Teaching for strong sustainability in university tourism courses

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Introduction

With growing pressure on the tourism industry to reduce its ecological footprint (Dolnicar et al., 2008), improve its economic performance and earn greater community acceptance (Yu et al., 2011), increasing attention is being given to the education of university students and their capacities to think holistically about sustainability issues (Bush-Gibson and Rinfret, 2010; McKercher and Prideaux, 2011). It seems that it is no longer enough to simply increase awareness of the myriad of environmental, economic and social problems but rather what is required is cultivating a sustainable mindset and a capability to think in complex, critical, systematic, holistic and interdisciplinary ways (Gretzel et al., 2014; Rieckmann, 2011). According to UNESCO (2005), it is important that universities prepare individuals who are capable of running tourism businesses that deliver economically profitable, socially responsible and ecologically viable services.

Despite a decade of support for sustainability education by the United Nations (UNESCO, 2005) and strong evidence that universities have taken sustainability issues on board (for example campus greening), the extent to which sustainability has been embedded into the curriculum and teaching and learning activities is still limited (Boyle, 2012; Ferreira and Tilbury, 2012). Graduates continue to display weak sustainability ideals and studies indicate that they have a narrow view of sustainability (Reid et al., 2009). Alternatively, learners develop an unbalanced view of sustainability by focusing only on one dimension, such as the environment (Kagawa, 2007; Zeegers and Clark, 2014). McKercher and Prideaux's (2011) global survey of 2968 hospitality and tourism students also revealed that they had a limited knowledge of critical tourism issues and subsequently little evidence of holistic and systemic thinking. This is concerning given that a key sustainability capability is the ability to think holistically. The question then is whether this stems from tourism courses being framed on weaker conceptualizations of sustainability or from a lack of substantial focus on developing learners' capabilities to think holistically about sustainability.

With increasing pressure on the tourism industry to reduce its ecological footprint in order to protect natural resources and loss of biodiversity (Chambers et al., 2000), the industry is being forced to make continuous changes to the way in which destinations manage and plan for sustainable tourism (Dwyer et al., 2010, p. 739). An important outcome of a university business education is to shape individuals who are capable of managing sustainable businesses that are not only profitable but have positive social and environmental benefits (Innui et al., 2006). In preparing future sustainable tourism workers, universities also need to design curricula that develop the learners' capabilities to think with foresight and empathy towards all surrounding stakeholders. The aim of this chapter, therefore, is to discuss the ways in which sustainability is currently conceptualized within tourism undergraduate courses, and current and effective teaching and learning approaches to sustainability. The chapter also discusses education for sustainability as a means to encourage deeper and more complex understandings of sustainability for the future leaders of an increasingly complex and dynamic industry.

Sustainable Tourism Education

As the Decade of Education for Sustainable Development (UNDESD) comes to a close, many universities have recognized and embraced the importance of developing socially responsible citizens. Many governments have developed plans of action for this important task, including the Australian Government, who devised the National Action Plan for Education for Sustainability (Department of the Environment, Water, Heritage and the Arts, 2009). This section provides an overview of Education for Sustainability (EfS) pedagogy in higher education generally, and within tourism education.

Education for Sustainability

According to UNESCO (2005), a variety of pedagogical techniques are needed if EfS is to be effective in developing the sorts of higher-order thinking skills that are necessary to transition to a sustainable society. According to Wals and Blewitt (2010), this is not occurring in higher education because 'most universities are too often still advancing the kind of thinking, teaching and research that leads to unsustainability and ignoring alternate ways of knowing and being, that are not rooted in Western (scientific) traditions' (p. 70).

Traditional forms of learning, which are often behaviorist, need to be complemented by alternative learning theories (Wals and Dillon, 2013) if learners are going to be equipped with the skills and capacities necessary for their future careers in the sustainable tourism industry. The field of education for sustainability offers a range of alternative teaching and learning approaches, including transformative learning, transdisciplinary learning, anticipatory learning, collaborative learning, and social learning (Wals, 2011), all of which have 'emancipatory' characteristics. Other commonalities in these approaches include the socially interactive nature of learning, its transdisciplinary nature, and a view that learning is more than knowledge acquisition (Wals, 2011). Indeed, the capacity to think in more complex ways is recognized as a key competence for managing sustainability effectively. As a consequence, further insights are needed to determine to what extent such complex ways of thinking about sustainability are underpinning tourism curriculum and pedagogy. As the context of this book is tourism education, the next section of this chapter explores the range of approaches already in use in sustainable tourism education.

