retrieved from https://www.academia.edu/28966059/Ordenamiento_Ecol%C3%B3gico_Territorial_de_Cuetzalan
- Bull, B., & Bøås, M. (2012). Between Ruptures and Continuity: Modernisation, Dependency and the Evolution of Development Theory. *Forum for Development Studies*, 39(3), 319–336. <https://doi.org/10.1080/08039410.2012.688860>
- Burchardt, H.-J., & Dietz, K. (2014). (Neo-)extractivism – a new challenge for development theory from Latin America. *Third World Quarterly*, 35(3), 468–486. <https://doi.org/10.1080/01436597.2014.893488>

- Burke, C. (2008). Play in focus': Children's visual voice in participative research. In P. Thompson (Ed.), *Doing visual research with children and young people* (pp. 23–36). London: Routledge.
- Cadena, M. de la. (2000). *Indigenous Mestizos: The Politics of Race and Culture in Cuzco, Peru, 1919-1991*. Duke University Press.
- Cajete, G. (1994). *Look to the Mountain: An Ecology of Indigenous Education. First Edition*. Durango, CO: Kivaki Press, 585 E. Retrieved from <https://eric.ed.gov/?id=ED375993>
- Calleja Pinedo, M., & Valenzuela, M. B. (2016). La tortilla como identidad culinaria y producto de consumo global. *Región y Sociedad*, 28(66), 161–194.
- Carnoy, M. (2000). *La educación como imperialismo cultural*. Siglo XXI.
- Castellanos Nájera, A. de J. (2013). Ja Jlekilaltik: una aproximación a la proyección histórico-utópica de los tojolabales. *Argumentos (México, D.F.)*, 26(73), 95–106.
- Castro, A. P. (1993). Kikuyu agroforestry: an historical analysis. *Agriculture, Ecosystems & Environment*, 46(1), 45–54. [https://doi.org/10.1016/0167-8809\(93\)90012-E](https://doi.org/10.1016/0167-8809(93)90012-E)
- Castro-Gómez, S. (2007a). Decolonizar la universidad. La hybris del punto cero y el diálogo de saberes. In *El giro decolonial Reflexiones para una diversidad epistémica más allá del capitalismo global*. Bogotá, Colombia: Siglo del Hombre Editores.
- Castro-Gómez, S. (2007b). The Missing Chapter of Empire. *Cultural Studies*, 21(2–3), 428–448. <https://doi.org/10.1080/09502380601162639>
- Castro-Gómez, S. (2010). *La hybris del punto cero: Ciencia, raza e ilustración en la Nueva Granada (1750-1816)*. Editorial Pontificia Universidad Javeriana.
- Castro-Gómez, S., & Grosfoguel, R. (Eds.). (2007). *El giro decolonial: reflexiones para una diversidad epistémica más allá del capitalismo global*. Bogotá, D.C: Siglo del Hombre Editores : Universidad Central, Instituto de Estudios Sociales Contemporáneos,

IESCO-UC : Pontificia Universidad Javeriana, Instituto de Estudios Sociales y Culturales, Pensar.

Cavero, C. G. (2010). Una epistemología otra: el proyecto de Aníbal Quijano. *Nómadas*, 32(1), 211–220.

CDI. (2006). *Percepción de la imagen del indígena en México: Diagnóstico cualitativo y cuantitativo*. México: Comisión Nacional para el Desarrollo de los Pueblos Indígenas (CDI).

Ceddia, M. G., Gunter, U., & Corriveau-Bourque, A. (2015). Land tenure and agricultural expansion in Latin America: The role of Indigenous Peoples' and local communities' forest rights. *Global Environmental Change*, 35, 316–322.

<https://doi.org/10.1016/j.gloenvcha.2015.09.010>

Challenger, A. (1998). *Utilización y conservación de los ecosistemas terrestres de México : pasado presente y futuro*. Mexico: Alianza SIDALC. Retrieved from

[http://www.sidalc.net/cgi-](http://www.sidalc.net/cgi-bin/wxis.exe/?IsisScript=UACHBC.xis&method=post&formato=2&cantidad=1&expresion=mfn=088742)

[bin/wxis.exe/?IsisScript=UACHBC.xis&method=post&formato=2&cantidad=1&expresion=mfn=088742](http://www.sidalc.net/cgi-bin/wxis.exe/?IsisScript=UACHBC.xis&method=post&formato=2&cantidad=1&expresion=mfn=088742)

Chapela, F., & Boege, E. (2012). La importancia de los Territorios de los Pueblos Indígenas y la cubierta Forestal. In *Estado de los Bosques de México* (p. 218). Consejo Civil Mexicano para la Silvicultura Sustentable.

Christensen, J. (2012). Telling stories: Exploring research storytelling as a meaningful approach to knowledge mobilization with Indigenous research collaborators and diverse audiences in community-based participatory research. *The Canadian Geographer / Le Géographe Canadien*, 56(2), 231–242.

<https://doi.org/10.1111/j.1541-0064.2012.00417.x>

- Ciegis, R., Ramanauskiene, J., & Martinkus, B. (2015). The Concept of Sustainable Development and its Use for Sustainability Scenarios. *Engineering Economics*, 62(2).
<https://doi.org/10.5755/j01.ee.62.2.11609>
- Clayton, S., & Myers, G. (2015). *Conservation Psychology: Understanding and Promoting Human Care for Nature*. John Wiley & Sons.
- Comte, A. (1973). *Curso de Filosofia positiva*. Sao Paulo: Abril Cultural. Retrieved from <http://www.sidalc.net/cgi-bin/wxis.exe/?IsisScript=BIBA.xis&method=post&formato=2&cantidad=1&expresion=mfn=006498>
- Concheiro Bórquez, L., & Núñez, V. (2014). El 'Buen Vivir' en México: ¿fundamento para una perspectiva revolucionaria? In G. C. Delgado Ramos (Ed.), *Buena Vida, Buen Vivir: imaginarios alternativos para el bien común de la humanidad*. (pp. 185–204). México: Universidad Nacional Autónoma de México.
- Cord, L. J., Genoni, M. E., & Rodriguez Castelan, C. (2015). *Shared prosperity and poverty eradication in Latin America and the Caribbean* (No. 97881) (pp. 1–355). The World Bank. Retrieved from <http://documents.worldbank.org/curated/en/122581468188648941/Shared-prosperity-and-poverty-eradication-in-Latin-America-and-the-Caribbean>
- Coronil, F. (2000). *Naturaleza del poscolonialismo: del eurocentrismo al globocentrismo*. Buenos Aires: CLACSO, Consejo Latinoamericano de Ciencias Sociales.
- COTIC. (2011, June 2). Cuetzalan.ordenterritorial: Ordenamiento territorial integral. Retrieved December 19, 2018, from <http://cuetzalanordenterritorial.blogspot.com/2011/06/ordenamiento-territorial-integral.html>

- Csutora, M. (2012). One More Awareness Gap? The Behaviour–Impact Gap Problem. *Journal of Consumer Policy*, 35(1), 145–163. <https://doi.org/10.1007/s10603-012-9187-8>
- De Sousa Santos, B. (2005). The Future of the World Social Forum: The work of translation. *Development*, 48(2), 15–22. <https://doi.org/10.1057/palgrave.development.1100131>
- Dean, C. (2010). A yarnning place in narrative histories. *History of Education Review*, 39(2), 6–13. <https://doi.org/10.1108/08198691201000005>
- Declaración de Mama Quta Titikaka. (2009). Declaración de Mama Quta Titikaka. *Declaración Final de la IV Cumbre de Pueblos Indígenas del Abya Yala*.
- DeJesús-Amayo, M. B., & Sánchez-Ramírez, M. (2017). La Unión de Cooperativas Tosepan. In *Buen vivir y organizaciones sociales mexicanas. Miradas de la diversidad*. Mexico: CIFOVIS. Retrieved from <https://rei.iteso.mx/handle/11117/5144>
- Descartes, R. (2012). *Discourse on Method*. Hackett Publishing.
- Doyle, T. (1998). Sustainable development and Agenda 21: The secular bible of global free markets and pluralist democracy. *Third World Quarterly*, 19(4), 771–786. <https://doi.org/10.1080/01436599814235>
- Dussel, E. (1993). Europa, Modernidad y Eurocentrismo. *Revista de Cultura Teológica*, (4), 69–81.
- Dussel, E. (1994). 1492 *El encubrimiento del Otro: Hacia el origen del “mito de la modernidad.”* PLURAL. Retrieved from <http://atlas.umss.edu.bo:8080/jspui/handle/123456789/501>
- Dussel, E. (1997). The Invention of the Americas. Eclipse of “the Other” and the Myth of Modernity. *Utopian Studies*, 8(1), 159–161.

- Dussel, E. (2009). A new age in the history of philosophy: The world dialogue between philosophical traditions. *Philosophy & Social Criticism*, 35(5), 499–516.
<https://doi.org/10.1177/0191453709103424>
- Dussel, E. (2013). Europa, Modernidad y Eurocentrismo. *Revista de Cultura Teológica. ISSN (impreso) 0104-0529 (eletrônico) 2317-4307*, (4), 69.
<https://doi.org/10.19176/rct.v0i4.14105>
- Dussel, E., & Dussel, E. (2016). Transmodernidade e interculturalidade: interpretação a partir da filosofia da libertação. *Sociedade e Estado*, 31(1), 51–73.
<https://doi.org/10.1590/S0102-69922016000100004>
- Dussel, E., & Ibarra-Colado, E. (2006). Globalization, Organization and the Ethics of Liberation. *Organization*, 13(4), 489–508.
<https://doi.org/10.1177/1350508406065852>
- Engerman, S. L., & Sokoloff, K. L. (2005). Colonialism, nequality and Long-run paths of development. *NBER Working Paper. National Bureau of Economic Research*, 1–36.
- Escobar, A. (1998). *La invención del Tercer Mundo: construcción y deconstrucción del desarrollo*. Editorial Norma.
- Escobar, A. (2003). Mundos y conocimientos de otro modo. El programa de investigación d...
Tabula Rasa, 1, 51–86.
- Escobar, A. (2004a). Beyond the Third World: imperial globality, global coloniality and anti-globalisation social movements. *Third World Quarterly*, 25(1), 207–230.
<https://doi.org/10.1080/0143659042000185417>
- Escobar, A. (2004b). Desplazamientos, desarrollo y modernidad en el Pacífico colombiano. In E. Restrepo & A. Rojas (Eds.), *Conflicto e (in)visibilidad Retos en los estudios de la gente negra en Colombia* (p. 355). Cali, Colombia: Editorial Universidad del Cauca.

