Transformational and Transmodal Redesign in Children's Music Invention: An Exploration Using the Space of Music Dialogue

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ABSTRACT

Recent research in music education has addressed silences in the literature of learning and pedagogy, acknowledging there is need of more specific in-depth analysis of children’s rich and varied music invention. Children, according to recent research in multimodal social semiotics, select and redesign resources in and across modes to transform meaning and enhance learning in diverse contexts. Investigations in this field of enquiry have revealed how investment of interested action may, over time, enhance conceptual understanding as children apply previous learning in moments of transmodal redesign. Children’s inventive music made in their first school year, when viewed through the social semiotic lens in this study, was shown to promote cognition in music.

Essentially, this thesis explored instances of transformational and transmodal redesign as realised in young children’s music invention. Building on existing literature of the praxis of music, the aim was to clarify meanings made in multimodal music inventions by viewing, over six months, the interactions of five-year-old children in formal educational classroom and home settings. The researcher initiated weekly music classes in rural and urban schools. Visits were made to the homes of six children in order to initiate inventive music activities with families. Interactions were recorded on video, and observations and interviews with parents and children made. Parents captured, on video, additional music activities in the home. Other data sets (interviews, observations and field notes) were combined for exploration of individual and group music interactions across contexts. Video transcripts were treated as artifacts and interpreted in context using a social semiotic framework. Dependability was enhanced as researcher collected, coded, transcribed and analysed all data. Interpretations of the data were discussed with two co-raters in the field of social semiotics. The method of
analysis was similar to Multimodal Interaction Analysis (MIA), investigating the modal density and configurations of actions and associated meanings in children’s music inventions, combined with Activity Theory, to examine wider socio-cultural influences.

Different methods of transcription were used for different music events, to feature the types of interactions and the foregrounding of modes. This procedure has been validated by previous multimodal analysis. Still image or tracings, accompanied by verbal commentary, suited music invention featuring gestural and verbal linguistic modes; music score and tabular mapping suited audio modes; while music score and still image captured gestural and audio modes in classroom inventions. In this way the thesis developed useful multimodal transcription methods appropriate for all children's music invention and performance.

A conceptual framework, the space of music dialogue, was conceived for this thesis following a review of the literature. It shaped data collection, transcription and analysis where elements of music were central modes, viewed in simultaneity with other modes (linguistic, gestural, visual, mimetic, spatial), or in turn, to trace the unfolding of transformational or transmodal redesign in situated music inventive practices. Through resistance, disjunctive meaning making, and cognitive dissonance occurring in specific contexts, and by semiotic import of composing resources or prior learning made across contexts, some children were seen to arrive at a shift in their conceptual understanding of music. Poststructural theory and ideas of disjointed constructions underpinned the use of a multimodal lens to interpret how, over time, this shift in meaning occurred through transmodal redesign realised by interaction with peers and/or resources across domains from the music mode to that of verbal linguistics, dance, media or conducting gestures.
Outcomes of the study revealed that while *modal designs* as semiotic resources or meaning potentials are insignificant in isolation, children use them to communicate essential meanings through processes of *multimodal redesign* realised in music invention. It has been demonstrated, in examples analysed, that conceptual learning occurred during music invention through *transformational redesign* and, over time, furthered in some instances of music invention through *transmodal redesign*. In *transmodal redesign* of inventions, higher thinking and conceptual understanding of the elements of music was realised through children's synthesis in repeated chains of *modal redesign* expressed in a new communicational *mode*, both in and out of classrooms.

In teaching and learning contexts examined in this thesis, a frequent engagement in music invention developed children's content knowledge, facilitating transitions from home to school and across diverse social and cultural borders. It was seen, by using the space of *music dialogue* as a *multimodal lens*, that young children's music practices, their processes of redesign, simultaneously involved cognitive and embodied meaning making. Using this lens to identify *modal redesign* in young children's music practices will open up new, previously inaccessible ways of seeing how they learn. This will enrich situated teaching and learning practice, and has significance on local, national and on global scales.
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."

13 March 2013
Signed: .......................................................... Date ........................................
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Finally, I would like to say a huge "thank you" to the children and their parents who participated in this research, and to gatekeepers of the three schools that took part in the data collection. Music interactions and communications with the children at the three primary schools, and in their homes, were memorable. Permission to video the music events and use the data in presenting my research, made the process of investigating the topic both vital and informative. Thank you to all the children for inviting me into your fascinating worlds and allowing me to learn from you in 2011. Your music inventions have changed the way I think about teaching music.
Peer Reviewed Conference Papers


Journal Articles


DEFINITION OF TERMS

Below is a brief explanation of some key terms in the thesis. While conceding that other possible meanings exist, for the purpose of this research, meanings are fixed.

**Music Invention** in this study is the spontaneous interaction between a person and materials, modes and often other individuals in a particular context. It involves the selection of artifacts and *modes*, sounds, silence, voice, instruments, elements of music, and media, or a combination of these, to redesign and communicate meaning.

**Modes** are "the (full) semiotically articulated means of representation and communication" (Kress, 2000b, p. 185). **Modal resources** or designs are those *modes* selected by agents and combined in differing ways to make meaning of their experiences. *Modes* include audio, linguistics (speech, writing, graphics, layout), gestural (whole body/actional and fine motor movement, facial expression and gaze), spatial (proxemics or relations of participants to each other in the physical space) mimetic (Hawley, 2013) (digitality, hyper-text and new media re-fashioning other modes or media using representation, imitation and performance) and visual (artifacts, materials, puppets, drawings, maps and interactive whiteboards). In specialised communities of practice such as music there can be *modes within modes*. For example, audio modes include the elements of music (pitch, rhythm, dynamics, form/structure, timbre/tone colour and phrasing). *Modes* have material affordances (potentials or limitations) for creating meaning. The use of *mode* depends on the *multimodality* of the senses. What constitutes a mode is not settled, for *modes* are not autonomous and fixed, but created through social processes, and fluid, subject to change (Kress & van Leeuwen, 2001). Therefore a *mode* is any representational system with its own grammar.
and meaning, a “communication system” (language, music, art, or dance) (Harste, Burke, & Woodward, 1984, p. 216).

Multimodality is “the use of several semiotic modes in the design of a semiotic product or event” (Kress & Van Leeuwen, 2001, p.20). Social semiotic multimodality applies the theory of social semiotics and critical linguistics to other communicative modes such as visual design and more recently, embodied modes such as music, movement and dance. Modal Density refers to communicative modes at play in interactions, actions and speech, with some foregrounded and some backgrounded (e.g. in soundscapes) (Norris, 2009).

Modal Configuration builds on modal density to see how modes are configured in a hierarchical structure from higher to lower level actions, and how these changed in moments of time over the course of an activity. Focus may switch from one to the other or to both simultaneously in a moment of redesign (Norris, 2009).

Redesign is the interpersonal, informal engagement, and negotiation of "different subjectivities, interests, intentions, commitments and purposes" of agents (Cope & Kalantzis, 2000, p. 18) or children, as they negotiate the use of embodied and sometimes subtle cultural resources (designs) for making meaning. Redesign is for the purpose of communicating prior learning experiences (Cope & Kalantzis, 2000). Designs or modes can be shaped together (redesigned) by children as channels of communication through which rich learning takes place.

Transformational Redesign is a problem-solving task existing in all communicative activities that requires selection of modes for synthesis of ideas: those
of social interaction (turn taking, playing together, sharing and co-constructing); or those that offer new and divergent resources. Demonstration of conceptual knowledge of music and embodied meaning are through children’s transformation of resources within one *mode*, based on interest (Kress, 2010; Newfield, 2009; Stein, 2008).

**Transmodal Redesign** (Kress, 2010; Mavers, 2011) or alternatively termed "the transmodal moment" (Newfield, 2009) or "transmodal redesign" (Mavers, 2011) evolved from the term “*transduction*” Kress 1997). These terms refer to the remaking of meaning across *modes* (MODE, 2012). Kress (2000b, 2010) noted that the process of transduction involves cognitive and embodied meaning making. It has an external manifestation in *transmodal redesign* (Mavers, 2011). Disjunct or opposite meanings can occur as well as co-construction of meaning (conjunct meanings). Children demonstrate conceptual knowledge and make shifts in understanding through a disjunctive challenge to their previous knowledge. New understanding is realised through redesign across principal modes: some meaning remains, some is lost and added meaning is formed through use of new resources in fresh contexts. *Transmodal redesign* can be from music to dance, spoken account to music, speech to action, or writing remade as drawing, music or speech.

**Music Dialogue** refers to ways actors in a temporal experience of meaning making exchange ideas through interaction in form of "dialogue." Music is used as the principal communicative mode, in an “ensemble of *modes*” (Kress, 2010). There is a shift of meaning across principal modes to assimilate prior knowledge, and to form new ideas. The term encapsulates not only modal interaction and redesign, but also social and cultural framing of a musical experience, embracing all musical genres and musical creativities and prior experiences or musical dispositions of actors.
Imagination is at the heart of any truly educational experience. Stimulating the imagination is not an alternative educational activity to be argued for in competition with other claims: it is a prerequisite to making any activity educational.

Egan and Nadaner 1998.
A small group of students were huddled together, sharing stories and selecting percussion instruments to add sounds. One girl Mimi, an English as Second Language student from Brazil, jumped up to make a request. With excitement she began to involve her classmates in her story of the Owl that had lost its wings. Mimi began her story: "There was a owl that couldn't fly and it needed wings." Like a maestro, she directed her fellow classmates, Sandra, Millie and Sophie, to start playing and so began the musical performance. Sophie started scraping the guiro rhythmically while Millie and Sandra played melodic patterns on the xylophone (Chapter 6, Figure 52).

1.1 Purpose Of The Study

From the scenario sketched above, young children are seen engaged in and freely inventing stories, words and music in what can be described as a purposeful music event. When setting out to investigate young children's music invention, the aims of the researcher in this study were threefold. First, to explore how young children like Mimi, Sandra, Millie and Sophie made sense of their music. Did re-organisation of resources and modes through interaction promote and transform meaning in and across these modes of communication? As they freely explored materials and conceptual elements of music, did their prior experiences of music shape selections of these resources? Did ways of recognising conceptual learning exist, children's ways of knowing in their music invention, that might be useful for educational policy and practice? These purposes were influenced by the researcher's role in music education.

Over the last thirty years, the researcher worked with children as director of music schools and performing arts programs in educational institutions in Sydney and Brisbane. A good rapport and affection developed with students taught, both young children and youth. There was satisfaction in seeing them develop musically and conceptually over time as they were given freedom to invent. Families demonstrated confidence in the researcher's pedagogic approach that integrated pre-existing
experiences and interests of children. During this period her focus on the problem posed in this thesis evolved, as she explored and implemented new practices to promote young children's agency in performance, integrating dance, drama, fine arts and media. She observed that children developed a strong musical identity and a mastery of modes, accompanied by a growing understanding the elements of music through inventive and creative practices realised during interaction. They demonstrated an informed approach to identifying and solving problems by selecting appropriate modes in music as systems of communication. Such observations led to the scoping and framing of this thesis.

By undertaking this study, having made a thorough review of the literature, the researcher's intended purpose was to reveal children’s realisation of multimodal redesign during music invention in everyday music events, and how conceptual knowledge of music might be materialised and fixed across time. Analysis of selected video recorded events in diverse settings, coded as transformational or transmodal redesign, were intended to clarify ways in which the modes used by young children to fix these processes enhanced the meanings made. Children's capacity for developing a music identity through multimodal redesign was explored, particularly how they used conceptual elements of music to shape their inventions, and whether over time they developed conceptual understanding. By detailed examination of the semiotic work of representation in music, children’s choice of materials and modes of communication, it was determined whether they always adhered to constructions of learning through experiences, or also applied deconstruction by breaking down of the whole into parts, before chaining together disparate elements to create new understanding through communicative resources and modes. Procedures of enquiry through data collection and analysis reflected the researcher's reading of the data in particular ways, using social semiotic theory and multimodal analysis, based on a poststructuralist view of the world.
In drawing together relevant literature, this chapter looked at the purpose of researching musical invention in children's early learning experiences by viewing their multimodal redesign, their use of readily available resources and modes, to promote situated ways of knowing and conceptual understanding in music. The need to research inclusion of children's voices in redesign processes in the music classroom was foregrounded, particularly their invention, shaped by embodied and contextual factors. More needs to be known about children's interest and agency, and prior influences and experiences, as they select and redesign modes to promote meaning. Therefore praxis of music was discussed, as the way children enact agency and dispositions in a dialogue of modes to build on familiar cultural resources or challenge and deconstruct them in order to bring about change. This linked the study to poststructural and critical theories. Gaps in research were noted in the scoping of the literature. These included the need to understand how teachers might apply the theory of multimodal semiotic redesign in situated classroom music activities/events. It was addressed through the framework of music dialogue, developed in this study, and should be useful to inform future research, pedagogy and policy. The chapter concluded with an argument for the theoretical significance of this study and an overview of the structure of the thesis.

1.2 Background: Inventive Practices and the Gap in Research in Music Education

Music invention offers opportunities for children to be creative and co-construct their music identities by engaging in learning, in both home and school contexts (Custodero, 2005, 2009; Young, 2009; 2011). This recent research highlighted the need to promote music creativities in the learning environment (Burnard, 2012), emphasising the centrality of the creative process in education (Eisner, 1998; Sawyer, John-Steiner, Moran, Sternberg, Feldman, Csikszentmihalyi, Nakamura, 2003; Sternberg, 2000). This is evident in both the “The Melbourne Declaration on the Educational Goals for Young
Australians” (MCEETYA, 2008), and Australian Curriculum: The Arts (Australian Curriculum Assessment and Reporting Authority (ACARA), 2012) which calls for students to be playful, innovative and creative. In Australia’s national curriculum, the early years are seen as vital for play-based learning that “fosters imagination, discovery and inventive practices” in social groups that “challenge each other’s thinking and develop new understandings” (EYLF, 2009, p. 70). Edwards and Cutter-Mackenzie (2011) concluded that modelled, open-ended and purposefully framed play were each essential to enrich generic learning contexts. Applied to music inventive practice, learning is contextualised as students organise their world, engaging actively with people, familiar objects and representations. This is the case for learning inside and outside the classroom, as play involves cognition and embodied ways of knowing.

Barrett (2006) found that a child’s learning, engagement in and respect for classroom music were considerably less than their out-of-school music experiences. In particular, this was the case where a classroom music teacher did not encourage free exploration in creative music making, but rather, used highly sequenced and repetitive practices to teach music concepts and other intrinsic factors of music. Barrett (2006) articulated the need to investigate the extent to which children in the beginning years of school continue to use spontaneous activities such as engagement, imitation, variation and elaboration in their creative music making opportunities. This study addresses this gap in the literature by looking at inventive music events with students in Year One of formal schooling, within an ongoing process of learning in home and classroom venues.

Numerous researchers (Bowman, 2002; Custodero, 2009a; Green, 2011) have argued that musical experiences in schools should provide more improvisation or inventive tasks, as this forges further links to home and community through children's
use of familiar cultural resources, symbols and musical ideas developed at home. Custodero (2009a) suggests that the dimensions and potentials of socio-cultural diversity in the music classroom invest music with a powerful means by which children may communicate ideas, feelings and experiences. She observed that, “meaning (is) made by negotiating multiple heritages through music and by providing a source of comfort and cognition - for knowing the world and for better knowing ourselves” (Custodero, 2009a, p. 88). Research has contributed to deeper understanding of the important role of teacher interactions during children’s play (Fleer, 2010; Ryan & Goffin, 2008) and how children’s cultural experiences, their funds of knowledge, contribute to their play-based learning (Brooker, 2005; Hedges, 2008). One purpose of this study is to build on knowledge of how children’s cultural experiences and their funds of knowledge contribute to learning. The primary aim of this study, however, is to explore ways in which children, through inventive practice, might purposefully redesign modes to realise meaning and enhance understanding. In so doing, the study aims to foreground children’s voices central to music invention practice to address the gap in the literature of how to link children's prior experiences within diverse educational settings to enable the development of conceptual understanding in music.

1.3 Children’s Voices and Forms of Organisation In Music Invention

The importance of connecting curricula and pedagogy to children's lives has been promoted (Barrett, 2005a, 2005b; Green, 2005, 2011; Harrop-Allin, 2010). However, further research is required to emphasise "the importance of seeing and hearing children's perspectives (and determining) how to embed children's voices within curricular choices" (Griffin, 2009, p. 176). Of particular interest is how cross-cultural discourses further the understanding of the outworking of mutual negotiations between teacher and children, and between children and their peers, to enhance music learning
(Bradley, 2008). Etheredge (2004) posited that cross-cultural discourses assist children in developing agency, voice and engagement when negotiating ways of knowing within a community of learners. Canagarajah’s (2004) idea of “voice” as agency implied the use of strategies and negotiations that "embody values according to the dominant ideologies in the society" (p. 268). This more recent argument in educational research countered the work of Deliège & Sloboda (1996), who did not see the need to connect with children’s agency nor their lived experiences of music out of school: the extrinsic factors of music in family and community.

Barrett (2007) challenged music educators to “build on the rich resources young people bring to the experience of schooling,” which is often unacknowledged in music education (Barrett, 2005a, 2005b, 2006, 2009). There is a growing justification for further exploration of the nature of children’s musical thought and action, in particular ongoing research that looks at the “inter sensory whole” of music: instruments, voice, materials and movement (Young, 2003). This would allow the investigation of “forms of organisation that are identifiable and competencies they imply, so that appropriate provision and pedagogical strategies can be designed” (Young, 2003, p.56). This thesis explores the rich music resources children bring to Year One, tracing redesign made by thoughts and actions within the “intersensory whole” of music in diverse contexts.

Children's cultural understandings, their ways of making meaning and developing identities are shaped by interactions across different cultural spaces, through multimodal social practice that is living and dynamic (Leander & Vasudevan, 2009; Massey, 2005). Through the Arts, and in particular music, children make embodied representations of their world seen in underlying patterns (Young, 2003, 2009, 2010, 2011). Bowman (2002) acknowledged the "openness, inquisitiveness and
resourcefulness” of children as they remake meaning (pp. 173-174). Griffin (2010) highlighted the need to listen to children's voices, the many ways in which they communicate in different contexts, and make meaning through selection, redesign and transformation of a number of modes. How children demonstrate their musical identities by many diverse inventive practices, often integrally connected to and influenced by popular culture, needs further research to inform educational practice (Griffin, 2011). Dismissing these influences “results in an underestimation of the complexity of young children’s musical thinking” (Barrett, 2006, p. 206) and the technological sonic influences or soundscapes of the home (Campbell & Lum, 2007).

1.4 Multimodal Redesign In Music Invention

Children select from a "multimodal ensemble” (Kress, 1997) of resources that are ready and "at hand" for making meaning by combinations of modes such as written or spoken (linguistic), mimetic (re-fashioned media), visual, auditory, gestural and spatial modes. A multimodal approach to communication emerged with the advanced developments in new media technologies. As cultural critical research, it did not privilege written and spoken words, linguistic modes of communication, acknowledging that meaning making is socially, culturally, historically and politically situated (Jewitt, 2009). In this study, music invention conveys meaning using the auditory mode, comprised of intra auditory modes (the elements of music) but also actioning linguistic, spatial, gestural, mimetic and visual modes necessary to realise communication. All modes hold equal potential for realising specific meaning in situated music events, and are weighted by children (Mavers, 2011) to convey particular meanings in context. Music invention is interpreted as a multimodal composing resource instantiated in time, not fixed (as is the linguistic mode) or spatially instantiated (the visual mode).
Evaluating children’s music invention by social semiotic multimodal analysis (Kress, 2003; 2010) enables detailed, participatory, interpretive research.

Conceding partiality to social semiotic multimodality in research design and analysis, the researcher in this study is enabled to focus on the individual case, the situated music event, using a theoretical and methodological framework for contextualising and analysing chosen examples of music invention that privilege the agency of children. This framework, alternatively termed multimodal social semiotics (Jewitt, 2009), embraces all potential social and material resources through which meaning is made in music events. Multimodal semiotic resources are culturally available materials/modes that children draw on, according to their interest, to assist them to communicate meanings in unconventional ways, in situated activities. Jewitt (2009) described these materials as mediating artifacts (tools, signs and symbols). They connect children as they interact and communicate through music invention. Multimodality is an innovative approach to representation, communication and interaction that looks beyond language to investigate the multitude of ways we communicate using modes: through images, sound and music to gestures, body posture and the use of space (Kress, 2010). Cope and Kalantzis (2005) viewed design as a communicational mode, and redesign as transforming meaning using many modes.

From a social semiotic approach, underlying patterns and modalities of thinking and redesign in children’s playground music invention have been observed (Harrop-Allin, 2010, 2011). These are embodied and cultural resources, often unobserved communicable modes shaped together to make new meaning of prior experiences or learning. Such a redesign process is active and dynamic, changing according to context and purpose, and is therefore transformational, as it forms new, relevant meanings from
existing knowledge by selection and reorganisation of co-present *modes* in situated music activities. In particular, the ways in which children make meaning through coherence of many modes in various group and individual activities, and involving transformational redesign of designed sound, calls for further study, for little is known (West, 2009). This is due to methodological demands of complex multimodal analysis of music in a wider social context, resolved in this study by the space of music dialogue.

Semiotics, which looks at the use of signs and symbols, shaped by materials, resources and *modes*, is also used to convey meaning and to achieve specific aims in interpersonal and institutional power relations (Jewitt, 2009). Social semiotic theory views children selecting resources based on interest and redesigning them as *modes* of communication useful in diverse social and cultural contexts (Mavers, 2007, 2009, 2011). Recent researchers (Green, 2011; Harrop-Allin, 2010; Kress, 2010) expressed the need for in-depth analysis of young children's situated music inventions, using a social semiotic lens and *multimodal analysis*.

Children become engaged in reshaping, re-forming previous learning through “semiotic import” (Ranker, 2009; van Leeuwen, 2005) in an alternative literacy of communication. In music invention, this might occur as children select familiar resources: technical (affordances of instruments, their potential sounds) and formal (music elements: pitch, rhythm, dynamics, phrasing and timbre). They use semiotic import by representing their ideas or experiences across *modes* and contexts through composing resources. This study investigates redesign realised in music as an embodied form of conjunctive (co-constructed) or disjunctive (deconstructed) meaning making. Co-construction and conjunctive meaning making in *transformational redesign* has been seen to enhance learning in music (Harrop-Allin, 2010) and vitalise cultural
heritages in context, preserving diversity (Cope & Kalantzis, 2000a, 2000b; Goble, 2010). Less frequently observed disjunctive meaning across *modes* may shape *transmodal redesign* through resistance (Newfield, 2009) to enhance conceptual understanding, and needs further exploration in this study of children's music invention.

Over time, *transmodal redesign* has been observed in children's interactions as they build on repeated chains of semiosis, moments of learning occurring during *transformational redesign*, and realise a shift of meaning, demonstrating enhanced conceptual understanding by moving meaning across *modes* (Kress, 2010; Mavers, 2011; Newfield, 2009; Tomlinson, 2012a, 2012b). Although there have been studies of children's transmodal redesign in literacy, drama and art, no full study has been done on *transmodal redesign* in young children's music. This study built on the social semiotic (Jewitt, 2009; Kress, 2010, 2011; Mavers, 2011; Newfield, 2009; Pahl, 2004, 2009), foregrounding five-year-olds in their first year of school using *transformational* and sometimes *transmodal redesign* in their music invention. In social semiotics, children are perceived as learning using *transformational redesign* in all communicational actions, and furthering knowledge over time by perseverance during conditions of greater resistance using *transmodal redesign* (Newfield, 2009), through cognitive dissonance and disjunctive meaning making or deconstruction (Tomlinson, 2012(b)). They do this as they use redesign from one principal (chief, over-arching) *mode* to another through transmodal redesign (Mavers, 2011). Processes of developing and refining knowledge through embodied meanings occur through *transformational redesign of modes* in music (Kress, 2010). Understanding is heightened by *transmodal redesign* (Kress, 2000b) that has more to do with resistance than communication.
The central focus in this thesis is children's music invention as *transformational* or, in some cases, as *transmodal redesign*. It is seen as an essential *multimodal* and embodied form of meaning making equal in promoting cognition to that of other literacies that are so often privileged, and as such needed further study (Kress, 2010; Harrop-Allin, 2010; Newfield, 2009). Firstly, the literature was investigated to determine whether this might occur in children's playground music inventive practices (Marsh, 2008; Harrop-Allin, 2010), and then *multimodal* methodology and analysis (Norris, 2009) were applied to video recordings of young children's music inventions in and out of the classroom. The multi-dimensional and inter-related aspects of music invention made it suitable to multimodal analysis. In social semiotics, children’s inventive, embodied music making represents everyday practices, some of which might have easily passed unnoticed by the researcher/teacher in this study if not recorded on video, coded and analysed. They are often invisible, as music is temporally instantiated in time. Marsh (2008) has acknowledged children's music making as difficult to capture, always in a state of change and transformation, because they are embodied performances over time, in context, not fixed texts. Social semiotics employs *multimodal analysis* to investigate children’s diverse, changing semiotic dispositions in learning (Jewitt, 2009). This thesis developed *multimodal analysis* through the application of a framework of music dialogue as a tool to capture time-based *modes* in children's music invention. The literature suggests that communicational *modes* are complex and, familiarised through past and present inventive music meaning making, result in redesign of *modes* in dialogue that bypass the linguistic system (West, 2009).

The *multimodal* ensemble of resources in music is not a hierarchy where some resources such as modes of gesture, gaze and spatial elements are afforded secondary status to spoken, sung or visual modes, for all are equally important for representing
learning and building on cultural memory relevant for specific practices. *Multimodal data analysis* consists of observing these specific semiotic resources in texts that incorporate the whole multimodal ensemble (*linguistic, music, dance, gestural, mimetic, artifact, visual and spatial modes*). The process involves recognition of these sometimes unnoticed, "peripheral or invisible aspects of the text that may actually convey the essential meaning, and subjecting them to transcription and analysis" (Flewitt, Hampel, Hauck & Lancaster, 2009, p. 40) in order to further our understanding of learning as comprehension and synthesis of knowledge. The field of research in *social semiotic multimodality* in young children’s text making is now well established. However, its application to music invention in early childhood has yet to be fully explored in texts instantiated in time, particularly in music learning through *transmodal redesign*.

Investigation of the processes of music invention in early years through children’s co-construction (conjunctive) and disjunctive meaning making, their *redesign* of *modes*, should be useful to determine the impact of inventive and creative activities on learning and content, for redesign is a process of learning. Put another way, as recent studies confirm, children’s diverse approaches to problem solving through their investment of embodied semiotic work fosters positive semiotic dispositions, influencing their actions and embodied meaning making (Kress, 2010; Mavers, 2011; van Leeuwen, 2005; West, 2009). This has relevance for learning.

Constant struggle between conventional representations and new ways of shaping knowledge creates a plasticity of communication that pulsates with life. *Multidodal redesign* in new communicational contexts creates movement and change, uncertainty and transformation, but also the possibility of fresh and dynamic relationships of *modes*. "Design moves into center-ground" (Kress, 2011, p.223). By
developing awareness, through this study, of capacities of young children for redesign in music invention, tendencies of educators to compromise children's learning outcomes in music will be countered. Music learning will be vitalised when educators cultivate creative music futures in a more holistic education of creativities (Burnard, 2012) less focused on content knowledge and more on enabling students to be critical, discerning truths from untruths, advancing their conceptual understanding by creating new knowledge in changing contexts (Goble, 2010).

1.5 Music Praxis And The Space Of Music Dialogue

Recent studies in early childhood music education have focused on the praxis of music: the situated, embodied production of music through singing and playing of instruments powerful in action for social change and the betterment of peoples' lives (Barrett, 2006, 2009, 2011; Custodero, 2006, 2009; Elliott, 2012; Hallam, 2009; Regelski, 2000, 2004; Young, 2003, 2009, 2010). These researchers have found that inventive music practices of young children reveal a richness of holistic music interpretation. The representation of children’s situated cultural experiences is vital because it has potential to reveal competence in creative, innovative thinking through embodied transformation of resources based on interest (Kress, 2011; Newfield, 2009; Stein, 2008). The detailed processes of redesign found in everyday practices need further critical investigation in children’s music invention within a wider, holistic framework, as ways of communicating meaning. Pedagogic frameworks are insufficient unless they appeal to the creative capacity of children by focusing on their interested actions and interactions and build on their complex and plentiful music inventions made in playground games and out-of-school practices (Barrett, 2011; Custodero, 2009b; Darian-Smith & Henningham, 2011; Green, 2008; 2011; Marsh, 2008). Therefore, this
thesis uses a *framework of music dialogue* to capture and analyse these complex multi-dimensional modal interactions, within a broader social and cultural context.

A new conceptual framework - *the space of music dialogue* - is an outcome of this study, found by synthesising various strands of the literature of *multimodality*, literacy and music praxis (Alexander, 2008; Harrop-Allin, 2010; Swanwick, 1994). It is specific to this thesis in facilitating the application of a social semiotic and *multimodal* framework to the investigation of children's music invention, but can be used as a way of analysing the dynamics of any music event. In this thesis, the framework provides a working tool with which to identify children's conceptual understanding and other learning processes taking place in *multimodal redesign*. It references children's semiotic import of composing resources from prior cultural experiences and investigates their *redesign of modes*, particularly the elements of music, as ways they shape learning. In addition, a variety of transcription methods will be developed in this thesis for displaying children's *modal redesign* and assisting *multimodal* interaction analysis of music invention. These include music notation aligned with *modal configuration* in tabular form as a score, and combination of still image or tracings with verbal description, particularly useful for interpreting children's movement. They will assist in determining whether children combine verbal linguistics, gestural, audio and other *modes* to transform (redesign) prior ideas of the elements of music and sound design in music (West, 2009).