Tourism Education

University tourism education has placed an emphasis on developing employability skills and attributes (Innui et al., 2006). Preparing graduates to enter an industry that has the potential to influence and change the surrounding social and cultural environment suggests that universities should place equal emphasis on developing a curriculum that educates the learners to develop skills in critical thinking and their capacity to influence and effect social and cultural change (Dredge et al., 2012). Innui et al. (2006) further suggest that it is equally important to educate learners about the philosophical and vocational foundations of tourism to enable learners to deal effectively with the social aspects of the phenomenon. The task of creating a curriculum that develops university students' vocational and philosophical skills requires, however, a curriculum that addresses vocational skills while at the same time teaching the learners to be critical and reflective thinkers who are able and willing to act ethically. It is only in this way, Tribe (2002) argues, that graduates will become 'philosophical practitioners'. Curriculum aimed at developing philosophical practitioners consists of two dimensions: the educational journey and the end result of employability (Tribe, 2002). According to Tribe (2002), if the purpose of education is intrinsic and the stance is reflective, educators can develop individuals who are capable of creating and

critiquing tourism management actions. Although this acts as a framework for designing curriculum, Tribe's (2002) work does not seem to include specific pedagogical strategies for developing learners' understandings in order to shape tourism managers capable of driving sustainable tourism.

The Tourism Education Futures Initiative (TEFI), created in 2007 by a group of concerned educators, provides some tools to address the future challenges of the tourism industry. As part of the initiative, educators devised a framework for a new curriculum to promote global citizenship. The TEFI framework consists of five pillars representing key values that include: mutuality, ethics, professionalism, knowledge and stewardship. One of the core values, 'stewardship', is underpinned by the ability to manage sustainability and complex adaptive systems by acting in responsible ways (Sheldon et al., 2008). This framework provides a more holistic way of thinking about sustainability although some researchers have found these values impractical to incorporate into curriculum design (Farber Canziani et al., 2012). It is the ongoing commitment of communities of educators, such as that of TEFI, concerned with sharing best practice and improving the space of learning, who do well to increase and promote collaboration between individuals and universities.

Finally, a review of university web pages suggests many universities are attempting to address the notion of developing socially responsible citizens by ensuring alignment between the curriculum and strategic plans. For example, the Griffith University Business School, as part of their *Business Group Strategic Plan 2013–2017*, revised its mission statement to include 'Developing tomorrow's globally responsible leaders', with one of the core values: 'supporting staff and students to become responsible leaders who demonstrate the highest levels of integrity and ethical behavior' (Griffith Business School, 2013, p. 1). If these ideals are to be realized, however, universities must ensure that these core values are embedded into all courses but especially sustainability-specific courses. Some tourism courses have already made substantial changes to their curriculum design, for example by incorporating an action research approach to develop learners' critical thinking skills and reflection regarding sustainability (Jennings et al., 2010). There is still, however, limited research on the extent to which universities are fostering these skills, particularly in tourism courses. It is evident that curriculum design needs to focus more on developing the learners' ability to see the complex interconnections of sustainability (Kagawa, 2007, p. 335). It seems essential that curriculum change occurs if universities' strategies to enable graduates to become responsible leaders are to be successful. Part of the challenge lies in current conceptualizations of sustainability held by not only educators, but also those that learners initially bring to the classroom. These two factors are important considerations when designing tourism curriculum.