- Escobar, A. (2007). *El giro decolonial: Reflexiones para una diversidad epistémica más allá del capitalismo global*. Siglo del Hombre. Retrieved from <http://atlas.umss.edu.bo:8080/jspui/handle/123456789/559>
- Escobar, A. (2011a). *Encountering Development: The Making and Unmaking of the Third World*. Princeton University Press.
- Escobar, A. (2011b). Sustainability: Design for the pluriverse. *Development*, 54(2), 137–140. <https://doi.org/10.1057/dev.2011.28>
- Escobar, A. (2012). Más allá del desarrollo: postdesarrollo y transiciones hacia el pluriverso. *Revista de Antropología Social*, (21), 23–62.
- Escobar, A. (2013). Worlds and Knowledges otherwise: the Latin American Modernity/Coloniality Research Program. In W. D. Mignolo & A. Escobar (Eds.), *Globalization and the Decolonial Option*. Routledge.
- Escobar, A. (2014). *Sentipensar con la tierra: nuevas lecturas sobre desarrollo, territorio y diferencia* (Primera edición). Medellín, Colombia: Ediciones Unaula.
- Escobar, A. (2015). Commons in the Pluriverse. In D. Bollier & S. Helfrich (Eds.), *Patterns of Commoning*. Commons Strategy Group and Off the Common Press.
- Escobar, A. (2016). Sentipensar con la Tierra: Las Luchas Territoriales y la Dimensión Ontológica de las Epistemologías del Sur. *AIBR: Revista de Antropología Iberoamericana*, 11(1), 11–32.
- Escobar, A. (2018). *Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds*. Duke University Press.
- Espinosa, Y., Gómez, D., Lugones, M., & Ochoa, K. (2013). REFLEXIONES PEDAGÓGICAS EN TORNO AL FEMINISMO DESCOLONIAL: Una conversa en cuatro voces. In C. Walsh

(Ed.), *Pedagogías decoloniales: Prácticas insurgentes de resistir, (re)existir y (re)vivir*.

TOMO I. Quito-Ecuador: Ediciones Abya-Yala.

Espinoza, R. E. D. (2014). La invisibilización de la Revolución de Haití y sus posibles resistencias decoloniales desde la negritud | The invisibility of the Haitian Revolution and its possible decolonial resistances from the negritude. *Relaciones Internacionales*, 0(25). Retrieved from

Internacionales, 0(25). Retrieved from

<https://revistas.uam.es/index.php/relacionesinternacionales/article/view/5205>

Fanon, F. (2001). *The Wretched of the Earth* (Penguin Classics). London: Penguin. Retrieved

from [https://www.booktopia.com.au/the-wretched-of-the-earth-frantz-](https://www.booktopia.com.au/the-wretched-of-the-earth-frantz-fanon/prod9780141186542.html)

[fanon/prod9780141186542.html](https://www.booktopia.com.au/the-wretched-of-the-earth-frantz-fanon/prod9780141186542.html)

Fanon, F. (2008). *Black Skin, White Masks*. Grove Press.

FAO. (2017). América Latina y el Caribe es la región con la mayor desigualdad en la distribución de la tierra. Oficina Regional de la FAO para América Latina y el Caribe.

Retrieved from <http://www.fao.org/americas/noticias/ver/es/c/879000/>

Fernández Moujan, I. (2009). ENTRE LA PEDAGOGÍA FREIREANA Y EL PENSAMIENTO

DECOLONIAL. *CECIES*. Retrieved from <http://www.cecies.org/articulo>.

Fernández Retamar, R., Casas, A., Romo Torres, R., & Rubio, A. (2006). *Pensamiento de nuestra América: autorreflexiones y propuestas*. Buenos Aires: CLACSO.

Fletcher, R., & Rammelt, C. (2017). Decoupling: A Key Fantasy of the Post-2015 Sustainable Development Agenda. *Globalizations*, 14(3), 450–467.

<https://doi.org/10.1080/14747731.2016.1263077>

Fluckiger, B., Diamond, P., & Jones, W. (2012). Yarning space: Leading literacy learning

through family-school partnerships. *Australasian Journal of Early Childhood*, 37(3),

53.

Foster, J. B., & Clark, B. (2004). Ecological Imperialism: The Curse of Capitalism | Socialist Register. Retrieved from

<https://socialistregister.com/index.php/srv/article/view/5817>

Freire, P. (1977). *Pedagogía del oprimido*. Siglo XXI.

Freire, P. (1986). *Hacia una pedagogía de la pregunta: conversaciones con Antonio Faúndez*. La Aurora.

Freire, P. (1993). *Pedagogía de la esperanza: un reencuentro con la pedagogía del oprimido*. Siglo XXI.

Galeano, E. (2003). *LAS VENAS ABIERTAS DE AMÉRICA LATINA EBOOK | EDUARDO*

GALEANO. México: SIGLO XXI. Retrieved from <https://www.casadellibro.com/ebook-las-venas-abiertas-de-america-latina-ebook/9788432315251/1997607>

García Ixmatá, A. P. (2010). Maya Knowledge and Wisdom. *Latin American and Caribbean Ethnic Studies*, 5(2), 219–231. <https://doi.org/10.1080/17442221003787142>

García, J. (2004). *Sumak yachaypi, alli kawsaypipash yachakuna = Aprender en la sabiduría y el buen vivir*. Quito, Ecuador: UNESCO.

Geia, L. K., Hayes, B., & Usher, K. (2013). Yarning/Aboriginal storytelling: Towards an understanding of an Indigenous perspective and its implications for research practice. *Contemporary Nurse*, 46(1), 13–17.

<https://doi.org/10.5172/conu.2013.46.1.13>

González, A. (2018, February 17). El ordenamiento de Cuetzalan, una herramienta de defensa comunitaria. *La Jornada*. Retrieved from

<https://www.jornada.com.mx/2018/02/17/cam-cuetzalan.html>

- Goodyear, P. (1999). Pedagogical frameworks and action research in open and distance learning. *European Journal of Open, Distance and E-Learning*, 2(1). Retrieved from <http://www.eurodl.org/?p=archives&sp=full&article=35>
- Goodyear, Peter. (2000). Environments for Lifelong Learning. In J. M. Spector & T. M. Anderson (Eds.), *Integrated and Holistic Perspectives on Learning, Instruction and Technology: Understanding Complexity* (pp. 1–18). Dordrecht: Springer Netherlands. https://doi.org/10.1007/0-306-47584-7_1
- Goodyear, Peter. (2005). Educational design and networked learning: Patterns, pattern languages and design practice. *Australasian Journal of Educational Technology*, 21(1). <https://doi.org/10.14742/ajet.1344>
- Goodyear, Peter. (2008). Flexible learning and the architecture of learning places. In D. Jonassen, M. J. Spector, M. Driscoll, M. D. Merrill, & J. van Merriënboer (Eds.), *Handbook of Research on Educational Communications and Technology: A Project of the Association for Educational Communications and Technology*. New York: Routledge.
- Goodyear, Peter. (2011). Affect, Technology and Convivial Learning Environments. In R. A. Calvo & S. K. D’Mello (Eds.), *New Perspectives on Affect and Learning Technologies* (pp. 243–254). New York, NY: Springer New York. https://doi.org/10.1007/978-1-4419-9625-1_18
- Goodyear, Peter, Asensio, M., Jones, C., Hodgson, V., & Steeples, C. (2003). Relationships between conceptions of learning approaches to study and students’ judgements about the value of their experiences of networked learning. *ALT-J*, 11(1), 17–27. <https://doi.org/10.1080/0968776030110103>

- Goodyear, Peter, & Carvalho, L. (2013). The Analysis of Complex Learning Environments. In H. Beetham & E. Sharp (Eds.), *Rethinking Pedagogy for a Digital Age: Designing and delivering e-learning*. New York: Routledge.
<https://doi.org/10.4324/9780203078952-15>
- Goodyear, Peter, & Carvalho, L. (2014a). Framing the analysis of learning network architectures. In Peter Goodyear & L. Carvalho (Eds.), *The Architecture of Productive Learning Networks*. New York: Routledge.
- Goodyear, Peter, & Carvalho, L. (2014b). Introduction: Networked learning and learning networks. In L. Carvalho & P. Goodyear. In Peter Goodyear & L. Carvalho (Eds.), *The Architecture of Productive Learning Networks*. New York: Routledge.
- Goodyear, Peter, & Dimitriadis, Y. (2013). In medias res: reframing design for learning. *Research in Learning Technology*, 21. <https://doi.org/10.3402/rlt.v21i0.19909>
- Goodyear, Peter, & Ellis, R. A. (2008). University students' approaches to learning: rethinking the place of technology. *Distance Education*, 29(2), 141–152.
<https://doi.org/10.1080/01587910802154947>
- Goodyear, Peter, & Retalis, S. (Eds.). (2010a). *Design patterns and pattern languages*. Rotterdam Boston Taipei: Sense Publishers.
- Goodyear, Peter, & Retalis, S. (2010b). *Technology-Enhanced Learning: Design patterns and pattern languages*. Rotterdam, Netherlands: Sense Publishers.
- Goodyear, Peter, & Yang, D. F. (2009). Patterns and Pattern Languages in Educational Design. In *Handbook of Research on Learning Design and Learning Objects: Issues, Applications, and Technologies* (pp. 167–187). Hershey, PA: Information Science Reference. Retrieved from <https://www.igi-global.com/chapter/patterns-pattern-languages-educational-design/20881>

- Gorostiza, A., Acunha-Alonzo, V., Regalado-Liu, L., Tirado, S., Granados, J., Sámano, D., ...
González-Martín, A. (2012). Reconstructing the History of Mesoamerican
Populations through the Study of the Mitochondrial DNA Control Region. *PLOS ONE*,
7(9), e44666. <https://doi.org/10.1371/journal.pone.0044666>
- Goudie, A. S., & Viles, H. A. (2013). *The Earth Transformed: An Introduction to Human
Impacts on the Environment*. John Wiley & Sons.
- Goudzwaard, B. (1978). *Kapitalisme and progress. A diagnosis of Western Society* (2e herz.
druk). Assen: Van Gorcum.
- Greene, S., & Hogan, D. (2005). *Researching Children's Experience: Approaches and
Methods*. SAGE.
- Grosfoguel, Ramón. (2006a). Decolonizing Political-Economy and Post-Colonial Studies:
Transmodernity, Border Thinking, and Global Coloniality. *Tabula Rasa*, (4), 17–48.
- Grosfoguel, Ramón. (2006b). Decolonizing Political-Economy and Post-Colonial Studies:
Transmodernity, Border Thinking, and Global Coloniality. *Tabula Rasa*, (4), 17–48.
- Grosfoguel, Ramón. (2007a). Descolonizando los universalismos occidentales: el pluri-
versalismo transmoderno decolonial desde Aimé Césaire hasta los zapatistas. In S.
Castro-Gómez & R. Grosfoguel (Eds.), *El giro decolonial: reflexiones para una
diversidad epistémica más allá del capitalismo global*. Bogotá, D.C: Siglo del Hombre
Editores : Universidad Central, Instituto de Estudios Sociales Contemporáneos,
IESCO-UC : Pontificia Universidad Javeriana, Instituto de Estudios Sociales y
Culturales, Pensar.
- Grosfoguel, Ramón. (2007b). The Epistemic Decolonial Turn. *Cultural Studies*, 21(2–3), 211–
223. <https://doi.org/10.1080/09502380601162514>