1.6 The Theoretical Significance Of This Study

Research in *transmodal and transformational redesign* will give insight into young children's redesign of ideas through embodied *modes* in which they might purposefully engage to make meaning of situated learning experiences through music.
invention. Results of this study may assist educators in supporting their transitions from home to school, and across borders involving social, cultural and language diversity. A richer understanding of children’s music inventive practices will help to facilitate planning for the inclusion of redesign practices in classroom music pedagogy in order to realise conceptual understanding. Interaction and communication through music invention in diverse learning and performance settings will inevitably enhance children's creativity, music improvisation and music identities, and their semiotic dispositions.

Examinations of children's actions and interactions in music invention using the semiotic lens to interpret transmodal or transformational redesign of embodied modes, will fill a gap in research and be particularly useful for educators (Harrop-Allin, 2010, 2011; West, 2009). This study intends to provide a conceptual tool and meta-language for thinking about and understanding the complex reconfigurations and associated higher order thinking that occur in this kind of sign making, semiotic redesign and conceptual understanding realised over time through experiences of music invention. Development of a tool to improve meaningful teaching and learning and to reshape assessment is another important outcome. Through the space of music dialogue as a framework for interpreting children's music inventions in the classroom it will be possible to identify, capture, measure, and investigate such practice. This tool may be further used in broader contexts of state, national and global curriculum design.

The intellectual framings and positioning of the research is located in the investigation of shifts in forms of meaning making and associated learning found in modal redesign and representation in music invention. This informs the study. By highlighting the capacities of children for transmodal and transformational redesign in
inventive music, this study may open up spaces for them that had not existed before (Harrop-Allin, 2010; Newfield, 2009). Such a space is conceptualised in this thesis as the space of music dialogue. It has been developed by the researcher as a framework to show how ways of learning and conceptual understanding of the elements of music might occur as children select and redesign many facets and modes to interact during music activities. Music is a mode that is temporally instantiated in time, and may elude analysis if not approached through the framework of music dialogue. It would be otherwise impossible to use multimodal analysis to interpret multimodal redesign in children's music inventions. The space of music dialogue is important when demonstrating how children process learning through transformational redesign in situated music invention and how, in time, they may develop conceptual understanding through transmodal redesign, for it captures variations in music dialogue, shifts in modal redesign in localised practices, and prior socio-cultural influences.

1.7 Research Questions

Building on existing literature of these semiotic concepts of transmodal and transformational redesign (Jewitt, 2009; Kress, 2010, 2011; Mavers, 2011; Newfield, 2009; Pahl, 2004, 2007, 2009) gives structure to this study of music invention. This most recent research has shown that transmodal redesign promotes learning through problem finding, problem solving and consolidation of conceptual understanding, as children revisit prior knowledge through experiences of disequilibrium, and that this is how concepts are internalised. Existing knowledge of transmodal redesign in literacy and drama is applied to young children's music learning in this study. Such investigation has not previously been explored in depth. To do so, music education is promoted in this study as involving embodied as well as cognitive learning, mind and body.
To explore this and focus the study, a key question and two subsidiary questions were established. In relation to children's *modal redesign*, the key question was:

**How are transformational and transmodal redesign realised in young children's music invention?**

Subsidiary questions were:

1. How may diverse cultural resources and contexts influence children’s import of semiotic resources within and across principal, over-arching modes in redesign?
2. What does children’s redesign of semiotic resources reveal about their learning, and further, their conceptual understanding, during music invention?

### 1.8 Organisation of the Study

In Chapter 2 the literature relevant to the objectives and the questions was explored, demonstrating how the gap in the research was found. In Chapter 3 the methodology was framed to explore the forming questions and propose one more question related to the conceptual framework for *music dialogue*. Chapter 4 presented a detailed discussion of the importance of children's redesign of *modes*, the infinite possibilities (affordances) of resources and the choices they make in *transformational redesign*. It set out an approach to a *multimodal analysis* of the data. Included are examples from diverse music events at school and at home. A variety of transcripts were used to display the *modal interactions* of children, illustrating the potential of *multimodal* affordances used for *transformational redesign*, according to the situated music invention being explored.
Chapter 5 presented a number of coded examples of *transmodal redesign* in music invention observed with children at a rural school over six months, and examples of *transformational redesign* in music events that form semiotic chains over this time, leading to such *transmodal redesign*. This is the only school setting in the study where the researcher gathered longitudinal data, as she was situated there for six months. It was a thematic case analysis of *transmodal redesign*. Chapter 6 also contained transcripts and analysis of examples of children's *transmodal redesign*, from home video recordings taken over six months. Chapter 6 discussed individual children's observed and recorded home music invention forming semiotic chains, some of intra-modal *transformational redesign*, leading to those that involve inter-modal or *transmodal redesign*. Chapter 7 gathered up the strands of the argument in the thesis, presenting the framework of the space of *music dialogue* as a way of seeing learning occurring as body and mind engage simultaneously during children's multimodal interactions in music. In addition, it presented the implications and recommendations for policy and practice from this study.
CHAPTER 2: LITERATURE REVIEW

To begin, this literature review introduced a specific form of children’s music play, their purposeful inventive practices in early years learning, as a form of design that is either self initiated (open) or scaffolded by parent or educator (Young, 2003). Semiotic import of resources and modal redesign was explored as children's agentive use of resources and signs that are specific in context and materials used. There was a focus on affordances, and the outward, visible side of the transductive (inner life) of signmaking (Kress, 2000a). Multimodality, as the complete use of all available resources and modes in the communication of meaning (Jewitt, 2009), was discussed in context of its purposes of persuasion, interpretation and redesign during interaction.

Diverse socio-cultural influences were also examined in studies of the praxis of children’s music as a multidimensional approach to music education that validates embodied knowledge, competencies and experience (Elliott, 2012; Green, 2008, 2011), giving value and voice to learning in early childhood settings and curriculum design.

The central concern of musical dialogue as children forming knowledge when engaged in intuitive music making through use of readily available resources in context, combined with their ongoing analysis (Swanwick, 1994), was discussed. The literature review concluded that increased attention to semiotic frameworks will assist in understanding how intuitive learning of children occurs in conjunction with cognitive processes as they redesign music, building on previous knowledge and experiences in a cultural context (Custodero, 2006; Barrett, 2009, 2010). In particular, further investigation of children's ways of knowing through multimodal redesign of co-present modes was made (Mavers, 2009), in relation to children’s music invention as a way of
communicating within a broader understanding of practice (Barrett, 2011; Darian-Smith and Henningham, 2011; Harrop-Allin, 2010).

Awareness of the complex ways children make selections of semiotic resources for redesign during inventive music activities, paired with situated contexts of their actions, interactions and discourses, require serious consideration, and are crucial to understanding young children’s learning in music invention. During music inventive practices, children most likely select, for purposeful representation of learning and communication, various modes. They select modes of movement, verbal, non-verbal and audio (the elements of music) assist in redesign of meaning (Harrop-Allin, 2010). According to Newfield (2009), no theory of learning or interpretation focusing on children's use of language as an unproblematised vehicle of learning and representation is sufficient, and no pedagogic framework suitable, if not able to critically describe and analyse embodied forms of representation that learners have produced in their complexity and plentitude.

2.1 Introduction to the Chapter: Music Redesign, Dispositions and Dialogue

First, early childhood music play was explored in this thesis using the social semiotic lens (Mavers, 2011) that interprets children's interactions as purposeful invention whereby children never imitate, but rather, transform prior experiences and embodied knowledge of the elements of music through modal redesign. Resources and modes selected by children during music invention are combined and re-ordered by them to make sense of sounds and initiate learning (Barrett, 2006; West, 2009). Ways of integrating this music invention into learning may also be initiated by researcher or parent (Harrop-Allin, 2011). Studies of children’s music play across home and school contexts in early years problematise music inventive practice (Barrett, 2006), revealing
why there is need to advance research on how interactions and intersections of culture and use of familiar resources enhance children’s learning (Custodero, 2009a).

Second, social semiotic multimodality (Jewitt, 2009; Kress, 2010) as a theory of learning provides a framework for this study of young children’s transformational and transmodal redesign in music invention, the gap in research. Reasoning behind such partiality requires understanding of three major schools of thought in semiotics: social semiotics; multimodal discourse analysis, and social semiotic multimodality. These were compared and contrasted in the literature. Redesign of modes in socially and culturally framed contexts was discussed in the theoretical section. Learning through children's transmodal and transformational redesign of modes was explored. This differentiates children’s selections of resources for redesign of meaning during music invention: respectively, across contexts; from one mode to another; and within a mode.

Musical creativities and dispositions were discussed in learning using musical habitus, field and cultural capital, Bourdieu's (1972) framing, developed in the field of music by Burnard (2012). Examination of interactions and negotiations between children participating in music events reveal cultural discourses in performance (praxis of music) realised by their choice of semiotic resources. These interactions, based on dispositional ways of negotiating learning, act as designs for communication across contexts from home to school (Barrett, 2005 (b)). Community music activities and home practices connect with children’s dispositions (Green, 2008, 2011) and their resources (Temmerman, 2005; Marsh, 2008, 2011). A child-centred teaching environment may be created by valuing and working with learners’ diverse and expressive resources and dispositions, especially by those who "have power in the classroom" (Stein, 2008, p.152).
The importance of modal dialogue was featured in the literature review as a way for children to process learning through transformational and transmodal redesign in music invention (Kress, 2010). Specific studies were drawn on to assist in building an interpretative framework of children’s music invention as dialogue, assisting enquiry in how redesign is realised through children’s interactions in music (Harrop-Allin, 2010; Swanwick, 1994; Young, 2003). Music dialogue in this study was seen as culturally framed and situated music activities that assisted children to access coherent chains of thinking based on a dialogue of modes represented in multimodal redesign.

### 2.2 Music Invention in Diverse Contexts: Engagement in Learning

From the youngest age, children engage in play. From birth physical play is known to be essential in these early years for making sense of the world, representing meaning, promoting social and emotional growth, and learning (Pellegrini & Smith, 1998; Sandester, 2007). Aesthetics, creativity and humour are all aspects that motivate play (Csikszentmihalyi, 1996; Søbstad, 2006). These aspects flow from strong personal relationships, engagement and a unique self-experience (Lillemyr, 2009). Play can build self-esteem through personal investment in activities and this builds intrinsic motivation, the basis for learning (Maehr & Midgley, 1999). All neurodevelopmental capacities for learning can be positively impacted through music interaction from birth (Woodward, Sardesai & Turman, 2012). Vygotsky (1978) suggested that in the course of development, children change due to experiences that they previously had, as well as the meaning those experiences have had for them.

When players are actively engaged, they change rules to suit the occasion, usually to communicate or to make meaning of situated experiences (Kress, 2003). Play changes its character according to context and sociocultural connections, and the needs
of the children engaged in play (Levy, 1978; Lillemyr, 2009; Dau & Jones, 1999; Pramling Samuelsson & Fleer, 2009; Wood, 2008). It is challenging and necessary for personal and cultural identity, but can have negative effects on "some sociocultural groups whose semiotic representations differ from those of the dominant culture" (Lillemyr, 2009, p. 172). Children play “with the process of signing” to represent their ideas through a multiplicity of means at one and the same time (Cox, 2005; Kress, 1997). Nelson (1989) noted that children could accurately and verbally recount past experiences. These cultural and personal memories held significance, contributing to building verbal structures to help review, reconstruct and consolidate children's memory of specific experiences. Through these, children could establish new cultural identities.

Play is an important concept in this process of establishing and shaping identity. Broader than music invention, it is seen as important for learning in Arts education at national and state levels: Draft Australian Curriculum: The Arts (ACARA, 2012). Play in learning settings can be broadly defined as “creativity and action, change and the possibility of transformation” (Chazan, 2002, p. 198). These descriptors refer to creative interaction in the learning process, and how transformation of previously formed knowledge occurs through action and the challenges of materials introduced by the processes of change. Embodied meaning making and active engagement with people and materials are fundamental to play in the Australian Early Years Learning Framework. Play is also an essential component of learning as expressed in "making" and "responding" in the Draft Australian Curriculum: The Arts (ACARA, 2012). In Australia’s national curriculum, play-based learning that “fosters imagination, discovery and inventive practices” in social groups that “challenge each others' thinking and develop new understandings” (EYLF, 2009, p. 70) is viewed as vital in the early years.
Music invention, for purposes of this research, is viewed as a specific type of music play that provides opportunity for challenging children's thinking and promoting understanding in music, through cultural music resources and modes redesigned in diverse contexts. It is a purposeful and communicative act that makes manifest creativities in children's music. Resources found by children are redesigned in music invention (Tomlinson, 2012a). Ways of integrating children's music invention into other arts and literacy events are sometimes initiated by an adult, scaffolded through intentional strategies to realise music redesign (meaning making) and promote further responses. The music teacher may scaffold meaning making through singing the text of a story, a practice known as story telling (Singer, 2008). The teacher uses the syntax or structural elements of language combined into sequenced phrases. Further, emphasis through dynamics, rhythm, repetition of musical notes in the same pitch to align with the repetitions in the text, singing musical phrases to fit the phrases of a sentence, and adding musical effects to bring the story to life are provided (Singer, 2008).

Jorgensen (2002) emphasised mutual discovery between children and teachers and outlined perspectives of children’s development based on different ways the child makes meaning of self in the world, and cultural constructions that reflect and reinforce these ways of meaning-making (Bruner, 1986). Young children have unique developmental needs, as their learning is diverse and complex, involving more than exploratory behaviour, and meaningful in terms of the close relationship between child and caregiver or teacher. Jorgensen (2002) elucidated some recent ideas of music learning through interactive enquiry, creativity and meaning making and rejects curricula or methods founded on the rational development of musical concepts. Rather, Piaget said “invention is the inevitable result of understanding: to understand is to invent” (Driscoll, 1994, p. 22).
Bamberger (1991) saw music learning as developmental, but not as Piaget conceived learning. Rather, it involved different ways of representing musical knowledge, as children interacted with each other in an ongoing multidimensional manner. As they make musical representations, children create material that “holds still” (Bamberger, 1991, p. 52) or captures (frames) an important element or concept in that moment of time. “Gordon and Bamberger focused on how to make visible, without the use of words, what a learner does when presented with musical stimuli” (Taetle & Cutietta, 2002, p. 292). Gordon (1971) referred to the child’s inner voice as “audiation” and sound (rhythm and pitch) patterns were referred to as musical vocabulary, set over a canvas of repeating beat patterns. By looking at music, rather than the child’s disposition and behaviour, he found these basic patterns in music that he referred to as representing the basic vocabulary of music.

Through a process of audiation Gordon (2011) noted that children retain, and instantiate (or internalise) prior learning. This thesis examines how these elements of music (vocabulary) are instantiated in time during young children's music invention. However, by linking them to other modes occurring in simultaneity this thesis aimed to demonstrate the intentionality of children, their dispositional behaviour or agency that motivated them to make selections of modes to make meaning appropriate for a certain context. Knowledge of how children learn is more important than methods of teaching (Gordon, 2011). The plan is to extend Gordon's enquiry on children's musical learning, by looking not only at their music texts but also at their modal configurations, their motivated redesign. In this framing, stages of development, and building prior knowledge, are less relevant to children's meaning making than how children make sense of music experiences in context, using multimodal redesign. That is because Gordon's stages of learning concede that children learn through repetition and imitation,
while *social semiotic multimodality* views children's learning experiences as dynamic, situated and constantly changing. Likewise, this thesis was positioned to view children as never repeating, copying or imitating but changing meaning. Each music event was seen, in one way or another, as a transformation of prior knowledge or experience through *modal redesign*.

Gromko, like Gordon, proposed “the perception of these patterns as developmental” (Taetle & Cutietta, 2002, p. 293). However, she did not specify stages of development in children's musical thinking, as did Gordon, who referred to these as babble (acculturation), imitation, and assimilation. Rather, she suggested that children’s “encoding” of patterns of music grows with the child's experiences, not through specific imitation of more experienced musicians but by exploration of the world of music. Earliest perceptions are “holistic” and grouping of patterns emerged at an older age. With growing repertoire, children store these patterns for recall. How they group these patterns remains an area of investigation. “Some may say the answer lies in the affective nature of music; others argue that affect is the result of experience, exposure and context” (Taetle & Cutietta, 2002, p. 293. Bamberger & Schön (1991) described the interactive component (reflection-in-action) as “the child’s ability, with assistance from the teacher, to move back and forth between reflection of experience and reflection on experience” (Bamberger, 1991, p.52). They observed the child’s behaviour, identifying an inner voice, pitch and rhythm patterns that were not static or copied but which were complex, impacted by various *modes*, in music invention practices that evolved or changed with each musical hearing. They concluded that because the disposition of the child changes and evolves constantly, then in time the musical patterning perceived by the child changes and evolves.
Since the Seventies, sequential learning pathways mapped out by Orff Schülwerk (use of holistic bodily, instrumental and vocal responses to music), Kodály (tuning the ear through solfege systems, vocal responses using movable "doh," and emphasising symbolic music literacy), Dalcroze Eurhythmics (orienting elements of music to bodily movements), Gordon (developmental program based on imitation and assimilation) and Suzuki (focusing on instrumental and aural development before symbolic literacy) have been incorporated widely into programs of music learning promoted in Western classrooms. These common practices in teaching music to children sometimes assume a rather fixed or rigid notion of children's developmental stages in music learning. What often follows is an established method that prescribes a sequence for teaching tonal and rhythmic patterns, incorporating practices that best teach those patterns.

Bennett (2012) proposed that some of those sequences and practices appear to be built on faulty information or reasoning, and need to be "re-thought." When “method” becomes the authority in our lessons, we may stop watching the children and stop wondering if what we’re doing makes sense (Bennett, 1986). In particular, why do we delay informing children of what they already know in order to maintain sequence in the learning process? By rejecting sequences proposed by "experts" we as educators may become more open to principles and practices based on children's perceptions and selections. The *multimodal ensemble* of meaning making is useful for investigating a wider culture of children's inventive music making and how they learn through modal redesign, in other words, repositioning educators in understanding what children already do know in music.
Children’s music play is their communicative means of expressing learning in diverse social and cultural settings (Barrett, 2005a, 2005b, 2011). It is situated and involves many music creativities that change from moment to moment. Children use multimodal resources to explore music and to represent or communicate new meanings, new experiences in their world. “Using play as the vehicle for their explorations, children selectively and frequently move from one mode to another to represent and re-represent what they know most effectively” (Wright, 2010, p. 21). Children are guided by interest and engaged activity, self-motivation and a desire to communicate meaningful behaviours using selected materials and modes, often in simultaneity. Their selections are context dependent, and unpredictable. Music invention involves processes contextualised within a multimodal ensemble of meaning making across sites and timescales (Alcock, 2006; Silverstein & Urban, 1996).

As children gather information from their world, they act on it, play with it, transform their knowledge and express it in symbolic form (Barrett 1996; 1998). It is important for them to have a multitude of opportunities to explore their music, as it heightens interest and engagement as well as strategies, and pathways (Burnard & Younker, 2002; Diagnault, 1996; Kratus, 1991, 1994, 2001; Wiggins, 1992, 1994; Wilson & Wales, 1995; Younker, 2000; Younker & Burnard, 2004). Music as a language, or a set of symbols in graphic (notation) and non-graphic (aural) texts, makes it an appropriate medium for developing the child’s skills, capabilities and meaning making. Young identified the need for further longitudinal studies of forms of organisation (repeated patterns, embellishments, melodic riffs and note clusters), the design that underpins children’s music making and competencies (Young, 2010). This is because its aural components allow for processing of abstract (non-visual and intangible) experiences in order to communicate effectively, as well as visual note-
reading skill development – the representation of sound in symbols of notation.

Children are not limited to verbal or literal language alone. Music allows for fluency of expression through non-graphic, abstract, embodied communication of feelings, fluidity of thoughts and experiences (Custodero, 2005, 2009a, 2009b).

With this in mind, music curricula for young children need to be rich in sensory experiences (moving, creating, playing, reflecting) to create a symbolically fluent child. “Symbolically fluent individuals, those for whom symbols are meaningful conveyors of information, have internalised the properties that symbols embody” (Gromko, 1995, p.5). To create symbolically fluent individuals, the environment should be filled with manipulatives, colours, sounds, and textures that would provide for activity-oriented musical experiences, a place where teachers initiate thoughtful discussions with children of the music they are making. Gromko and Poorman (1998a; 1998b), who traced the development of musical symbols, believed that “symbolically fluent children are capable of more than imitation or reproduction, for they have fixed references that allow them to represent an event symbolically and abstractly” (Gromko, 1995, p.5).

Previous research rated and assessed creativity in children's compositions (Auh, 1997; Auh & Walker, 2003; Hickey, 2001, 2002, 2009; Hickey & Webster, 2001; Webster, 2003). They had transferred adult expectations and standards onto children, researching compositions that were completed and defined pieces of music and used conventional notation. Young’s (2003) case studies found that the individual child’s hybrid music making, however, consists of a blending of new experiences and known song forms. A free-flowing structure was maintained throughout and there were transformations of previous musical ideas in response to events in the environment. She
looked at the intersensory whole of music, the range of modes used by children to symbolise more accurately their chains of thinking and competencies (Young, 2003).

Self-initiated exploration of musical instruments develops the child’s vocabulary of movement and time-space structuring such as story or narrative role-play (Young, 2003). Young's observations of young children’s spontaneous play on educational percussion instruments revealed that their music making was context-embedded, related to bodily movement and the position of the instrument in the space, and complex. Events and peers in the environment shaped their music redesign. A significant link between pitch awareness and phonological awareness was established (Buldoc & Montesinos-Gelet, 2005; Tendall, 2009). In a recent study (Rabinowitch, Cross & Burnard, 2010), an experimental group of children took part in specially designed musical games in small groups, while the control group had none. Early results suggested that transforming musical phrases of peers and adults, and moving expressively to music, are activities that strengthen emotional intelligence and identity.

According to Bowman (2002), music experiences in schools should provide opportunity for more improvisation or creative tasks, further links to home and community, and acknowledge openness, inquisitiveness and resourcefulness of children as they remake texts. New research of children composing with computers (Folkestad, 1996; Mellor, 2009; Seddon & O’Neill, 2001), and children’s collaborative compositions (MacDonald & Miell, 2000; Morgan, Hargreaves, & Joiner, 1997/8), has developed methodologies that focus on children’s activities with a narrow lens and thick description, over time, and provides detailed analysis assisted by digital technology. In children’s music invention, for instance, it may be possible to reveal how young children group patterns of music in individual and collective improvisation, and in
different contexts and social spaces (Burnard, 2012). This study investigates how children choose semiotic resources, and shift prior understanding, as they redesign meaning in music invention using voice, instruments and movements in a variety of social spaces across the contexts of home and school classrooms. It is not intended to replace developmental programs, but to enrich these by seeking new ways to see how much children already know and to open up opportunities for new learning.

2.2.1 Music Invention from Home to School: The Child's Voice

Traditionally, music literacy and practice in education has taken little account of children's socio-cultural backgrounds, knowledge and skills (Hallam, Cross & Thaut, 2008; Barrett, 2009). Music tasks have more recently been designed to encourage children to draw on their cultural experiences and creativities (Burnard, 2012; Green, 2011; Marsh, 2005). Music improvisation is now recognised as a means of supporting children’s musical communication and multiple creativities and thereby validating their learning experiences, competencies, and identities in socially situated contexts (Bradley, 2008; Bowman 2002). Other recent research has found that children’s spontaneous development of skills, knowledge and identity occurs in cultural participation (Rogoff, 2003; Tudge, 2008), particularly their early creative work in music and invented song (Barrett, 2006, 2009). Classroom music practices that are successful in engaging learners are those that surround them with many means of gathering information and participating in experiences through sensory and culturally appropriate tasks (Hallam et al., 2008; Young, 2009). Kress (2003) observed that children are motivated by being afforded opportunities to enact agency through selection of culturally appropriate materials appropriate for communicating meaning.
Custodero (2009a) recognised the potentials of socio-cultural diversity in the music classroom, as it invests children with a powerful means of communicating and negotiating ideas and experiences. By looking at children's music redesign across cultural contexts and their semiotic import of resources, the researcher in this study is positioned to become sensitive to the diversity of social and cultural frames used by children to communicate meaning. Examining diversity within such a small cohort of cases furthers the knowledge of how children might recognize and respect diversity, and alternative viewpoints as they engage with differing ideologies in an increasing pluralistic society (Kalantzis, Cope & Harvey, 2003). Recognising diverse cultural influences and resources operating in children’s learning experiences gives children opportunities to shape their own social and representational futures (Kress, 1995) as they playfully and autonomously communicate experiences in their world to make sense or meaning. Moran and John-Steiner (2003) observed, “Individuals synthesise diverse influences - through internalisation - and these generate creative concepts, strategies and creativities” (p. 65). These further empower young children when engaged in music activities sensitively scaffolded in the classroom (Barrett, 2005, 2010).

Richness of culture in children’s individual lived experiences and multimodal expressions of these in their everyday music invention must be acknowledged by further studies (Cahan, 2006), notably across home and classroom contexts. Bamberger (1991) also described music as occurring in a social context and children's learning as being connected to cultural influences and resources. She saw that children explore different ways of representing music learning in a multidimensional manner. Harwood and Marsh (2012) saw music learning as a holistic, rich experience and highlighted embedded opportunities of children for composition, performance and invention involving kinaesthetic, sonic and technological resources in their home environments.
They referred to this type of music learning as participatory agency, guided by identity and developing cognition in a community of practice. If this holistic and *multimodal* learning were to continue during music invention practices in classrooms (Espeland, 2007), children could be empowered as agents of their own learning.

The connection between young children’s diverse cultural resources and their interactions in music invention is of interest to educators and policy makers because “intersections of culture create contexts for children’s development” (Custodero, 2009a, p.88). Custodero (2006) studied playful and spontaneous singing of familiar songs in a multicultural early childhood context in North America. She observed a purposeful exercise of children being encouraged to alter the words, select different meters, and add melodic or rhythmic variations to their song repertoire. This choice of affordances, being expressed through *multimodal* or diverse ways of making meaning of everyday experiences, was extended to children’s dramatic play. Sometimes children chose to incorporate musical play in functional or constructive dramatic play. She noted that if music is made sufficiently complex and relevant, where children can have control in an imaginative world and are encouraged to improvise words and melodies, it provides children opportunities to exercise choice and dispositional ways of thinking as they communicate. This was evident as children from diverse backgrounds engaged in music. Custodero (2006) found children demonstrated exploratory thinking and reconstructed meanings in diverse musical contexts. They transformed inventive practices by performing songs. They also remade texts in different *modes* through transduction. She recognised the need to extend her findings by applying *multimodal analysis* to children’s selections of semiotic resources as a means of representation.
More specifically, further studies are required to investigate children’s music invention in a creative problem-solving process of shared and negotiated responses, referred to in this study as a process of *music dialogue*. Through *music dialogue*, children may promote their knowledge and experiences, and share their responses. Speaking of musical knowledge, Swanwick (1994) perceived it as “more than just undergoing experience.” “There is an implicit notion of enduring change: not necessarily a residue of facts but *perhaps an unspoken change of disposition* – an adjustment of mind or ‘mind-set’” (p. 14). He referred to the way children use music resources to compose music. They become more adept through music play that supports their thinking across diverse socio cultural settings (Barrett, 2010). This can assist them in making transitions from home to school (Johnson-Green, 2012).

Learning occurs in many contexts, and these can be supported through musical activity with primary caregivers in order to enhance development from a very early age (Trevarthen and Malloch, 2000; Young, 2002). Young (2002) suggested that when children begin formal schooling, their musical activity remains central to motivation and cognitive development. If music loses its role in the curriculum as an essential or key learning area, or if there is little acknowledgement of children’s development in learning, their motivation, their enhanced co-operation and sharing, spontaneity and confidence through music activity (in other words, their musical identity), children may suffer delays in their development in other key learning areas. This view is supported by research (Dissanayake, 2000, 2001; Hargreaves & North, 1999; Singer, 2008; Trevarthen & Malloch, 2000). There is need for educators to be guided in implementing music invention in classroom activities and interpreting children’s conceptual music learning.
Recent research into children’s experiences of group music composition in classrooms revealed that observations of verbal and non-verbal communications between children are useful to determine what they find meaningful in music (Burnard, 2000; Burnard & Younker, 2002; Dillon, 2004; Morgan, Hargreaves & Joiner, 2000). Other research on classroom dialogue has, in contrast, focused on teacher-student interactions rather than student-student talk (Maybin, 2006). This is an unhelpful way of reconceptualising early childhood learning. Research based on social theory (Bakhtin, 1981; Bourdieu, 1990) has found that children who use semiotic resources to transfer learning across sites and cultural spaces, and reconstruct texts through dialogic negotiation, are more likely to stretch and even transform their text making ability: to recreate, refashion and recontextualise meaning (Bulfin & North, 2007; Mavers, 2011; Pahl, 2004, 2007, 2009; Prinsloo, 2004; Swann & Maybin, 2007).

How meaning making is negotiated in both group and individual music composition in classrooms has been investigated (MacDonald & Miell, 2000; Wiggins, 2003). Examining the role played by critical thinking was found to be important when considering children’s compositions and creative music making (Kerchner & Abril, 2009). Elliott (1995) described the ideal music education as the playful development of musicianship or musical understanding. He defined music making as “the construction of successive and simultaneous musical sound patterns - to vary, transform and abstract them” (Elliott, 1995, p.54). Elliott viewed musical performance as artistically combining many convergent and divergent forms of thinking, engaging the person’s entire consciousness: attention, cognition, emotion, intention and memory, in social and cultural contexts. In this study, the multimodal context of children’s music invention is explored as a way of understanding their interested engagement in music, realisation of semiotic redesign and subsequent development of conceptual understanding in music.
Young children have been observed playing inventively and freely with words and music as they improvise new music (Alcock, Cullins & St. George, 2008; Custodero, 2006). They used instruments to communicate in music invention (Hallam, 2009; Young, 2003). Learning to discriminate differences between tonal and rhythmic patterns and to associate these with visual symbols in music seems to transfer to improved phonemic awareness and enhance communication (Hallam, 2009). Her research also found that word power and word memory improved with the use of rhythm instruments to communicate meaning and prior learning. All these ways of organising and shaping meaning are known as *modes*, “resources carrying deep ontological and historical/social orientations of a society and its cultures with it into every sign” (Kress, 2010, p.114). The cultural orientations of children’s selection and use of semiotic resources in music invention may reveal something of the ways in which they *redesign* their music (Harrop-Allin, 2011).