Conceptualizing Sustainability in Tourism Education

One of the challenges of educating for sustainability through tourism education lies in the complexities surrounding definitions of sustainable tourism. Sustainable tourism is defined as 'tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities' (United Nations World Tourism Organization, 2013, para. 1). A quadruple bottom line with the addition of 'culture' (Hawkes, 2001) and later 'climate' has also been suggested, thereby encouraging destinations to incorporate actions to address climate change into their decision-making for more sustainable forms of tourism (United Nations World Tourism Organization, 2007). More recently, geopolitical sustainability – the positive

influence that travel can have on political relationships between regions or countries – has been suggested as an important component of the quadruple bottom line (Weaver and Lawton, 2014).

Variations in what constitutes sustainable tourism, sustainability and sustainable development are also complex. It is evident, however, that the success of tourism destinations depends largely on planning strategies and educating staff in order to help sustain local economies, host communities and the environment (The International Centre of Excellence in Tourism and Hospitality, cited in Richardson and Fluker, 2008). This requires considerable change on the part of tourism managers and destinations, including learning to continuously adapt to change, and to take a proactive role in educating staff and customers. This means managers need to undertake continuous interventions in the form of policy and management, as well as educational interventions. Universities have a significant role to play in educating future tourism workers by preparing and fostering graduates who can deal with complex issues, think holistically, and who are committed to participating in and managing ethical and strongly sustainable tourism practices.

The Implementation Plan for the UN DESD refers to three realms of sustainability: environmental, social and economic as the core issues or overlapping spheres (UNESCO, 2005) that need to be taken into account in education efforts. This is also commonly referred to as the triple bottom line (Hall, 2008), with sustainable tourism indicators often referring to these three key elements. Although the model has undergone numerous iterations to include political, cultural, socio-cultural and even spiritual factors, the core 3 P's (people, planet and profit) remain. It has been argued that this model emphasizes financial outcomes at the expense of social or environmental consequences (Springett, 2003). For this reason, the triple bottom line model of sustainability can therefore be interpreted as a weak form of sustainability due to the anthropocentric focus on profit/economics. An anthropocentric focus is seeing the environment in terms of what it can provide for humans either as a product or as a service provider to maintain or enhance human existence (Carew and Mitchell, 2008). Sustainable tourism is sometimes referred to as 'product-focused' in so much as only minimal maintenance of the environment is undertaken to ensure the product continues to make a profit (sustainable growth) (Hunter, 2002). There have also been criticisms of the term 'sustainable development' as this too implies sustainable 'growth' that is anthropocentric and, therefore, also points to a weaker form of sustainability (Hunter, 1997).

Early understandings of sustainable tourism located sustainable tourism at the opposite end of a continuum to mass tourism, given that negative economic, social and environmental impacts were often attributed to destinations associated with mass tourism (Lu and Nepal, 2009). Since the 1990s, however, researchers have acknowledged that it is possible for ecotourism to be unsustainable and for mass tourism to be sustainable (Weaver, 2012; 2013). This has led to the current view that the main objective of any type of tourism should be moving towards sustainability by adapting management strategies and practices (Clarke, 1997; Lu and Nepal, 2009).

Strong forms of sustainability, in contrast, place emphasis on social and environmental justice (Springett, 2010), or activity that is ecocentric in nature. This is similar to the 'ecological ethos' whereby conservation is at the heart of living, and society aims to find ways of reducing waste, conserving resources and living in harmony with nature (Fien and Ferreira, 1997). According to Dovers (2005), categorizations of strong forms of sustainability tend to be ecological in nature, whereas government and business sectors

tend to display predominantly weak forms of sustainability. By making clear the conceptualizations of sustainability underpinning course design, universities can then look at approaches to teaching and learning that encourage deeper learning to take place. Deep learning involves empowering learners to look for connections between new information and past experience; thinking critically; and being actively involved in the learning process (Marton and Saljo, 1997). Such an approach to learning will enable university students to graduate with the capability to think holistically and critically about the complex situations they will face in the tourism industry.

Teaching and Learning about Sustainability

While it is vitally important that educators examine their own personal understandings of the concept of sustainability and understand how this influences and frames their course designs, it is also vitally important that educators reflect on how learners learn about sustainability. An understanding of these two influences will allow for a deep reflection on the different approaches available for teaching about sustainability.