- Grosfoguel, Ramón. (2011). Decolonizing Post-Colonial Studies and Paradigms of Political-Economy: Transmodernity, Decolonial Thinking, and Global Coloniality. *TRANSMODERNITY: Journal of Peripheral Cultural Production of the Luso-Hispanic World*, 1(1). Retrieved from <https://escholarship.org/uc/item/21k6t3fq>
- Grosfoguel, Ramón. (2012). Decolonizing Western Uni-versalisms: Decolonial Pluri-versalism from Aimé Césaire to the Zapatistas. *TRANSMODERNITY: Journal of Peripheral Cultural Production of the Luso-Hispanic World*, 87–104.
- Grosfoguel, Ramon. (2013). Racismo/sexismo epistémico, universidades occidentalizadas y los cu... *Tabula Rasa*, (31–58), 31–58.
- Grosfoguel, Ramón. (2013). The Structure of Knowledge in Westernized Universities: Epistemic Racism/Sexism and the Four Genocides/Epistemicides of the Long 16th Century, (1), 19.
- Grosfoguel, Ramón. (2015). Epistemic Racism/Sexism, Westernized Universities and the Four Genocides/Epistemicides of the Long Sixteenth Century. In M. Araújo & S. R. Maeso (Eds.), *Eurocentrism, Racism and Knowledge: Debates on History and Power in Europe and the Americas* (pp. 23–46). London: Palgrave Macmillan UK. https://doi.org/10.1057/9781137292896_2
- Gudynas, E. (2009). Diez tesis urgentes sobre el nuevo extractivismo. Contextos y demandas bajo el progresismo sudamericano actua. In *Extractivismo, Política y Sociedad*. Quito, Ecuador: Centro Andino de Acción Popular (CAAP), Centro Latinoamericano de Ecología Social (CLAES).
- Gudynas, E. (2011a). Buen vivir: Germinando alternativas al desarrollo. *América Latina en Movimiento*, (462), 1–20.

- Gudynas, E. (2011b). Debates sobre el desarrollo y sus alternativas en América Latina: Una breve guía heterodoxa. *Más allá del desarrollo*, 1, 21–54.
- Gudynas, E. (2011c). Más allá del nuevo extractivismo: transiciones sostenibles y alternativas al desarrollo. In *El desarrollo en cuestión. Reflexiones desde América Latina*. (p. 32). La Paz, Bolivia: Oxfam y CIDES UMSA.
- Hall, B. L., Dei, G. J. S., & Rosenberg, D. G. (2000). *Indigenous Knowledges in Global Contexts: Multiple Readings of Our World*. University of Toronto Press.
- Hall, B. L., & Tandon, R. (2017). Decolonization of knowledge, epistemicide, participatory research and higher education. *Research for All*, 1(1), 6–19.
<https://doi.org/info:doi/10.18546/RFA.01.1.02>
- Hargroves, K., & Smith, M. (2006). *The Natural Advantage of Nations: Business Opportunities, Innovations and Governance in the 21st Century: Karlson Hargroves, Michael Harrison Smith: 9781844073405: Amazon.com: Books*. London, United Kingdom: Earthscan. Retrieved from <https://www.amazon.com/Natural-Advantage-Nations-Opportunities-Innovations/dp/1844073408>
- Headrick, D. R. (1988). *The Tentacles of Progress: Technology Transfer in the Age of Imperialism, 1850-1940*. Oxford University Press.
- Heard, T. (2015). *The Australian Native Bee Book: Keeping Stingless Bee Hives for Pets, Pollination and Delectable Sugarbag Honey*. Sugarbag Bees.
- Hegel, G. W. F. (2012). *The Philosophy of History*. Courier Corporation.
- Heleta, S. (2016). Decolonisation of higher education: Dismantling epistemic violence and Eurocentrism in South Africa. *Transformation in Higher Education*, 1(1), 1–8.
<https://doi.org/10.4102/the.v1i1.9>

- Herbst, J. (2014). *States and Power in Africa: Comparative Lessons in Authority and Control - Second Edition*. Princeton University Press.
- Hiernaux-Nicolas, D. (2007). Tiempo, espacio y transnacionalismo: algunas reflexiones. *Papeles de Población*, 13(53), 47–69.
- Hills, J. (2012). Where the Rivers Run North. *Journal of the Southwest*, 54(1), 1–5.
- Holden, E., Linnerud, K., & Banister, D. (2014). Sustainable development: Our Common Future revisited. *Global Environmental Change*, 26, 130–139.
<https://doi.org/10.1016/j.gloenvcha.2014.04.006>
- Holy Bible: New Living Translation*. (2004). Tyndale House Publishers, Inc.
- Hoppers, C. A. O. (2001). Indigenous knowledge systems and academic institutions in South Africa. *Perspectives in Education*, 19(1), 73–86.
- Hovane, V., Dalton, T., & Smith, P. (2014). Aboriginal Offender Rehabilitation Programs. In P. Dudgeon, H. Milroy, & R. Walker (Eds.), *Working Together: Aboriginal and Torres Strait Islander Mental Health and Wellbeing* (pp. 509–519). ACT: Australian Government Department of the Prime Minister and Cabinet.
- Hutchison, A. (2014). The Whanganui River as a Legal Person. *Alternative Law Journal*, 39(3), 179–182. <https://doi.org/10.1177/1037969X1403900309>
- INEGI. (2010). Censo de Población y Vivienda 2010. Instituto Nacional de Estadística y. Retrieved from <https://www.inegi.org.mx/programas/ccpv/2010/>
- Ituarte Lima, C. (2006). Conocimientos tradicionales de la biodiversidad y derechos de los pueblos indígenas. Instituto Nacional de Ecología. Retrieved from <http://www2.inecc.gob.mx/publicaciones2/libros/446/ituarte.html>
- IUCN for Mexico, Central America and the Caribbean. (2016). Nuevo mapa muestra cómo los pueblos indígenas de Centroamérica ocupan y resguardan gran cantidad de bosques,

ríos y aguas costeras. Retrieved from <https://www.iucn.org/es/content/nuevo-mapa-muestra-c%C3%B3mo-los-pueblos-ind%C3%ADgenas-de-centroam%C3%A9rica-ocupan-y-resguardan-gran>

IUCN, UNEP, & WWF. (1991). World conservation strategy: Living resource conservation for sustainable development. IUCN.

IWGIA. (2014). Land rights. Retrieved December 28, 2018, from

<https://www.iwgia.org/en/focus/land-rights?start=4>

Jalata, A. (2013). The Impacts of English Colonial Terrorism and Genocide on

Indigenous/Black Australians. *SAGE Open*, 3(3), 2158244013499143.

<https://doi.org/10.1177/2158244013499143>

Jørgensen, K. M. (2018). Spaces of performance: a storytelling approach to learning in higher education. *The Learning Organization*, 25(6), 410–421.

<https://doi.org/10.1108/TLO-11-2017-0104>

Kadafa, A. A. (2012). Oil Exploration and Spillage in the Niger Delta of Nigeria. *Civil and Environmental Research*, 2, 15.

Kant, I. (2007). Of the Different Races of Human Beings (1775). In I. Kant (Ed.), *Anthropology, History, and Education*. Cambridge University Press.

Kayira, J. (2013). *Re-Learning our Roots: Youth Participatory Research, Indigenous*

Knowledge, and Sustainability through Agriculture. University of Saskatchewan,

Canada. Retrieved from <https://harvest.usask.ca/handle/10388/ETD-2013-08-1222>

Kelsey, E., & Armstrong, C. (2012). Finding hope in a world of environmental catastrophe. In Peter Blaze Corcoran & Arjen E. J. Wals (Eds.), *Learning for sustainability in times of accelerating change* (p. 187'200). Wageningen Academic Publishers.

<https://doi.org/10.3920/978-90-8686-757-8>

- Keynes, J. M. (2010). Economic possibilities for our grandchildren. In *Essays in persuasion* (pp. 321–332). London, United Kingdom: Palgrave Macmillan.
- Kipling, R. (1899). *The White Man's Burden*. private circulation.
- Kirmayer, L. J., Dandeneau, S., Marshall, E., Phillips, M. K., & Williamson, K. J. (2011). Rethinking Resilience from Indigenous Perspectives. *The Canadian Journal of Psychiatry, 56*(2), 84–91. <https://doi.org/10.1177/070674371105600203>
- Kleingeld, P. (2007). Kant's Second Thoughts on Race. *The Philosophical Quarterly, 57*(229), 573–592.
- Kopnina, H. (2016). The victims of unsustainability: a challenge to sustainable development goals. *International Journal of Sustainable Development & World Ecology, 23*(2), 113–121. <https://doi.org/10.1080/13504509.2015.1111269>
- Kothari, A., Demaria, F., & Acosta, A. (2014). Buen Vivir, Degrowth and Ecological Swaraj: Alternatives to sustainable development and the Green Economy. *Development, 57*(3–4), 362–375. <https://doi.org/10.1057/dev.2015.24>
- Kureethadam, J. I. (2018). *The Philosophical Roots of the Ecological Crisis: Descartes and the Modern Worldview*. Cambridge Scholars Publishing.
- Kwaymullina, A. (2005). Seeing the light: Aboriginal law, learning and sustainable living in country. *Indigenous Law Bulletin, 6*(11), 12–17.
- La Mula. (2017). América Latina: la región con más ambientalistas asesinados en el 2017. Retrieved December 20, 2018, from <https://mongabay-latam.lamula.pe/2018/02/12/america-latina-la-region-con-mas-ambientalistas-asesinados-en-el-2017/mongabaylatam/>
- Laborde Amalia, Tomasina Fernando, Bianchi Fabrizio, Bruné Marie-Noel, Buka Irena, Comba Pietro, ... Landrigan Philip J. (2015). Children's Health in Latin America: The