In summary, it has been established that semiotic import of diverse cultural resources enable children in music creativity, communication and ways of knowing as they redesign meaning while making transitions from home to school. Griffin (2010) highlighted the need to listen to children’s music and their inner voices, the many ways in which they communicate, make meaning and transform their prior understandings in different contexts in their world. The importance of connecting curricula to children’s lives has been promoted through narrative studies (Barrett, 2005; Green, 2005). Further research is required to emphasise the “importance of seeing and hearing children’s perspectives (and determining) how to embed children’s voices within curricular choices” (Griffin, 2009, p. 176). In particular, the ways in which complex phenomenon of *music, sound, gesture and speech modes* impact on meaning making through transformative interaction patterns in group and individual music learning activities,
calls for further study, for little is known (West, 2009). This thesis aims to address this identified gap in understanding the nature of students’ voices in music redesign.

The focus of this study was the investigation of transmodal and transformational redesign in children's music invention. Children's ways of knowing were explored, particularly in relation to their use of the elements of music to realise conceptual learning through embodied representations as they go about transformational redesign of music experiences, “capturing” meaning by redesign of modes. The study also sought to determine whether they enhance conceptual understanding over time, using transmodal redesign. As seen in the discussions so far, previous research relevant to understanding verbal and non-verbal music interaction of young children has informed researchers of the importance of listening and responding to the child's voice.

The importance of initiating imaginative interaction in the child’s musical and cultural world, and providing opportunities for meaning making across contexts from home to school by creative music invention or music improvisation, is highlighted in the literature (Bowman, 2002; Green, 2008, 2011; Jorgensen, 2002; Marsh, 2011). The abstract modalities of thought or representations of young children’s ideas and prior observations in the general underlying patterns found in their music-making show that they are principled in the way they invent music (Bamberger, 2001; Gordon, 1971; Gromko, 1995; Hallam, 2009; Young, 2003, 2009, 2010). They make informed choices. Their interactions while redesigning in music-making activities may reveal cognitive processes and structures of thinking as children communicate underlying truths and discoveries (Bamberger, 1991; Harrop-Allin, 2010, 2011; Taetle & Cutietta, 2002; Young, 2003). Bowman (2002) claimed that culturally situated resources assist music improvisation as children assimilate and transfer ethical and cognitive practices.
Children’s cultural understandings, their ways of making meaning and developing identities are shaped by interactions in different social spaces, through multimodal social practice that is living and dynamic (Leander & Vasudevan, 2009; Massey, 2005). In particular, there is need to interpret ways children communicate socio-cultural perspectives and experiences, past and present forms of knowing, by transformational music redesign (West, 2009). Multimodal redesign as embodied learning may reveal more about cognition than language (Kress, 2010).

2.2.2 Children’s Situated Learning in Music Invention: Transformational Redesign

Collective learning through embodied interaction in a shared domain of human endeavour (Lave, 2009) is a powerful and effective means of constructing and conveying knowledge. It has been acknowledged in business and education where communities of practice engage, excite and provide relevance (Wenger, McDermott & Snyder, 2002). A contextual view of learning promoted by these researchers is one that is situated and not directly transferred to a new context. Higher mental functions of communication and critical judgment, observed in children’s classroom contexts, were known to be internalised after repeated performance and comprise children’s behaviours (Bargh & Ferguson, 2000). These behaviours, while well documented in this specific context, were not understood as being transferrable across domains of learning (subject areas) as they were repetitive and habit-forming. However, they were not viewed through the lens of social semiotic multimodality, which acknowledges children's interactions as socially framed, guided by their interest and engagement and therefore never repetitive or the same.
Social semiotics proposes that children make transformations through purposeful selections of appropriate resources for investigating problems and communicating ideas (Kress, 2010; Mavers, 2011; Newfield, 2009). This has been debated. Earlier studies of collective learning (Osberg & Biesta, 2007; Wortham, 2006) viewed children as processing layers of meaning found in socio-cultural experiences and forming sedimented identities over time, thereby facilitating their redesign practices and agency. In multimodal representations of cultural experiences, children were seen to build on emerging concepts from their interactive experiences, a gestalt where the whole is greater than the sum of the parts (Lakoff & Johnson, 2003). Learner agency could be revealed in those metadimensions of social and personal identity in contexts.

Attempts to document adaptive and agentive understandings and behaviours in real life contexts were made to explore children’s literacy interactions in home and school settings. These adaptive behaviours, referred to as culture switching (Flückiger, 2006), were seen as cross-cultural interaction where children use their culturally shaped understandings to extend their learning in new contexts by mixing, adapting, experimenting and transferring these ways of understanding in order to expand their literacy texts and determine appropriate practices. Flückiger (2006) noted that the understanding of agency and voice enacted by young children across social and cultural settings required further research to assist schools and teachers in supporting children’s processes as agents of their own learning. However, while demonstrating there were behaviours of mixing and transferring learning across contexts and learning domains, she did not acknowledge that there was evidence to support a claim that children make shifts in conceptual understanding through redesign of prior learning across domains.
Dyson (2003) suggested that practices and cultural semiotic tools could be recontextualised to reframe textual material within diverse communicative practices as children reorganise and rearticulate resources to negotiate a complex semiotic world. Of particular interest is how community and family activity and culture might enrich, expand, stretch and diversify children’s creative text making (or in music events, their inventive transformational redesign practices) as they make choices in text design that are based on their unique interests. This transcends learning as construction but is inclusive of it. The multimodal perspective of text making in language provides a way of analysing children’s use of symbols in communication that “moves beyond literacy as a social practice” to that of a global concern (Street, 2004) where links between local and global (or universal) practices are made in “transcontextualised” forms (Brandt and Clinton, 2002; Clarke, 2008; Prinsloo & Baynham, 2008; Latour, 1996). They referred to the fixed nature of the symbol in language as carrying universal meaning or concepts across borders. In a similar way, music has universal qualities, the elements of music, symbols or signs carrying fixed, global meanings/concepts across borders and contexts.

Brandt and Clinton (2002) noted that literacy has material, enduring aspects, participating in cultural practices across contexts and domains rather than just existing as a product of them. They critiqued the situated approach to literacy and the “limits of the local” to “set or reveal forms or meanings” (p. 344). They observed children's capacity to move across borders while keeping prior learning intact as being made possible through the permanence of literacy forms. While they did not acknowledge the role of music, dance and other embodied learning as ways of transforming past experiences through changing contexts, they highlighted the need to not just develop deep understandings of local cultures, but in so doing to understand how local cultures are negotiated in dialogic relationship with “the global” (Hagood, 2008; Luke, 2003;
Nixon, 2003). Later research acknowledged music practice had similar capacity to that of literacy texts in that both are essentially **multimodal**, allowing prior knowledge to not only be connected to new learning, but also transformed.

Children’s transformations of existing musical knowledge across cultures - transforming their funds of knowledge (González, Moll & Amanti, 2005) - were seen to occur by linking knowledge to everyday practices as they engage in music invention to remake music events and communicate meaning, in new events and contexts (Barrett, 2005, 2011; Darian-Smith & Henningham, 2011). Harrop-Allin (2010; 2011) proposed that awareness of these funds of knowledge and cultural influences may give us insight into redesign of texts (or music events) in which children might purposefully engage to make meaning of prior learning experiences in contexts outside and beyond these familiar social and cultural practices. They use **transformational redesign of modes**.

Attention to “everyday” communications in music invention affirms children’s meaning making or semiotic dispositions (their music inventive practices), recognising children’s redesign of resources as originating in out-of-school practices (Gee, 1999). **Transformational redesign** is the "interested action" "of socially located, culturally and historically formed individuals, as the re-makers, the transformers and the re-shapers of the representational resources available to them" (Kress, 2000a, p. 155). Activity in new contexts can also occur across principal organising modes of communication (speech to music), as well as in one predominant mode, to redesign meaning (Jewitt, 2003; Stein, 2003). **Transformational redesign** (Kress, 2010, p.43) involves "changes in ordering and configurations of elements within one mode" to make meaning in new contexts and when unfolding over time. For example, music may be seen as a principal (prime) mode.
or channel of communication comprised of other modes: speech, movement, gaze and proxemics. These change and shift throughout a music event, transforming meaning.

Kress (2010) asserted that transformations of learning experiences by children occur as they make meaning or sense of learning experiences. Transformational actions involve principles of selection made during the interpretive engagement of the child: “only if there has been interpretation, has there been communication” (Kress, 2010, p. 35). Children may reorder elements of a mode, or change from one genre to another, to convey a different meaning. Transformation occurs in communication when there are “changes in ordering and configurations of elements within one mode” as children make selections of materials to communicate meaning, while transmodal redesign is “the change from meaning expressed in one mode to meaning expressed in another mode” (Kress, 2010, p. 43). Multimodality, transformational and transmodal redesign appear to be not only suitable frameworks for investigating different ways children make sense of their music activities, but also for tracking learning as conceptual understanding.

In transformational engagement with an aspect of the world there is redesign of meaning (Kjallander, 2010) and, acknowledging that nothing is new, it can be framed in a way that presents new meaning, or learning. “Identities are narrated,” personal to us but also "socially situated" (Gherardi, 1996, p. 188) and formed through engagement with others, through dialogue (Gilligan & Wiggins, 1987) and through text making (Holland & Lave, 2001). Biesta (2004) takes seriously the idea that knowledge is not a reflection of a static world that is represented through learning experiences, but emerges from our engagement with the world. Osberg and Biesta (2007) theorised “this is what we believe becomes visible once we think through the epistemological implications of complexity, which provides us with a different way to understand the relationship
between the world, ourselves and the knowledge of the world” (p. 28). Such a perspective recognises that all learning is not imitation but \textit{transformational redesign}.

Redesign is a way of orchestrating \textit{multimodal} texts by choosing which modes will be foregrounded and which will be given less prominence, and involves selections made by children as they communicate meaning. Recognition of this process in children’s learning experiences affords them an “equitable participation in the shaping of the social and semiotic world” (Kress, 2010). As such, it is the recognition of children’s identity - of the work children do in their social lives and the realisation of their interest in their world through music invention. Social semiotic theory links ways by which children represent meaning in \textit{multimodal redesign} to their selection and \textit{redesign} of semiotic resources, their choice of musical instruments, voice, materials, movement, and proxemics to assist fluidity and coherence in music making with teachers in learning settings (West, 2009). Children are inclined to wonder at the varied ways of making music, by exploration of the combinations of sounds as resources that convey meaning, and to play with music in communication (Young, 2009; 2010).

\textbf{2.2.3 Music Invention, Affordances of Materials and Learning}

What then are these resources used in music invention for semiotic import of meaning in diverse contexts? As young children are engaged in multiple experiences of creative music invention, it is likely that they selectively or purposefully combine various \textit{modes of movement}, \textit{verbal}, \textit{non-verbal modes and elements of music} in redesign of meaning (Harrop-Allin, 2010). These \textit{linguistic, gestural, audio, spatial and visual modes}, and materials or artifacts available in specific contexts, are semiotic resources used for \textit{redesign}. Together, they represent the process of semiosis by which children produce signs in order to communicate prior learning through unconventional
means during music invention, often by using metaphor (without conventional texts or literal resemblances). In social symbolic play, “the rules are discovered and generated in action” (O’Neill, 1995, p. 59). Dialogue between children involved in music invention contains a rich tapestry of many co-present modes or affordances through which they convey meaning: a *multimodal ensemble* (Kress, 2010). Kress believed complex modal interactions were not set formulae to be followed: they evolved moment by moment over time and in different social spaces. Also, "the materiality of modes interacts with the physiology of bodies ... meaning potentials of the mode in which a sign is made become embodied" (Kress, 2010, pp. 76-77). The semiotic potential for communication through music invention needs further investigation in the early childhood context.

Elements of music (pitch, rhythm, dynamics, phrasing and articulation) can be termed modes that have “affordances,” in that they are material aspects of design and have culturally derived qualities. The physical properties of instruments (timbre, pitch, sound-producing materials such as wood, gut, strings, metal) are also affordances that limit the performer and also offer a range of potentials. In social semiotics, *modal “affordances”* are foregrounded by the child as signs representing and communicating essential learning or meanings, through choice of materials used to express and represent these meanings (Jewitt, 2009). In other words, they are the semiotic resources most appropriate for communication and are selected purposefully (Mavers, 2011).

Through configurational signs, gesture and tone of voice, we can understand children’s meaning making. Inferring what is being communicated, and how, can be challenging as young children’s referents (what they are using as representations) shift regularly as they communicate meaning through music playing, singing, storytelling, and movement (Wright, 2010). Their meaning remains constant but the mediation
(actions through which they convey it) are dependent on contextual factors, identified as shifts or lightning fast changes in the environment (Mavers, 2011; Norris, 2009). Norris developed a means of analysis that highlights the higher modes at any given time, even in one frame in a video, and how in successive frames these most important ways of conveying meaning may switch to another mode or modes (now the “higher” modes). These could be music, speech, body language, proximity or movement.

Children identify with the resource of sound as a physical and cultural medium of expression (Wingstedt, 2008). We associate sound with its origin (it literally wraps around us through transmission of air waves, and vibrates the body). This affects its meaning potential, its value as a resource to communicate meaning. Recent research suggests children enact agency or self-determination when redesigning music in order to create meaning first for themselves, then for others as they communicate this meaning (Elliot & Baker, 2008; Wingstedt, 2008). In music, “metaphor,” understood in the semiotic framework as a mode, is the child’s selection of salient features of musical invention - duration, pitch, form, timbre or dynamics – in basic units of sound or combined in musical phrases, patterns or motifs to create a rhythm, a melody or a whole piece of music: an expression of an idea or experience (known in semiotics as a “double metaphor”). The features of the music, or “affordances,” are the resources (communicational modes) chosen or foregrounded by the child to convey semiotic meaning to develop their semiotic dispositions. Children communicate meaning in different ways, to themselves or to others, through “interweaving of semiotic resources in the interpretation and reshaping of meaning” (Mavers, 2011, p. 123). Mavers (2011) suggests this is the basis of all new learning, and of children's creative inventions.

Choice of mode is seen to have an effect on the production of meaning (Kress
and van Leeuwen, 2001). Different modes shape knowledge in different ways because the interpretation of knowledge is shaped by the agent’s choice of or disposition towards a *mode*. Kress (2003, p. 52) stated that meaning arises from "affordances," the cultural "potentials" and "limitations" of modes in material representations. Jewitt (2009) reinforced the significance of identifying participants’ use of affordances in diverse learning environments. She noted that in social semiotics meaning making is foregrounded by agencies through specific concrete, sensory, material and embodied acts in situated contexts. Modal representations in social semiotics do not convey meaning through abstract representational systems alone, or cognitivism, usually attributed to reading and writing. Children use embodied resources for redesigning familiar music material and prior learning, to renew meaning. Language is not the central focus. The sign is the product of interested action: signs are motivated (Kress, 2000a; van Leeuwen, 2005). Agentive action shapes the sign and relationships of power (Kress, 2010). Different modes are different ways of transporting a message allowing for choice in different shaping of resources that may transform meaning. In music, children play with available resources or modes of communication, to represent learning experiences and transform meaning in context. This is known as their redesign.

Choice of *mode* carries particular meaning, because modes have particular affordances - potentialities or constraints. “Serious consideration must be given to textual design in relation to other co-present *modes*” (Mavers, 2009, p. 271). These meanings are transferrable across cultures and domains. According to social semiotic theory, music *redesign* found in children’s music events is participatory and make use of materials or affordances that carry cultural meanings, allowing children to transform prior learning and meanings across learning contexts (Harrop-Allin, 2010). "Learning … captures the essence of the alterations, transformations, re-making of social
arrangements and practices” (Kress, 2010, p. 6). Signs of learning occurring in
children’s lives are more accurately observed and understood through the *multimodal*

lens: the differences in the capacities of the learner in making signs as a result of
learning (Jewitt & Kress, 2001). They communicate the fact that learning is occurring.

Signs are made in circumstances of the time and are entirely motivated by the interests
of the maker (Kress, 2010). They are the child’s interpretation of an experience in their
world and are the representation of an aspect of this experience. While being made
through spontaneous experiences of music play, signs carry meaning. It can be inferred
from Kress’s arguments that when repeated in similar ways signs form a code or set of
rules, not systematic, but sufficient to denote a genre or form of expression with
connotative significance.

According to Kress, modal affordances are the meaning potentials,
representations or materials that make meaning, the social aspects of design, and the
connection between the two. Affordance is that which the sign can potentially convey.
Affordance refers to potentials of semiosis as a *mode* (or as a way of expressing
meaning), and limitations of that *mode* (Kress, 2009). This applies to language as a
mode: it conveys meaning but it has limitations, for it is a partial representation of a
reality and can have more than one meaning (Kress, 2010). Music as a *mode* also has
limitations as well as potentials. A more complete meaning is constructed by combining
many *modes*.

So far the literature has informed us that spontaneous investigation of problems
and finding solutions by exploring potentials and limitations of affordances are not only
ways by which young children position themselves in music invention, but also can be
ways that inform their approach to learning. Children express learning through the
redesign of multiple *modes*, using familiar resources, and transform their prior experiences (Kress, 2010). This motivation for enquiry, through dispositional ways of thinking and culturally inclusive musical creativities in real world practices, can link education and higher thought processes to everyday engagement in the learning process (Burnard, 2012). The next sections discuss social semiotic *multimodality* as an apt theoretical basis for investigating redesign as learning in children's music invention.

### 2.3 Social Semiotics

Social semiotics is a way of transmitting meaning for specific, motivated means, using signs and symbols that are re-ordered by *modes* and shaped by materials for reasons of interpersonal and institutional interaction, resistance and power relations. Social semiotics grew from the field of semiotics, a perspective that language is a fixed or closed system, the *principal mode* of communicating meaning. Semiotics is broadly the study of signs (Saussure, 2006). Saussure’s “langue” was known as a closed, stable system of written language, or linguistics, the performance of which was known as "parole." He believed that sign and signified are fused and together comprise language (Wintle, 2002). However, Saussure (2006) distinguished spoken language (parole) or its performance as less predictable than the written word (langue). He acknowledged the semantics, changes in meaning, often attached to a word or phrase, and individual usage and inflection, made the spoken word difficult to capture and accurately transcribe, and written word was more reliable for understanding and conveying meaning.

Voloshinov (1973) critiqued Saussure's view of language production and reception (parole), seeing it as being rather an inevitable social phenomenon that needed to be materially grounded or contextualised with reference to other *modes* of embodied meaning making. The concept of social signs and systems shifted from being
monolithic (representing a commonly understood meaning used in a closed system of language) to being characterised by struggle and conflict, leading to the renegotiation of forms and meanings. “Multiaccentual” differences was a term used to describe how meaning making has social, cultural, historical and political conditions, or is dependent on context, and that these conditions are crucial to language. Therefore the view of language as a closed system needed to be revisited (Jewitt, 2009, Newfield, 2009).

In a similar vein, Hodge and Kress (1988) were concerned that the western approach to communication was being conceptualised within a narrow definition of literacy as formal language (reading and writing), and saw meaning making or representations of thought as constrained by “logonomic systems” (logo as a system of thought; nomic as a control or ordering system). This view of language prescribed semiotic behaviours as formalised grammatical rules and regulations. Kress (1997, 2003) challenged this view by insisting that meaning is produced through specific material forms, agencies and contexts, always changing. This view is mirrored from a social semiotics perspective. The emergence of the multimodal approach as a new method to study human communication is, at least in part, a response to the social and cultural reshaping of the communication landscape and advanced developments in the new media technologies (Jewitt, 2009).

The notion of signs and symbols was generally being challenged, with the fixed meanings of signs and symbols being more open with the introduction of technological and communicable advances, possessing the function of communicating meaning and being adaptable or more context-specific. Road signs, words that take on new meaning (for example, "sweet," "unreal" or "far out") or the elements that can be combined to make up an image or a musical composition, are examples of how signs have changed
meaning. Van Leeuwen (1999) also challenged the arbitrariness of conventions in music. Kress (2000a, 2000b) and van Leeuwen (2005) challenged the view that the relationship between the signifier and the signified (signs) was arbitrary, proposing that the sign is the product of interested action, influenced by socio-cultural practices. This agentive action was seen as shaping the choice of resources for making meaning (the signs) the relationships of power, and the socio-cultural context. Poststructural views underpin the theory of *social semiotic multimodality*, appropriate for this thesis.

Apart from conceptualising language as a closed system, one that operated independent of context, mainstream semiotics focused on structures and codes at the expense of agents of or participants in semiotic activity. Western art forms of music performance and pedagogy today also tend to display conventional and restrictive codes of practice rather than narrate meaning that has relevance for today's culture, and this constrains children's creative or inventive capacity in music (Barrett, 2009; Bourdieu, 1994; Burnard, 2012). Within children’s individual cultural contexts the tensions between what is accepted practice and what is new practice, particularly in learning, produce semiotic resources of representing knowledge and making meaning. Children’s individual cultural contexts offer new practices, which can cause tension with conventional and accepted practice of classrooms.

Children’s resources are apt ways of conveying meaning, interest and agency in spontaneous communicative events. Resources are useful for expressing creative thought, externalised in action through choice appropriate to context (Kress, 2010). In this study social semiotics provides a lens through which children’s music making is examined in social and cultural contexts to reveal meanings made through embodied actions and interactions of children in music events. Their selection of embodied *modes*
and materials symbolise their interest as they redesign these to communicate in diverse contexts. New learning through *transformational redesign* is realised in context and is always in a state of flux as resources or *modes* (designs) are selected and adapted for purposes of redesign (Cope & Kalantzis, 2000b). Agency is the subject: the author of social semiotic practice (Kress 2000a). Recognition of this capacity for redesign in young children’s music opens up new opportunities for pedagogy and policy.

### 2.3.1 Theory of Social Semiotic Multimodality and Redesign as Learning

The central focus in this enquiry is children’s music invention as *multimodal redesign*. This is music invention seen through the lens of social semiotic multimodality, the theory developed by Kress (2003). The theory of *social semiotic multimodality* is the basis of work by Jewitt (2009), Mavers (2011) and Newfield (2009). Social semiotic theory views children selecting resources based on interest and redesigning them as modes of communication useful in diverse social and cultural contexts. New meanings made during semiotic redesign are an indication of learning. Application of this theory to the investigation of children’s ways of knowing in music invention enhances musical practices and cultural heritages in context and preserves diversity (Goble, 2010; Harrop-Allin, 2010). It was used as a basis for this thesis.

*Social semiotic multimodality* embraces all the social and material resources through which meaning is made (Jewitt, 2009). *Multimodal* tools or culturally available resources draw on children’s interests in order to assist them to communicate meanings in unconventional ways. For example, in designing music, children may choose a repeated motif such as a drum rhythm or two alternating notes on a xylophone to communicate mood or character while making a *multimodal* music text involving movement, gesture, facial expression and sometimes voice as co-present modes. Jewitt
(2009) described these materials as mediating artifacts (tools, signs and symbols). They connect children as they interact and communicate new meaning through music invention. Multimodality is an innovative approach to representation, communication and interaction that looks beyond language to investigate many ways to communicate one idea: through images, sound and music to gestures, body posture and the use of space (Kress, 2010). Modal redesign communicates what is learned (Mavers, 2011).

Social semiotic multimodality focuses on how people regulate the use of semiotic resources in specific social practices and institutions, in different and new ways, to further their understanding of the richness and complexity of semiotic modes (not just language, but also artifacts and embodied ways of making meaning) and how they can be integrated in communicative artifacts, learning experiences and events (van Leeuwen, 2005). This position critiques “institutional bias (in education) disempowers people not only by excluding many from engaging in these representational practices which are not purely linguistic but by handicapping them as critical readers of the majority of texts to which they are routinely exposed throughout their lives” (Chandler, 2007, p. 225). This is the position the researcher has adopted in this study.

2.3.2 Modes

A mode classifies a "channel" of representation or communication for which previously no overarching name had been proposed and the meaning of which in this field is still being developed. It is the cultural shaping of a material (Halliday, 1978; Jewitt, 2009; Kress, 2009; O’Halloran, 2004; van Leeuwen, 2005). Modes are not autonomous or fixed, but fluid and subject to change. To be a mode (Halliday, 1978) it must have three big-picture functions: textual, inter-personal, and ideational. Learning is expressed in the text of music as a message entity that creates coherence of elements of
music that hang together or fit into the larger contextual meaning made in conjunction with other *modes*; inter-personal refers to the constructing of social relations of those engaged in communication; and ideational represents what is going on, the actions or subject matter, ideological or representational. A *mode* is mediated or shaped through the use of semiotic tool.

The idea of *mode* has changed over time. As a motivated form of communication, its organising principles and resources are the outcome of the cultural shaping of a material (Jewitt, 2009; Kress & van Leeuwen, 2006; Kress, 2010). Kress (2003) first referred to this approach as the theory of *social semiotic multimodality*, which views communication in learning as consisting of rules that are socially made and changeable through social interaction. While agreeing that representational resources are rooted in tradition and convention, Kress (2009) acknowledged the potential for future change in the way these resources are used. The emphasis is on the dynamics of new forms of communicating meaning realised by what people do with these resources.

The meaning or usage of the word "*mode*" has likewise changed over time, and is still not settled. Most communities use the convention of six *modes*: linguistic, audio, visual, gestural and spatial (Bull & Anstey, 2010). Specialist communities, however, may see typology as *multimodal* (font, layout, vectors and columns) as *modes* within a *multimodal ensemble* (Kress, 2003, 2010). Movement can be *multimodal*, comprising *modes* of head, arms, legs, hands, feet, shoulders, facial movements and gaze. Instrumental and digital music resources, melody, rhythm, phrasing and dynamics can be *modes* in a context of music as a *multimodal ensemble*. In young children's music invention, the *modes* of movement, proxemics, gaze, music and speech can be part of a
multimodal ensemble of meaning making The meaning does, however, have to be settled within the community in which it is used (MODE, 2012).

Therefore modes are malleable, while always carrying specific meaning for a community operating in a specific social and cultural context. “Discourses are socially constructed knowledges of (some aspect of reality) ... developed in specific social contexts, in ways which are appropriate to the interests of social actors in these contexts” (Kress & van Leeuwen, 2001, p. 4). Van Leeuwen furthered this definition by stating “discourses are resources for representation, knowledges about some aspect of reality ... frameworks for making sense of things. They are plural ... different ways of making sense of the same aspect of reality, ... evidenced in different texts about the same aspect of reality” (van Leeuwen, 2005, p. 95).

Different cultures and communities privilege some modes over others. Ethiopian, Australian Aboriginal and to some extent Brazilian cultures privilege the spoken word and movement/gesture over the written word. Iraq has a balance: both are equally important. Gee (1999) observed that while the western cultures privilege the written word, texts are in practice produced in a myriad of discourses and that children use different kinds of materials (tools) and modalities (genres) as they design texts. A mode is now known as the outcome of the cultural shaping of a material (Jewitt, 2009). It has a communicational function that can enhance learning across cultural contexts.

Modes are shaped by the ways in which people use them, in their daily interactions. In the multimodal ensemble of music invention, these resources include many modes for communicating meaning: musical instruments, movement, facial expressions, spoken texts, song, digital images, and other materials or artefacts (van
Leeuwen, 1999; West, 2009). **Multimodality** is therefore "inseparable from the body and is apprehended by it" (Kress, 2003, p. 46; Stein, 2003b, p. 51). Meaning making is foregrounded through concrete, sensory, material and embodied acts. Different *modes* shape knowledge in different ways because the interpretation of knowledge is shaped by the participant's choice of *mode* (Kress, 2010).

Mavers (2009) suggested teachers assess children’s work by giving serious consideration to material forms of all *modes* used by them as they communicate what they have learned. She regards these as contextual tools or symbols that are selected in a deliberate and principled manner by children who limit themselves to what is essential to convey meaning (Mavers, 2009, 2011). These resources, selected or negotiated by the child to convey the most appropriate meaning for a particular context or purpose, are grouped together (orchestrated) into a multimodal ensemble (Kress, 2003). This is how children learn, through their appropriate and meaningful representations of knowledge.

### 2.3.3 Semiosis

Semiosis refers to contextualised text making practices or the way in which texts are the expression of cultural knowledge, beliefs and practices (Jewitt, 2009). This is the concept of semiotic weighing introduced by Mavers (2007) and it refers to composing, not just selecting, meaning-making resources. It involves decisions about how these resources will be combined. The usefulness of available designs is weighed up in relation to each new event. Common sense ways of using music and other semiotic options to express meaningful everyday learning experiences is known as semiosis. According to Mavers (2007, 2011), children foreground particular modes by their selection of resources and combinations of these. Sometimes this is done simultaneously or in sequence in the same event. Diverse cultural backgrounds may be
influential in making these selections (Gee, 2005; Kress, 2007; Mavers, 2011). Each event of music invention may be different as children may enhance their semiotic dispositions by expressing learning/experiences/stories in differing modes, times and places, by their actions and interactions in cultural contexts. Through children's active, participatory learning using semiosis they change their relation to the world and to each other. Critical participatory interpretations made by the researcher inform this study.

Semiosis also refers to children's sign making - the affordances (potentials) and constraints - as they make selections using materials "to hand" (Kress, 1997), possibly influenced by both convention and cultural practices in situated events. Semiosis is a process of finding commonsense ways to express meanings of everyday learning experiences, and thereby enhance dispositions in cultural contexts (Jewitt, 2009; Mavers, 2011). Acknowledgement of situated communicative practices is important in learning. Investigation of creative learning occurring in events at home and school, and across semiotic domains (Gee, 2004) shows it is nuanced, creative and novel, and expressed through semiotic resources that are apt to a particular domain (Kress, 2000a). Situations in any domain are almost always novel to some (limited) extent, so no two events can ever be exactly alike (Gee, 2004, Kress, 2007). This is especially noticeable in periods of change. It is not wise to assume that learning occurs in stages, as this may miss the capabilities of learners in situated practices. There needs to be a new way of viewing learning that acknowledges all resources available to individuals for redesign in diverse contexts. This is the aim of this thesis. *Multimodal analysis* provides the tool.