Epistemology, that is, the nature of knowledge and ways of acquiring knowledge, is central to understanding the learners' conceptualizations of sustainability, and how learners gain these understandings of sustainability. From a philosophical point of view, some would argue that knowledge is simply a recall of information or knowledge that already exists within the mind, such as the rationalist tradition of Plato (cited in Watkins, 2000). The empiricist tradition, in contrast, argues that knowledge lies outside of the learner. The following subsection aims to review the literature concerning how individuals might gain knowledge about sustainability and the ways in which the phenomenon can be taught and learnt. Particular focus is given to alternative methods of achieving more complex ways of thinking about sustainability in order for tourism students to graduate with sustainability mindsets.

Conceptions of Teaching and Learning

Learning differs from person to person, context to context, and country to country. For example, there are numerous external and internal factors that a learner brings into the classroom that impact on the learners' learning (for example parenting, community, motivation). Broadly speaking, there are two contrasting conceptions of teaching and learning. At one end of the spectrum, the educator is seen as a transmitter of information (Biggs, 1991). The argument here is that as long as the educator is knowledgeable in the content area and can communicate this content in a clear manner, the content will then be absorbed by the learner. The learner is therefore understood as an 'empty vessel' who memorizes facts and figures, which are then tested at a later date. This is a teacher-focused or teacher-centered approach to teaching and learning, and is sometimes referred to as the 'banking concept of education' (Freire, 2014). The motivation to learn here is not intrinsic and the outcome is that minimal information is retained beyond memorization for examination. Such approaches rely on extrinsic motivations such as the fear of failure to motivate learners to learn (Biggs, 1991).

In stark contrast to this approach to teaching and learning is a view that places the learner at the center of the educational exchange. While the educator prepares activities that enable the learner to construct meanings, they also have an interest in understanding phenomena from the learner's perspective. In this approach, the learner is interested and motivated to learn in order to satisfy a curiosity as well to as develop new understandings of

the world around him/her (Killen, 2009). This approach is also known as a student-centered approach to teaching and learning (Entwistle, 1997).

These two very different approaches result in different sorts of learning. Teacher-centered approaches will generally result in what is referred to as surface learning, that is, a low-level understanding of concepts and topics (Entwistle cited in Marton and Saljo, 1997). In contrast, a more student-centered approach to teaching will result in a much deeper level of understanding of concepts and topics (Biggs, 1991).

In order to encourage deeper learning to take place, however, educators must not only foster intrinsic motivations; they must also teach the procedural knowledge needed to perform the main tasks (Biggs, 1991). If educators want to enable learners to become effective problem-solvers, for example, then educators must explicitly teach problem-solving skills. In other words, it is necessary to explicitly teach the skills needed rather than expecting that deep learning will happen naturally (Biggs, 1991).

Jickling and Wals (2008) also outline the differences between 'transmissive education', which is similar to a teacher-led approach, and 'transformative education', which is more student-focused, where knowledge is co-created and allows learners the freedom to critically reflect and transform their knowledge of sustainability 'enabling thought and action'. The argument here is that by constantly challenging learners to be critical, reflective and systematic as well as active in the learning process, their learning can be improved (Biggs, 1991). This can be achieved, for example, by promoting activities that require higher-order thinking such as problem solving, researching and being creative. Such activities have been found to encourage learners to engage in more complex ways of thinking (Killen, 2009). This is in line with Bloom's Taxonomy (Bloom, 1956), which shows that the learners' cognitive processes range from remembering and understanding through to applying, analyzing, evaluating and creating. As this chapter is concerned with developing more complex understandings and knowledge, the following subsections will explore key learning theories in more detail.

Learning Theories

Three broad theoretical explanations to explain learning are behaviorism, cognitivism and humanism. This chapter is concerned with cognitive theories of learning since the interest lies in how learners construct meaning and develop critical thinking skills and deeper understandings of a phenomenon. Cognitive learning theory is concerned with internal mental processes and how people derive meanings from new information and experiences they receive (Glaserfeld, 2005). Constructivism is one of the major cognitive learning theories because it combines the roles of the individual and social interaction in constructing knowledge (Wals and Dillon, 2013). The two versions of constructivism are: individual constructivism which stems from Piaget's work on cognitive development, which states that individuals move through a series of progressive stages or schemas in order to construct knowledge; and social constructivism, which argues that knowledge does not lie within the individual but is dependent on social interaction, which is predominantly the work of Vygotsky (Krause et al., 2010).