- Influence of Environmental Exposures. *Environmental Health Perspectives*, 123(3), 201–209. <https://doi.org/10.1289/ehp.1408292>
- LaDuke, W. (2002). *The Winona LaDuke Reader*. Voyageur Press.
- Lander, E. (2000). *La colonialidad del saber: eurocentrismo y ciencias sociales*. Argentina: CLACSO.
- Lander, E. (2001). Pensamiento crítico Latinoamericano: impugnación del eurocentrismo. *Revista de Sociología*, (15). <https://doi.org/10.5354/rds.v0i15.27766>
- Larrimore, M. (1999). Sublime Waste: Kant on the Destiny of the ‘Races.’ *Canadian Journal of Philosophy*, 29(sup1), 99–125. <https://doi.org/10.1080/00455091.1999.10716832>
- Latour, B. (1987). *Science in Action: How to Follow Scientists and Engineers Through Society*. Harvard University Press.
- Lave, J., & Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge University Press.
- Law, J. (2011). What’s Wrong with a One-World. *Heterogenities*. Retrieved from Heterogeneities.net
- Leblois, A., Damette, O., & Wolfersberger, J. (2017). What has Driven Deforestation in Developing Countries Since the 2000s? Evidence from New Remote-Sensing Data. *World Development*, 92, 82–102. <https://doi.org/10.1016/j.worlddev.2016.11.012>
- Leff, E. (2004). *Racionalidad ambiental: la reapropiación social de la naturaleza*. Siglo XXI.
- Leff, E. (2018). *A aposta pela vida: Imaginação sociológica e imaginários sociais nos territórios ambientais do Sul*. Editora Vozes Limitada.
- Lepe-Carrión, P. (2014). Philosophical racism: The concept of ‘race’ in Immanuel Kant. *Filosofia Unisinos*, 15(1), 67-83–83. <https://doi.org/10.4013/fsu.2014.151.05>

- Lertzman, D. A. (2002). Rediscovering Rites of Passage: Education, Transformation, and the Transition to Sustainability. *Conservation Ecology*, 5(2). Retrieved from <https://www.jstor.org/stable/26271823>
- Lewis, M. P., & Gary, F. (2013). *Ethnologue: Languages of the World*. (Simons & C. D. Fennig, Eds.). Dallas, Texas: SIL International. Retrieved from Online version: <http://www.ethnologue.com> (2013)
- Leyequién, E., Boer, W. F. de, & Toledo, V. M. (2010). Bird Community Composition in a Shaded Coffee Agro-ecological Matrix in Puebla, Mexico: The Effects of Landscape Heterogeneity at Multiple Spatial Scales. *Biotropica*, 42(2), 236–245. <https://doi.org/10.1111/j.1744-7429.2009.00553.x>
- Linsalata, L. (2017). De la defensa del territorio maseual a la reinención comunitario-popular de la política: crónica de una lucha. *Estudios Latinoamericanos*, 0(40), 117-136–136.
- López Austin, A., & López Luján, L. (1996). *El pasado indígena*. Mexico D.F.: El Colegio de México. Retrieved from <http://www.sidalc.net/cgi-bin/wxis.exe/?IsisScript=UACHBC.xis&method=post&formato=2&cantidad=1&expression=mfn=091150>
- Lugones, M. (1992). On Borderlands/La Frontera. An interpretative analysis. *Hypathia*, 7(4), 31–37.
- Lytle, M. H. (2007). *The Gentle Subversive: Rachel Carson, Silent Spring, and the Rise of the Environmental Movement*. Oxford University Press.
- MacNeish, R. S., & Eubanks, M. W. (2000). Comparative Analysis of the Río Balsas and Tehuacán Models for the Origin of Maize. *Latin American Antiquity*, 11(1), 3–20. <https://doi.org/10.2307/1571668>

- Maffi, L. (2005). Linguistic, Cultural, and Biological Diversity. *Annual Review of Anthropology*, 34(1), 599–617. <https://doi.org/10.1146/annurev.anthro.34.081804.120437>
- Majidi, A. (2013). English as a Global Language; Threat or Opportunity for Minority Languages? *Mediterranean Journal of Social Sciences*, 4(11), 33–38. <https://doi.org/10.5901/mjss.2013.v4n11p33>
- Maldonado-Torres, N. (2004). The topology of being and the geopolitics of knowledge. *City*, 8(1), 29–56. <https://doi.org/10.1080/1360481042000199787>
- Maldonado-Torres, N. (2005). Frantz Fanon and C.L.R. James on Intellectualism and enlightened rationality. *Caribbean Studies*, 33(2), 149–194.
- Maldonado-Torres, N. (2007). On the Coloniality of Being. *Cultural Studies*, 21(2–3), 240–270. <https://doi.org/10.1080/09502380601162548>
- Maldonado-Torres, N. (2011). Thinking through the Decolonial Turn: Post-continental Interventions in Theory, Philosophy, and Critique—An Introduction, 16.
- Maldonado-Torres, N. (2013). A modo de comentario inicial. In C. Walsh (Ed.), *Pedagogías decoloniales: prácticas insurgentes de resisitir, (re)existir y (re)vivir. Tomo I*. Quito, Ecuador: Ediciones Abya-Yala.
- Maldonado-Torres, N. (n.d.). Thinking through the decolonial turn: Post-continental interventions in theory, philosophy, and critique—An introduction. *Transmodernity: Journal of Peripheral Cultural Production of the Luso-Hispanic World*, 1(2).
- Martínez, E., Acosta, A., Martínez, E., & Acosta, A. (2017). The Rights of Nature as a gateway to another possible world. *Revista Direito e Práxis*, 8(4), 2927–2961. <https://doi.org/10.1590/2179-8966/2017/31220>
- Martínez-Alemán, A. M., Pusser, B., & Bensimon, E. M. (2015). *Critical Approaches to the Study of Higher Education: A Practical Introduction*. JHU Press.

- Maya, E. M. A., Zepeda, R., & Arnold, N. (2018). *Las abejas sin aguijón y su cultivo en Oaxaca, México con catálogo de especies*. Mexico: El Colegio de la Frontera Sur.
- Retrieved from https://www.academia.edu/36812759/Las_abejas_sin_aguij%C3%B3n_y_su_cultivo_en_Oaxaca_M%C3%A9xico_con_cat%C3%A1logo_de_especies
- McClintock, A., Mufti, A., & Shohat, E. (1997). *Dangerous Liaisons: Gender, Nation, and Postcolonial Perspectives*. U of Minnesota Press.
- McKenney, S., Kali, Y., Markauskaite, L., & Voogt, J. (2015). Teacher design knowledge for technology enhanced learning: an ecological framework for investigating assets and needs. *Instructional Science*, 43(2), 181–202. <https://doi.org/10.1007/s11251-014-9337-2>
- Meadows, D. H. (1972). *The Limits to Growth: a report for the Club of Rome's project on the predicament of mankind*. New York: Universe Books.
- Merchant, C. (1981). The Death of Nature: Women, Ecology, and Scientific Revolution. *Journal of the History of Biology*, 14(2), 356–357.
- Merchant, C. (2008). Secrets of Nature: The Bacon Debates Revisited. *Journal of the History of Ideas*, 69(1), 147–162. <https://doi.org/10.1353/jhi.2008.0000>
- Michalopoulos, S., Papaioannou, E., Alesina, W. T. A., Bosker, M., Dittmar, J., Fenske, J., ...
- Michalopoulos, S. (2011). The Long-Run Effects of the Scramble for Africa. *American Economic Review*, 106(7), 1802-48.
- Mignolo, W. (1996). Herencias coloniales y teorías postcoloniales. *Cultura y tercer mundo*, 1, 99–136.
- Mignolo, W. (2001). *Capitalismo y geopolítica del conocimiento: el eurocentrismo y la filosofía de la liberación en el debate intelectual contemporáneo*. Ediciones del Signo.

- Mignolo, W. (2003). *The Darker Side of the Renaissance: Literacy, Territoriality, & Colonization, 2nd Edition* (Edición: 002). Ann Arbor: UNIV OF MICHIGAN PR.
- Mignolo, W. (2007). INTRODUCTION: Coloniality of power and de-colonial thinking. *Cultural Studies, 21*(2–3), 154–177.
- Mignolo, W. (2016). El pensamiento des-colonial, desprendimiento y apertura: un manifiesto | Revista Telar ISSN 1668-3633. *Revista Telar, (6)*, 7–38.
- Mignolo, W. D. (2005). “UN PARADIGMA OTRO”: COLONIALIDAD GLOBAL, PENSAMIENTO FRONTERIZO Y COSMOPOLITANISMO CRITICO. *Dispositio, 25*(52), 127–146.
- Mignolo, W. D. (2007). “Epistemic Disobedience”: the de-colonial option and the meaning of identity in politics. *Gragoatá, 12*(22). Retrieved from <http://gragoata.uff.br/index.php/gragoata/article/view/277>
- Mignolo, W. D. (2011a). Epistemic Disobedience and the Decolonial Option: A Manifesto. *TRANSMODERNITY: Journal of Peripheral Cultural Production of the Luso-Hispanic World, 44–66*.
- Mignolo, W. D. (2011b). Geopolitics of sensing and knowing: on (de)coloniality, border thinking and epistemic disobedience. *Postcolonial Studies, 14*(3), 273–283. <https://doi.org/10.1080/13688790.2011.613105>
- Mignolo, W. D., & Tlostanova, M. V. (2006). Theorizing from the Borders: Shifting to Geo- and Body-Politics of Knowledge. *European Journal of Social Theory, 9*(2), 205–221. <https://doi.org/10.1177/1368431006063333>
- Miranda, M., López-Alonso, M., Castillo, C., Hernández, J., & Benedito, J. L. (2005). Effects of moderate pollution on toxic and trace metal levels in calves from a polluted area of northern Spain. *Environment International, 31*(4), 543–548. <https://doi.org/10.1016/j.envint.2004.09.025>

- Mittermeier, R. A., Myers, N., Mittermeier, C. G., & Robles Gil, P. (1999). *Hotspots: Earth's biologically richest and most endangered terrestrial ecoregions*. Mexico City: CEMEX, S.A., Agrupación Sierra Madre, S.C. Retrieved from <https://www.cabdirect.org/cabdirect/abstract/20013004766>
- Moctezuma Pérez, N. (2011). *La Universidad Intercultural de las Nacionalidades y Pueblos Indígenas de Ecuador, Amawtay Wasi, en el contexto del movimiento Indígena* (Honours). Universidad Nacional Autónoma de México, Mexico City.
- Moguel, P., & Toledo, V. M. (2004). Conservar produciendo: Biodiversidad, café orgánico y jardines productivos. *CONABIO. Biodiversitas*, 55, 2–7.
- Monteros, C. G. E. de los. (2015). Complejo Hidroeléctrico Necaxa. Territorio, Identidad Y Patrimonio. *Geografía Ensino & Pesquisa*, 19(0), 37–47.
<https://doi.org/10.5902/2236499419338>
- Montes, A. R. (1999). Los pueblos indígenas: diversidad negada. *Revista Chiapas*, 7(7), 4–20.
- Montuschi, E. (2010). "Order of Man, Order of Nature: Francis Bacon's Idea of a 'Dominion' Over Nature." Presented at the The Governance of Nature, LSE, London.
- Moore, J. (2010). "This lofty mountain of silver could conquer the whole world": Potosí and the political ecology of underdevelopment, 1545-1800[1], (2010), 46.
- Mora, M. (1987). The Sounding Pantheon of Nature. T'boli Instrumental Music in the Making of an Ancestral Symbol. *Acta Musicologica*, 59(2), 187–212.
<https://doi.org/10.2307/932923>
- Morales Espinosa, M. del C. (2012). Hacia una comunidad de práctica con enfoque intercultural: la escuela telesecundaria Tetsijtsilin en Tzinacapan, Cuetzalan, Puebla. *CPU-e, Revista de Investigación Educativa*, 14, 18–43.