### 2.3.4 Multimodal Interaction Analysis

Halliday (1978), O’Halloran (2004, 2005) and O’Toole (1994) developed the *earliest* established view of *multimodality*, linked to language and linguistics. Halliday
(1978) asserted that writing is a semiotic resource that is the primary mode of conveying thought, and consists of systems of meaning realising different functions. This perspective or theory of semiotics and learning is termed multimodal discourse analysis (MDA) or systemic-functional multimodal discourse analysis. It views discourse and communication on a micro-textual level, and focuses on learning through language. It is a theory of learning and a method of analysis, viewing semiotic resources as systems of meaning that people have at their disposal.

These resources, while serving a function as representational or situated texts, are backward looking because they are not only based on conventions but also constrained by them. In this study, for example, the use of conventional definitions of a mode severely limit the analysis of music invention, where modes are not just "audio" but refer to the elements of music as modes, useful for analysis. It is important to incorporate many modes under the multimodal umbrella of "audio" or "music" meaning making. Therefore Halliday's (1978) perspective is not appropriate for this study, as it is fixed and intended to apply across many communities of practice, and it privileges linguistics. In contrast, this study is primarily concerned with how children select and foreground resources for redesign in the present moment of music invention through their actions and interactions in situated events, and then how their socio-cultural discourse and their learning is shaped, modified and changed by these actions.

An alternative perspective to semiotics and learning focuses on action before discourse, though actions are seen as “mediated by the systems of representation that they draw on” (Norris, 2004a, pp. 12-13). It combines interactional social linguistics with multimodal semiotics. The primary focus of this learning theory is to examine intercultural communication to see how characteristics of language and literacy are
situated in the world to give meaning to people’s actions (Scollon & Scollon, 2003). Actions are the central concern, or embodied ways of making meaning, as well as materials and artifacts. The cultural and social identity is seen as being constructed on multiple levels in multiple modes in the everyday world (Norris, 2004a; 2004b; Norris & Jones, 2005). Norris refers to this form of semiotic meaning making as multimodal interactional analysis (MIA). The approach to learning combines theory with analysis and facilitates investigation into various interactions in learning to determine how children use semiotic resources and texts to make meaning of their learning experiences and develop their cognitive processes (Jewitt, 2009). Cross-cultural social semiotics is believed to enhance communication by children who use readily available resources to master different modes for representing the world (Norris & Jones, 2005). This type of communication is referred to as “mediated.” Norris's perspective is useful for this study in its prioritising of actions over discourse in analysis.

MIA provides an effective tool for analysing and interpreting data. It is a method of analysing ways in which children transform resources to communicate meaning (Norris, 2009). MIA is effective for observing and analysing varying socio-cultural practices and mediated activities of children, particularly by identifying modal configuration and modal density while they reconstruct texts. This general framing of analysis will be employed in this thesis as a means of identifying what are the higher order modes in which the child is engaged, how these align with other lower order modes, and how the focus of the child can switch from one to the other or to both simultaneously in a moment of transformative engagement in the world. Modal density is not the same as “semiotic resources” for making meaning (Halliday, 1978). It is, rather, “the intensity and/or complexity through which a higher level action is constructed, which allows us to determine the level of attention paid to and/or the
awareness of that higher-level action performed” (Norris, 2009, p. 79). This will be a very useful method of video analysis of embodied meaning making in this thesis.

2.3.5 Transmodal Redesign: Cognitive Consequences of Reshaping Representation

Meaning potential acknowledges we do things (and learn) in different ways, by making selections, and therefore convey particular social and cultural meanings (van Leeuwen, 2005). Boundaries of childhood learning in practice have broadened to acknowledge situated cultural influences such as music, gesture, gaze and movement, the embodied and material nature of literacy (Dyson, 2001; Lancaster, 2001). "Children have a social and personal investment in the symbolic meanings of their culture right from the start, and it follows that their engagement with them is likely to be always intentional and purposeful" (Lancaster, 2007, p. 125). Children’s music invention expresses or conveys an indication of realism in learning, using selected materials for transformational redesign. The social semiotic learning theory elucidated by Kress (2010) provides a social semiotic lens with which to investigate culturally diverse children's music invention, as it incorporates aspects or dimensions of the learning experience that are not always considered by educators, but that are integral to learning. “That sensory, affective and aesthetic dimension is too often ignored and treated as ancillary. In reality, it is indissolubly part of semiosis” (Kress, 2010, p. 78). Young (2003) has observed that as they engage in play through the agency of musical materials and modes (voice, percussion, tuned instruments) children learn by making constant reconstructions in the communicational mode of music. This is transformational redesign. Children do this in all music interactions as they reshape semiotic resources.

Cognitive work involved in moving prior learning experiences across modes is known as a “transduction” process (Kress, 2010) as children express prior learning
experiences and represent them in a new communicational mode (e.g. speech to music). This demonstrates conceptual understanding. According to Mavers (2011) learning through the mastery of different modes for representing an aspect of the world is the serious focus of children’s play, indeed of all human aspiration. There are always choices to be made with regard to modes of social interaction (i.e. which are to be foregrounded as most appropriate, and which are to be kept in the background) and materials or resources that best express specific meanings through their affordances.

*Transduction* (Kress, 1997), then, is the thought process of moving material from one mode to another (from music to dance, or from writing to film). Meaning is re-articulated, just as gestures and bodily movement in dance become written accounts in words (descriptive verbs, adverbs and nouns). Inner semiosis, or children’s internalised representations of meaning through their thought processes, is made external as the child selects materials to represent the same meaning but in a different way, using different modes (Kress, 2010). Sometimes educators do not recognise work done by a child when a literary text or a concept is represented with a different mode. While they do see evidence in the child’s understanding, there is not always equal value placed on the effort made by the child. Children position themselves and find solutions using redesign through a departure from equilibrium (Piaget, 1977). Ideas are tested and assimilated into prior knowledge, then over time are exposed to challenges that tip the equilibrium of this prior conceptual knowledge (experiences of learning) before being accommodated as a richer and more secure understanding of the concept. Similarly, transduction uses synthesis, higher order thinking, not just transformational learning.

Kress (2000b) noted that the process of transduction through change in meaning across modes is something that "simultaneously involves cognitive and embodied
meaning making” (p. 154). It has an external manifestation in *transmodal redesign*. *Transduction* is an involved process of moving material from one *mode* to another that does not involve mere translation or transference of meaning. Inner semiosis, or children’s internalised representations of meaning in their thought processes, is synchronous with their external actions as the child selects materials to represent the same meaning but in a different way, using different *modes* (Kress, 2010). This involves a "transduction" process that is not just "translating, but is in itself transformative" (Kress & van Leeuwen, 2001, p. 5). *Transmodal redesign* has been observed in children’s redesign of literacy texts (Gutiérrez, Baquedano-López, & Tejeda, 1999; Newfield, 2009; Pahl & Roswell, 2006) and in their *multimodal* practices where texts are used in different spaces and across sites or contexts (Harrop-Allin, 2011; Mavers, 2011). Children’s extended interaction when motivated by the exercise of choice in *multimodal* practices enhances their expressive vocabulary as they reflect on meaning and form during moments of *transmodal* authoring (Rowe, 2003).

*Transmodal semiosis* is a process where modes of representation or communication are changed, where "there is a change of meaning expressed in one *mode* to that expressed in another" (Kress, 2010, p.43). It is the result of ongoing processes of semiosis over time. The *transmodal moment*, a metaphor for the occurrence of a shift of thought or feeling, is understood as being relational to other periods of history and other ways of expressing ideas and experiences (Newfield, 2009). Multiple transformations occur in this moment, which is a "fixing" or a "pinning down" of internalised thought processes involving genre, meaning, subjectivity, materiality and learning. Meaning making is continuous rather than limited to one moment in time. Texts (or in this thesis, *transmodal* music events) are "punctuations" of semiosis, points of relative stasis and stability in ongoing processes of meaning making (Kress, 1997). In
this thesis they are indicators of stabilising influences where children's conceptual understanding in music is revealed during ongoing processes of meaning making. The ways by which children "punctuate" this process of meaning making in their music events is by aligning their selection of modes in synchronicity to reshape their prior knowledge in a meaningful way in a new context. The process of resemiotisation (Mavers, 2011) is when repeated or accumulated communicative events over time form "chains of semiosis" in which the meaning is materialised in a range of different but linked texts. Resemiotisation may occur in linked music inventions as linked texts or linked music events. This is a vital area of investigation, the basis of this thesis.

Stein (2008) described this re-shaping of knowledge in context in studies of children using local materials to make dolls, and later telling a story around the doll. The term "semiotic chain" (Stein, 2008) referred to multimodal literacy and pedagogies where meaning was realised and fixed in a series of interconnected texts over time. These anchored and afforded meanings in different ways through affordances of particular modes and their materiality, and by their grounding in relevant social, cultural and aesthetic practices, such as weaving previous experiences into stories, poems, plays and visual art (doll making). The transmodal moment became an important point of reshaping knowledge linked to other "important points, developments and variations in meaning making (MODE, 2012). Transmodal activity, because it is situated, is therefore accompanied by alternative or additional socio-cultural practices. Choice of familiar cultural forms of expression encourages self-reflexivity and gives shape to meaning, bringing composing processes to life and thereby providing opportunity for metacognition. A shift across modes involves fresh selections of resources that bring with them new possibilities for learning (Mavers, 2011). It has a pedagogic impact.
If students are showing meaning in diverse forms or genres they take aspects of their prior knowledge and core meanings, synthesising them with elements in a new mode. In a project involving and engaging senior students in Shakespearean texts in an impoverished South African community, Newfield (2009) invited the students to express their understanding in new ways, by making masks and writing new drama scripts, or alternately, by writing poems. As the students developed their ideas in new forms they featured some essential elements of the original Shakespearean text, while choosing words, phrases, colour, shapes and forms that were familiar to them and their culture. This accelerated their learning through redesign.

Semiotic import (van Leeuwen, 2005) is the bringing of materials and forms of texts across contexts, to make new learning more relevant. It has been applied to the field of children's literacy events and their selections of materials to demonstrate that children remake texts by combining diverse cultural forms and influences in new ways (Ranker, 2009). In music inventive practice, the music event can demonstrate a movement, a shift across modes from speech to music, for example. While children from diverse cultures form music identity over time into a musical habitus or disposition, they use semiotic import to make possible this "travel" from prior to present experiences. They demonstrate understanding through shifting meaning across modes.

Transmodal and transformational redesign are motivated by children’s immediate interests represented in their discourse, by their situated view of the world (Mavers, 2011). They are made through substitutions of specific concrete actions using semiotic resources: often these are abstractions such as sounds, verbal, non-verbal processes (bodily movement), and children’s drawings. This is done by selecting elements of the learning experience and foregrounding them, reordering them or
excluding some while working with a *multimodal* text (Kress, 2003, 2010; Jewitt, 2008b; van Leeuwen, 2005). Mavers (2009) found that children’s selection of these resources, objects or materials, are "ways children redesign texts for meaning making," (p. 270) and are not random or accidental, but “highly principled” (Kress, 2003). This means their interactions are “productive, projecting and proposing possibilities of social and semiotic forms, entities and processes” (Kress, 2010, p. 34). Even if there is only a slight change in their production of meaning, there is a refocus, a transformation of what went before. This is redesign.

Newfield (2009) defined the *transmodal moment* as a metaphor for the occurrence of a "shift of thought or feeling that is also relational to other periods of history" or other ways of expressing ideas and experiences (Newfield, 2009). She also observed that meanings "travel across modes" with "affective, cognitive and semiotic consequences" (Newfield, 2009). In a study of Soweto youth representing their personal, cultural and national identities in post-apartheid South Africa, she noted they "fixed" their ideas in the Thebuwa Cloth - a polyglot, *multimodal* artifact consisting of a number of linked texts in different *modes* and genres - maps, spoken praise poems in the vernacular, clan emblems, photographs and contemporary poems in English, produced over a period of time (Newfield and Maungedzo, 2006).

Newfield (2009) saw these *transmodal moments* as liminal moments, intense encounters or border crossings, involving use of new resources, language and interactions that result in new ways of structuring one's identity. Van Gennep (2004) referred to it as a “rite of passage.” As an individual progresses through stages of the life cycle, it is like a series of movements in time and space. Transition stages - those experienced by children moving from home to school - are seen by van Gennep as
"liminal" moments, characterised by openness mixed with ambiguity and uncertainty. Turner (1982a) called it a process of rupture and disturbance – a separation from society and an experience of agony and then a return. The return brings a freer, deeper understanding of the system seen from a different perspective, contributing to individual self-awareness when there is rupture or disturbance of children’s familiar conventions of expressiveness. Different genre (principal modes) allow for engagement with different topics in different, more relevant ways. Likewise, in music invention, young children may demonstrate conceptual understanding in music through transmodal redesign.

Skaar (2009) defended writing practice as the primary means of promoting higher thinking and conceptual understanding. He compared it with other text making practices such as digital technology and image as ways of representing children’s learning. He concluded that technology and combined modes of text making allows children to “opt out” of and avoid semiotic work of literary texts that in his view are where learning does occur. He reasoned that children, while fulfilling the paradigmatic choice of words or image, or combinations of modal texts - do not always attend to syntagmatic combinations of words and selections made in literary texts, where children are forced to make “contrasts and combinations on different structural levels” (Skaar, 2009, p. 39). He argued that the blending of different modes “makes it easier” for children to communicate their experiences in order to make meaning. In literary texts, he stressed, resistance as a premise for learning engages children in the performance of true semiotic work in the form of writing to communicate meanings.

While the importance and pedagogical benefits of composing written texts is undeniable in contributing to children’s ability to learn and make transformations in understanding, digital technology has highlighted they not only create texts and
redesign learning, but resist, disturb and reconfigure communicational modes in a causal chain of semiosis, and "re-pin" knowledge, promoting conceptual understanding through transmodal work (Newfield, 2009). Skarr (2009) argued with Kress that choice of sign does not occur in a causal chain. Rather, sign and signified are fused, together comprising language, as Saussure asserted decades ago (Wintle, 2002). In socially framed multimodal redesign, however, there is opportunity to not only communicate but to exercise choice, to resist and engage the cognitive to navigate many pathways and shape the learning process where "affect and cognition combine in one bodily process" (Kress, 20110, p. 77). West (2009) added that this occurs in music redesign.

As children enact agency in music play, a multimodal text, they are likely to interact and use materials purposefully as they communicate new meanings in diverse contexts. As found in recent studies (Harrop-Allin, 2010, 2011), their “semiotic work is not just activity; it is principled engagement with and in the shape of meaning ... effortful making” and “principled social action” (Mavers, 2011, p. 9). Purposeful, dynamic, complex interactions communicate meaning in “contested” and “fragmentary” social environments (Kress, 2010, p. 35). Children select what they consider to be the most appropriate resources for communicating meaning in context. Music invention, viewed as a multimodal music event, combines mind and body in semiotic work.

In particular, the opportunity for children to remake texts across modes and media is not mere replication or translation of meaning, but a "process of semiotisation that entails the interpretation, redesign and reproduction of form and meaning" (Mavers, 2011, p. 123). Social relations are either sustained or reshaped through fresh representations where new modes may be featured and reconfigured in combination with others to communicate meaning. The new mode of music, maybe expressed in the
genre of pop, classical, hip-hop or Latin tango, for example, would express the verbal linguistic mode in a fresh way. It presents new possibilities of what can be achieved in redesign of modes, and the interweaving and featuring of semiotic resources. Some featured meanings are abandoned because they may not be possible in the new mode, or because they are not essential. Materiality relates to the fine-grained dimensions of specific artifacts and how their content is used and redesigned by the text maker (Roswell & Pahl, 2007). Questions related to choice of materials in transmodal redesign will therefore include: 1. What materials were available at the time? 2. How were these materials appropriate for meaning making through music dialogue and how were certain modal configurations and redesigns promoting learning in that particular moment?

In her study of children as moviemakers in a classroom activity, Mavers (2011) outlined what they had already achieved in a storyboard representation of the movie, through verbal and then pictorial negotiations. She then analysed the processes of redesign entailed in remaking a stop frame animation with plasticine figures to carry the identity of characters and to maintain constancy in what had been drawn and written with the action of a movie. Choreographing this in movie animation required paying attention to different units of the text and by limited affordances that were temporally instantiated in time, rather than carrying the permanence of the written mode. "Combining movement, direction, pace and pausing attention to detailed modal interactions is not present in writing" (Mavers, 2011, p. 121). Choices made between participants were shaped by these limitations as well as potentials of making meaning from fresh materials. For example, the children introduced a new character (the pirates found a monkey instead of treasure) build suspense and shape the story. Actions of characters such as "shaking hands" were important in developing the plot, and for co-
constructing relationships between characters and with the audience. This was a *transmodal moment*.

In discussions of how children "get it wrong" when using vectors and arrows to carry meaning by indicating attraction or repulsion of magnetic fields during a science lesson, Mavers (2011) detailed first the graphic representations of the child's responses, then contrasted these with speech and gesture as principal *modes* for meaning making. She concluded that children's intentions were correctly represented through other *modes* than the graphic, learning being observed through a *multimodal* lens. She demonstrated the need of expanded scope for representational choice and an approach to teaching that explored with children potentialities of semiotic resources and different combinations of these as channels for communication. Children's meaning is then more accurately conveyed and, more importantly, their conceptual understanding is better understood.

In another example, her study of children as moviemakers in a classroom activity, Mavers (2011) outlined what they had already achieved in a storyboard representation of the movie, through verbal and then pictorial negotiations. She then analysed the processes of redesign entailed in remaking a stop frame animation with plasticine figures to carry the identity of characters and to maintain constancy in what had been drawn and written with the action of a movie. Choreographing this in movie animation required paying attention to different units of the text and accessing affordances that were temporally instantiated in time, rather than carrying the permanence of the written *mode*. Combining movement, direction, pace and pausing drew attention to detailed *modal* interactions not present in writing. Choices made between participants were shaped by these limitations as well as potentials of making meaning from fresh materials. For example, the children introduced a new character
(the pirates found a monkey instead of treasure) build suspense and shape the story.

Actions of characters such as "shaking hands" were important in developing the plot and co-constructing relationships between characters and with the audience. This was a transmodal moment for the young children participating in this activity, an opportunity to draw on prior knowledge to enhance learning and heighten their conceptual understanding of content, context and genre in literacy (Mavers, 2011). This observation is important for assisting recognition of transmodal redesign in music inventive practices of young children, identifying whether conceptual understanding, building on experiences of prior learning, has taken place.

To summarise, the act of “transduction” refers to the agentive act of shifting semiotic material across modes (Bezemer & Kress, 2008; Kress, 1997). Choices in the original mode are analysed, sometimes discarded and remade in re-choosing, re-combining semiotic resources with the purpose of retaining relationality if not constancy of meanings (Mavers, 2011, p. 106). What is learned is entirely different from the child’s representations or signs of learning. There is a transduction process where the child deletes most of what is there in the information or the experience, but signifies or selects the essential meanings.

Learning is the result of the transformative engagement with an aspect of the world which is the focus of attention by an individual, on the basis of principles brought by him or her to that engagement, leading to a transformation of the individual’s semiotic/conceptual resources (Kress, 2010, p. 182).
2.4 Dispositions for Learning: Investigating and Framing Experiences.

In order to place the study of children’s learning dispositions (socially and culturally framed approaches to learning), their thinking, and their musical identities in a socio-cultural perspective, a review of relevant literature will reveal their importance to education. Models of early childhood education such as Reggio Emilia, and educational psychologists such as Piaget (1971a, 1971b) and Vygotsky (1978) recognised links between social collaboration, transformative human relationships, and the development of metacognition. Children use developmental processes of assimilation and accommodation to form and transform a schema consisting of experiences, recall and focus (Piaget, 1971b). These developmental processes are important in evaluating the capacity of a young child to make transitions from skills and knowledge about a domain to abstractions or higher order thinking. Katz & Cesarone (1995), in “Reflections on the Reggio Emilia Approach”, stated that “the basic dispositions to make sense of experience, investigate it, care about others, relate to them, and adapt their physical and cultural environment are dispositions within children from the start” (Katz & Cesarone, 1995, p.8). Children are perceived as possessing learning dispositions of agency and voice (Pufall & Unsworth, 2004).

Vygotsky and Piaget both saw the child as developing intellect (thought processes) through constructed schemes determined by the individual identity of children interacting with materials, friends, older peers and/or adults in their world. Piaget (1971a, 1971b) observed children progressing naturally from egocentric thinking dependent on the their specific and concrete investigations of materials and experiences of social life, to conservation of thought or objective thinking applied across many different experiences and domains of learning. This was achieved as they investigated objects in the world around them, resisted through a process of assimilation and
disequilibrium, leading to accommodation of knowledge through internalisation of concepts. This aspect of Piaget's work is relevant to investigations in this thesis.

Conservation of thought, known as the internalisation of concepts, once established in a child’s mind, allowed autonomy or independent thinking. Socio-cultural exchange and forms of logic (universalisation of properties) contributed to this internalisation. Piaget (1977) saw redesign as operation where children modify and transform something through interiorised action. He was not concerned with how children do this in interaction: he did not focus on context. However, Piaget (1971b) attributed identity as crucial to social unity and cognitive enhancement.

Vygotsky, by way of contrast, saw the construction of objective knowledge by the child as not only developed through social action but initiated by society which is intrinsically cultural, and it is this social unity that leads to individual identity. Children’s concepts of self and their world are transformed by framing knowledge, enacting agency intuitively, developing strategies and internalising their knowledge (Vygotsky, 1978). Vygotsky’s theory of learning, though appealing to spatial not temporal zones of participation, is relevant to this thesis. It implies development, shift and change, with the prioritisation of internalized or intra-mental learning, and transmodal externalisation in building or constructing knowledge. Extra-mental functioning is manifest in signs and transmodal movement. It is referred to as a journey in space and time to build new understanding, or what Vygotsky (1978) called the theory of higher mental functioning. Dispositions for learning are built through socio-cultural participation in co-constructed activities.

Investigations of thinking (the psychological approach) are, however, not enough to determine how children make transformations in their concept of identity and
how this is linked to higher mental functioning. There must be further account relating how children ascribe meaning through inter-subjective, dispositional and accessible thinking (Burnard, 2000). In music invention as a semiotic system that doesn’t rely only on graphics or fixed representations (linguistics) but on embodied affordances, there needs to be recognition of identity informed by these affordances, and also formed as affordances are redesigned to “catch” the meaning in socially framed contexts and relations. Redesign is a channel for dispositional thinking.

2.4.1 Bourdieu and Habitus: Formation of Musical Dispositions

Seminal philosophical writings by Bourdieu (1994) discussed the dynamics of power relations and how they assist or inhibit “catching” the conveyance of meanings framed by cultural, social and symbolic capital. These tensions exist in music education and influence music inventive practices and subsequent learning in the home and at school. The three main terms Bourdieu (1972) used to describe these dynamics were habitus, field and capital. Symbolic violence was the overall term referring to the operations of power relations in the field (for example, as the hierarchical positioning in the Arts). Habitus referred to similar or identical forms of behaviour, for example, those which occur in a family, and which were approved or symbolically rewarded. They were generative principles of distinctive practices. In this sense, Bourdieu defined habitus as a system of dispositions, “the result of an organising action... or structure... combined with a manner of being, a habitual state (especially of the body), and, in particular, a predisposition, tendency, propensity or inclination (Bourdieu, 1972, 1, p.247). He clarified this view by adding...

The habitus is necessity internalised and converted into a disposition which generates meaningful practices and meaning-given perceptions ... and which
carried out a systematic, universal application – beyond the limits of what has been directly learnt – of the whole system of practices ... and systematically distinct from the practices constituting another lifestyle (Bourdieu, 1994, p.170).

According to Bourdieu (1977; 1990), dispositions can be transformed through generative tensions or challenges to prior knowledge in educational practice which require children to make meaning of experiences and form new knowledge, new creations. Dispositions, therefore, are subjective actions and innovative thoughts of individuals (agency), informed by cultural capital and situated practices, adding meaning to socio-cultural structures and spaces or objective fields, and embodied in conscious and pre-reflexive predispositions. Bourdieu (1998) used the term doxa to refer to learned, fundamental, deep-founded unconscious beliefs and values or self-evident universals. These include common dispositions, codes of practice or sets of beliefs that form shared socialisation through adherence to set structures of that society such as expectations for music students to perform in a choir, ensemble or band (Bourdieu, 1998). They are developed in habitus or conditions of the individual’s world, assuming that people do not aspire to that which is unavailable.

The concept of doxa is balanced with that of social phenomenology, where the focus is on individual agents and their capacity to construct and reconstruct their world, acting independently to make their own free choices (Bourdieu, 1972; 1990). Bourdieu's (1972) theory of social, cultural and economic capital was developed from his idea of actual and potential resources available to members of a group. Social and cultural capital, concepts relevant to this thesis, underly interactions that create social and cultural bonds, available as individuals are able to access these resources. It can be
accumulated, deepening bonds in families and Burnard (2012) has accessed Bourdieu’s philosophy as a framework through which to interpret music creativities in practice. Drawing on Bourdieu’s ideas of cultural capital as a movable and transferrable resource, through active realisation of dispositional traits (his concepts of doxa and habitus), she critiqued three myths in music learning. First, that in music there is only one type of creativity. Second, that adults construct, and children simply ascribe to these creativities, and third, that society wrongly attributes/privileges an elite view of musical creativities. This same critical stance is applied to this thesis.

Bourdieu’s (1993) view of the field of cultural production is also used in this thesis as a framework to apply his model of field, habitus and cultural capital to children’s music practices and how children position themselves in learning through music invention. The ideal of a distinctive form of a system is preserved, while the individual is able to move beyond acquired knowledge to make sense or meaning of his or her world. In Bourdieu’s (1993) view, the social space (something that defines a person and also confines their actions and interactions) guarantees reproduction of that space (symbolic practices) unless there are contradictions and conflicts. If, through new conflicts or generative tensions, such as opportunities to be the next Australian Idol, there are transformations of these practices or structures in the field, then transformations of dispositions can occur. Through internalisation and meaningful practices, the individual makes sense of new knowledge and adapts to change in the world. This is important for socially and culturally diverse learning settings. Young children beginning school are presented with many new challenges to their former musical dispositions. As they draw on various modes for making meaning and transforming prior learning in new contexts, does this impact how they adjust to the new learning environment?
2.4.2 Music Education, Praxis and Culturally Formed Dispositions

Because situated cultural forms of expression involve choice of resources for redesign in artistic composition processes, praxis in music education (as opposed to aesthetics, the study of music as art or object) is important to this study. Articulated in detail by some authors (Green, 2008, 2011; Elliott, 1995; Regelski, 2000, 2004, 2005(a), 2005(b); Swanwick, 1979, 1994), this philosophy is held by many music researchers referred to in this thesis. It is concerned with the production, study and appreciation of music in contexts (Regelski, 2000) and emphasises the action of music making. Regelski (2004), a cultural Critical theorist, defined "praxis as embodied knowledge and experience" (p. 17). He recommended accessing cultural affordances for composition practices. Elliott (2012) wrote of the unique role of music education in all its forms in promoting artistic citizenship, powerful for social change and the betterment of peoples' lives. He noted: "musical sounds are always inherently multidimensional social, cultural, political, gendered, and economic constructions" (Elliott, 2012, p. 23).

As Green (2008) argued, the approach to music education that validates embodied knowledge, competencies and experience, gives value and voice to children and their music, enabling them to participate in building curriculum knowledge and to enrich and extend their learning, rather than sequential programs of Gordon, Kodály, Orff, Suzuki, mentioned earlier in this literature review.

In music education in Australia there is still commonly a failure to acknowledge that embodied and situated music making found in "everyday life" (De Nora, 2001; Tomlinson, 2012a, 2012b) is linked to conceptions of musical knowledge (Barrett, 2011). However, Robinson (2001) noted that rich, contextualised learning promotes higher thinking skills involving critical engagement, reflective practice and creativity. Recent research demonstrates that these broad literacy skills are developed through
everyday embodied and creative interactions (Newfield & Stein, 2000; Pahl and Roswell, 2012; van Leeuwen, 2005). Because musical experiences are complex, elusive, transitory (never the same), and diverse, these different manifestations of music should shape educational procedures and common constructs (Harrop-Allin, 2011; Swanwick, 1979). Community music activities and home practices connect with children’s identities (Green, 2008, 2011) and their resources (Temmerman, 2005; Marsh, 2008, 2011). Both are essential to enrich and consolidate learning in classroom contexts, promoting music and literacy. Literacy is inseparable from practices (Kress, 2003).

A body of research has also acknowledged children’s created or recreated music making as being key indications of these children’s layered identities (Barrett, 2005b; Campbell, 1991; Marsh, 2008; Pahl and Roswell, 2005). These researchers in music education sought to enrich children’s learning experiences in classroom contexts by investigating their meaningful music making in out-of-school situated practices. O’Toole (2005, p.297) argued that "a primary reason for music making is identity affirmation" and this was particularly relevant when considering the meanings of children’s actions and perspectives during musical inventions. She asserted that context is the playground for identity formation, for our senses of self are subjective, reliant on the worlds we live in, not independent of them (Butler, 1990, 2004; Foucault, 1984; Hall & Du Gay, 2003).

A child-centred teaching environment may be created by valuing and working with learners’ diverse and expressive resources and identities, especially by those who "have power in the classroom" (Stein, 2008, p.152). Newfield (2009) proposed that identity consists of the sensitive action of learners’ sign making activity. Glissant (2001) elucidated the concept of identity as formed and extended in relationality or
interaction and social skills. An elusive concept, identity is dynamic and unpredictable, dialogic and transactional (Titlestad, 2007). This philosophy of identity is based on the rhizomatics of Deleuze & Guattari (1987) where meaning making is unpredictable, nomadic and multi-dimensional. Semiotic production uses similar processes of appropriation, modification, hybridization, manipulation, invention and transformation as well as improvisation as strategies and repertories for inclusive and creative productivity (Newfield, 2009). It is grounded in everyday practice.