Often referred to as constructivist education, knowledge here is understood to be actively constructed by the learner rather than imparted by the educator (Marton and Saljo, 1997). Constructivism in the classroom requires learner-centered activities that focus on the background knowledge and experiences of the individuals as well as opportunities for

individuals to work in groups (for example collaborative learning and peer-assisted learning) (Killen, 2009); it also requires a certain amount of reflection by both the learner and the educator. Some critics of constructivist education argue that an educator will still influence the teaching and learning activities based on what they 'already know, think and feel about a topic' (Prosser and Trigwell, 1999 cited in Carew and Mitchell 2008, p. 106). Furthermore, Tobias and Duffy (2009) claim that there is no obvious evidence to show effective learning as an outcome from the learning principles derived from constructivism. They suggest that constructivism is more of a philosophical framework rather than a theory as it does not accurately describe instruction or prescribe design strategies.

Transformative Learning

Wals and Dillon (2013) believe that these traditional theories of learning need to be complemented with alternative learning theories that better capture the complexity of sustainability. They suggest that what is required for learning about sustainability is transformative learning. Transformative learning is learning that transforms the learner by enabling the learner to shift to a new way of being and seeing (O'Sullivan, 2001). Mezirow (1978) identified a number of phases to the transformative learning process, which range from feeling disorientated and feeling shameful, angry or guilty after self-examination to challenges to one's assumptions, which leads to acquiring new knowledge and skills, to eventually creating new relationships and behaviors (Mezirow and Taylor, 2009). Sipos et al. (2007) used Mezirow's work to develop a framework for 'transformative sustainability learning' (TSL) using the synergies of head, heart and hand to enable engagement in sustainability. While transformative learning is generally seen as a positive way to approach learning for sustainability, it can, however, be challenging for educators to deliver. This is due to the transformative nature that is designed to shift learners' consciousness and forever change the way in which they see the world (Sterling, 2010). One strategy often used is to encourage learners to understand the different ways in which situations can be understood and analyzed, using a technique such as de Bono's Six Thinking Hats (De Bono, 2008).

Other Forms of Learning

Other forms of learning useful for developing the capabilities needed to deal with high risk and complex scenarios such as sustainability are transdisciplinary learning, collaborative learning and social learning (Wals, 2011). Similarities in these types of learning are that they are transdisciplinary, cross-boundary in nature and flexible, encouraging a responsiveness to shifting learning objectives as learning develops (Wals, 2011). Social learning, although not a new form of learning, has become popular in education for sustainability because it can be powerful in terms of the transformation that can take place in heterogeneous settings (O'Sullivan, 2001). Exploring one's ideas and values in a group setting that is cohesive is said to encourage better listening skills as well as the qualities needed for switching to varying sustainability mindsets (otherwise known as 'Gestaltswitching') (Wals and Blewitt, 2010). Gestaltswitching is the ability to switch back and forth between temporal, spatial, disciplinary and cultural dimensions of sustainability, which can lead to transformative learning as well as more ecocentric approaches to sustainability (Wals, 2011).

Systems Thinking

Another way in which to learn about a phenomenon such as sustainability is a process known as 'Systems Thinking'. Systems thinking is a key goal of and strategy for educating

about sustainability (ARIES, 2009). Systems thinking enables learners to identify connections and relationships in order to better understand complex situations (ARIES, 2009) and complex concepts such as sustainability. The theory was developed in the 1930s by Bertalanffy, a biologist, who realized that multi-disciplinary ways of looking at living organisms could help to better understand a phenomenon of interest. Bertalanffy (1972) claims general systems theory is 'a way of seeing things that were previously overlooked or by-passed' (p. 424). Since the 1970s, systems theory has been applied to tourism research as it helps to explain the elements and interrelationships between the elements, as well as their relationship with the surrounding environment within which a system is located (Leiper, 1995). General systems theory is concerned with any complex system comprising interrelated systems and subsystems arranged in a relationship of hierarchy and subsidiarity (Leiper, 1995).