- Moreno-Brid, J. C., Pérez, E., & Nápoles, P. R. (2005). The Washington consensus: a Latin American perspective fifteen years later. *Journal of Post Keynesian Economics*, 27(2), 343–365.
- MRCGP, B. R. K. Bs. M. (1988). The Brundtland report: 'Our common future.' *Medicine and War*, 4(1), 17–25. <https://doi.org/10.1080/07488008808408783>
- Muñoz-Cristóbal, J. A., Hernández-Leo, D., Carvalho, L., Martinez-Maldonado, R., Thompson, K., Wardak, D., & Goodyear, P. (2018). 4FAD: A framework for mapping the evolution of artefacts in the learning design process. *Australasian Journal of Educational Technology*, 34(2). Retrieved from <https://ajet.org.au/index.php/AJET/article/view/3706>
- Nabokov, P. (2002). *A Forest of Time: American Indian Ways of History*. Cambridge University Press.
- Nagy, R., & Sehdev, R. K. (2012). Introduction: Residential Schools and Decolonization. *Canadian Journal of Law & Society / La Revue Canadienne Droit et Société*, 27(1), 67–73. <https://doi.org/10.3138/cjls.27.1.067>
- Navarrete Linares, F. (2008). *Pueblos indígenas del México contemporáneo*. Mexico: CDI.
- Ndlovu-Gatsheni, S. J. (2013). *Coloniality of Power in Postcolonial Africa*. African Books Collective.
- Nicodemo, D., Jong, D. D., Reis, L. G., Almeida, J. M. V. de, Santos, A. A. dos, & Lisboa, L. A. M. (2018). Transgenic corn decreased total and key storage and lipid transport protein levels in honey bee hemolymph while seed treatment with imidacloprid reduced lipophorin levels. *Journal of Apicultural Research*, 57(2), 321–328. <https://doi.org/10.1080/00218839.2017.1391530>

- Noble, C. C., Hellmann, J., Coffee, J., Murillo, M., & Chawla, N. (2015). University of Notre Dame Global Adaptation Index Country Index Technical Report. University of Notre Dame. Retrieved from https://gain.nd.edu/assets/254377/nd_gain_technical_document_2015.pdf
- North, L. L., & Grinspun, R. (2016). Neo-extractivism and the new Latin American developmentalism: the missing piece of rural transformation. *Third World Quarterly*, 37(8), 1483–1504. <https://doi.org/10.1080/01436597.2016.1159508>
- Notimía. (2017). Indigenous Voices at the High Level Political forum, 2017. Retrieved from <http://notimia.com/voces-indigenas-en-el-foro-politico-de-alto-nivel/>
- Nwosimiri, O. (2017). Do the Works of the Nationalist–Ideological Philosophers Undermine Hume’s and Kant’s Ideas About Race? *SAGE Open*, 7(1), 215824401770067. <https://doi.org/10.1177/2158244017700678>
- Occhionero, L., & Silva, J. G. da. (1964). Degradazione economica e ristagno secolare. Linee di sviluppo dell’economia spagnola dopo il secolo XVI. *Studi Storici*, 5(2), 241–261.
- Ogawa, M. (1989). Beyond the tacit framework of ‘science’ and ‘science education’ among science educators. *International Journal of Science Education*, 11(3), 247–250. <https://doi.org/10.1080/0950069890110301>
- Ouviña, H. (2013). La política prefigurativa de los movimientos populares en América Latina. Hacia una nueva matriz de intelección para las Ciencias Sociales. *Acta Sociológica*, 62, 77–104. [https://doi.org/10.1016/S0186-6028\(13\)71000-4](https://doi.org/10.1016/S0186-6028(13)71000-4)
- Ouviña, H. (2015). Los movimientos populares como intelectuales colectivos: apuntes para repensar los procesos formativos y la praxis emancipatoria en nuestra América. *Contrapunto*, 6.

- Ouviña, H. (2017, February 14). Gramsci y los movimientos populares como intelectuales colectivos. Retrieved December 29, 2018, from <https://gramscilatinoamerica.wordpress.com/2017/02/14/gramsci-y-los-movimientos-populares-como-intelectuales-colectivos/>
- Oxfam. (2016). Desterrados: Tierra, poder y desigualdad en América Latina. Retrieved from https://d1tn3vj7xz9fdh.cloudfront.net/s3fs-public/file_attachments/desterrados-full-es-29nov-web_0.pdf
- Oxfam. (2017). Latin America remains the most unequal region in the world. Retrieved December 28, 2018, from <https://blogs.oxfam.org/en/blogs/17-12-18-latin-america-remains-most-unequal-region-world>
- Pacheco Ladrón de Guevara, L. C., Navarro Hernández, M. del R., & Cayeros López, L. I. (2011). Los pueblos indios en los libros de texto gratuitos. *Revista Mexicana de Investigación Educativa*, 16(49), 525–544.
- Palermo, Z. (2010). Una violencia invisible: la “colonialidad del saber.” *Cuadernos de La Facultad de Humanidades y Ciencias Sociales. Universidad Nacional de Jujuy*, (38), 79–88.
- Paneque-Gálvez, J., Vargas-Ramírez, N., & Morales-Magaña, M. (2016). Uso comunitario de pequeños vehículos aéreos no tripulados (drones) en conflictos ambientales: ¿un factor innovador desequilibrante? *Teknokultura*, 13(2). https://doi.org/10.5209/rev_TEKN.2016.v13.n2.53340
- Paneque-Gálvez, J., Vargas-Ramírez, N., & Morales-Magaña, M. (2016). Uso comunitario de pequeños vehículos aéreos no tripulados (drones) en conflictos ambientales: ¿un factor innovador desequilibrante? *Revista Teknokultura*, 13(2), 655–679.

- Perez-Carmona, A. (2013). Growth: A Discussion of the Margins of Economic and Ecological Thought. In L. Meuleman (Ed.), *Transgovernance: Advancing Sustainability Governance* (pp. 83–161). Berlin, Heidelberg: Springer Berlin Heidelberg.
https://doi.org/10.1007/978-3-642-28009-2_3
- Pingeot, L. (2014). *Corporate influence in the post-2015 process*. Aachen: Bischöfliches Hilfswerk Misereor.
- Plumwood, V. (2007). Environmental Ethics. In J. Pretty, A. Ball, T. Benton, J. Guivant, D. R. Lee, D. Orr, ... P. H. Ward (Eds.), *The SAGE Handbook of Environment and Society*. SAGE.
- Polanyi, K. (2001). *The Great Transformation: The Political and Economic Origins of Our Time* (2 edition). Boston, MA: Beacon Press.
- Prince, C. (2002). The Historical Context of Arabic Translation, Learning, and the Libraries of Medieval Andalusia. *Library History*, 18(2), 73–87.
<https://doi.org/10.1179/lib.2002.18.2.73>
- Pueblos América. (2017). Localidades de Cuetzalan del Progreso (Puebla, México). Retrieved December 29, 2018, from <https://mexico.pueblosamerica.com/puebla/cuetzalan-del-progreso/>
- Quijano, A. (1992). Colonialidad y modernidad/racionalidad. *Perú Indígena*, 13(29): 11-20.
- Quijano, A. (2000a). Colonialidad del poder, eurocentrismo y América Latina. In *La colonialidad del saber: eurocentrismo y ciencias sociales. Perspectivas latinoamericanas* (pp. 201–246). Buenos Aires, Argentina: CLACSO, Consejo Latinoamericano de Ciencias Sociales.
- Quijano, A. (2000b). Coloniality of power and Eurocentrism in Latin America. *International Sociology*, 15(2), 215–232.

- Quijano, A. (2001). Colonialidad del poder, globalización y democracia. *Revista de Ciencias Sociales de la Universidad Autónoma de Nuevo León*, 7–8, 1–23.
- Quijano, A. (2006). EL “Movimiento Indígena” y las cuestiones pendientes en América Latina. *Argumentos*, 19(50), 51–77.
- Quijano, A. (2013). Coloniality and Modernity/Rationality. In W. D. Mignolo & A. Escobar (Eds.), *Globalization and the Decolonial Option*. Routledge.
- Quilaqueo, D., & Sartorello, S. (2018). Retos epistemológicos de la interculturalidad en el contexto indígena. *Alpha (Osorno)*, (47), 47–61. <https://doi.org/10.32735/s0718-220120180004700163>
- Radcliffe, S. A. (2017). Decolonising geographical knowledges. *Transactions of the Institute of British Geographers*, 42(3), 329–333. <https://doi.org/10.1111/tran.12195>
- Ramírez Cuevas, J. (2014). *Sierra Norte por la Vida. Resistencia contra proyectos de muerte en la Sierra Norte de Puebla (subtitulado inglés)*. Cooperativa Tosepan Titataniske, Cooperativa Monipié. Retrieved from <https://www.youtube.com/watch?v=AQ85vHvNSHA&t=577s>
- Ramonet, I. (2001). *Marcos, la Dignidad Rebelde*. México, D.F: Le Monde Diplomatique.
- Ramos Vázquez, A. (2011). Biodiversidad, conservación y Marginación Indígena en México. *Globalización: Revista Mensual de Economía, Sociedad y Cultura*, 14(4), N/A.
- Reynolds, H. (2006). *The Other Side of the Frontier: Aboriginal Resistance to the European Invasion of Australia*. UNSW Press.
- Rist, G. (2002). *El desarrollo: historia de una creencia occidental*. Los Libros de la Catarata.
- Robinson, W. I. (2012). Latin America in the New Global Capitalism. *NACLA Report on the Americas*, 45(2), 13–18. <https://doi.org/10.1080/10714839.2012.11722083>

- Robledo Guerrero, C., & Cerros Chávez, J. J. (2015). ¿ El espacio, elemento del territorio? Multiespacialidad en tiempos de la multiterritorialidad; De minas, hidroeléctricas y santos. Territorialidad y percepciones en torno a la construcción de una planta hidroeléctrica en la Sierra Norte de Puebla. *El Tlacuahe: Suplemento Cultural*.
- Roser, M. (2018). Economic Growth. Retrieved December 28, 2018, from <https://ourworldindata.org/economic-growth>
- Ruíz, T. (2014). The Mediterranean and the Atlantic. In *A Companion to Mediterranean History* (pp. 411–424). Oxford: Wiley-Blackwell.
- Sachs, J. D., & Warner, A. M. (2001). The curse of natural resources. *European Economic Review*, 45(4), 827–838. [https://doi.org/10.1016/S0014-2921\(01\)00125-8](https://doi.org/10.1016/S0014-2921(01)00125-8)
- SAGARPA. (2017). *Maíz grano blanco y amarillo mexicano*. Mexico: SAGARPA. Retrieved from https://www.gob.mx/cms/uploads/attachment/file/256429/B_sico-Ma_z_Grano_Blanco_y_Amarillo.pdf
- Salazar, A. (2016). *Teoría y práctica del buen vivir: orígenes, debates conceptuales y conflictos sociales. El caso de Ecuador* (Doctoral dissertation). Universidad del País Vasco-Euskal Herriko Unibertsitatea, País Vasco, Spain.
- Sandoval Forero, E. A., & Capera Figueroa, J. J. (2017). El giro decolonial en el estudio de las vibraciones políticas del movimiento indígena en América Latina. Retrieved from <http://ri.uaemex.mx/handle/20.500.11799/68639>
- Sandoval, W. (2014). Conjecture Mapping: An Approach to Systematic Educational Design Research. *Journal of the Learning Sciences*, 23(1), 18–36. <https://doi.org/10.1080/10508406.2013.778204>
- Santos, B. de S. (2010). *Descolonizar el saber, reinventar el poder*. Montevideo, Uruguay: Extensión, Universidad de la República.