Children’s multimodal music inventions are influenced by their selections of cultural resources emerging in past social and historical practices over time (Harrop-Allin, 2010). Agency, however, involves how these resources are used in contextualised composition practices, and how such agentive redesign in turn shapes children’s identities. Barrett (2011) examined children’s practices in home and community contexts, their agency and the implications these have for pedagogical practice. She revealed the agency, organisation and structures inherent in children’s music practices that can promote learning across contexts. Barrett (2005b) identified contextualised music learning in Australian urban school playgrounds as musicianship in communities of practice (Lave & Wenger, 1991), examining children’s musical interactions from a Vygotskian socio-cultural perspective. She noted that "members have agency, and thus take up, resist, transform, and reconstruct the social and cultural practices afforded them in and through the events of everyday life" (Barrett, 2005a, p.189). Barrett contributed to an understanding of how children learn within the practices of their games in situated contexts. She maintained that future research in music educational policy and practice should "investigate children’s experience and understanding of music" (Barrett, 2005b, p.261). She critiqued current educational practices: "too often a deficit view of children’s musical ability pervades teaching and learning interactions in school settings,
as educators measure children’s musical ability solely against the communities of
musical practice extant in the adult musical world” (Barrett, 2005a, p.189).

Focusing on children’s cultures, Marsh (2006) synthesised ethnomusicology and
music education in research on children’s games. As a culmination of long-term
p.315) advocated process-orientated musical learning that would “give children the
time, diversity of materials, and trust which will enable them to reach in the classroom
the potential that they so confidently display in the playground”. However, she
cautioned against the practice of directly appropriating children’s games as classroom
materials (Marsh, 2008, p.12), acknowledging their music making as difficult to
capture, and always in a state of change and transformation, because they were
embodied performances in context, not fixed texts. Significantly, she demonstrated that
the nature of learning, teaching and identity construction in and out of classrooms is
fluid and interconnected through the sharing of musical tastes (Marsh, 2011).

In an Australian study, Darian-Smith & Henningham (2011) recorded in great
detail the change and continuity of children’s schoolyard games and activities to make
them accessible for use in classroom contexts. In recent studies by Gallas (1994) and
Rowe, Fitch & Bass (2003), pedagogical settings were structured so that writing and
exploration of multimodal meanings could be engaged simultaneously. It was found in
both studies that children participating in these settings developed a broader repertoire
of meanings and means of expression. This was evident as children collaborated and
discussed their composing resources drawn from alternative and culturally rich modes
introduced into the classroom (Kenner and Kress, 2003). It was particularly crucial for
learning and for developing dialogue between teacher and child in the early years.
In terms of music praxis in education, Green (2008) wrote of…

The difficulty of incorporating music from one culture into another, the challenges of adopting, within formal education, music which is transmitted outside formal education; the lack of fit between the cultural assumptions that surround music and musical practices in different cultures. (p.1)

Green (2008) considered "how pedagogy in the music classroom could draw upon the world of informal popular music learning practices outside the school" (p.1). Drawing on popular musicians’ informal learning practices examined over time, she identified motivation, autonomy and co-operative interactions as crucial to creative music making, and developed a pedagogy connecting formal and informal music learning methods to shape children’s musical identity. She noted the musical identities in one individual develop and change over time (Green, 2011). Through situated case studies, she concluded that all learning involves interaction with a physical world, family, friendship, the media and conscious study and application. In this thesis, the impact of prior experiences and cultural diversity is contextualised in classroom music.

More recently, there have been studies that incorporate the forms and musicality of children’s situated games in multiliteracy pedagogy within the general classroom. Harrop-Allin (2010) proposed that the gap in classroom music education is the need of teachers for tools with which to "engage with musical play" (Harrop-Allin, 2011, p.158). She observed: "the absence of a sound methodology for incorporating or accounting for children’s musical practices in pedagogy is evident in much of the music education literature that engages with children’s music" (Harrop-Allin, 2010, p.36). In studying Soweto playground games and interactions in situated music making she
concluded that culturally shaped materials, resources and inspiration in music education reside with the children and their identities. She suggested they should build on forms and competence displayed in their games to reconstruct meaning in classroom contexts, assisted by teacher scaffolding. "Giving 'voice' to children’s music acknowledges that children not only inherit but also create culture and new forms of literacy". It "can create ongoing learning in a developmental, 'future-orientated' process" (Harrop-Allin, 2010, p.306). This study explores conceptual understanding through children's music.

2.5 Children’s Music Dialogue: Shaping and Framing Musical Experiences

The term music dialogue in this study also refers to children’s music interactions with peers and adults, in a manner of shared and negotiated responses using a dialogue of modes and resources interacting with each other. It gives voice to children's music identities in formation. Barrett (2009) highlighted the need for further investigations on how children in the first years of schooling enact agency in music play through shared communication. Children have been known to use familiar strategies and resources in self-determining ways to communicate meaning during negotiated interactions and learning experiences in classroom music, particularly their strategies for creative music making or composition (Bruner, 1986; Burnard & Younker, 2002; Diagnault, 1996; Jorgensen, 2002; Kratus, 1991; Wiggins, 1992, 1994, 2003; Wilson & Wales, 1995; Younker, 2000; Younker & Burnard, 2004). In these studies children were encouraged to articulate their ideas freely, without fear of embarrassment over "wrong" answers, arriving at new musical ideas with the support of others or through use of materials in inventive ways. In a reciprocating manner, teachers and children listened to each other, shared ideas and considered alternative viewpoints. Dialogic teaching (Alexander, 2008) is a similar known pedagogic approach where children and teachers built on their own and each other’s ideas from across cultural sites and spaces, and chained them into
coherent lines of thinking and enquiry. In this study, children who were observed making these connections were seen as enacting agency.

Agency is understood in the social semiotic convention as children’s purposeful interactions and use of cultural representations and materials in the continuous, ongoing formation of subjectivity and character (deCastell & Jensen, 2010). Thus children’s intentionality, through diverse semiotic dispositions, is investigated in multimodal analysis. The formation of identity and character referred to in this study is an ongoing formative activity in which the child engages through use of cultural semiotic resources in music redesign. Through moment-by-moment building on previous knowledge, the child makes small changes in understanding of self in relation to the world, when confronted by new knowledge or new experiences (Foucault, 1969; Jorgensen, 2003). Children’s communication in multimodal social action and interaction is a dialogic engagement through appropriate selection of modes to make meaning of new experiences in the world, to give voice to their intentions and purposes and to engage or persuade others: "a quintessentially social activity" (Kress, 2010, p. 51).

One way in which children enact agency in music dialogue is by inventing music while replicating play in engaging tasks (Klopper & Dachs, 1998). Another way is to use the idea of storytelling (Singer, 2008). Previous research (Bamberger, 1980, 1982; Davidson & Colley, 1987; Gromko & Poorman, 1998a, 1998b; Taetle & Cutietta, 2002) has transferred adult expectations and standards onto children, researching compositions that were completed and defined pieces of music using conventional notation. Barrett (1997) and Tomlinson (1990) sought to correct this imbalance by investigating to what extent children invent their own symbolic forms of representing sounds, rhythms and melodies. According to Kress (2010, p. 77), conceptual resources
of "affect and cognition" combine as bodily effect, along with "identity," in "cultural realisations" (p. 77). Cultural realisations are evident in children's music improvisation. The modes of music, including elements of music and structure, phrasing and silence, drawn from children's prior cultural participation, combine to shape children’s musical experiences in *music dialogue* (Tomlinson, 2012a, 2012b). Evidence for this premise has been furthered by data analysed in this thesis.

In co-operative music play with instruments, the teacher or researcher can use procedures that encourage young children to lead in exploring instruments, developing techniques and interacting freely with others (Young, 2003). Input by an adult is in the form of “dialogic pedagogy” (Alexander, 2008) where open-ended questioning and suggestions for the sharing of ideas in a framework of specified procedures are ways to build on children’s ideas. Similar procedures are used to encourage children to express musical ideas, to stimulate their thinking and responses (Espeland, 2007; Hallam, 2009; Young, 2009). Wiggins and Espeland (2012) referred to music invention as dialogic activity among peers, or with individuals working together in peer collaboration to scaffold the learning. They acknowledged the elements of music as essential to music invention but to be interpreted in different combinations to create different effects.

Young’s (2009) case studies featured the individual child’s hybrid music making as combining elements of music by blending new experiences with culturally acquired, familiar song forms. She acknowledged the many contexts of music and genre in early childhood, the diversity and complexity of sources from which children draw inspiration. This led her to support musical activity with young children in a preschool setting by placing a timpani and xylophones in the play environment. She observed children engaging in independent play with sounds using voice and instruments, and
noted the fact that it was more than exploratory. She highlighted the patchy nature of our understanding of young children’s musical capabilities, observing a free-flowing structure maintained throughout children’s musical creations during independent play on a xylophone, and transformations of previous musical ideas in response to events and activities. Children's inventive music redesign will be further studied in this thesis.

Young (2009) also observed co-operative music play in a subsequent study. She found in interactions between peers or between teacher and child there was the use of resources (instruments and voice) to exchange ideas such as simple rhythmic or melodic phrases or repetitions. Her findings in both studies affirmed children’s complex, purposeful and agentive music texts in play, and their ability to transform music by redesigning familiar cultural ways of playing and singing, and to use new forms of expressions in order to make new meanings, that is, to redesign music. In this thesis, this form of agentive music invention using redesign of modes in context may be viewed as “musical dialogue.” Based on the review of the literature, it is seen as the most appropriate way to refer to identity formation in music, not as "laminated" or "sedimented" or even children drawing on "funds of knowledge" but, rather, children enacting agency to make meaning through music dialogue, where they "take on" various identities, situated creativities or cultural framings (Burnard, 2012). Children's redesign of modes as dialogue in music invention will be further investigated in this study.

Because music dialogue involves many modes interacting to communicate meaning in socially framed music invention, it may be seen to possess a transformative capacity through redesign. In social semiotics, transformation of meaning is seen to occur during children's redesign of modes and across principal modes (Jewitt, 2008a, 2008b; Pahl, 2003; Kell, 2006). It is ceaseless, ongoing and forward moving as
embodied modes are given equal status to reading and writing to convey meaning. Meaning making is situated in socially and historically shaped contexts, which have forms of reception, interpretation and production (Kress, 2000a, 2010). While children are recognised as having been constructed in a semioticised world, the power of their ability to seize this world and insert their own constructions of meaning is realised. Transformation in music learning occurs as children select modes and configure them to shape meaning as they co-construct these resources in music inventive practices (Harrop-Allin, 2010, 2011). According to Swanwick (1994) music is dialogue, the central concern of which is to convey musical knowledge through intuition and analysis, and children learn to do this as they engage with music.

Music dialogue connects individuals as social beings through contextualised interactions that introduce abstract concepts in open-ended discourse (Marsh, 2008) and through the use of representations in interactive enquiry and meaning making during music invention (Jorgensen, 2002). Transformations in meaning and representations of knowledge have been observed in children's instrumental music inventions (Young, 2003, 2009, 2010) and in word play in songs invented by young children (Custodero, 2006). Communication often involves tensions and contradictions in mediated relationships, as people vary within their cognitive and affective frames of reference. Music invention in this study is interaction between a person and materials, modes and often other individuals. Through this interaction or music dialogue children are motivated to learn in everyday experiences by using communicative activity known as discourses (Gee, 1996; Engeström, 1998).

Jorgensen (2010) observed that students engaged and interacting in many types of music (diverse genres, interaction with digital recordings and media, vocal and
instrumental performance) had a better understanding of culture and self. Cultural context - urban and rural environments, and participants of diverse heritages - also influenced choice of song material, gesture, dance and literary elements, as well as elements of music, in the music events analysed. Inclusive, transcultural music experiences assisted to expand knowledge of peoples’ lives and history. Previous meaningful musical experiences, when unleashed in home and classroom contexts, were powerful ways to build children's musical creativities and deepen their musical understanding, their musicianship, through *music dialogue*.

Dialogue is more than language and discourse, but “ways of behaving, interacting, valuing, thinking, believing, speaking” that embody particular roles of particular groups of people in society (Gee, 1996, p.viii). Socio-cultural influences operating in home and community settings are quite possibly communicated through children’s discourses in music invention. The context and the practices located within music events are believed to be two ways of developing links between music inventive practices and identities (Roswell & Pahl, 2007). Longitudinal fieldwork in ethnographic case studies of literacy practices in everyday cultural practices revealed that children’s discourses are realised in their use of semiotic resources for communicating meaning and this is how children signify what they have learned in various experiences of the world, their funds of knowledge (González et al., 2005; Pahl, 2004; 2009; Roswell & Pahl, 2007). These studies argued that identities are found within cultural text making practices across home and school domains.

identities are "laminated" as individuals draw on different cultural resources and structures to "shape their subjectivities" (p. 131). These identities are layered and multidimensional, constructed through texts made in ways that are interrelated and dynamic. Texts, therefore, can be seen as intercontextual and mediated by identities when they are shaped by practices (Duranti & Goodwin, 1992; Floriani, 1994; Silverstein & Urban, 1996; Smith, 1998). Each of these productive frameworks, or texts shaped by specific practices in context, provides tools for investigating how identities are formed, constituted and reworked through social and cultural spaces as children negotiate meaning in their texts. They encourage researchers to think of identity as "processes of negotiation," where identities are worked out in the flow of texts and practices across different domains, in-and-out-of-schools (Bulfin & North, 2007). Processes of negotiation occur as children co-construct meaning and rework their musical identity in music events across home and school contexts. In this study, the discourses of home and school are examined in the video recordings of music events or (cultural texts) to examine how students negotiate meaning and shape identities.

According to Swanwick (1994) music is dialogue, and the central concern of musical knowledge is the relationship between intuition (use of readily available resources in context) and analysis as children engage with music. Redesign is the realisation of a particular communicative situation, changing socially constructed knowledge into social action and interaction (Jewitt, 2009). Children learn intuitively through experiences of music dialogue as they redesign music, building on previous knowledge and experiences of music and other texts in a cultural context (Custodero, 2006; Barrett, 2009, 2010). “Serious consideration must be given to (children's) textual design in relation to other co-present modes” (Mavers, 2009, p. 271). There needs to be
further investigation of children's ways of knowing in *multimodal music redesign*. This can be approached for analysis using a framework of *music dialogue*.

In summary, children engage all the senses, and readily available resources, to develop semiotic dispositions that give voice to their intentions through purposeful communication in these various *modes* (Kress, 2007; Mavers, 2011; van Leeuwen, 2005). The moment of redesign is recognised as being situated in complex layers of educational, social, political, cultural and community dialogue (Newfield, 2009). In this study, *music dialogue* is a useful framework for interpreting and analysing how meaning is made through *redesign*, how it might therefore be transformed through *multimodal* music events, and whether conceptual understanding occurs as children select and *redesign modes* in diverse learning contexts and cultural settings through music invention.

### 2.6 Gathering Up the Theoretical Strands of the Literature

The review of the literature of several areas - music invention in early childhood; *social semiotic multimodality*; dispositions, identity and higher thinking; *music dialogue*; and music as praxis - has revealed significant gaps in the literature. There have been no studies that examine young children's transmodal and *transformational redesign* in music invention across home and school contexts. The literature suggests that communicational *modes*, familiarised through inventive music situations, could result in *redesign* of music using *multimodal* dialogue. This has relevance for learning. Music invention, when conceived within social semiotic theory as a way of remaking meaning through *transmodal and transformational redesign*, entails complex semiotic work and is a multimodal co-construction (Harrop-Allin, 2010). It is important to further analyse these *multimodal* elements of interpretation,
redesign and reproduction (Mavers, 2011). The use of video data in this study to capture music events facilitated exploration of children’s capacity to *redesign* music. Do children transform meaning in the *mode of music* and shift meaning across *modes* in *transmodal redesign* through inventive practice? Do diverse approaches to problem solving through children’s investment of semiotic work, their *redesign* of resources in diverse contexts, foster positive semiotic dispositions and promote learning?

Music occurring in children’s home and school music interactions requires careful video analysis of *modal configurations* and *modal density* operating at different levels (higher to lower order *modes*, switching in moments of time in one event, to indicate new focus of interest), as outlined in MIA (Norris, 2009). This assists the researcher in identifying what learning is taking place during *modal redesign*. The relations between home and school that influence semiotic import of composing resources will be made clearer as these *modal redesigns* are recorded, and as patterns of interaction and resource selection emerge in some children’s *redesigns*. Through fine-grained analysis of culturally situated everyday experiences of children, or practically-lived, embodied texts (van Leeuwen & Jewitt, 2001), music redesigns of children will be explored as they move to, and participate in music as a *mode* instantiated in time. Meanings made will be revealed in relation to each other, family, teachers, instruments or materials, and the environment. Systems of sound, and systems of signs, and other systems of meaning potentials, will be examined, taking into consideration “that such systems are the dynamic result of complex social interactions past and present” (West, 2009, p. 292). Analysis of these complex interactions should promote an understanding of children’s focus, purpose and learning through ongoing processes of designing and shaping their music invention. This analysis will be facilitated by using *music dialogue*
as a framework for capturing *transmodal* and *transformational redesign* in context. It is an innovative approach developed specifically for this thesis.

As outlined in the literature review, recent studies of young children transitioning into school reveal their ability to make sense of culture through authentic expressions of their ideas and intentionality in music as they enact agency and voice in various social and cultural environments (Allsup, 2003; Dvorin-Spross, 2005; Griffin, 2009; Hickey, 2002; Ruthmann, 2008). The importance of connecting curricula to children’s lives has been promoted through narrative studies (Barrett, 2005; Green, 2005; Smithrim & Upitis, 2004). Further, continued research is required in order to emphasise the “importance of seeing and hearing children’s perspectives (and determining) how to embed children’s voices within curricular choices” (Griffin, 2009, p. 176). This should assist children in making transitions from home to school.

A number of positions have contributed to the value of music praxis, *redesign* and invention as being crucial for music education. Barrett (2011), Green (2011) and Harrop-Allin (2011) demonstrated the importance of investigating children’s prior understanding and experience, to inform educators of the value of agentive interaction and contextualised learning. Views of praxis are based on the idea that identity is multifarious and changes over time (Deleuze & Guattari, 1987; Glissant, 2001), and that learning occurs in disjointed constructions traced across many contexts. Representation of children’s situated cultural experiences in classrooms appears to rest in its potential to reveal competence in creative, innovative thinking through embodied transformation of resources based on interest (Kress, 2012; Newfield, 2009; Stein, 2008). It is an interesting observation needing further exploration: how do diverse cultural resources and contexts enable children's music invention and enhance learning?
**Multimodal redesign** needs further investigation in relation to music invention as embodied communication instantiated in time (Kress, 2010, 2012). Pedagogic frameworks in early years' learning are insufficient unless they appeal to the creative capacity of children and build on their complex and plentiful music inventions made in playground games and out-of-school practices (Barrett, 2011; Custodero, 2009b; Darian-Smith & Henningham, 2011; Green, 2008, 2011; Marsh, 2008). It gives children space to play with ideas in scaffolded classroom activities. Kern & Schultz (2005) prioritised attention to semiotic frameworks such as music, their potential for enhancing literacies. Children, with increased confidence, may be able to identify conceptual elements of music and transform them by connecting them to a broader range of literacy genres than they have previously experienced. This needs investigation.

Semiotic resources (modal designs) or meaning potentials in music invention are insignificant in isolation. However, when redesigned in a particular way, they are affordances that represent and communicate essential meanings within a social context (Jewitt, 2009). Young (2009) suggested children purposefully redesign music by expressing it in a new communicational mode, for no two consecutive actions by children are ever replicated. She noted this allows insight into children's conceptual understanding in music and requires further research (Young, 2003, 2011). Social semiotic multimodality focuses on meaning made across modes as simultaneously involving cognitive and embodied meaning making (Kress, 2000b), with manifestation in transmodal redesign and is useful for analysis of music redesign.

From this discussion of the literature, the foremost gap in research is that of transmodal and transformational redesign in learning and how these are realised in music invention in diverse settings. This study also investigates whether children
combine *modes* to communicate, test or analyse their ideas and promote conceptual understanding over time (Kress, 2000b) as they *redesign music* (West, 2009) rather than use sound as representing static codes with fixed meaning potential. There is an identified need to explore whether children learn through *music dialogue* as they "take on" various identities, situated creativities or cultural framings (Burnard, 2012) and chain them into coherent lines of thinking and enquiry (Alexander, 2008). Finally, the thesis explores the gap of whether intersections of culture and prior experiences create contexts for children's development in music (Custodero, 2009a).

The literature has presented the researcher with a relatively new and unexplored field of enquiry into the nature and operations of children's *transformational and transmodal redesign* in music. Examination of prior research has established that children reshape meaning through *redesign of modes* in diverse contexts. It has revealed that the concept of the *transmodal moment* hold potential for demonstrating a shift in *mode* through which children develop conceptual knowledge (Mavers, 2011; Newfield, 2009). Learning can be promoted in literacy through *multimodal analysis* of music interaction, particularly the forms of children's playground music games (Harrop-Allin, 2010, 2011). Furthering this by analysis of young children's *redesign* in music inventions across home and classroom contexts, this thesis uses *music dialogue* as a framework with which to interpret children's *transformational and transmodal redesign* (the intra-textual) in relationships between *modes*, materials and wider cultural influence (the inter-textual). The global and local or situated influences of praxis identified in the literature review assist in a holistic interpretation of *modal redesign* in music invention that can be most effectively investigated by using the *framework of music dialogue*. Review of the literature has led to an understanding of how young children form music dispositions across diverse contexts. How they go about realising
conceptual understanding, over time, through continual semiotic import of music resources in *multimodal re-design*, is in need of serious and in-depth exploration.
CHAPTER 3: METHODOLOGY

The goal of this study was to explore how children capture and realise multiple ways of inventing music through their selections and redesign of semiotic resources or modes: audio (particularly elements of music), gestural, linguistic, spatial (proxemics), mimetic (remediation of modes in technology) and visual artifacts. Also of interest was use of affordances or apt cultural qualities of representations to edit their world while engaged in redesign. Levels of historical and cultural local, situated meaning were woven in materiality of modes (global meanings) in multimodal analysis of affordances chosen by children (Jewitt, 2008a; Roswell & Pahl, 2007). Multimodal analysis was applied to investigate meaning and inherent learning made in inventive music practices, using the framework of music dialogue. The following questions guided the research:

- How are transformational and transmodal redesign realised in young children’s music invention?
- What does children’s redesign of semiotic resources reveal about their learning, and further, their conceptual understanding, during music invention?
- How may diverse cultural resources and contexts influence children’s semiotic import of resources within and across principal modes in redesign?

An embedded case-study design (Yin, 2009) has been used to explore these questions. A qualitative approach framed the study, and the data collection methods and analysis. An overall conceptual framework for the research is set out in Figure 1 below.
Figure 1. Conceptual framework for the research study
The ontological perspective of the study concedes that there are many constructions of a reality, and many ways of exploring young children’s world of music invention that may be combined to provide insight into their understanding and their purposes of redesign. While the study sought to incorporate some facets, it could not view the whole reach of children’s intended and actual meaning, for meaning made through participation in music events is situated, and based on children’s interpretations of an aspect of the world that they frame, and redesign. It may be more complex, or simpler. Analysis of children’s redesign of modes during interaction did not rely on binary oppositions or particular theories of music learning concerning the presentation of knowledge and how it is represented. As educational research, the intention was to act as “a cultural critic offering perspective rather than truth . . . edifying conversations, rather than truth-generating epistemological efforts must be the staple of a post-structural social science” (Ball, 1995, p. 268). As such, this study supported “a pluralist and eclectic approach to the study of education, as opposed to the notion of a unitary and autonomous field of knowledge represented as ‘educational research’ ” (McCulloch, 2002, p. 100).

The researcher's epistemological position was informed by poststructuralist ideas regarding the pluralities of meaning. It resisted any split between subjective and objective viewpoints, for deconstruction “intervenes” through invested interest of the actor (Derrida, 1981, p. 93). In a similar stance, Deleuze and Guattari (1987, 2011) denounced the idea of relationship between signifier and sign as fused and arbitrary, or central to the formation of meanings: signs that are valued only within the language system and not in relation to the world outside of the system. Likewise, Saussurean linguistics has been critiqued, asserting that symbol and idea are not fused. Meaning
was redefined as the end-result of an ensemble of processes that only partly use signification to intervene in and reshape the world. This study did not admit “the possibility of a concept signified in and of itself, a concept simply present for thought, independent of a relationship to language, that is a relation to a system of signifiers” (Derrida, 1981, p. 19). It viewed the text or system of signifiers as not only linguistic or language-based but alternatively, as embodied (Derrida, 1987, 1988, 1993).

The theory of social semiotic multimodality (Kress and van Leeuwen, 2001; Kress, 2010) builds on these epistemologies, and was the basis of this study. The theory views the individual as an active agent in the process of meaning making, grounded in the social environment. It values all modes equally, not privileging linguistic modes. Multiple modes act as conveyers of meaning that together interpret the cultural or learning experience. In a wider sense of music invention, performance communication as meaning making is participatory interpretation, involving a shift from specific sets of meanings of a single author to enactment of multiple processes of meaning production (Langlois, 2011). The substance of expression involves not only “semiotics and semiology” or language-based cognition, but also equally “domains that are extra-linguistic, non-human, biological, technological, aesthetic …” (Guattari, 1995, p. 24).

Relationships between expression and content are realised through social structures, as materiality of signification also includes questions about power and knowledge (Kress, 2010). According to Titlestad (2004, p. 239), participatory transformation and improvisation are strategies for expanding knowledge and making meaning. These strategies overcome conditions of constraint, nurturing "new growth" through healing powers of the arts. In this study investigates everyday music events as new creativities activated by relationship to materials and participants in the physical
space. Action and reflection occurring in simultaneity make possible these creativities, because they “constantly illuminate each other” (Freire, 1976, p. 149).

Therefore Cultural Historic Activity Theory (CHAT) (Engeström, Miettinen & Punamaki, 1999, p. 10) was integrated with social semiotic theory, as a hermeneutic helix to assist with methodological procedures and analysis of the data. An embedded case study design with multiple data sets consisting of video data, interviews, observations, and field notes assisted in interpreting the cases as music events occurring within a broader ecological context. Activity Theory was an effective way of gaining a holistic view of the cases, the interactions of children with materials and modes. A thematic analysis of individual cases or music events was guided by the theory of Social Semiotic Multimodality. Recurring themes were twofold: transformational redesign, and transmodal redesign. Multimodal Interaction Analysis facilitated a close-up insight into the music events (cases), the ensemble of modes (modal density), and orchestrations (modal configurations). The trialectic exploration of historical-social-spatial influences on modal redesign during music invention informed the framework of music dialogue.

This study was oriented by critical theory, viewing music invention in everyday life as an activity where cognition and embodied meaning act together to transform meaning (Freire, 1972; Kress, 2010). This brings about new creativities through relationship and connection to situated contexts, past histories and cultures. The study was influenced by the pragmatics of participatory research (Neumann, 2000; Weber, 1970) that looks for underlying structures or discourses to make sense of change in the social context, and finds a useful model to reveal what is possible. Relationship between concepts and objects were seen as dynamic and changing, mediated by social context.
3.2 Ways of Knowing: Epistemology

The research in this study was qualitative, based on poststructural perspectives, and was approached within a sociological and cultural critical framework.

3.2.1 Poststructural Perspectives

Poststructuralism, by attending to cultural constructions of subjectivity, questioned epistemological thought and "the metaphysics of presence, reevaluating the taken-for-granted humanism underlying traditional accounts of the unified, autonomous and transparent self" (Peters & Humes, 2003, p.111). It also critiqued the domination of power structures and the existence of metanarratives of meaning, emancipation and wealth creation. By way of contrast, the social actor is the creator of meaning and of his or her own understanding. In selected music events, this study did not focus on the passive learner, but the child who frames and actively redesigns music as it unfolds in time, shaping and building on prior knowledge in music invention.

This research was located within a post-positivist, deconstructivist paradigm (Derrida, 1987). Derrida saw the learner as challenging what is known by framing an aspect of the world, representing previous knowledge. The term “deconstructivism” implies that predetermined knowledge is open to questioning, that all bodies of knowledge, and all texts, possess a “disjointed construction” (Derrida, 1987), an unbalancing of meaning that constitutes material representations or framings of knowledge. Deconstruction is defined here as “a rigorous and carefully constructed philosophical theory which asserts that any text’s meaning is overlaid with a complex constellation of social (and cultural) innuendo, explicit or not” (Keller, 2001, p. 73). Meaning was negotiated in context in the cases (music events) analysed in this study.
Derrida’s (1993) philosophy of *aporia* was a principle that formalised the nature of deconstruction. Derrida interpreted the decision to calculate or to make a judgement on behalf of another as an act of violence. As in the justice system, so in education there is an onus on the educator to make an assessment, form an opinion and construct further action or learning opportunities. However, conjoined with such regulation is an equal responsibility to suspend regulation, to deconstruct or suspend judgement in order to be truly just. In education, the classroom can become a dangerous place where the possibility for justice is introduced for just a moment. It is a possibility (or in essence, an impossibility that yet must exist) contingent upon *aporia* where a decision is required. Justice cannot be said to have “full presence” or be mutually agreeable, but Derrida introduced the thought that “perhaps” it can be achieved or recognised in a myriad of seemingly insignificant moments: justice is a possibility.