Systems thinking is particularly useful for teaching and learning about sustainability given the complexity of sustainability particularly within tourist destinations. A 2009 survey of professionals in the field showed, for example, that 'systems thinking' as a skill was rated amongst the top capabilities needed in the workplace (Williard et al. cited in Sterling and Thomas, 2006, p. 215). Notably, two of the five key principles of Education for Sustainable Development (ESD) are critical thinking and systemic thinking (Tilbury and Mula, 2009, p. 11). Despite this, research undertaken to analyze sustainability capabilities evident in Australian university graduate attribute statements showed that although many capabilities were present in two-thirds of Australian university statements, 'systems/holistic thinking' was not represented (Thomas and Day, 2014). This study, however, did not examine the extent to which sustainability capabilities are being implemented into curriculum design and pedagogy; and according to Boyle (2012) more emphasis needs to be placed on curriculum development, and teaching and learning. Senge (2006) argues that systems thinking is a skill that has to be taught and learned over time, while others see it as a pattern of thinking that can be easily learned and once acquired can be applied to differing situations and contexts with ease (Cabrera et al., 2008). Mind maps are a useful technique that can enable learners to learn how to think systemically (Senge, 2006).

Systems thinking, however, needs to be explicitly taught as a skill if learners are to develop a deep understanding of systems and concepts such as interconnectedness (Booth Sweeney and Sterman, 2000). Various systems models exist to explain the tourism destination (for example Leiper, Gunn, Hall) and to illustrate various subsystems in a systematic and holistic way. Systems thinking, however, does not seem to take into account the learners' previous experiences or the understandings that they bring to the classroom. According to Tribe (2001), such understandings are necessary for developing an interpretivist curriculum, which contrasts with the more common positivist approach used by many tourism curriculum designers.

Phenomenography as an Approach to Explaining Learning

Despite the many different approaches to teaching and learning theories, Marton and Booth (1997) believe that educators need to focus on the learner's experience of what is to be learnt. They believe it is necessary for educators to have an awareness of the learners' past experience and knowledge of the object of study (Marton and Booth, 1997). Marton and Booth (1997) argue that from a phenomenographic perspective, knowledge is created through an internal relation between us and the world around us.

As previously discussed, individual constructivists explain that knowledge about the external world comes from within the learner, whereas social constructivists believe that knowledge comes from outside the learner. That is, they believe that individuals create meaning through social interactions and therefore our internal world is explained by use of the external world around us (Lo, 2012). Therefore, phenomenography posits that learning is relational in that 'it takes place through an interaction between the student, the content of learning material, and the overall learning environment' (Entwistle, 1997, p. 129).

Phenomenography was developed in the 1970s as an interpretivist approach to research whereby the researchers' aim is to understand the qualitatively different ways in which people experience a phenomenon. It is this interest in seeking to understand the way in which individuals experience a phenomenon that leads to identification of the variations in ways of experiencing a phenomenon. These different ways of experiencing are often hierarchical in that they are represented in a logical manner of increasing complexity; a less developed understanding of the phenomenon will always include a partial knowledge or experience of the more developed way of understanding in the hierarchy. This is useful in an educational setting when seeking to develop more complex understandings in the learners (Marton and Booth, 1997).

As a research approach, phenomenography is well suited to answering learning and teaching research questions. It must also be noted here that phenomenography itself is purely an approach rather than a theory or a method. There are various criticisms of the use of phenomenography in terms of the subjectivity in constructing categories of descriptions, preferences for other methodologies and questions over phenomenography as a methodology (Entwistle, 1997). Despite these criticisms, numerous studies have still posited its usefulness as a tool for educators (for example Stamouli and Huggard, 2007) including its usefulness in industry settings of leisure and tourism education (for example Watkins and Bell, 2002; Watkins and Bond, 2007). Novais et al. (2014), however, point out that limited studies have been conducted to investigate the effect of using the phenomenographic approach on understanding tourism experiences.