- Scheyvens, R., Banks, G., & Hughes, E. (2016). The Private Sector and the SDGs: The Need to Move Beyond 'Business as Usual.' *Sustainable Development*, 24(6), 371–382.
<https://doi.org/10.1002/sd.1623>
- Serrano Carreto, E. (2006). *Regiones indígenas de México*. México: Comisión Nacional para el Desarrollo de los Pueblos Indígenas. Retrieved from <http://www.sidalc.net/cgi-bin/wxis.exe/?IsisScript=SUV.xis&method=post&formato=2&cantidad=1&expresion=mfn=013107>
- Shava, S. (2013). The Representation of Indigenous Knowledges. In R. B. Stevenson, M. Brody, J. Dillon, & A. E. J. Wals (Eds.), *International Handbook of Research on Environmental Education*. Routledge.
- Shiva, V. (1993). *Monocultures of the Mind: Perspectives on Biodiversity and Biotechnology*. Palgrave Macmillan.
- Shorter, A. (2006). *The Cross and Flag in Africa: The "white Fathers" During the Colonial Scramble (1892-1914)*. Orbis Books.
- Sichra, I. (2009). *The Sociolinguistic Atlas of Indigenous Peoples in Latin America: a tool for planning regarding education and indigenous peoples*. London: MRG International.
- Simbaña, F. (2011). El Sumak Kawsay como proyecto político. In M. Lang & D. Mokrani (Eds.), *Más allá del desarrollo* (pp. 219–226). Quito, Ecuador: Abya Yala.
- Simpson, L. R. (2004). Anticolonial Strategies for the Recovery and Maintenance of Indigenous Knowledge. *American Indian Quarterly*, 28(3/4), 373–384.
- Singh, M., & Major, J. (2017). Conducting Indigenous research in Western knowledge spaces: aligning theory and methodology. *The Australian Educational Researcher*, 44(1), 5–19. <https://doi.org/10.1007/s13384-017-0233-z>

- Smith, M. H., Hargroves, K., & Desha, C. J. (2010). Decoupling GDP from Environmental Pressures. In *Cents and Sustainability : Securing Our Common Future by Decoupling Economic Growth from Environmental Pressures*. London, United Kingdom: Earthscan/Routledge. Retrieved from https://www.researchgate.net/publication/304900841_Cents_and_Sustainability_Te xtbook_Chapter_2_-_Decoupling_GDP_from_Environmental_Pressures
- Snively, G., & Corsiglia, J. (2001). Discovering indigenous science: Implications for science education. *Science Education*, 85(1), 6–34. [https://doi.org/10.1002/1098-237X\(200101\)85:1<6::AID-SCE3>3.0.CO;2-R](https://doi.org/10.1002/1098-237X(200101)85:1<6::AID-SCE3>3.0.CO;2-R)
- Snively, G., & Williams, W. L. (2016). *Knowing Home: Braiding Indigenous Science with Western Science (Book 1)*. Retrieved from <https://dspace.library.uvic.ca//handle/1828/7821>
- Snyman, G. (2015). Responding to the decolonial turn: Epistemic Vulnerability. *Missionalia*, 43(3), 266–291. <https://doi.org/10.7832/43-3-77>
- Sobel, D. (1996). *Beyond ecophobia : reclaiming the heart in nature education*. Great Barrington, MA: Orion Society. Retrieved from <https://aura.antioch.edu/facbooks/42>
- Sorell, T. (1991). *Scientism: Philosophy and the infatuation with science*. London and New York: Routledge.
- Sorell, T. (2005). *Descartes Reinvented*. Cambridge University Press.
- Sousa Santos, B. (2007). Beyond Abyssal Thinking: From Global Lines to Ecologies of Knowledges. *Review (Fernand Braudel Center)*, 30(1), 45–89.
- Sousa Santos, B. de. (1995). *Toward a New Common Sense Law, Science and Politics in the Paradigmatic Transition*.

- Sousa Santos, B. de. (2010). *Refundación del estado en América Latina: perspectivas desde una epistemología del Sur*. Plural editores.
- Sousa Santos, B. de. (2015). *Epistemologies of the South : Justice Against Epistemicide*. Routledge. <https://doi.org/10.4324/9781315634876>
- Stone, A. (2017). II—Europe and Eurocentrism. *Aristotelian Society Supplementary Volume*, 91(1), 83–104. <https://doi.org/10.1093/arisup/akw017>
- Subcomandante Marcos. (1996). EZLN: Cuarta Declaración de la Selva Lacandona. Ejército Zapatista de Liberación Nacional. Retrieved from <http://enlacezapatista.ezln.org.mx/1996/01/01/cuarta-declaracion-de-la-selva-lacandona/>
- Subcomandante Marcos. (2007, December 14). Arriba, pensar en blanco. La Geografía y el calendario de la Teoría. Retrieved February 9, 2019, from <http://enlacezapatista.ezln.org.mx/2007/12/13/conferencia-del-dia-13-de-diciembre-a-las-900-am/>
- Svampa, M. (2012). Pensar el desarrollo desde América Latina. In G. Massuh (Ed.), *La renuncia al bien común* (pp. 17–58). Buenos Aires, Argentina: Mardulce.
- Svampa, Maristella. (2015). Commodities Consensus: Neoextractivism and Enclosure of the Commons in Latin America. *South Atlantic Quarterly*, 114(1), 65–82. <https://doi.org/10.1215/00382876-2831290>
- Swenson, J. J., Carter, C. E., Domec, J.-C., & Delgado, C. I. (2011). Gold Mining in the Peruvian Amazon: Global Prices, Deforestation, and Mercury Imports. *PLOS ONE*, 6(4), e18875. <https://doi.org/10.1371/journal.pone.0018875>
- Taller de Tradición Oral. (1994). *Tejuan tikintenkakiliaj In Toueyitatajuan. Les oíamos contar a nuestros abuelos*. Mexico: Instituto Nacional de Antropología e Historia.

- Taller de Tradición Oral. (2009). *Maseual sanilmej = Cuentos indígenas de la región de San Miguel Tzinacapan*. Mexico: Benemérita Universidad Autónoma de Puebla.
- Taller de Tradición Oral, & Beaucage, P. (2017). *Se Taxkaltsin Saj...Una tortillita no más...* Mexico: Universidad Iberoamericana.
- Tarling, N. (2003). *Imperialism in Southeast Asia*. Routledge.
<https://doi.org/10.4324/9780203402559>
- Teaiwa, K. (2015). Ruining Pacific Islands: Australia's Phosphate Imperialism. *Australian Historical Studies*, 46(3), 374–391. <https://doi.org/10.1080/1031461X.2015.1082609>
- Thésée, G. (2006). A tool of Massive erosion: scientific knowledge in the neo-colonial enterprise. In G. J. S. Dei & A. Kempf (Eds.), *Anti-colonialism and Education: The Politics of Resistance*. Sense Publishers.
- Thøgersen, J. (2005). How May Consumer Policy Empower Consumers for Sustainable Lifestyles? *Journal of Consumer Policy*, 28(2), 143–177.
<https://doi.org/10.1007/s10603-005-2982-8>
- Thompson, K., Gouvea, J. S., & Habron, G. (2016). A Design Approach to Understanding the Activity of Learners in Interdisciplinary Settings: Environment and Diversity.
Retrieved from <https://repository.isls.org//handle/1/331>
- Toledo, V. M. (2011). Batallas socio-ambientales en territorios de México. Presented at the Foro Nacional para la Regeneración Socio-Ambiental, Cuetzalan, Puebla, México: Unión de Científicos Comprometidos con la Sociedad.
- Toledo, V. M., & Barrera-Bassols, N. (2008). *La memoria biocultural. La importancia ecológica de las sabidurías tradicionales*. Mexico City: Icaria Editorial. Retrieved from <http://www.icariaeditorial.com/libros.php?id=964>

- Toledo, V. M., & Moguel, P. (2012). Coffee and Sustainability: The Multiple Values of Traditional Shaded Coffee. *Journal of Sustainable Agriculture, 36*(3), 353–377.
<https://doi.org/10.1080/10440046.2011.583719>
- Toth, G., & Szigeti, C. (2016). The historical ecological footprint: From over-population to over-consumption. *Ecological Indicators, 60*, 283–291.
<https://doi.org/10.1016/j.ecolind.2015.06.040>
- Truman, H. S. (1949). Inaugural Address of Harry S. Truman. In *Theories of Modernisation and Economic Growth* (p. 6).
- UN. (1972). Declaration of the United Nations conference on the human environment. United Nations Conference on the Human Environment. Retrieved from <http://www.unep.org/Documents.Multilingual/Default>.
- UN. (2015). Transforming our world: The 2030 agenda for sustainable development. Resolution adopted by the General Assembly.
- UN. (2018a). Climate Action: why it matters. United Nations Sustainable Development Goals. Retrieved from <https://www.un.org/sustainabledevelopment/wp-content/uploads/2018/09/Goal-13.pdf>
- UN. (2018b). Life below water: why it matters. United Nations Sustainable Development Goals. Retrieved from <https://www.un.org/sustainabledevelopment/wp-content/uploads/2018/09/Goal-14.pdf>
- UN. (2018c). Life on land: why it matters. United Nations Sustainable Development Goals. Retrieved from <https://www.un.org/sustainabledevelopment/wp-content/uploads/2018/09/Goal-15.pdf>