Children may articulate conceptual understanding in music as they build on previous knowledge and work out how to proceed when experiencing *différance* (Derrida, 1988), the paradoxical tension between organic, living singularity (the event) and inorganic universality (mechanical repetition). Here, the researcher in this study has drawn on the later work of Derrida and Foucault, and in particular the philosophy of Deleuze and Guittari, to inform ways children gather resources and *modes*, and reorganise and deconstruct them to make sense of their learning experiences in music. In Derrida’s later works he applied this idea of signifiers to signs and modes that are non-linguistic, as he asserted that no elements or *modes* of meaning making are “present in and of themselves” but bear the trace of “other elements in the chain” (Derrida, 1981, p. 26). Meaning was deferred in difference: Derrida’s philosophy exposed the contradictions inherent in polarities and binary oppositions, particularly in relation to the construction of meaning.
Différence (represented as agentive realisation, or care of the self) and resemblance (its outward sign) are both necessary, according to Foucault (1984), in order for the individual to make total or complete meaning: there are many ways of realising, co-constructing and communicating meaning available to individuals and communities. This position was key to the study's aim to understand children's diverse meaning making and forms of resistance, and guided the analysis of music events in this thesis. A goal was to understand how children moved back and forth from prior learning to new and challenging ways of inventing, and how this advanced their understanding in music. Derrida (1987, 2002) and Deleuze (Deleuze & Guattari, 2011, p.46) conceived of totalities (reduction of meaning making into repetitive translation and imitation) as peripheral to meaningful experience and understanding that emerges, rather, through conflict, asymmetry and difference. Separate parts were not embraced as a whole, (a generalisation) but contextualised as actions that juxtaposed, proliferated or added disjunctive meanings (cognitive dissonance), but did not divide or form a pyramid hierarchy. Endless possibilities, creativities and inventions inform new knowledge.

The term “desiring-machines” (Deleuze & Guattari, 2011, p.39) implied the flux of the technical and the social in learning produces situations where a break in production was the condition of its continuation. Several strands or signifying chains of meaning (metaphors) were created (Lacan, 2001) and these transformed analysis as they represented a continuous vital force of being and becoming. Likewise, the individual music events recorded and coded in this study were seen as connected through "chains of semiosis" (Newfield, 2009; Stein, 2008) to prior cultural experiences in the home, school and wider community.
The concept of “desiring machines” is similar to Derrida’s principle of deconstruction and *différance* (Derrida, 1988). These are helpful concepts when re-framing the present curriculum with its traditional emphasis on totally unified but separate domains of learning. An alternative viewpoint taken here was that all domains intersect in complex and multifarious ways, to further children's understanding and higher thinking by transfer of learning across domains. Given that music creativities are multiple and pluralistic (Burnard, 2012), the approaches to problem solving and synthesis of ideas used in these *modes* of music education (as praxis) can also be transferred to other domains of learning. Children in the study observed in music invention were agentive, transforming their understanding of an idea or experience. The role of the educator was to preserve children's dispositional *transformational redesign*, and their ability for *transmodal redesign* through shifts of meaning in a new learning domain, approached in diverse ways. Risk taking and exchange of power relations made through *music dialogue*, enriched learning as children engaged in multiple creativities.

### 3.3 Theoretical Perspectives

The main theoretical perspective in this study was founded on *social semiotic multimodality* (Kress, 2010, 2011) discussed in detail in Chapter 2. It is influenced by poststructural ideas and informed by traditional participatory interpretation and critical theory. Based on this theory, the individual was seen as an active agent in the process of meaning making, grounded in the social environment. Activity Theory, or Cultural Historic Activity Theory (CHAT) (Engeström, Miettinen & Punamaki, 1999, p.10), also assisted in contextualising the coded music events in the study, both in the home and in the classroom. Its theoretical function was to elucidate relationships between elements (the subject), making his or her voice heard in a particular event or text (the object) by the possible choices of mediating tools: *modes* or semiotic resources and artifacts. The
voices of participants and their particular histories, their social and cultural experiences, are of interest during interaction in this study. Cognitive dissonance, contradictions, and discontinuities are ways music events play out in the classroom or in the home. The influence of the social system (the school or the home as an institution, with its specific structures or hierarchies, and its rules), impacts on the way each event unfolds. These will be triangulated in analysis to realise the nuances of children's dialogue. Therefore, Activity Theory, and Bourdieu's theories of field, habitus and capital, discussed in the literature review in Chapter 2, will contribute to the design and analysis of this study.

3.3.1 Theory of Social Semiotic Multimodality

The social semiotic lens of Jewitt and Kress (2003) and the theory of social semiotic multimodality espoused by Kress (2010), were used to view children in this study not in a framework of social determinism concerned with children’s “acquisition” of skills, but rather, as engaged actors in socially constructed environments where they frame, interpret and respond. “This marks a shift from socialisation to disposition, from 'being done to' to participation” (Mavers, 2011, p. 3). Informed by poststructural and critical perspectives, the focus was on embodied forms of inventing, children’s ways of knowing and perceiving meaningful experiences socially framed within the world, and communicated in their music inventive practices. A child-centred approach addressed equitably the diversity of educating young children in a global context. Music invention, in this research referred to as an event (similar but not the same as text-making) was part of an ongoing process of children's growing understanding and meaning making in music, a chain of events and cultural influences. It was situated in complex and multiple ways across domains of practice, rather than being defined in a school-home binary.
Multimodality has been critiqued. Bazalgette and Buckingham (2012) saw that theorists neglecting aspects of learning not fixed on the page (moving image, media, dance, music and stage production). Unfortunately, in the push to gain acceptance of visual literacy in school contexts, some educationalists severely misrepresented multimodality as a linguistic or language-based theory/methodology only, incorporating visual literacy, but choosing to ignore multimodal studies in media (de Castell & Jensen, 2010) or time-based modes (dance, music, stage production, film and television). In education, it has done the opposite, facilitating the exploration and understanding of how children access and integrate or redesign many modes during cultural and out of school experiences, their "haphazard" designs. Its philosophy, based on poststructural ideals, does not inspire a structuralist and formalised approach, as Bazalgette and Buckingham (2012, p. 2) asserted. It acknowledges both cognitive and embodied processes of learning (content) and situated contexts (Mavers, 2011; Pahl, 2007a, 2007b). However, there is need for further multimodal studies of time-based modes such as music. This study aimed to advance research in music invention, modes temporally instantiated in time, relating them to other modes occurring in simultaneity.

3.3.2 Activity Theory

Cultural Historic Activity Theory (CHAT) (Engeström, Miettinen & Punamaki, 1999, p. 10) is relevant for locating this study within a broader social and historic context. While this was not the main focus of the study, it assisted in contextualising the music events during analysis, and presenting a plausible, convincing picture of semiosis informing choice of symbol or re-presentation in children's music practices. It assisted in understanding the intertextuality or plurality of music events as embodied texts, and how children's purposeful actions and thinking may have been shaped by experiences and subjectivities, informing their choices (Kristva, 1986).
As a conceptual framework based on Leont'ev's work and Vygotsky's former ideas (Morf and Weber, 2000), Activity Theory is based on the idea that activity is primary, that abstract notions grow out of people doing things. The activity (or music event) is broken up into components of subject, object and tool (resource/mode). The tool is the mediating device for execution of action. Other units of analysis include those of community, rules (reason for action) and distribution of actions among actors. Activity Theory is effective in bringing to a conscious level the abstract meanings and imagery involved in music, realised by applying the conceptual framework presented in Chapter 7: the Space of Music Dialogue. It is seen as holistically rich in promoting understanding of how people select and combine modes in music invention, and how the social structures and resources of home, community and school systems assist them in making meaning through semiotic import of composing resources. It informs and reconciles enquiry into complex, dynamic activities and interactions. It is important when suggesting wider influences on learning, informed by the following perspectives.

3.3.2 Participatory Interpretation: Cultural Critical

This study applied traditional participatory interpretation to events. Perspectives of agency shaped the researcher's view of the world, the adults and children involved in the study, and of wider sociocultural interactions. Individual agents were valued as actively shaping their world and increasing power through knowledge. Therefore, the study aligned with the participatory interpretivist views of Titlestad (2004), challenging the ways of knowing based on binary paradigms or polarities, (faith/reason, full/void, normal/abnormal, positive/negative). Ways of knowing that build identity through relationship were affirmed. Similar to rhizomatics (Deleuze and Guittari, 1987) meaning was viewed as multidirectional and unpredictable, dialogic and interactional.
rather than fixed and linear (sequential) and determined by "underlying scaffolding on which actions are revealed in participatory research" (Neumann, 2000, p. 75).

The inventive practices of children in this study, observed in their music over time, were expected to follow similar unpredictable patterns because each music event was explored using a social semiotic lens and as such seen as diverse, changing orchestrations of modes (Kress, 2010) shaped by situated environments and social interaction. Through this lens the study viewed all modes equally contributing to meaning making, and children’s redesign in music invention as multimodal, interactional and unpredictable, varying in meaning and rhetoric through selections of modes in the context of each music performance event. Legitimisation of specific semiotic and pragmatic interpretations of meaning was seen by Guittari (1977) to be made through specific rhetoric, especially in media and performance communication.

3.3.3 Critical Theory and Applications to Music Learning

Critical theory focuses on the totality of the social and cultural situation in realising the agent's consciousness or view of reality can overcome potential problems and transform the situation, promoting learning and empowering action (Crotty, 1998, p. 156). Critical enquiry is an ongoing process of reflection and action. Thought and action are conceived as being continually mediated by socially and historically established power relations.

As Bourdieu has said, literate text making practices have convertible exchange value as forms of capital (Bourdieu, 1993). Music creativities can also be viewed as forms of capital and young children's music inventions sit within these creative practices (Burnard, 2012). Such practices or “travelling cultures” (Clifford, 1994)
incorporate global flows of information, materials and semiotic tools with the locally enacted practices in formal education and everyday contexts (Davies, 2006; Dolby & Rizyi, 2007; Dyson, 2003; Maira & Soep, 2005; Nichols, 2006; Pahl, 2007a; Prinsloo, 2004). "Linking the idea of creativity to learner agency and the need to privilege out-of-school spaces" (Pahl, 2007a, p.90) makes the dynamics of music inventive practices and identity a vital area of enquiry. This thesis took up this challenge by presenting a detailed multimodal account of redesign in children's everyday and familiar music performance events, their inventive practices. It investigated these as travelling cultures, forms of organisation or composing resources that are negotiated across sites as intersections of culture expressed through children’s music invention. Children's creative music making was seen as an external cultural phenomenon.

Burnard (2012) questioned whether music theories of learning that are uniform, systematic procedures and processes in teaching practice, could be privileging elite constructions of “cultural capital” (Bourdieu, 1972). She saw the necessity to free children’s music learning from adult views of creativity that see children as merely subscribing to traditional creative practices in their music invention. In educational institutions, selection of what is positive, different or multiple can, rather, shift the emphasis to synthesis of ideas, higher thinking and problem solving (Burnard, 2012). It could empower children to make connections of previous understanding and new ideas, new creativities, through their interactions, engagement and agentive constructions of these ideas. Interpretation (the child’s participatory engagement in the world) is important (Biesta, 2004; Osberg & Biesta, 2007). If creativities occur regularly in learning environments (and, most likely, they do) they may not fit within the conventional mold or definition of learning (Burnard, 2012). Children who are agentive in their learning, by enacting multiple creativities that reflect their pluralistic histories,
cultures and influences, tap into a resource of ideas that leads to problem solving, new creativities and synthesis of previous ideas and understandings (Burnard, 2012).

The complexity of interactions in music classrooms, as children explore many possibilities of creative music invention, may set up a dialogue where the balance of power for that moment tilts towards the students, and away from the teacher positioned as an observer, a facilitator and at times a learner (for some educators, this is a dangerous position). New and refreshing discourse could take place in that moment within the classroom environment (Burnard, 2012). This tilted position was the condition of play in learning environments, allowing scope for new discoveries. In Derrida’s (2002) terminology, it “puts off” or delays full presence. In educational terms, activities that encourage participatory agency balance, complement or "put off" the structure of curriculum content and measurement of learning outcomes. A review of literature has shown that interpersonal and conceptual aspects of modes selected for communication of ideas enhances educational objectives and learning outcomes through redesign of modes in interaction. In this study, *multimodal analysis* was used to examine *multimodal redesign* with a framework or *space of music dialogue* developed for this research to see learning taking place through *modal redesign* in music invention.

### 3.4 Case Study Design

This enquiry was an embedded multiple case study (Yin, 2009) of music events of young children in their first year of formal schooling. These events were captured in home and school settings across metropolitan and rural sites in the States of Queensland and New South Wales, Australia. The aim was to see whether five-year-old children beginning school redesign modes in music inventive practices and whether, over time,
they test or analyse their ideas and experiences of music and sound design (West, 2009) in new contexts and events.

Stake (2005) emphasised the appropriateness of a case study approach as a research strategy for investigating a specific problem in a real life context. Case study was defined by "interest in the individual case, not by the methods of enquiry used" (Stake, 2005, p. 443). He suggested that the key feature of case study is its boundedness and specificity. Yin (2009) likewise stated that contemporary “how” questions or bounded enquiry, is suited to case study, and boundaries between phenomena and concepts are not always clearly evident. To clarify, the single unit of enquiry in this thesis was the music event as a phenomenon, identified, coded and analysed according to two broad conceptual themes: (1) transformational redesign, and (2) further expansion of this concept to transmodal redesign, realised over time. These themes were implicitly and explicitly part of social semiotic multimodal theory (Jewitt, 2009). The study sought to clarify how these were conceptualised in the music event. This informed the methodology in this study, focusing on discovering patterns in the music inventive practices and redesigns of children making transitions from home to school.

The researcher sought to investigate how aspects of interaction in music events contributed to multimodal re-presentations or redesign of previous experiences and knowledge. By looking at a range of similar and contrasting children within the case study, the precision and the stability of interpretations in this study was strengthened (Miles & Huberman, 1994), though not generalised. Diversity of school sites and children, added to data sets of videos, interviews and observations, assisted in triangulating or cross checking emerging patterns, and in advancing propositions. Additional descriptive and confining criteria for selection were minimised.
Therefore this study, in attempting to distil music interactions of young children, was more specifically an *instrumental* case study because it may lead to "better understanding, and perhaps better theorizing, about a still larger collection of cases" (Stake, 2005, p. 446). Multiple thematic case designs used in this study to highlight convergence or divergence among themes (Yin, 2009), as summarised in Figure 2, could be “employed effectively in investigating complexity in everyday life” (Knobel, 1997, p. 123). In examining individual music events, inventive music practice and *redesign* was to be regarded as complex, diverse and dynamic, changing within the local culture. Therefore these thematic case studies could not be fully encapsulated, enclosed and categorised, or they would lose their dynamism. Understanding was to be ephemeral and provisional, discourses only existing in their difference from other discourses, and meanings being specific to each situated practice.

Semiotic resources and *modes* children selected for re-presenting ideas were to be explored, and ways these might be chosen in situated events. Through a rich *multimodal* description of children’s music events at home and in the music classroom, patterns of embodied music making - similarities and differences - were to be sought across experiences and between diverse geographic and cultural worlds. Music events as cases were to be coded and analysed using a thematic approach (Yin, 2009) of *transformational and transmodal redesign*. Thematic parallels may occur in diverse settings: repeated patterns and elements that inform each case. Patterns emerging from the cases should provide perspective to educators looking for explanations for their own experiences of children’s music invention in diverse settings. A narrow lens, detailed, fine-grained *multimodal* analysis using multiple data sources, assists in seeing patterns in contexts. This study was to be an *explanatory* case study (Yin, 2009), investigating what occurred as young children used *multimodal* redesign in music events.
Figure 2. Schematic diagram summarising the thematic case study design. The activity as a case: music events observed over time is shown as (a) and embedded cases as music events in diverse contexts (b).
3.5 Research Approach and Design

*Social-semiotic multimodality theory*, as principal driver of the research design, concerns meaning, in all its forms (Jewitt, 2009). Meaning should arise in social environments and interactions, so this theory informed the focus of the research on the single unit of study, the music event. It made the social into the source, the origin and the generator of meaning. In this theory, "the social" is generative of meaning, of semiotic processes and forms: hence the theory is a social semiotic one. The core unit of semiotics is the sign, a fusion of form and meaning. Signs exist in all *modes*, so that all modes need to be considered for their contribution to the meaning of a sign-complex. The genesis of signs lies in social actions (Kress, 2010, p. 54). Declaring this position is important as the researcher "moves from subjectively known to objectively known understandings as ideas are tested within the wider community of scholars. It blurs the distinctions between the researcher and the researched" (Jorgensen, 2009, p. 76).

Acknowledging infallibility and incompleteness of understanding, the researcher aimed to examine symbolic ways children make sense of their world through multiple music invention practices. These realities may be contested.

Cultural Historic Activity Theory (CHAT) (Engeström, Miettinen & Punamaki, 1999, p. 10), combined with multimodal semiotic theory, was used to influence the approach to the design and analysis of this thesis. Together these theories formed a hermeneutic helix for facilitating interpretations of *redesign of modes* in music invention to make meaning in context. CHAT assists conceptualisation of culturally based practice and activity-based cognition, where "the analyst constructs the activity system by looking from above." This involves triangulating the longitudinal data sets. The first point of reference would be inclusive of the groups of children (social actors) in diverse socio-cultural home and classroom settings in rural and metropolitan, state
and private schools, involved in music invention. The second point of reference, and the focus of the study, would be the activity or the music events themselves, situated within the home or the school (Chapters 4-6). The third point of reference for interpreting data would be to look at diverse mediating tools (resources, including wider cultural and historic influences, modes or embodied and sensory elements, and objects) used in music activities within the context of the home and the classroom (Figure 2a). Together, these three reference points provide a holistic view of the music event as a case study (Welch, 2007). Interest in structures, power relations, contradictions and disjunctive meaning making were to be explored in the wider socio-cultural framework.

Embedded case study design was seen as a useful approach to investigating the temporality of children’s actions using an analytical strategy of discovering patterns and developing themes of transmodal and transformational redesign in music invention within diverse social settings. Thematic embedded cases were to be designed with a focused question and approach, which is refined iteratively through engagement with the case (Willig, 2008, p. 77). It is a process of encoding qualitative information (Boyatzis, 1988, p. vii). Case studies as a systematic way of looking at phenomena (themes) bounded by time, location and person, are flexible in application, process and reporting (Stake, 2005). Case studies may (but not always) look at a range of data but are approaches that are suited to the investigation and description of the diversity and complexity of young children’s interactions in music invention. Cases, as music events, were to be embedded in a wider context of home and classroom music making sessions. Some were transitory; others were part of a music session including dance, storytelling, singing and drama. They were, in turn, embedded in three diverse geographic locations/schools, one in a rural setting, one in an inner urban setting; and one in a suburban setting with a private school context.
The embedded case studies in this research were studies of holistic qualitative music events. They used thick description, necessary when capturing complex interactions in a *multimodal* activity such as music invention. Denzin (2002) defined thick description as that which goes beyond surface appearances of a person’s action to interpret interactions: details, context, emotion, and the webs of social relationships that join persons to one another. Merriam’s (1988) definition of thick description referred to the complete literal description of the incident, action or communicative event being investigated. Consideration of many data sets was to assist this: observations, interviews, field notes and video analysis, were to be synthesised to contextualise themes in this thesis. A disciplined investigation of the themes was necessary to discover what can be learned from a detailed study of children in situated events of inventive practice. Case studies as research strategies (Barrett, 2005b, 2009; Young, 2003) rely on multiple sources of evidence to assist both researcher and reader to interpret music events.

As qualitative research, this study sought to establish the importance of an experience, or consecutive events, for children within a cultural context. In thick description, the voices, feelings, actions and meanings of interacting individuals were to be heard (Denzin, 2002) but must be interpreted through the lens of the researcher. The lens (*social semiotic multimodality*) was the methodological approach to the study. Kress (2010) argued that work on multimodality must fit within a theoretical framework, and he drew his framework from social semiotics. This study did likewise.

Specific and strategic in the selection of children, the collection of data and use of multiple data sets, and coding into themes of transformational and transmodal redesign, this qualitative case study provided a rich in-depth and detailed description
of music events as cases set in real-life contexts (Knobel & Lankshear, 1997; Meyer, 2001; Yin, 2009). It used a strategy for documenting in fine detail what was to occur at specific and culturally diverse real-world sites. Fine-grained details of materials, actions and dialogue made by children should allow for an interpretive multimodal perspective of video data. Other data sets (field notes, interviews and observations) were to be triangulated through Activity Theory to contribute to a deeper understanding of the social and multimodal nature of children's music invention.

### 3.6 Sites and Participants

Schools were approached in Queensland and New South Wales, Australia, for the selection of children as participants, and consent given for group music events to occur in three schools, for the most part during the lunch hour. One was a state school located in an inner-city multicultural community; another, a private school situated in the suburbs; and a third a state primary school in a rural community in North-West New South Wales (Figure 2b). Six young children, each five years of age, and in the first year of school, were purposively sampled for their interest and participation in music and for their diverse cultural heritages. Children, the schools and the parents involved, consented to collection of video data of music events, and parents agreed to collect further data of music experiences occurring at home. Another six children in each location participated in classroom group music activities, their parents consenting to collection and presentation of video data of their child involved in music classes.

There were three families (four children) in the rural school whose parents consented to home music sessions and collected video data. The twin boys, Edward and Bob, of Caucasian origin, participated in music at home and church, sang and listened to country and pop music at home, and used ringtones and ipod playlists for leisure. Bob
played his father's drum kit and Edward the keyboard. They often danced and sang to music in the home with their sister and both parents, who could read music and play instruments. Mimi, recently arrived from Brazil, also danced and sang with her sister, using video clips and traditional Latin dance music (when relaxing with her parents). She had a pretend microphone for singing, and used her laptop and ipod for music relaxation and song. Sandra and Daniel, both First Australians (not related) participated in music activities at school and home. Their parents did not consent to recording music sessions at home on video, but responded to interviews. Sandra participated in church worship music with her mother and the researcher. Stephen's parents (Caucasian) consented to a videoed music session with the researcher in the home, and collected video data of Stephen playing his drum kit. His mother was interviewed for the study.

Two participants inner urban state school consented to collection of video data at home, and music sessions/interviews. Sara, from Iraq, often danced to Arabic music at home with her two sisters, parents, and sometimes extended family. They listened to Arabic (pop music) in the car and saw music as relaxation. Sometimes a tambourie was used to accompany music. Her father kept a library of Arabic music on his desktop computer. Sebastian played ukelele, piano and drums, and sang and danced to Pop and Ethiopian music, with his mother in the home. He also used music to accompany trips to the shops, dancing or singing in the supermarket aisles, playing along with or listening to buskers in the mall. He could not stop trying out instruments brought into the home by the researcher, stopping to play as he exchanged ideas with the researcher during interviews. Heidi, whose parents consented to video collection of data and music sessions with the researcher in the home, lived in suburban Brisbane. She sang songs frequently with her mother and older sister, in any location at home, while shopping and in the car. She often set up her dolls and sang to them, conducting them as a choir.
imitating her mother. She played piano and sang a wide repertoire of songs of classical, pop, nursery rhyme and children's singing games. Heidi also on occasion attended musicals and classical music concerts with her family.

Another six classroom peers from each school site joined the music sessions, comprising a group of nine in each city school, and ten in the rural school. These children were purposively sampled for their enthusiasm in music activities, to assist in the thematic study of modal redesign. The six children (seven, counting the twins) central to the study were problematised participating in a range of music inventive practices in home and school contexts. This enriched the scope of the study, as multiple sites and diverse ethnicity was considered as a way to deepen the investigation.

Individual children were not representative of any category, either of location or ethnicity, but were studied for the ways their prior music participation in home settings impacted on choice of semiotic resources in classroom interactions, the way these resources were imported across home and school, and sometimes national borders. Interpreting interactions between children, their resources and the contextualisation of music inventions involved tracing complex interactions and determining underlying meanings and patterns (Silverman, 1993). This was facilitated by observing where modal interactions in music inventive practices, occurred in simultaneity and by the use of a thematic analysis for the organisation and cross checking of interpretations, noting patterns and then conducting a more fine-grained analysis. A challenge was in finding a way to transcribe music interactions (Figures 3 & 4, and Table 3) specific to the type of music event (movement to music, instrumental ensemble, soundscape, classroom song, instrumental solo inventions, or conducting music).
Figure 3. An example of a music transcript used in the analysis of a music event.
Table 3

An Example of Modal Configuration and Density Evident in a Music Event.

<table>
<thead>
<tr>
<th>Modal Configuration - High to Low Order</th>
<th>Modal Density</th>
<th>Bars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instrument Music Timbre</td>
<td>Proxemics</td>
<td>Hands Arms Head</td>
</tr>
<tr>
<td>Bars 40-46</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **music timbre**: Soft tapping of djembe drums using two fingers. Soft mallets held close to keys of xylophone to create softer quaver phrases. Some djembe drums are rubbed on skin surface for sustained notes.
- **proxemics**: Very closely situated in proximity to each other. Most children are focused on Stephen as he leads the group with verbal scripting and with alternative and softer sounds on the djembe. They then explore the timbre of their own instrument.
- **arm, hand movement**: Fine motor coordination of hands and fingers. Arms move in a confined manner. Head is turned slightly to observe other players like Stephen.
- **voice**: Voice of Stephen begins moderately soft and ends in a whisper. Others listen and respond.

*Figure 4. An example of a still image accompanying the music transcript (above).*
In this embedded case study, rural and metropolitan settings were triangulated for wider socio-cultural contextualisation of the problem being investigated. Schools were located in States of New South Wales (rural state school) and Queensland, where one urban state (low Socio Economic Status) and one suburban private school (high Socio Economic Status) were selected. Equal representation of children and ethnicity was sought in all school sites, and data sets were collected over six months. The children commenced school in the year of the investigation, all being five years of age.

The purpose of studying only a few children in situated socio-cultural contexts was to build on multimodal social semiotics by capturing and exploring in detail, in case studies of music events, some of the multiple ways by which children use transmodal and transformational redesign in their music inventive practices. By using an embedded case study design, the intention was to focus a lens on the detailed multimodal interactions in children's situated music events (the cases), and to implement a fine grained analysis, not to claim findings that can be generalised to a particular population. However, the investigation was designed to contribute to existing knowledge, contributing to social semiotic theory of transmodal and transformational redesign, and to propose interesting propositions for further study. By observing individuals and groups of children in diverse socio-cultural and educational settings, the researcher also proposed to understand how these settings impacted on individual children's inventive music practices, how they formed a musical identity over time, and how children themselves were agentive in building their understanding through music dialogue. Analysis of data may develop practical knowledge useful for teaching and learning, providing a way of examining multimodal theories and extending them in music practice, proposing new theories related to music dialogue.
3.7 Data Collection

Different types of data were collected to facilitate cross-case analysis and to enhance in-depth and multi-dimensional analysis. These fell into six categories of data sets. Consent of Government Authorities, School Principals, and parents was granted for use of the facilities and access to children. Data sets were selected to address the complexity of the case through a range of approaches (Stake, 2005). Multiple data sets collected by parents and researcher provided a deeper insight into children’s redesign in music invention. As summarised in Table 1, data gathered in stages over six months provided the basis for a multimodal analysis of children's music events in situated environments. A more detailed description is given below. One hundred and twenty video recordings were collected. They were a part of a total database filed and stored for further analysis.

This database was carefully built up throughout the study. Multiple sources or data sets included running observations and field notes by the researcher, plus digital images, video recorded data, and interview recordings. All interviews were captured using a handheld recorder, and transcripts written down in the form of a word document on a laptop. All data collected by parents or caregivers was safely stored until collected by the researcher each month for six months. If the parent/caregiver did not wish the child’s identity to be revealed, digital blurring of features was made. Video data used for this study is listed in Appendix 1, Table 1. A total of twenty-two videos were coded and analysed for this study. These situated examples were selected from the full dataset of 120 videos as they contained sufficient rich data to enable coding according to transmodal or transformational redesign, in the overarching question, to investigate sociocultural and community influences and semiotic import of composing resources (Question Two).
<table>
<thead>
<tr>
<th>Video data</th>
<th>Interviews</th>
<th>Observations Field Notes</th>
<th>Research Questions to be Addressed</th>
</tr>
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</table>
| Videos of young children's weekly 30-minute classroom group music events were made over six months. These consisted of playing instruments, singing, movement to music and music drama. Soundscapes and narratives were included. All music activities were initiated and videoed by the researcher. | Conversational interviews with individual children about music and music play were made in two sessions after music interactions in school settings. These were recorded on iPhone and laptop. There was also a discussion of music videos and of their interactions after the viewing. | Observations of children in the music classroom and the general classroom, made over three months, looked at repertoire, activities, instruments and visual props. Field notes children's interactions in playground, of school music concerts and music programs, and access to media and technology, were made, and recorded on iPhone or laptop. | How are transformational and transmodal redesign realised in young children's music invention?  
What does children’s redesign of semiotic resources reveal about their learning, and further, their conceptual understanding, during music invention? |
| Videos of home music inventions with siblings or researcher in music dialogue over 3 months. Each consisting of one hour, they involved musical question and answer dialogue with me, initiated by the child. Home instruments, sound sources and voice were used. These sessions were video recorded by researcher. | One interview with each of the general classroom teachers was conducted, concerning the role of music in the classroom, and their own experiences and observations of music with their students. | Observations of children in the home, particularly how they interacted with siblings in music activities, were made during monthly visits over 3 months. Laptop records were made of resources, instruments, media and technology and visual displays of music/dance activities. These were recorded after the visits. | How are transformational and transmodal redesign realised in young children's music invention?  
What does children’s redesign of semiotic resources reveal about their learning, and further, their conceptual understanding, during music invention? |
| Videos of home music inventions, solo or with family, were captured over 6 months, being recorded on video by a parent or sibling. | Interviews with parent(s) (one session only) were made, concerning their own music experiences as children, their views of music in the classroom, and music activities in the home or community. | Field notes of family music activities, visual displays, excursions, history and artifacts of cultural heritage, were taken over three months. Notes were recorded on a laptop after interviews/visits. | How may diverse cultural resources and contexts influence children’s import of semiotic resources within and across principal modes in redesign? |

Table 1

Summary of Data Gathering Activities.
Specific signed consent was essential for any presentation of this data for conferences or journal publications. All data was to be analysed manually and did not use digital analysis programs, in order to protect privacy, to avoid distancing the researcher from the task of interpretation and to minimise risk of Internet fraud. Refer to the relevant sections on Ethical Issues and consent in Appendices 2 to 7.