In addition to the benefits of a phenomenographic approach in uncovering a person's understanding of how they experience a phenomenon, and using phenomenographic interview techniques and analysis to inform categories of descriptions that form the hierarchical variations, phenomenography has various sub-methods, including variation theory and the learning study. Variation theory will now be discussed as a possible effective teaching and learning strategy in EfS.

Using Variation Theory to Inform Teaching and Learning

Based on the previous discussion that learners will experience phenomena in qualitatively different ways, it is necessary to 'develop a pedagogy that caters for [those] individual differences' (Lo and Pang, 2006, p. 11). As described by Lo (2012), variation theory employs the findings from phenomenographic research to build 'a theoretical framework of concepts aimed at helping educators to structure learning experiences in ways that cater for individual ways of seeing things'. Therefore, rather than a learning theory, variation theory can be seen as a pedagogical strategy (Lo, 2012).

Most teaching and learning deals with learning objectives as the driving force behind the way in which subject matter is taught and learnt. The principles of variation theory, however, rather than focus on the end result (learning objectives or outcomes), focus on the

'how' to get there. In order for a learner to understand a concept, they must come to understand that concept from the external world in which it exists. The way in which a learner 'sees' (or experiences) and therefore understands a phenomenon is based on the aspects that the learner focuses on at one time, meaning two people can simultaneously experience the same phenomena in varying ways (Marton and Tsui, 2004). Varying aspects – called 'critical aspects' – must be discerned simultaneously in order for the learners to change their way of seeing (Pang and Ling, 2012). The argument here is that if the learners can experience variation in a critical aspect of the phenomena, then they will be able to discern the variations that exist, and in turn, their understanding will improve and deep learning will take place (Pang and Ling, 2012).

The learners also bring with them preconceived ideas of the concept to be learnt based on prior experience. If an educator has a more nuanced knowledge of the subject matter to be taught, it makes sense for the educator to first understand the way in which the learner experiences the concept in order to design learning activities that guide the learners towards a more complex understanding that matches the educators or the learning outcome/objective (Lo, 2012). In this way, variation theory deals with the relationship between the learner and the learning outcome (or object of learning) rather than only focusing on the objective of learning, and thus the process involves a high degree of iteration and reflection on the part of the educator (Marton and Booth, 1997).

This is where the notion of 'categories of description' plays a role in aiding the learner to experience the concept in varying degrees of complexity from less to more developed. This is not to say that a more complex understanding is superior to a less developed category of understanding but rather a set of interrelated ways of understanding that can be developed over time and through experience. Furthermore, the most complex approach to understanding a phenomenon often includes and draws upon all previous less complex experiences and knowledge of the phenomena in order to discern variation to the point of acquiring the most complex understanding (Marton and Trigwell, 2000).

Variation theory proposes that learners gain knowledge by: (1) developing the ability to discern the critical dimensions of a phenomenon; (2) appreciating variation in the values of the dimensions; and (3) being simultaneously aware of two or more dimensions (Marton and Booth, 1997). Thus, variation theory proposes that educators design activities that help generate the skill of discernment needed for the learners to learn.

An example of how one could use variation theory in sustainable tourism courses is to focus on presenting the learners with teaching and learning activities that expose them to variations in a concept. For example, using two case studies that demonstrate different approaches to the phenomena of sustainability enables the learners to discern and identify differences, helping them to move to more complex ways of understanding a phenomenon. Another strategy might be a field trip where the learners engage with a range of stakeholders including indigenous groups, developers, community leaders, politicians, business owners and conservationists. Exposing learners to the different perspectives on a phenomenon such as sustainability can help the learners to discern variation and therefore develop more complex understandings. Various studies have explored the usefulness of variation theory in the classroom with promising results. A principal benefit is that it allows educators to discern the different ways in which learners experience and learn about phenomena (Davies and Dunnill, 2006; Runesson, 2006; Tong, 2012), and can serve as a tool to strengthen the 'space of learning'.