- UN. (2018d). The Lazy Person Guide to Saving the World'. United Nations. Retrieved from <https://www.un.org/sustainabledevelopment/wp-content/uploads/2018/10/LazyPersonGuide.pdf>
- UNEP. (2016). The State of Biodiversity in Latin America and the Caribbean. the United Nations Environment Programme (UNEP).
- UNESCO. (2017). Learning to live together. Cultural Diversity. Retrieved February 9, 2019, from <http://www.unesco.org/new/en/social-and-human-sciences/themes/international-migration/glossary/cultural-diversity/>
- Unión de Cooperativas Tosepan. (2016). Antecedentes históricos de la organización. Retrieved December 29, 2018, from <http://www.tosepan.com/about.htm>
- University of Notre Dame. (2018). Country Index // Notre Dame Global Adaptation Initiative // University of Notre Dame. Retrieved December 28, 2018, from <https://gain.nd.edu/our-work/country-index/>
- Vanhulst, J., & Beling, A. E. (2013). Buen vivir : la irrupción de América Latina en el campo gravitacional del desarrollo sostenible. *Revibec : revista de la Red Iberoamericana de Economía Ecológica*, 21, 0001–0014.
- Vargas, T., & Stella, V. (2014). El rol de la educación y la práctica intercultural como instrumento de resistencia y reivindicación para la construcción social El problema de lo indio: entre “lo que somos” y lo que “no pudimos ser.” *Revista Integra Educativa*, 7(1), 157–177.
- Veltmeyer, H. (2013). The political economy of natural resource extraction: a new model or extractive imperialism? *Canadian Journal of Development Studies / Revue Canadienne d'études Du Développement*, 34(1), 79–95. <https://doi.org/10.1080/02255189.2013.764850>

- Vidal-Martínez, V. M., & Wunderlich, A. C. (2017). Parasites as bioindicators of environmental degradation in Latin America: A meta-analysis. *Journal of Helminthology*, *91*(2), 165–173. <https://doi.org/10.1017/S0022149X16000432>
- Vijay, V., Pimm, S. L., Jenkins, C. N., & Smith, S. J. (2016). The Impacts of Oil Palm on Recent Deforestation and Biodiversity Loss. *PLOS ONE*, *11*(7), e0159668. <https://doi.org/10.1371/journal.pone.0159668>
- Vit, P., Medina, M., & Enríquez, M. E. (2004). Quality standards for medicinal uses of Meliponinae honey in Guatemala, Mexico and Venezuela. *Bee World*, *85*(1), 2–5. <https://doi.org/10.1080/0005772X.2004.11099603>
- Wagner, M. (2015). The link of environmental and economic performance: Drivers and limitations of sustainability integration. *Journal of Business Research*, *68*(6), 1306–1317. <https://doi.org/10.1016/j.jbusres.2014.11.051>
- Wallerstein, I. (1998). *Utopistics, or, Historical choices of the twenty-first century*. New York: New Press.
- Wallerstein, I. (1999). Utopistics: Or, Historical Choices of the Twenty-First Century. *Utopian Studies*, *10*(2), 328–330.
- Wallerstein, I. (2010). *El capitalismo histórico*. Siglo XXI Editores. Retrieved from https://www.sigloxxieditores.com/libro/el-capitalismo-historico_17852/
- Walsh, C. (2008). Interculturalidad crítica, pedagogía decolonial. In W. Villa & A. Grueso (Eds.), *Diversidad, interculturalidad y construcción de ciudad*. Bogotá, Colombia: Universidad Pedagógica Nacional.
- Walsh, C. (2009a). Fanon y la pedagogía de-colonial. *Novamerica. La Revista de La Pátria Grande*, (122). Retrieved from http://www.novamerica.org.br/revista_digital/L0122/rev_opiniao.asp

- Walsh, C. (2009b). Interculturalidad crítica: apuestas (des)de el in-surgit, re-existir y re-vivir. In *Educación Intercultural en América Latina: memorias, horizontes históricos y disyuntivas políticas*, Patricia Melgarejo (p. 29). Mexico: Universidad Pedagógica Nacional–CONACIT, editorial Plaza y Valdés.
- Walsh, C. (2010). Development as Buen Vivir: Institutional arrangements and (de)colonial entanglements. *Development*, 53(1), 15–21. <https://doi.org/10.1057/dev.2009.93>
- Walsh, C. (2013). *Pedagogías decoloniales: Prácticas insurgentes de resistir, (re)existir y (re)vivir. TOMO I*. Quito-Ecuador: Ediciones Abya-Yala.
- Walsh, C. (2016). Notas para enredar, preguntar, sembrar y caminar. In F. S. Caballero & C. Maldonado (Eds.), *Comunicación, Decolonialidad y Buen Vivir*. Ediciones Ciespal.
- Walsh, C. (Ed.). (2017). *Pedagogías decoloniales: prácticas insurgentes de resistir, (re)existir y (re)vivir. Tomo II*. Quito, Ecuador: Ediciones Abya-Yala.
- Walsh, C., & Castro-Gómez, S. (2002). *Indisciplinar las ciencias sociales: Geopolíticas del conocimiento y colonialidad del poder. Perspectivas desde lo andino*. Editorial Abya Yala.
- Walsh, C. E. (2014). Pedagogías decoloniales caminando y preguntando: notas a Paulo Freire desde Abya Yala. *Entramados: educación y sociedad*, (1), 17–30.
- Walsh, C. E. (2015). Decolonial pedagogies walking and asking. Notes to Paulo Freire from AbyaYala. *International Journal of Lifelong Education*, 34(1), 9–21. <https://doi.org/10.1080/02601370.2014.991522>
- Weisbord, R. G. (2003). The King, the Cardinal and the Pope: Leopold II's genocide in the Congo and the Vatican. *Journal of Genocide Research*, 5(1), 35–45. <https://doi.org/10.1080/14623520305651>
- White, L. (1967). The Historical Roots of Our Ecologic Crisis. *Science*, 155(3767), 1203–1207.

- White, M. A. (2013). Sustainability: I know it when I see it. *Ecological Economics*, 86, 213–217. <https://doi.org/10.1016/j.ecolecon.2012.12.020>
- Woolf, L. (2018). *Empire and Commerce in Africa. A Study in Economic Imperialism*. New York: Routledge/Thoemmes Press.
- World Bank. (2016). *Prosperity and shared prosperity 2016: taking down inequality*. Washington, DC: International Bank for Reconstruction and Development / The World Bank.
- World Bank. (2018). Total natural resources rents (% of GDP) | Data. Retrieved December 28, 2018, from <https://data.worldbank.org/indicator/NY.GDP.TOTL.RT.ZS?end=2016&start=1970&view=chart>
- Yang, D. F., & Goodyear, P. (2004). Pattern languages and genres for writing computer science discourse. In *Beyond the comfort zone: Proceedings of the 21st ASCILITE Conference* (pp. 339–347). Perth, Australia.
- Yedaide, M. M. (2016). Contributions of the critical and decolonial pedagogy for an educative-political project of the South and for the South. *Voces de la educación*, 1(2), 102–102.
- Yeoman, P. (2015). *Habits and habitats: An ethnography of learning entanglement* (PhD Doctorate). University of Sydney, Sydney, Australia. Retrieved from <https://ses.library.usyd.edu.au/handle/2123/13982>
- Yunkaporta, T. (2009). *Aboriginal pedagogies at the cultural interface* (pdoc). James Cook University. Retrieved from <https://researchonline.jcu.edu.au/10974/>

- Yunkaporta, T. (2010). Our ways of Learning in Aboriginal languages. In J. R. Hobson (Ed.), *Re-awakening Languages: Theory and Practice in the Revitalisation of Australia's Indigenous Languages*. Sydney University Press.
- Zamora Islas, E. (2017). *Diccionario Maseualtjtol de la Sierra Nororiental del Estado de Puebla. Campo semántico Náhuatl-Español*. Mexico: Escuela Telesecundaria Tetsijtsilin, Fundación Sertull A.C.
- Zapata Olivella, M. (1990). *¡Levántate mulato! "Por mi raza hablará el espíritu"*. Bogotá, Colombia: BPR Publishers.

Appendices

Appendix A Contact sheet in accordance with protocol number HUM/2016/867/HREC.



Estimated Antonio:

My name is Monica Yadeun and I am the founder of Recrea A.C., a non-profit that develops and delivers environmental education programs in Mexico. During my practice, I noticed that none of the guidelines available for the development of environmental education programs take into account the Indigenous peoples' perspectives on the conservation of the environment. According to the Constitution, Mexico is a multicultural nation based originally upon its Indigenous peoples, and more than 25 million Indigenous peoples live in Mexico. I am interested in generating a set of guidelines for the development of environmental education programs that incorporate the Indigenous perspective on the conservation of the environment.

The decision to incorporate Indigenous perspectives into environmental education programs brought me to study my PhD at Griffith University in Australia. The aim of my PhD is to generate a set of guidelines for Environmental Education programs specifically designed for the Mexican context. At the end of my studies in Australia I will return to Mexico to continue to develop environmental education programs and share those guidelines with other organisations interested in them for the conservation of our ecosystems.

The participation of an Indigenous community is crucial to the development of my studies. The reason I am writing to your community is because I have visited your community before and I know that all the members of Tozapan Kali are committed to our Mother Nature and therefore use ecologically sustainable practices for the production of goods, as well as educate the non-indigenous people that visit Tozapan Kali in topics about sustainable practices like endemic bees honey harvest.

If you decide to participate in my study I will invite you, and other members of your community, to discuss what we think is important to incorporate in environmental education programs. I am also interested in understanding the point of view of the children in your community. I would ask a group of children to take pictures of what they think is the most important element of the community of Tozegan Kali and to then describe the photographs. I have attached a document called "Information Sheet", where you can find the detailed information about your participation.

If you have any doubts regarding the university where I am studying my PhD or around the non-profit, please do not hesitate in contacting me. I also attached some materials of the non-profit so that you can see the kind of work we do.

I hope this can be the beginning of a strong relationship that can help us improve the conservation of our country's nature with small steps. I am sure that if we add the strengths of your worldviews with the strengths of our worldviews we will afford to live in a better place. Thank you for your time.

Monica Yadeun.

Appendix B Information Sheet in accordance with protocol number HUM/2016/867/HREC.



Dear member of the Tozopan Kali community,

I am looking for your help to develop a set of guidelines for environmental education programs in Mexico. Your participation would be very much appreciated!

Who am I?

Hello, I am Monica Yadeun and the most important thing for me is our nature in Mexico. In an effort to motivate people to take care of our ecosystems, I started an NGO in 2009 that develops environmental education materials and programs (examples attached). I am now studying my PhD with the aim of producing a set of guidelines for the development of environmental education programs in Mexico.

Why am I conducting this research?

During our years of practice in an NGO we realised that the guidelines available for the development of environmental education programs do not include Indigenous perspectives on the importance of nature. All of us at the NGO strongly believe that the voice of the Indigenous peoples of Mexico should be heard and applied to environmental education programs, because of your deep connections with mother nature. The major objective of our programs is to reconnect people with the environment and therefore, we consider that your knowledge is crucial for this.

What are you expected to do?

We would like to visit your community so that we can meet each other, and have a friendly conversation about what you think are important things to teach people about taking care of the environment. We would start by sharing what we think is important and then you can share what you feel is important. It would be a dialogue between me and some other members of the non-profit and a group of people from you community. The ideal group would be between 3 and 6 people. If many of you want to participate, we can have many dialogue sessions to keep the groups small, because we want to listen deeply to what you have to say.