Data collection techniques consisted of:

**Moments of Solitary or Co-operative Music Invention**

These were recorded on video in many instances at home, over three months, by the parent, an older sibling/family member or a caregiver. Parents captured children in a naturalistic setting (Guba & Lincoln, 1982). The categories of “solitary” and “co-operative” play were based on findings from Moorhead & Pond’s (1978) seminal longitudinal case study of invented singing practices. Solitary inventions and co-operative music inventions were both captured by a hand-held flip video recorder given by the researcher to participating parents. Videos were graphically analysed.

**Music Dialogue Sessions in the Home**

The researcher visited home settings, sometimes initiating music interactions and sometimes observing. Ideas, feelings and experiences were co-constructed and communicated through the use of familiar tunes, words, timbres and rhythms overlaid by children's own fresh musical material. A continuing cycle of interpretation and communication through music invention was maintained (Guba & Lincoln, 1982), using *music dialogue* as the basis for analysis. Dialogue was seen as the child's purposeful act of selecting materials and arranging *modes* to convey new meanings in context (Bakhtin, 1984). Children moved from dialogic interaction to self-initiated musicking.
Small Group Music Sessions in Classrooms

Children interacted in co-operative music invention with eight or nine peers, over half an hour, using a selection of tuned percussion instruments, movement, speaking, rhymes and singing games. The researcher initiated singing, playing instruments and moving to music in classroom settings (Espeland, 2007) using scarves and ribbon wands. Electronic music recordings and picture books chosen by children were sometimes included in their music improvisation during singing and movement sessions. The moments of dialogue with the children and the researcher involved increasing and creating meaning through a focus of interest, such as telling a story. Children were supported and encouraged to negotiate their responses to sustain further expansion of their music dialogue. Design of ongoing music interactions varied based on the flow of music dialogue between children and the researcher (Yin, 2009).

Observations

Observations of children in music activities and general classroom activities at school, and observations of home visits, were made, looking at instruments, materials, visuals, repertoire and ways that children (and adults) interacted. They were recorded using a laptop immediately following the event. Observations were occasionally made of how individual children were involved in music events in the community (at church, or in other local community festivities and dance events) and not recorded on video.

Interviews

Conversations with the children replaced formal interviews (Fontana & Frey, 2003). Pramling Samuelsson & Sheridan (2004) used conversational interviews with children to illuminate the child’s perspective, as a foundation for the research. This study proposed to foreground the child’s ways of making meaning of experiences.
Interviews were semi structured or open-ended, purposeful interactions with the researcher (Folque & Sirai-Blatchford, 2011) building on understandings of their music making while participating in context, in order to reflect on how they learned in these contexts (Folque, 2008; Wall & Higgins, 2006).

Children were encouraged to narrate what was happening in the videos as segments of their music play were played back to them at home or in the classroom. Their reactions and comments were noted (Murfin & Butterworth, 1999). Pitfalls could include self-conscious counteractive behaviour or orientation to the lens. This was more naturalistic than hiding behind a one-way glass. “In terms of the interviews, care needed to be taken to avoid role confusion between the researcher as a non-participant recorder and the researcher as a participant friendly interviewer” (Murfin & Butterworth, 1999, p. 6). Therefore, the interview was treated as a narrative, inviting children to tell their story (Riessman, 2006). This approach was used with parents and classroom teachers.

While discussing the videos of their activities, the children were to be asked whether they thought resources available for their music were adequate to allow for expression of their ideas, experiences, and problems they encountered in selection of resources (Lave and Wenger, 1991). The researcher would communicate by listening and using appropriate children’s languages (Rinaldi, 2006) and thinking of how embodied actions helped young children to express their ideas and thoughts (Wright, 2003). Establishing researcher presence as an adult interested in their music activities acknowledges that generational differences and power relationships between adults and children cannot be eradicated in interpretation of research, nor is it possible to capture authentic voices of children, for the research setting "creates multiple voices that reflect the very different contexts and sets of relations" (Christensen & James, 2008, p. 24).
Field Notes

These were taken at monthly intervals, immediately after school or home music activities. They were recorded on a laptop, listing main areas of interest or focus on the part of the children, such as favourite music activities, music singing games, movement activities, instruments and recorded music selected by the children. The total number of resources available for use in classroom or home environments was also noted. The researcher sketched the arrangement of the physical space, including objects, lighting or windows. Children’s requests for follow-up music activities were noted.

Video data observations were to be gathered on a small Video Flip recording device the size of a mobile phone, with a flexible tripod if needed. It was unobtrusive and therefore easily forgotten by the children, even when the researcher was in close proximity. Novelty effect may result in self-conscious counteractive behaviour or orientation to the lens. Prepared for this, the researcher realised that coping with environmental constraints by engaging children in activities assisted them to ignore the recorder's presence during video recording (Gaskell, 2003). This was not seen as a problem, for the researcher’s presence and proximity was important to engage with what was occurring. It was more genuine or naturalistic than hiding behind a one-way glass.

3.8 Transcription Methods

Multimodal transcription is not new (Ochs, 1979; Erickson, 1986) and the body of literature on transcription is now substantial, while mostly focused on linguistics. Studies applying a social semiotic framework and multimodal analysis to the investigation of early composing processes are still few in number and are selective, partial, representational and interpretive (Kress, 1997; Mavers, 2007, 2011; Norris, 2004; Ranker, 2008, 2009). This study used multiple methods of data collection and
analysis, paying specific attention to transcription aiming for in-depth and detailed representation of aspects or facets of young children's music events. The purpose of this method was to capture the essence of each music invention by focusing a lens on aspects of the whole, while conceding that one cannot see the whole in its entirety. Yin (2009, p. 46) suggested that having smaller units or sub-units provide "significant opportunities for analysis, enhancing the insights into the single case."

According to Mavers (2012), *multimodal transcription* is a process of making meaning of the video extract and remaking those meanings on the page (or page-like) screen. Different modes of social interaction, including music, are re-presented on the page as writing, manuscript (using the digital music software Muse) or image. This entails shifts between modes in a process of transduction. A distillation or reduction of the original text does not necessarily detract from its meaning. It may in fact promote it by unfolding aspects of children's work, as an overview and visualisation of children's multimodal meaning making in invention.

Transcripts are useful when foregrounding salient features, communicating ideas, or building an argument. They also allow some children, features or *modes* to remain in the background: "Some features are sharpened and heightened in their portrayal … and other features are softened or left to merge with the background" (Erickson, 1986, p. 150). There is a process of selection of resources, *modes* of transcription, and where to begin or end the transcript. Choices limit the discussion and analysis, but also allow for featuring salient points to enhance coherence and clarity of argument. As the researcher re-configures *modes*, she gives meaning to the world of young children's music invention as she sees it through the social semiotic lens. Transcription of data is the result of the analytical purposes and rhetorical interests of
transcribers (Erickson, 1986). It does not precede analysis, but is part of it and is a deliberately reshaped representation (Ochs, 1979; Roberts, 1997). As stated by Mavers (2012), this is not distortion, but the process of making material into data.

While music notation has been used as a basis for transcribing gaze and actions of senior school instrumental players (Falthin, 2012), there are few if any transcription methods useful for transcribing young children's music inventive practices. Therefore the researcher in this study was required to consider weighting music modes and other highly variable modes in context, in combination with materials and music genres, to display their coherence and structure as each music event unfolded in time. The featuring of the elements of music as modes in transcribed video recordings of music events was the key to analysis.

Videos in this study were transcribed using written description supported by music notation of each event to capture specific sounds (vocal and other musical/non-musical sounds). Embodied meaning (gaze, gesture and posture) was transcribed by still images superimposed with dialogue to represent speech and eclectic responses (Norris, 2004, 2009). Tracings of stills were employed to specifically focus on bodily action, gesture and interaction (Bezemer, 2008; Kress and van Leeuwen, 2006). Therefore the music events were analysed using a variety of conventions in reconstructing the video data and these choices were made to "shape the account of social interaction in significant ways" (Bezemer and Mavers, 2011, p.203). This method highlighted moments of particular attention and simultaneity, such as types of bodily configurations: the micro-ethnographic (Bezemer, 2008; Erickson, 2004).

In transcribing events selected for analysis, it was sometimes apparent that
Higher *modes* were those of posture, movement or gesture, transmitting essential meanings and carrying the semiotic load. They were the focus of interest in the moment of meaning making in music. In transcriptions of music events, the researcher in this study explored new ways in transcribing *modal configuration* and music score by elliptical spheres that represent the *configuration of modes* selected by children (Norris, 2009), ordered from the top of the page to the bottom, representing higher to lower order of *modes* (Table 2) with description to assist readers see how *higher order mode* was the main focus of interest, added to music score - the elements of music. The aim was to develop a method of analysis appropriate to music transcriptions that represented the interaction of elements of music, and combine these with *modal interactions*: *modal density* and *modal configuration*. In this way, all resources selected in a moment of music making could be represented in simultaneity, and it would also be possible to determine when each *mode* took a turn in carrying the semiotic load, or the meaning.

The transcript presented here as Figures 3 and 4 (score and still image) accompanied by *modal configuration* (Table 2) is an example of how these representations were made in classroom interactions (Mavers, 2011).

Figure 3 is an excerpt from a transcript of a classroom music ensemble where children selected instruments to explore rhythmic and melodic motifs and dynamics using xylophones (upper 4 staves) and djembe drums (lower 4 staves). Voice (top stave) was silent but other music appeared in simultaneity in the score. Table 2 demonstrates *modal density* (the modes present - refer to blue spheres) and *modal configuration* occurring in that moment, music being the most salient mode for conveying meaning, the one taking the attention of the children at this point of time. In other sections or moments in time, this focus changed and voice or gesture became the *salient mode*, carrying the semiotic load or meaning.
Tracings of still image were made to transcribe events involving movement during invention. If movement, affect and speech cues were the dominant modes, a series of tracings of still images was considered the most effective way of transcribing the meaning making of children, with detailed verbal description to delineate the music interactions. Tabular representation of modal configuration and modal density were sufficient (Table 2; Figures 3 and 4). Boundaries become porous between the modes represented in the various columns, as they changed while the music progressed over time. The main focus was to determine what were the relations, interpretations or meanings that children were giving to music experiences through semiotic redesign. This stage of analysis was to focus on interpretive procedures used by children as they communicated cultural understandings through selection of semiotic resources in music invention. This enables the researcher to see whether, over time, greater understanding of selections and combinations of modes in interaction would occur.

The ongoing search for ways to transcribe and display modal ensembles and music in simultaneity would also occur by use of an extended score. Figure 5 displays complexity of transmodal redesign in a piano rap during interaction of mother and son in an extended "music score." The top staves consisted of the piano music and voice transcribed in music manuscript using bars instead of time stamping. Lines below these represented modal density (through coloured bars, one colour for each mode selected by the child for this particular event) and configuration (where each colour changes from higher to lower position to represent the order of importance at that moment). Together they were useful innovations for identifying when each mode had a turn and when they occurred in simultaneity, making it possible to see shifts in meaning (see Figure 5).
Figure 5. An example of a transcript of music aligned with modal change.

The ways in which children select *modes* to represent their ideas in music invention are crucial to their interactions and need to be transcribed to feature these interactions of *modes* in relation to their music making. Negotiated meaning is a way of communicating through an arrangement of modes appropriate for a particular situation. Qualities of voice, instruments or movement (gesture) contribute to selections of *modes*. Affordances or timbral qualities of the *modes* of instrumental or audio linguistic resources can influence meaning: the timbre of a voice; the differences in the sounds produced by striking a xylophone with a soft or a hard mallet; the glissando effect that can be achieved on a tuned instrument (strings, piano, xylophone, for example). Other sounds may be limited by properties of the instrument: drums have limited pitch (the box drum a pitch range of four notes only) and differences according to materials of the drum (wood, skin, et al). Within these limitations existed potentials for making sounds (by striking harshly, by glancing or by depressing the keys of a piano and sustaining them with the sustaining pedal). Articulation or staccato, legato, soft, loud sounds varied according to attack and release of fingers or the mallet on the note.
3.9 Multimodal Data Analysis

In the analysis, this study avoided the binary and simplistic rhetoric of local-global ways of being, working towards a “multilevel analysis of the complex modern reality” (Koutsogiannis, 2007, p. 227) that is ideological (historical and political) as well as socio-cultural and material. A thematic approach using the *theory of social semiotic multimodality* for theory-driven coding and analysis of data was chosen as a strategic way of investigating the problem. This approach was deductive. Thematic analysis techniques using *transformational and transmodal redesign* as themes or categories allowed the researcher to focus on the actions taken with semiotic resources in music inventive practices, to get close to the data, and to develop deeper appreciation of the nature of children's *multimodal redesign* in music invention. In this thesis, knowledge was also conceived as situated and represented. Activity Theory was used to contextualise music events in inductive analysis. It assisted in triangulation of home interviews, observations and interactions with classroom music invention, to provide for a rich understanding of childrens' practices and to see patterns emerging in redesign of rhythmic/melodic/timbral elements of music in *audio mode*, and in elements of *gaze, hand, arm, leg and whole body in gestural modes*. It also viewed knowledge as global, embodied and complex. Therefore, *multimodal theory and analysis* linked to Activity Theory was chosen as a conceptual framework, a hermeneutic helix.

*Multimodal analysis* allows the researcher to look closely at each case as a music event. Analysis of events through a *multimodal lens* and using a variety of conventions facilitated a fine-grained reconstruction of video data. These choices were made to "shape the account of social interaction in significant ways" (Bezemer and Mavers, 2011, p.203). Selections made from a network of alternatives realised the social functions of actors. The methodology assumed "that different modes shape the
meanings to be realised in mode-specific ways, so that meanings are in turn differently realised in different modes" (Bezemer & Jewitt, 2010, p. 184). This contributed to the making of judgements in analysis of each case.

Multimodal analysis is similar to crystallisation, as an approach to analysis, as both assume that not all aspects of music events can be seen. Essence of meaning is obtained by focusing on interactions taking place. Janesick (2000, p. 392) used crystallisation as an effective lens for creating research credibility and an iterative method of analysis. Many facets of a project are a fact of life. This concept was also used by Richardson (1994) as a research method inspired by the new physics, combining plane geometry with many “shapes, substances, transmutations, multidimensionalities and angles of approach” (p.522). Multimodal methodology is a similar lens used to assess whether there has been transformational or transmodal redesign in music inventive practices. While the researcher can never view the whole problem or every dimension of the event being investigated, the crystal can be turned to examine different facets of that enquiry. Janesick (2000, p. 392) agreed with Richardson's conception of crystallisation as an effective lens for maintaining research credibility. The multimodal social semiotic lens similarly contributed to rigour in analysis. Many facets of a project are a fact of life. What we see depends on how we "hold" the problem (metaphorically, the crystal), providing a complex and partial view of the topic. We "know more and doubt what we know" (Richardson, 1994, p.522).

3.9.1 Coding Process

Videos taken by the parents or caregivers of their child’s spontaneous music-making at home, taken over a period of six months, were filed, along with the video and audio material taken by me of classroom and home activities. It was coded (Miles &and
Huberman, 1994) using themes of transmodal or transformational redesign.

“Generating pattern codes,” the researcher attempted to “reduce and channel data into a small number of concepts that can be mentally encoded, stored, and readily retrieved” (Miles & Huberman, 1994, p. 69). This included data of classroom music events (involving twenty-seven children, nine from each site; sorted into classroom events from three sites and home music events, sorted into files of individual children or families (six in total).

In this study, framing of data analysis procedures was to facilitate both inductive and deductive analysis. Initially, the data was to be examined and coded using Activity Theory, and this was an inductive process (Lincoln & Guba, 1985). After all video data (one hundred and twenty video recordings of music events in total) was scrutinised and the principal organising modes were identified in each one, the researcher was to use a deductive process based on social semiotic multimodality (Kress, 2010) to code the data into themes of transformational and transmodal redesign. Of one hundred and twenty coded videoed music events, only twelve were examples of transmodal redesign, with one hundred and eight examples of transformational redesign. The researcher read the data further by inductive sorting and coding of particular classroom and home events that displayed dynamic interactions with materials and peers, showing negotiations of power relations in either setting. These were where wider socio-cultural and historical influences were evident as impacting on the children’s learning.

Children's selections of resources (musical instruments, storybooks, audio DVD recordings, ribbons, scarves and puppets in the classrooms) and decisions made concerning how these resources may be combined in useful ways during interaction, was of interest in understanding how children compose music. Their actional modes and
use of the physical space were also considered, and the use of voice. Sorting of resources within a hierarchy of influence is known as *semiotic weighting* (Mavers, 2007). Thematic analysis assisted with examining existing theories of *transformational redesign and transmodal redesign* (transduction) found in children's music at home and in the classroom (Figure 6). Exploring themes in these categories helped in cross checking in analysis. This study assumed situated contexts added to richness of children’s responses in music, their agency. Investigation of how children choose materials, language and actions as semiotic resources in music events may show traces of diverse cultural constructions of knowledge.

Figure 6. Schematic representation of case study sites and thematic analysis.

### 3.9.2 Multimodal Interaction Analysis

At the same time, using multimodal interaction analysis (Norris, 2009) the researcher carefully explored the meaning making of some individual children involved in the activity, through whose eyes and interpretations the activity was constructed. This didactic brought her into a close, dialogic relationship with the children's activities (their music events, the cases under investigation). It allowed her to capture the multifaceted mediations made by the individual or groups of children (Piaget, 1952). In this deeper exploration of children's music invention, the researcher used a multi lens
approach (Welch, 2007, p.27) to catch and distil the situated interactions taking place through *multimodal music dialogue*, and to explore music learning. The aim was to make meaning of complex *modal* patterns (*modal configurations and modal density*) and interactions that appeared in infinite variation within each music event. Looking closely at music interactions would be by *multimodal interaction analysis* and by transcriptions selected to display these interactions most effectively. This approach is similar to the method of crystallisation.

Music events are multiple embodied ways of transmitting shared understandings or situated meanings in children’s experiences. Therefore, in this study, *actional and music modes* were prioritised over verbal modes in analysis. Communicative *modes* “are always directly linked to the actions that the actors perform at a particular time and in a particular location” (Norris, 2009, p. 88). Multimodal Interactional Analysis (MIA) (Norris, 2009; Kjallander, 2010) assists in observing and analysing varying socio-cultural practices and mediated activities of children. The researcher identified *modal density* (communicative modes at play in interactions, actions and speech, some foregrounded and some background, e.g. in soundscapes) and *modal configuration* (building on modal density to see how modes are configured in a hierarchical structure from higher to lower level actions, noting how these changed in moments of time over the course of an activity). The aim was to identify what were the *higher order modes* (complex *modes* such as music making, dance or storytelling) in which children engaged, found through their prioritising of interested attention, and how these aligned with *lower order modes* (perhaps gesture, posture or single units of meaning such as sounds and silences) in the learning experience. The researcher noted how the focus could switch from one to the other or to both simultaneously in moments of redesign. Lower order may become *higher order modes* in unfolding of action in time.
Video data of children’s music invention posed difficulties for analysis, for the nonverbal nature of music, its personal and cultural variations, and its temporal instantiation in time, made it problematic for data collection and analysis that has in the past privileged spoken and/or written (linguistic) modes (Flewitt, 200, p. 27). In addition the world, as a messy place, does not always afford researchers with the evidence that they seek (Erickson, 1986). Disconfirming data or alternative explanations must be considered and the more convincing interpretations decided upon due to the weight of evidence and simultaneity of modes (Bezemmer, 2008; Erickson, 2004; Mavers, 2011). However, the researcher collected, coded and analysed all data to provide consistency of interpretation. Multimodal analysis was checked with two co-raters, experts in the field. As a method of analysis, it provided the researcher with a convincing case for interpreting and analysing nonverbal data such as modes of music, gesture and proxemics. Erickson (1986, p. 121) argued: “in fieldwork, induction and deduction are in constant dialogue.” In this study, deductive analysis complimented the multimodal.

In order to see patterns emerging in cases or music events and to test whether the data was accurately coded as transmodal and transformational redesign, the collection and analysis of video transcriptions was made across contexts and over time. The researcher in this thesis approached the transcription of video data by examining functions inherent to complex communication: interactions that were dynamic and embodied actions, not "static" representations. This method allows patterns to emerge with coherence and consistency between different modes: from explicit and direct information to oblique representations of meaning. Material was coded according to transformational or transmodal redesign, and rural or urban, and home or school contexts, and socio-cultural domains (heritage and prior music influences).
Through video analysis, observations were made firstly of the ability of children to co-operate in solving problems such as the selection of instruments and sequencing of music. This was done by analysing children’s actions and interactions, and then dialogue (Norris, 2009) that lead to changes in specific cultural qualities of music events (Berkley, 2004; Elliot & Baker, 2008). In the specific analysis of dialogue, it was anticipated that cultural devices or elements of music such as repetition, dynamics, timbre and phrasing used by the children could be identified. Observation and analysis of this process should deepen the understanding of meaning making and communication in early childhood group music invention by highlighting children’s complex interactions and their selection of semiotic resources. Social interaction theory supports the notion that these interactions are not linear but overlap as each is exposed to the other’s world, producing a “rich marketplace of ideas” (Yin, 2009, p. 21).

In music, elements or concepts of percussive or lyric effects, dynamics, timbre and tone, pitch, meter, rhythmic variation and harmony are all important for making meaning and for redesign. These were viewed as useful for identifying modal redesign: how meaning is translated or made across modes in a multimodal ensemble. Modes of writing and drawing have different characteristics from those of speech, music and dance. Sound resources are varied in pitch, rhythm, duration, volume and intonation, and often incorporate silence (van Leeuwen, 1999). Abstract concepts, thoughts and feelings are represented by these elements of sound and allow for the conveyance of different dimensions of meaning to those represented by visual symbols. Other modes of speech, kinaesthetic action, mimetic, gesture and proxemics were examined in this study in relation to the mode of music, to further understand how children use modes interacting "in dialogue" to co-contribute to the redesign of meaning during music invention. The process was displayed by different methods of transcription.
Interpretive analysis of combinations of *modes* was made through examining the “*multimodal ensemble*” (Kress, 2003) of a child’s communicative music invention. Conceptual (abstract and linguistic forms of meaning) and spatial relations (embodied forms of meaning) were seen as linear representations of *music dialogue* instantiated in time. *Multimodal analysis* of video data was useful for revealing the complexity of the importance of *music modes* in particular (the *elements of music*) as indicators of children’s *redesign* in music invention. When *modes* occurred in simultaneity, this possibly may indicate a shift in meaning, hence the task was to find transcription methods most suitable to display these *modal interactions*.

### 3.10 Music Dialogue: A Dialogue of Modes

*Music dialogue* was a concept developed in this thesis from a review of the literature as a practical methodological framework for approaching analysis of young children’s music multifarious music inventions. Designed specifically for this research, it is a way to capture combinations of *modes* interacting in young children's *transformational and transmodal* redesign of their music. There were many components of *music dialogue* or modal interactions to be investigated in this study. Affordances of the elements of music were in themselves modes that carried conceptual meaning, useful for analysis. The affordances of instruments and voice were essential *modal* resources for music invention and *redesign*. Other important *modes* were movement (gestural *modes*) and physical environment. In terms of the physical space, *modes of proxemics* (children moving and relating to each other or objects in proximity) included the available resources in the space, and how corners and edges of the room allowed children to retreat and observe.
Distance and proximity (proxemics), so crucial to music dialogue as a spatial mode, were seen as a part of the way children accessed the physical environment for communication. Gestural mode and body language referred to not just to gross and fine motor movements, but bodily attitudes as reflected by posture, gaze, and facial expression. These were affordances, powerful for communication. All the above elements were possible modes available to children in music dialogue (Figure 7).

Music dialogue as a concept also included consideration of many environmental facets that impact on young children’s music inventive practices. This holistic view of learning, tracing the socio-cultural aspects of children's inventions, was to be interpreted using the CHAT (Activity Theory). Factors included the nature of the pedagogic process; individual dispositions; actual and intended musical behaviours; contexts for learning; as well as the inter-relationships of resources (Welch 1998, 2002, 2005, 2007; Welch & Hallam, 2004). Interconnections of family and community influences in music and the arts contributed to music dialogue, being important for a holistic view of children's music invention. They contextualised the multimodal analysis but were not examined in detail in this thesis (Bresler, 2007).

Prior influences, such as community and family, relate ways of interacting in classroom music invention. School music instruments, music teachers and methods/song repertoire; home instruments, practices, technologies and repertoire; and the child's knowledge and use of the popular music repertoire; were considered for contextualisation of music events. Together the heritages of children, and their use of materials and other resources such as voice and bodily movement, were noted by the researcher to see if they influenced the ways by which new understanding and skill is developed in music dialogue. Prior influences include music resources of home, school,
community and formal learning (such as formal music lessons). The total possible modes available in *music dialogue*, the affordances or materials and the discourses or external influences, formed the analytical framework.

![Figure 7: Schematic representation of Music Dialogue.](image)

In summary, the diagram in Figure 7 was designed as a preliminary and sketchy methodological framework underpinning and guiding the thematic analysis of music events in this study. It is not to be seen as a pedagogic model: as Dobbs (2010, p. 17) has observed, "adherence to a hegemonic teaching model is troubling." Rather, the complex interactions of children are best represented by a framework of *music dialogue*, representing a view of teaching as a universal praxis of music through which inherent
structures in children's music invention may be observed. This study set out to do this through designing, logging and coding data according to the thematic strands of transmodal and transformational redesign as cases. Other possibilities, such as external and prior influences, were for the most part bracketed in order to closely investigate these particular thematic strands of music inventive practice. Therefore the redesign of modes in music events was prioritised.

3.11 Plausibility and Integrity

Corroboration of evidence gathered over time from a variety of sources - video data, interview transcriptions, observations and field notes - provided richness and complexity of children's interactions in music events, the cases being examined. Prior research suggests, though not concludes, that children through semiotic dispositions demonstrate some competence in design and music invention in the first year of school. Identifying, in this study, the contributions to the development of semiotic dispositions in music as communicative design, was to further the evidence gathered in prior research (Harrip-Allin, 2010; West, 2009) that such music inventive work enhances children's capacity for multimodal redesign, enabling them to establish productive futures in social, economic and cultural life. It is hoped that the study will deepen understanding of how cognitive and embodied meaning are made in simultaneity, by viewing music interactions over time, to present a plausible argument to be continued in future conversations on the multimodal nature of children's music invention.

Multiple strategies were used in this research to make it more rigorous and defendable. The researcher as sole person active in gathering, coding, transcribing and analysing data, enhanced dependability. Acknowledging limitations of a single
viewpoint, the researcher used co-raters in video analysis of individual cases (music events).

3.11.1 Establishing Credibility

Firstly, the researcher established credibility by using case study design. Processes of validation in this thesis avoid making a definitive explanation of music events analysed as cases. However, thorough and detailed investigation and reflexive questioning was to be employed to arrive at a conceptual model and some theorising on the nature of music redesign. Using case study as a design approach, the qualitative researcher is open to the “diversity of perception, even the multiple realities within which people live” (Stake, 2005, p. 454). In this study, embedding cases (music events) into rural and metropolitan settings, then culturally diverse groupings, and coding and analysing these by using themes of transmodal and transformational redesign, helped identify multiple realities. Patterns of data across diverse settings were recognised in multiple music events to develop the issues and provide criteria for internal and external validity as explicated by Yin (2009). Outcomes were elicited using an inductive process of comparison across data sets, and cross-case analysis using embedded case study design. The comparison of music events as cases, when viewed in diverse socio-cultural settings and between rural and metropolitan settings, were expected to highlight multiple perspectives of children, complexities and diversity of their music inventions. Acknowledgement of children's voices added to in-depth descriptions and observations, leading to more robust results, and lending credibility and integrity to the enquiry.

3.11.2 Establishing Integrity

Trustworthiness and authenticity in this research were influenced by its design. An embedded case study, it used rich data sets for cross-referencing. In analysis a social
semiotic framework (Kress & van Leeuwen, 2001, p. 285) assisted in categorising ways
children used representations (music, movement, visual and literary semiotic resources)
in *multimodal* music invention, thus providing a framework for identifying *modes* while
implementing data collection procedures. To look at wider socio-cultural influences in a
more holistic way by triangulating data sets required the use of Activity Theory as part
of the design and implementation. Exploration of children's design in *music dialogue*
was iterative rather than linear in approach, the researcher moving back and forth
between design and implementation to ensure congruence among question formulation,
literature, recruitment, data collection strategies, and analysis. Data sets were
systematically checked, focus maintained, and the fit of data and the conceptual work of
analysis and interpretation monitored and confirmed constantly. Alternative
interpretations were sought. This process would verify whether “results are opinion-
based, influenced by preference, or are experiential knowledge” (Stake, 2005, p. 455).
Careful examination of the video data through synchronous and diachronic mapping
was undertaken to reveal whether some children resisted and opposed selections of
materials that may consequently alter the arrangement of *modes* and the way meaning
was to be made in some music events. This would be revealed through *multimodal
analysis* and be reliable for any study.

### 3.11.3 Establishing Dependability in Transcription Methods

The role of the researcher was key to the collecting and coding of all data,
applying creativity, sensitivity, flexibility and skill in selecting transcription methods,
and using strategies to determine the reliability of the evolving study (Stake, 2005).
Consistency was maintained by having the one researcher perform observations, collect
and analyse the data across all sites. This strengthened the dependability of the study.
Similarly, by relying on the researcher to make all transcriptions, and to analyse all in
detail, allowed for uniformity when making insights and discovering new meanings and patterns across the data sets. Insight included the willingness to relinquish any ideas that were poorly supported regardless of the potential that they first appeared to provide, or the desire to fit a particular theory in the literature.

To avoid any attempt to uncritically fit interpretations into predetermined theories, a percentage of transcriptions and video analysis in this study were checked for interpretation by a critical friend and by two co-raters who were experts in the field of multimodal social semiotics. Interpretations were revised until a consensus was formed. Interpretations were checked with children as participants, and parents. While not necessarily adhering to interpretations, the researcher used this process to reinforce the dependability of constructs. This was a process of reviewing multi-variable, complex and causal explanations through interactive synthesis (Miles & Huberman, 1994).