Summary

As previously discussed, research suggests that not only is learning in sustainable tourism courses generally based on potentially 'weak' conceptualizations of sustainability, but it also shows that university students are still graduating with a limited or surface level understanding of sustainability (McKercher and Prideaux, 2011) and without the capability to think in more complex ways about this phenomenon. Further research is therefore needed on how university educators can foster capabilities of more complex ways of thinking about sustainability by designing courses, as well as teaching and learning strategies, that encourage and enable the learners to conceptualize strong sustainability (Connell et al., 2012). It is also necessary to conduct ongoing research on ways to educate for sustainability, as well as within a sustainable tourism context (Ballantyne and Packer, 2005), in particular alternative approaches to teaching and learning (Wals and Dillon, 2013) and alternative ways of knowing (Wals and Blewitt, 2010). The research has identified that a phenomenographic approach may be a viable alternative to develop more complex understandings of sustainable tourism and may address many of these issues.

Future directions

Analysis of existing research clearly identifies limited evidence that university courses are being underpinned by more complex ways of thinking, such as critical, holistic and systems thinking (Thomas and Day, 2014). Evidence suggests instead that many tourism courses are based on the triple bottom line approach and/or sustainable growth, which may not represent the most effective approach for understanding sustainability (Springett, 2003). Strong sustainability, on the other hand, is striving to conserve (or enhance) our natural capital and maintain constant stocks regardless of human-made capital (Wackernagel and Rees, 1998). If learning is based on potentially 'weak' conceptualizations of sustainability, then it is no surprise that university students are graduating with a limited or surface level understanding of sustainability (McKercher and Prideaux, 2011) and without the skills needed to think in more complex ways about this phenomenon. Therefore, ongoing research is needed into how university educators can foster their learners' capabilities to develop more complex ways of thinking about sustainability. A starting point could be by designing courses, as well as utilizing teaching and learning strategies, to better represent strong conceptualizations of sustainability (Connell et al., 2012).

From the review of the literature, it is apparent that part of the challenge is defining the phenomenon of sustainability. There are challenges in the way in which the phenomenon is conceptualized and subsequently the way in which it is underpinning curriculum, and therefore teaching and learning. It is apparent that further research is needed on ways to educate for sustainability, as well as within a sustainable tourism context (Ballantyne and Packer, 2005).

Furthermore, many tourism curricula tend to use a positivist approach to designing curriculum as opposed to an interpretivist approach (Tribe, 2001). There is a need for an interpretive approach to curriculum design by including understanding and meaning from all stakeholders, including the learners themselves (Tribe, 2001). This is something that all tourism educators can build into courses by using the learners' knowledge at the outset of a course to guide curriculum design.

Further research into alternative approaches to teaching and learning about sustainability (Wals and Dillon, 2013) as well as alternative ways of knowing (Wals and

Blewitt, 2010) is also required. There is no one-size-fits-all approach to teaching and learning about sustainability. However, if educators remain curious about incorporating and trialing different approaches to teaching and learning within courses and continuously reflecting on the outcomes, they then have a better chance of shaping their learners as individuals who are capable of working in and operating businesses that deliver economically profitable, socially responsible and ecologically viable services.

Conclusion

This chapter has explored current conceptualizations of sustainability underpinning tourism course design and identified the possibility that some courses may be designed using a 'weak' conceptualization of sustainability. Several approaches to teaching and learning about sustainability within tourism education were discussed. Tourism educators have the potential to shape the learners' worldviews and ultimately contribute to their ability to act ethically and responsibly. This requires educators to lead by example and share and demonstrate strong ethics and morals. To lead by example, it is necessary to address our own motives and desires to be sustainable and to continuously reflect on our practices (Ferreira et al., 2013), committing to ongoing professional development and lifelong learning by, for example, engaging with like-minded sustainability educators. Sustainability is often seen as a philosophy of continuously committing to a long-term goal of becoming the most sustainable that we can possibly be. Educators should therefore continuously strive to achieve sustainable mindsets in our learners as they are potentially the future generation of change-makers that may lead to a more sustainable tourism industry.

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