Also, we are interested in knowing what the younger members of the community consider important for taking care of nature. But we know they are children and they want to have fun, so we prepared a more fun activity for them. We will give them instant cameras so that they can photograph what they think is the most important element of their community in relation to taking care of nature. Then we will ask them to describe their photograph and why they chose it.

We have very bad memory so in order to avoid misinterpretations we will record the sessions (voice recorder) so that we can listen to them when developing the guidelines. You can keep copies of the recordings if you wish.

Feedback:

When we finish the guidelines, we will show them to you and give you some time to revise them and make sure you are happy with them. If you have any feedback or changes you consider important we will modify them and show them to you again. We will only make the guidelines available to developers of environmental education programs once everyone is happy with the final results.

Your participation is voluntary:

Every member of the community is invited to participate. It is voluntary and therefore, if you feel uncomfortable at any time you can leave.

Questions:

If you have any further questions about the research aims or methods do not hesitate to contact me.

Since I am studying in Griffith University in Australia my research is in accordance with the Griffith University Code for the Responsible Conduct of Research. If you have any concerns or complaints about the ethical conduct of the research project you can contact the Manager, Research Ethics on (+61) 3735 4375 or research-ethics@griffith.edu.au.

Thank you so much for your time and I hope we can start a relationship that will improve the connection of non-Indigenous people to the environment so that we can all live in a country that is more respectful towards its ecosystems.

Appendix C Consent sheet in accordance with protocol number HUM/2016/867/HREC.



Because the proposed research follows decolonising methodologies, recorded, verbal consent is advised instead of written. The following will be read to participants before they begin their participation, this will be part of the recording, and their verbal consent will also be recorded.

Yarning:

Before beginning the yarning the following paragraph will be read to the participants:

Before we start I just want to make sure that everybody is comfortable with the procedure and understand what is expected from you. We will have a conversation about what each member of the group considers important for environmental education programs. It will be a sharing exercise in which each of us will share what we are comfortable with. I will be recording the session to remember everything that will be said. Your participation is voluntary and you can leave at any time you want. Before publishing the set of guidelines you will have the opportunity to revise them and give us feedback. If you have any questions now or later you can always contact me or other members involved in the project. So now I want to ask you: can you please state your name and whether you agree to participate in the yarning session?

Visual methodologies:

Before giving the cameras to the children we will read this paragraph to them and their parents:

Before we start I just want to explain the activity. I will give you the camera and you will need to take a picture of what you think is the most important thing in your community for taking care of the environment. Each one of you will take 3 pictures and then describe what is in the photograph and why is it important. I will make a voice recording and take pictures of your pictures. You are allowed to keep the photos you took at the end of the activity. Your participation is voluntary so you can drop out if you feel like it. Make sure to show the pictures to your parents for their approval before showing them to us. If you or your parents have any doubts, please contact me or any other member of the team. We will show you and the other adults the guidelines before we publish them to make sure you are happy with them. So kids, do you want to participate? Parents of the kids, can you state your name and whether you give your approval for the kids to participate with us?

Appendix D Contact sheet in accordance with protocol number HUM/2018/592/HREC.



Brisbane, Australia at 20th May of 2018.

Dear Recrea A.C. members:

It is with great pleasure that I direct this letter to you. As you know I am studying a PhD in Griffith University, Australia, and my research focus in the design of decolonial environmental education programs that bridge together Indigenous and non-Indigenous knowledges. During the past two years I have been engaged in developing an ethical partnership with the Nahua Indigenous community of Cuetzalan in the State of Puebla, in Mexico.

As a result, I have designed an education program directed to environmental educators of Mexico. The aim of this program is to show environmental educators the great potential of enriching their practice with Indigenous perspectives. Particularly, with perspectives from the Nahua community of Cuetzalan, Puebla, Mexico.

I wish to extend you an invitation to participate in the pilot program, that will be run in the city of Cuetzalan, from the 4th until the 8th of July of 2018. The program will be co-taught by me and my members of the Nahua community. Free accommodation will be provided. If you wish to participate or to invite Mexican environmental educators from other organisations, please contact me to monica.yadeundeantunano@griffithuni.edu.au

There are no foreseeable risks associated with participation in this research. Your participation is voluntary and, if you feel uncomfortable at any time you can leave without explanation or penalty.

This research is part of my PhD academic program at Griffith University. If you have any questions you can contact Dr. Kate Thompson, the chief investigator of the program via kate.thompson@griffith.edu.au, or me, the student researcher via monica.yadeundeantunano@griffithuni.edu.au

The ethic reference number of the project is GU xxxx. If you have any concerns or complaints about the ethical conduct of the research project you can contact the Manager, Research Ethics on 3735 4375 or research-ethics@griffith.edu.au.

The conduct of this research involves the collection, access and/ or use of your identified personal information. The information collected is confidential and will not be disclosed to third parties without your consent, except to meet government, legal or other regulatory authority requirements. A de-identified copy of this data may be used for other research purposes. However, your anonymity will at all times be safeguarded. For further

information consult the University Privacy Plan at <http://www.griffith.edu.au/about-griffith/plans-publications/griffith-university-privacy-plan> or telephone (07) 3735 4375.

Thank you so much for your time.

Warm wishes,

Mónica Yadeun de Antuñano.

Appendix E Information sheet in accordance with protocol number HUM/2018/592/HREC.



Environmental Education course for environmental educators developed as part of the PhD of Mónica Yadeun de Antuñano

Information sheet
GU Ref No: 2018/592

Dear participant, thank you for expressing your wish to participate in this research. As you have been informed in the recruitment email I sent you, and as I have previously explained to you in person, the environmental education course you will be participating in is part of Monica's PhD research.

The course involves five days in which you will be learning about the potential to increase your practice as an environmental educator by including Indigenous perspectives. To this aim, the course will be taught by me, and by members of the Nahua community of Cuetzalan, Puebla.

As part of the program, you will have to realise a pre and post-test. This will allow me to measure if the program I designed achieves the learning outcomes. The post-test includes an interview in which you will share your opinion of the course and give some free feedback.

To assist with the analysis of the course after it is conducted, I will be taking pictures of the development of the activities, as well as of the outcomes of the course (written reflections, drawings, pre and post-test) and I will record the interview of the post test. The recording can be stopped at any point in time upon your request. Please also advise me of any information that you would like to be kept outside the scope of this research due to sensitivity issues. Any direct quotes will be reported anonymously. Please note that any recorded information will be used only for the purpose of this research and only I will have access to this information. The recording will be erased following transcription. The transcription will be stored in a locked filing cabinet at Griffith University for 5 years after which time it will be destroyed confidentially and only I will have access to the data.

There are no foreseeable risks associated with your participation in this research.

If you have any inquiries about the project or the interview process, please contact my supervisor, the head researcher, or me:

Kate Thompson kate.thompson@griffithuni.edu.au

Monica Yadeun de Antunano monica.yadeundeantunano@griffithuni.edu.au

Griffith University conducts research in accordance with the *National Statement on Ethical Conduct in Research Involving Humans*. If you have any concerns or complaints about the ethical conduct of the research project please contact the Manager, Research Ethics on 3735 4375 or research-ethics@griffith.edu.au.

The conduct of this research involves the collection, access and/ or use of your identified personal information. The information collected is confidential and will not be disclosed to third parties without your consent, except to meet government, legal or other regulatory authority requirements. A de-identified copy of this data may be used for other research purposes. However, your anonymity will at all times be safeguarded. For further information consult the University's Privacy Plan at <http://www.griffith.edu.au/about-griffith/plans-publications/griffith-university-privacy-plan> or telephone (07) 3735 4375.

*Appendix F Consent sheet in accordance with protocol number**HUM/2018/592/HREC.*

Environmental Education course for environmental educators developed as part of
the

PhD of Mónica Yadeun de Antuñano

CONSENT FORM GU Ref No: 2016/867

| |
|--|
| Contact Details: |
| Head researcher: Dr Kate Thompson kate.thompson@griffith.edu.au |
| Student researcher: PhD candidate Monica Yadeun de Antunano monica.yadeundeantunano@griffithuni.edu.au |

By signing below, I confirm that I have been explained, I have read the information sheet and as result:

- I understand that my involvement in this research will include participating in an environmental education course during the period comprised between July 3rd and July 7th 2018 in the city of Cuetzalan, Puebla, Mexico.
- I understand that I will be doing a pre -test and a post-test so that the researcher can evaluate the success of the program.
- I understand that photos of the materials produced during the course (drawings, written reflections, pre and post test) will be taken by the researcher for further analysis.
- I understand that I will be interviewed by the end of the program to share my insights on the course and provide feedback.
- I understand that my interview will be audio recorded and I will be provided with a copy of the transcripts.
- I understand that the recording will be erased following transcription;
- I understand that the transcription and the photos will be stored in a locked filing cabinet at Griffith University for 5 years after which time it will be destroyed confidentially;
- I understand that only the researchers named in this form will have access to the data;
- I understand that I can have access to summary of results from this research via email request;
- I have had any questions answered to my satisfaction;
- I understand that there will be no direct benefit to me from my participation in this research;
- I understand that my participation in this research is voluntary;
- I understand that if I have any additional questions I can contact the research team;
- I understand that I am free to withdraw at any time, without comment or penalty;
- I understand that I can contact the Manager, Research Ethics, at Griffith University Human Research Ethics Committee on 3735 4375 (or research-ethics@griffith.edu.au) if I have any concerns about the ethical conduct of the project; and
- I agree to participate in the project.

Griffith University thank you for your consent and your participation.

Name

Signature

Date

Appendix G Consent for pictures sheet in accordance with protocol number HUM/2018/592/HREC.



Consent form for the publication of photos taken at the Meliponary school with Roque.

GU Ref No:

_____ (DDMMYY)

Date:

By agreeing to the publication of the photos you are giving permission for Monica Yadeun de Antunano, Dr. Kate Thompson and Dr Cheryl Desha, to publish photos taken during the development of the program in the publication of Monica's thesis and subsequent research publications.

Participant's consent:

____ Yes, I give permission for my photos to be published.

____ No, I do not give permission for my photos to be published.

Signature: _____

Appendix H Questions for interview of the participants of the pedagogy



After having participated in the program,

1. What did you think about the program?
2. How do you feel on a personal level after participating in the program?
3. Did your perspective of change changed after the course?
4. Did the program challenged your personal beliefs?
5. What do you consider is the pathway for change?
6. What is your opinion around sustainable development?
7. Did you feel that you learn equally from the facilitator than from the rest of the participants?
8. Is there any activity in particular you remember?
9. How do you feel about the Indigenous resistance of Cuetzalan?
10. Do you think you live a good life?
11. What was your favourite part of the program?
12. Can you offer some feedback for improving the course?