Constant comparison of data, coded in groups and individuals to maximise similarities and differences, was expected to contribute to emerging categories and patterns: a refinement and interrelation of categories of information (Strauss & Corbin, 1990). Theory building - *transformational and transmodal redesign, as music dialogue* - should emerge from a process of thematic analysis across data sources, using the embedded case design developed for this research. An in-depth cross-case analysis of existing problems provided new ideas or propositions for further investigation.

*Multimodal social semiotics* may be questioned as a useful methodological framework, largely due to the nature of using multiple transcription methods selected for appropriateness in interpretation of the data. However, once these methods were selected, particularly how choice of materials assists in making meaning through arrangement of *modes* in a music event, the methodology was revealed as entirely
appropriate. As noted by Welch (2007, p. 24), methodological approaches in music education must have a "multifaceted holistic perspective" that combines diverse knowledge bases. The interrelationship between factors or modes is important (Welch, 1998; 2002) and needs to be displayed with clarity.

The music events were complexes of visible, audible and tangible semiosis. Learners were not seen engaged in the rearrangement of signs in the same mode, but in production of new signs in the same mode or in a different one. The music events were seen as culturally shaped in materials, genre and discourse. In events of transmodal redesign the unit of analysis therefore required an analytic method appropriate to its relational nature as a moment of music invention realised in different modes. Prior and subsequent transmodalisations were examined to note the modal transformations and change of meaning. Movement, shift and change were all important in identification of transmodal redesign. Continuities and discontinuities were noted as a relationship in meaning expressed between events in different modes. It was important to trace how a text was translated to differently modalised forms. In such transmodal redesign the consequences for meaning and understanding were detailed. Transformational redesign was expected to result in new conceptual learning and ways of knowing occurring in all moments of music dialogue. However, from the literature transmodal redesign was expected to be a radical form of meaning making (Newfield, 2009). It would be identified as involving a modal shift denoting deeper understanding of the concepts and structures that underpin music invention. Therefore the child's understanding of the vocabulary of music elements and conceptual expressions in music should indicate the outward manifestation of a modal shift, the "transmodal" moment.
3.11.4 Confirmability: Rigour in Data Analysis

*Multimodal Discourse Analysis* aligned with the use of "crystallisation" as an alternative method to triangulation in the analysis of each individual music event or case, for there were initially no "fixed points" or points of certitude with which to view events in analysis and perceive patterns or trends. There was a need to capture the lived experience, not to depersonalise it. In departing from the familiar, children’s unpredictable ways of inventing music in situated or contextual events revealed embodied meanings. There was no single correct interpretation of embodied meaning as researchers view events from different angles. Crystallisation distilled or expressed the true sense of the music event, the essence of the thing (Jorgensen, 2009).

The researcher aimed to hear between the words by observing all the *modes* that operate simultaneously within a moment of *transformational redesign*. Movement, shift and change were observed in every semiotic redesign, just as the crystal can be viewed in different ways by moving and changing the lens. Social semiotics was therefore a useful lens for viewing the problem, for it builds on the premise that children change and make meaning afresh with each performance, each new music event. As qualitative research involves situated descriptions of persons, places and events, no one explanation is sought. Validity is problematic, as it involves linking description and explanation, seeing if one fits the other, or credibility. This research avoided fitting events into explanatory categories.

3.11.5 Focus of the Research Design: Maintaining Credibility and Integrity

Credibility and integrity were enhanced in this enquiry by a combination of procedures. Firstly, rigorous data collection was ensured, bound by time and timing (gathered at consistent intervals of time across all sites and limited to six months in
total), location (accessible sites), and use of appropriate transcription and video analysis techniques. In-depth open-ended interviews, checking of interpretations by two co-raters who were experts in the field, and use of the one researcher to collect and code all data to achieve consistency of approach between all cases, also ensured collection techniques were credible. Secondly, making the researcher’s presence known (being immersed in the world of children, peers and family, while maintaining professional distance) ensured a balanced approach to data collection. This was not difficult, as schools, parents and children assenting to the study usually welcome the extra music activities provided by an expert in the field, and children enjoy these interactions. Balancing this enthusiasm and professional objectivity was achieved through the researcher's extensive prior experience, current practice, and qualifications in the field.

The use of multiple perspectives through interviews, dialogue, video data, field notes and observations, and location, assisted credibility and integrity of the research design and contextualised the video data analysis. Verification of the accuracy of the accounts by triangulation of multiple data sets, multiple perspectives, home/school and rural/urban locations, also assisted in the iterative process of interpreting cases and themes. Reflexivity (progressive analysis, cross-checking of data, and reviewing questions in interviews) was a part of this process, and explicitly reporting on researcher perspectives, values, and beliefs was necessary. Crystallisation, or use of a social semiotic lens, gives in-depth descriptions, making research more robust.

Jewitt (2011, pp. 173-174) addressed some objections to the validity of video analysis. She observed that some researchers critique multimodal interaction analysis as unscientific and obscure, noting that other equally valid conclusions may also be drawn. Detailed microanalysis of events can result in the underplaying of macro factors:
structural and power influences such as institutions and access to resources. Data is not easily contextualised. There is a privileging of agency of the children in the research data, and a risk that complex phenomenon will be reduced to simple categories.

Additionally, methodological implications of excluding one or more modes from the analysis may be seen to pose problems. As there are few guidelines on video-based research, there is difficulty in linking video data to theories and themes of conventional social research. Video data can raise concerns for protection of children's privacy when considering its use, the ethics and desirable anonymity. Assessment of effects of the use of the video on the data, the participant behaviour and orientation to the camera, are problematic. There is also limited history or context of video data. Above all, a lengthy time must be spent on data viewing and analysis due to much material.

Most of these concerns were overcome by contextualising the data collected and balancing it with interviews, field (and classroom) observations and journal entries. The use of a double helix (Multimodal Interaction Analysis and Activity Theory) in analysis allowed for detailed microanalysis while accounting for macro socio-cultural factors such as structural and power influences. This was important for social and cultural framing of children's transformational redesign. The dual impact of these theories was to triangulate data (interviews, observations and video data) to further elaborate on impact of semiotic resources when imported across home/school and national borders, and to revisit research questions in the beginning of Chapter 3.

The apparent obscurity of children's music meaning making and their multimodal interactions was resolved by the researcher introducing the framework of music dialogue as a significant contribution to analysis in this field. Extensive and
sensitive negotiation and development of consent protocols for different aspects on the use of the data will assist in elimination issues of privacy and ethics (Jewitt, 2011). Effects of video use on participant orientation to the camera was moderated by setting up the camera in less obtrusive positions, and by examining how important the effect of the camera on participants over time. Heath, Hindmarsh and Luff (2010) suggested this is not often the problem that many researchers anticipate it to be. "There is little empirical evidence that it has transformed the ways in which participants accomplish actions" (Heath et al, 2010, p. 49). They noted that, even while orienting to the lens in some classroom examples, children make choices based on materials and in response to actions of others, preferring to orient towards sound or body language.

The problem encountered with regard to spending excessive time on logging and viewing data was overcome by setting up iterative cycles of data collection and analysis, development of effective logging processes and sampling of data, and allowing proportionally greater time after the collection of data to dedicate to detailed, in-depth analysis. Such an approach avoided obscure or inaccurate conclusions being drawn during analysis. Six months of data collection was allocated in each site, followed by ten months sampling, transcribing and analysing the data.

Bezemer and Mavers (2011) constructed a convincing case for using transcriptions of video data as artifacts, examining a variety of transcripts used in conversation analyses, multimodal social semiotics, discourse analysis and micro-ethnography. They concluded that differences of representation have significance for the building of an argument and for analytical purposes. Transcripts can vary in terms of tracings, still images, grids and other ways to represent what is occurring in a particular video. Therefore they argue that different transcripts can be used in one study to
demonstrate different modal interactions or ensembles of meaning (Bezemer & Mavers, 2011). There are enormous benefits of using video data for research in the social sciences. It is a real-time sequential medium that "preserves the temporal and sequential structure of interaction which is so characteristic of interaction" (Knoblauch, Schnettler, Raab, & Soeffner, 2006, p. 19). This is essential to capture music, a medium that is temporally instantiated. It also provides fine-grained data that can be analyses frame by frame or in seconds, where music is kept in context with gaze, body posture, facial expression and gesture. Recordings are a durable and shareable record to be viewed repeatedly (Jewitt, 2011).

In studying individual and groups of children and how they co-construct meaning through interaction in music inventions, the choice of multimodal transcription of video data should be suited to the particular music event. As an artifact, it essentially must be useful for revealing important features of interactions of modes through music dialogue. Detailed study of small fine-grained data can be made possible through the particular transcription method, and this yields greater understanding of the way children learn, the modes and objects they use to co-construct and order their music events and build music identity.

The researcher in this thesis, positioned by poststructural and critical theories, did not adhere to Bruner's (1990) dualistic conceptualisation of mode as either an analytical process of acquiring knowledge or a representational, metaphorical (embodied) representation of knowledge. Such a position would consider logic or "the word" as a closed system, and dialogue as an embodied, open-ended system assisting with making tangible what is not (music, artistic knowledge, affect). Bruner’s (1990) conceptualisation therefore marginalised modes or forms of representation that are not
"linguistic" in the narrow sense of the word. Bruner (1990) assumed that these modes are forms of representation "mapped onto" the linguistic. He therefore privileges linguistic modes over embodied modes. However, representationalism and dualism are problematic in research that takes a poststructural, foundational approach to understanding concepts. This is so particularly in this study when, in exploring learning, the researcher considers multimodal analysis of children's music dialogue, an approach that "prioritises inference over reference" (Derry, 2008, p. 57), embodied actions over linguistic representations. Brandom (2000, p. 163) spoke of inferential knowing as the "giving and asking of reasons." Human understanding implies not only knowing the appropriate response, but the implications of such. This is what forms the musical identity that the child builds through repeated music invention: the understanding of what follows on from a particular action or combination of modes in situated practices.

For Vygotsky (1998), there is a relation of an object to a concept that is perceived through the agency of children who perform a series of judgements (or who make a selection of materials). These are "mediating connections and relations disclosed in the determinations of the concept" (Vygotsky, 1998, p. 53). Concepts in this study were viewed primarily as the elements of music (formal resources that children use in music invention). These were explored, tested in transformational redesign and stabilised particularly in moments of transmodal redesign (Chapters 6-7). A methodological difficulty in this thesis lay in coding music events into thematic categories (cases) of transformational redesign (observed in the majority of music dialogues) or transmodal redesign, the indication of a shift in understanding (of concepts, ideas and experiences) through redesign from one mode to another, one genre to another, over time. Processes of coding the data were facilitated as the researcher applied the framework of music dialogue.
To show how children might be exercising a series of choices, judgements and redesign capacities based on readily available materials and *modes*, and partly influenced by prior experiences of concepts and behaviours, *music dialogue* (Figure 6) was developed as a methodological framework for overcoming the dualism of closed systems of knowing and embodied, artistic and intangible knowing (Guba & Lincoln, 2005). The main question to be addressed in the following chapters is whether this framework of *music dialogue* is viable for capturing, interpreting and analysing *transformational and transmodal redesign* in young children's music invention. In addition, how does children's redesign of semiotic resources in music invention enable dialogue and enhance conceptual understanding?

### 3.12 Summary

In conclusion, events or cases presented in this study are only one view of a reality, always different from that of any other researcher (Robottom & Hart, 1993). This position is based on the ontological belief system of “claims and assumptions that are made about the nature of social reality, claims about what exists, what it looks like, what units make it up and how these units interact with each other” (Blaikie, 2000, p. 8). The assumption is of multiple perceptions and interpretations of a case, and while it is impossible to capture these in a research project, it is possible to “frame” it for a moment, tell a story, and provide a snapshot of one perception of reality (Geertz, 1973). Examination of micro-social events using the frame of *music dialogue* would contain the changes inherent in situated use of semiotic resources during music inventive practices. It should provide an interpretive view, a textual glimpse at a certain time and place into the lived experience captured through case studies. Social, cultural and historical forces shaping research identity were noted. “It is impossible to step outside of discourse and survey the situation objectively” (Radford & Radford, 2004, p. 2).
Personal values, beliefs and ethics brought to this investigation of competing realities were put aside as much as possible, to allow children's voices to be heard.

In Chapter 4 the analysis of music events coded as *transformational redesign* of children's music invention, are presented and analysed, exploring the patterns of *music modes - the elements of music* - in redesign with other *modes*. These are linked to music learning in diverse settings of classroom and home. Chapter 5 is structured to explore any possible video examples of *transformational and transmodal redesign in the rural classroom*, the only setting where data was gathered over six months to trace the semiotic chains and ascertain whether these children, over time, would develop conceptual understanding of the elements of music. Chapter 6 then investigates the chains of semiosis evident in *transformational redesign* of music inventions of individual children who, over time, may have been able to demonstrate conceptual understanding of music in moments of *transmodal redesign*. Finally, in Chapter 7, there is a synthesis of the research in a discussion of the three questions, identified in the introduction, presenting an elaborated and detailed *model of the space of music dialogue*, and suggestions for further research.
This chapter presents video transcription and analysis of situated examples of music invention, the "orchestrations of modes" (Kress, 2010, p. 157) as children explore affordances within the one mode of music through transformational redesign. The cases (events) of modal redesign were selected for discussion here as clear examples of music dialogue, a dialogue of modes. They represent many genres of music invention in diverse educational settings of school, and in the home. Chapter 5 explores what occurs in these practices over time, focusing on the rural classroom, the only school where data was gathered over six months instead of one month. Chapter 6 focuses on individual children's transmodal redesign, and their semiotic import of resources as they move between home and school practice. Both Chapters 5 and 6 discuss how some elements and processes of transformational redesign are moved across modes in transmodal redesign, revealing a more complete understanding of children's prior knowledge and experiences in music and impact of social and cultural influences on transmodal redesign. Children make designs of increasing complexity across principal organising modes (from speech to music, music to movement, or music to verbal linguistic mode).

In ever-changing settings with new resources available daily to communicate and manipulate ideas, children are skilled at transforming these to find the best "fit" for re-making and shaping meaning (Kress, 1995. 2000). This chapter responds to the first part of the overarching question of the thesis: realisation of transformational redesign in music invention. Examples are coded for analysis and discussion of transformational redesign in music invention of children in their first year of school, in interactive classroom music (Sections 4.2 - 4.5) and home (Sections 4.7, 4.9 - 4.10). It provides multimodal transcription of the music events, remaking meaning on the page. Different
modes of social interaction, including music, are re-presented on the page as writing, manuscript and image. A distillation or reduction of the original text enhances it, allowing aspects of children's learning identities to be featured. It is a deliberately reshaped representation of video material for clarity and coherence of argument, providing data for analysis and discussion of the three thesis questions:

1. How is transformational redesign realised in young children’s music invention?
2. What does children’s transformational redesign of semiotic resources reveal about conceptual learning and ways of knowing in music?
3. How do diverse cultural resources and contexts influence meaning making in transformational redesign?

4.1 Framing Transformational Redesign in Music Invention

During embodied and technological experiences of sound, children draw on multiple channels of communication, an "ensemble of modes" (Kress, 2010), to make sense in ongoing situations of music invention (Harrop-Allin, 2010; West, 2009). The main purpose of this chapter is to explore the patterns of music (audio) modes - the elements of music - traced as children redesign, re-organise and transform them along with many modes in everyday music inventions, and make links to prior experiences of music. The desired outcome of this chapter will be to demonstrate children's empowerment in music learning by tracing how they use transformational redesign using various modes in familiar settings, making meaning and shape learning through music invention. This is essential to understanding how music learning takes place.

A problem was to know how to approach transcription and analysis of these embodied and abstract modes present in music invention. While music notation was used as a basis for transcribing gaze and actions of senior school instrumental players.
(Falthin, 2012), the approach to transcribing young children's music inventions required consideration of weighting of *music modes* and other highly variable modes in context, in combination with materials and music genres. Key to approaching this problem was to view the *elements of music as intra-modal elements*. Many modes (*gesture, visual, spatial, linguistic and the elements of music* including pitch, dynamics and timbre) were selected and *redesigned* by children, as one of the participants in the study remarked:

*(Why do you like music?) I just like the sound. It bounces down and so when I hit this box drum it bounces down then back up through the holes. If you do it really hard it makes a really loud sound. (And what happens when you play gently?) It makes a really quiet sound. Bob, Age 5.*

One hundred and eight examples of *transformational redesign* were coded from the total one hundred and twenty video data. In this chapter, four video recordings of classroom music events were selected to situate the three *classroom* locations, featuring *transformational music redesign*. Another three represented *transformational redesign* at *home*, displaying children's selections of *intra-modal* processes and *elements of music*: song, and music technology. All examples explored music as a *dialogue of modes* demonstrating learning. Videoed classroom and home events selected were:

- Classroom movement to music
- Classroom interaction using speech and inventive song
- Classroom instrumental invention
- Home music invention using voice, instruments and music technology
4.2 Whole Group Transformation of Piano Music Through Movement

Children in the inner-city classroom had been discussing horse movements and were invited to use the entire physical space of the large room, responding by choosing movements to capture horse characteristics. As a Queensland State school, it also had specialist classroom and instrumental music teachers working with the children. They used a combination of Orff and Kodály methods as they had a wide range of Orff percussion instruments (xylophones, marimbas and drums). Multicultural songs were sung in many languages plus dance music from eastern and western cultures as resources. In this first example of classroom transformational redesign, the researcher played two pieces of music of contrasting style and form on the keyboard.

Description

The first piece (Figure 8), a gallop in 6/8 time played on the middle-low register, had an up beat and strong accents on the first beat of each bar. The second piece (Figure 9) followed immediately, played on the upper register in light staccato style, was a trot of 6/8 time with even semiquavers in the melodic line. Additionally, it was played at a faster tempo. Children's responses to the widely diverse styles were noted, and ways the musical genre elicited dramatic features in children's playful co-construction of meaning through modes of movement, proxemics and facial expression.

Analysis

Analysis revealed that the two distinctive musical styles played on the piano, required different responses and different ways in which children redesigned meaning using transformational redesign. Children appeared to be immersed in music dialogue by interpreting the music elements of meter and mood of the “gallop” (Figure 8), holding their arms out in front, some with their shoulders hunched forwards. As they
moved, their knees were bent as they jumped or galloped with the shared joy evident in their facial expressions and laughter. They showed awareness of the actions of others through sideways glances. The “gallop” (Figure 8) encouraged the children to lunge forward: two children had selected ribbon wands with which to make circular patterns as they moved around. It was quite boisterous and loud throughout, but leisurely and played in 6/8 time. At one point, the child on the floor in Frame 1 (Figure 8) stretched his arms wide, head thrown back, as he allowed others to move around him while claiming his space in the centre of the room. Movement transformed the music.

Figure 8. Image transcript demonstrating transformation: Principal mode of movement to music (Gallop).

In this activity of free expression by moving inventively to music, prior experiences of children in classroom literacy events, videos and discussions of circus animals in pictures were glimpsed by the way they parodied horse movements, using expressive qualities of horses as seen in Disney movies and picture books. Facial expressions in "trotting music" appeared more exaggerated than those observed in the "gallop." Children indicated they used satire in the way they responded to the music. The “trot” (Figure 9) was a fast, light and "cheeky" staccato passage in 4/4 time with contrasts of soft and loud phrases. Contrasts of musical style evoked differing response. In Frame 1 (Figure 8) the central child interpreted "gallop" by lunging forwards on each strong beat, head thrown back. Other children were imitating "holding the reins" with
raised arms and closed fists, while leaning forward to interpret the movement of a rider.

In Figure 9, Frame 2, the children's arms, and whole body, were extended forward.

*Figure 9: Image transcript demonstrating transformation: Principal mode of movement to music (Trot).*

Children collaborated to interpret the music as two distinctive genres requiring different interpretations. In “trotting” music (Figure 9) that followed the “gallop”, one child followed another, holding their hands up like front hooves and their heads tossed back, imitating performing show-ponies, their feet lifting high off the floor. The "trotting” music, played on the high register, was a contrast to the lower register of the “gallop” and the children demonstrated with their bodily actions a complete change in response to the music. They stepped to the even meter of the “trot,” moving directions that intersected and crossed each other in the room, pausing as the music stopped.

**Discussion**

_Gestural modes of moving shoulders, knees, and gaze were generally subservient to whole body movement and proxemics_ (relation of children to each other in the physical space). Music was not as crucial to movement responses (Figure 8), but in the "trotting" example (Figure 9) it became the _principal organising mode_ of the orchestrated event. This shift in _modal configuration_ (Figure 10) showed children's heightened engagement in the music activity and transformed meaning through
transformational redesign of modes. Head and facial expressions were heightened in Figure 9. In terms of the gestural mode, the intra-modal elements of movement of all body parts occurred in synchronicity with modes of whole body movement, facial expression, the spatial mode of proxemics and audio mode of music (Figure 9).

![Diagram of modes and their interactions](image)

**Figure 10.** Relationship of modes: Principal mode of music for modal configuration: Galloping (a), modal configuration: Trotting (b).

Contrasting musical styles and prolonged participation over time evoked very different movement responses, enhancing learning as children demonstrated growing awareness of the expressive elements of music as music modes (pulse, phrasing, dynamics, pause and articulation) intra-modal processes of redesign. There were a number of modes interacting in this music event. Seven were chosen as those most relevant to the interactions of children. All modes co-present in this music event, as the "modal ensemble," was "orchestrated" in different ways (Kress, 2010, p. 157) for (a) the "galloping" and (b) the "trotting" music (Figure 10). Modes were configured
according to higher or lower order modes (Figure 10): the top (those where children focused most interest during the activity) and lower order modes at the base. Table 1, Appendix 8 presents a summary of this transformational redesign.

4.3 Classroom Transformational Vocal Inventions

The previous example demonstrated that diverse content in classrooms, such as movement to music, enables children’s music invention, enhancing learning. This next example took place in a metropolitan private school that implemented a Kodály program for classroom music education. The classroom teacher used embodied ways of expressing sounds and relationships between notes (pitch, rhythms, phrasing and dynamics) that promoted “in-tune” singing on three notes and early reading of rhythms and music notes on the music stave. In this event, children’s vocal responses to an adult, this time the researcher, in classroom music dialogue, evoked transformational redesign. Interacting modes of listening, voice, gaze, proxemics to other peers and adults, and the use of visual materials (puppets), contributed to co-construction of meaning, and were shown to give Heidi opportunity to link home experiences of music to those at school.

Description

A moment of music making, involving improvised song as transformational music dialogue, was captured at Heidi’s school in a classroom with six of her peers (Figure 11). Modal configuration remained constant: children’s interest was focused on listening, then use of voice and gaze, and supported these modes of communication with proxemics, gesture and puppets (visual mode) (Figure 12). The group was from a Preparatory classroom (five-year-olds) in a metropolitan private school.
The teacher/researcher visited for one half hour music session in the lunch hour. Children each selected one glove or finger puppet and were invited in turn to tell a story: “What did your puppet do?” The teacher/researcher sang “Yellow Bird” using the “Li” syllable while dancing a marionette in time to the music. She continued with some musical phrases of four beats (with varied rhythms and pitch) and children echoed these. Following this, they invented their own melodies in response to verbal questions.

The seven children, in turn, responded by inventing a one-bar phrase over the first eight bars, each matching the previous one with similar melodic and rhythmic phrases that varied slightly in pitch and rhythm. Each child sang an invented melodic phrase using the music modes built on a story about his/her selected puppet, using the audio linguistic mode.

Analysis

The analysis of this example drew on the still image and music transcript of the children’s invented songs to convey how multimodal meaning was made through transmodal redesign. It was evident by these musical inventions, taken in turn as a dialogue between peers and with the teacher, that they were based on prior musical knowledge, elements of music. The children used transformational redesign to add new meaning through variations in rhythms, inventing new lyrics and articulations, dynamics and phrasing. The notes were all based around So-Mi-La on the solfege scale, introduced by their music teacher over a semester of their first year of schooling. They already had a repertoire of songs and singing games based on these three notes. The rhythms (Figure 11) were also from the known repertoire, mainly consisting of crotchets and quavers, and sometimes adding dotted notes from familiar nursery singing games.
Figure 11. Image, music score and voice transcript showing music dialogue using vocal improvisation in the classroom.
The children's original and improvised lyrics revealed traces of stories introduced to them in early childhood literacy. Elements of their music invention (intervals of a minor 3rd and major 2nd) (Figure 11) were drawn from Kodály songs in the classroom program. Nursery rhymes influenced the lyrics. Their musical responses were shaped by white Anglo-Saxon and North European song traditions.

The intention in this activity was to see how children responded in music dialogue through inventiveness, initiative, focus and immersion in the music activity.
Children's responses were combinations of verbal and musical modes that captured a characteristic of their puppet. The lyrics were spontaneous expressions either of an aspect of their world, a desire to explore another world (the Rainbow Lorikeet flying over the sea to find another world: Figure 11). Musical content of responsive phrases (audio mode) matched syllabic rhythms of words (verbal linguistic mode) (Figure 11).

For example, from this transcript we can see the "rainbow lorikeet" melodic rhythm (audio mode) used rhythmic crotchet and quaver patterns to match the syllables, emphasising quavers with notes that repeated the pitch. The anacrusis was placed on an unessential linking adverb of purpose, "to." The end of each phrase used the crotchet, a lengthened sound to on the lower pitch - Mi - to make sense musically as well as grammatically. The platypus song, sung tunefully in the first two phrases in audio linguistic mode, was concluded as the child accessed the verbal linguistic mode, using spoken words on the second two phrases. Each phrase ended in a rhyming word. It featured semiquavers and quaver on one repeated note for "platypus" and "very big," was rhythmic and had a heightened feeling of pulse. The frog jumping on the log all day ended the phrase with a low note not included in previous responses, on the tonic, Doh, to indicate his response was the final one and he was to finish the song. Awareness of conventions such as melodic and harmonic patterns, and finishing on the tonic, were evidence that children were learning and building on prior understandings of musical modes/elements such as intervals, harmonic structure, rhythms, pulse, phrasing and pause in these responses.

Discussion

As in the examples of transformational redesign of music inventive practices discussed thus far, there was learning observed taking place in this music event, a
reinforcement of some prior knowledge of conceptual elements of music (through redesign of gestural, proxemic and music modes, elements of known songs and rhymes, melodic and rhythmic patterns, in chains of semiosis). Children explored elements of music by invention within the modal parameter of music. This in itself was valuable. Demonstrating knowledge of music elements, they nonetheless did not appear to demonstrate purposeful selection of fresh modes to redesign meaning from speech rhyme to the audio linguistics mode (transmodal redesign). There was perhaps, in spite of the sequence of speech to music modes being noted in children's co-construction and communication of ideas, no real shift in meaning made through selection of new elements of rhyme, rhythm and melodic motifs in combination. Elements of music while present, were not manipulated in ways that displayed new knowledge, fresh understanding of these resources. Children selected modes appropriate for the task at hand, reordering them to co-construct meaning in music invention. Each child was, through movement of puppets and play with the elements of music, consolidating a music identity and contributing to learning through transformational redesign.

Figure 12 (below) is to be interpreted as the order of modes in terms of their importance to the children while communicating meaning during transformational redesign of modes in this event. The highest mode (listening or audio mode) was where children placed greatest interest and attention: all were focused on singing, and effort was made to sing "in tune." Puppets and researcher were visual modes supporting learning. The hierarchy of modes is set out from highest to lowest order (inferring this is where attention was focused throughout this event). The absence of change in modal hierarchy indicated the children were bounded by a structured classroom activity set up by the researcher. A summary of modal redesign in this event is in Table 2, Appendix 8.
Figure 12. Diagrammatic representation of modal configuration in classroom music vocal dialogue.

4.4 Sandra's Classroom Transformational Redesign While Moving to Music

This music event occurred in an Australian rural school, in the State of New South Wales. Classroom teachers in the year one classes had a strong musical identity and knowledge, embedding music into a holistic learning program. Music was a vital part of daily classroom pedagogy. Traditional dances and nursery rhymes were taught, largely drawn from a western (North European) repertoire.

This event was selected to provide an example of rhythmic co-ordination and shared interactions and to focus on one child, her selections and transformational redesign using modes of movement and proxemics in a classroom music activity. Sandra was one of eight children dancing to a Jamaican dance “Kingston Town,” some using ribbon wands. The demonstration of her orchestration of modes is seen in a ten-frame transcript incorporating verbal commentary with still image in sequence. This is displayed on the following two pages (Figure 13). Recorded in the Australian rural
school, the transcript shows a complete sequence focusing on Sandra’s use of the *mode of movement* to display her prior understanding of the elements of music, assisting her transition to school. Within the *mode of music, transformational redesign* by reordering *modes* to feature aspects of the music was noted, and her communication with peers to negotiate her position (proximity) in the physical space in relation to them. This has been shown clearly through still image and descriptive analysis. The use of the *framework of music dialogue* assisted in interpretation of the interplay of *modes*, identifying children’s selections of resources for redesign and communication. It also helped identify aspects of social and cultural identity and prior knowledge.

**Description**

There were many ways by which Sandra, of Aboriginal heritage, selected specific movements to demonstrate elements in the music. A central child, Sandra is identified in the still images as having beach blonde long wavy hair and a blue long-sleeved shirt. Children were not interested in orienting to the lens, becoming completely focused on the music and playful interaction through movement (the *dominant mode* in this coded example of *transformational redesign*). The video recorded event featured the *mode of movement* as the dominant channel of communication in music invention. Eight children moved freely and expressively to a Jamaican dance “Kingston Town,” and the example was chosen to study how children captured the music and interpreted it in a variety of ways through a *dialogue of modes* of whole body movement, fine motor movement, music and proxemics. The most effective way to display this for analytical purposes was to use still images accompanied by descriptive analysis, and to show any change of *modal configuration* through diagrammatic representation. Analysis of this video event helped specify ways that Sandra interpreted the elements of music: phrasing and melodic motifs as well as the pulse of the music, in performance (Figure 13).
On beat one of bar three Sandra stepped up to the second riser, lifting her arms either side. She maintained this pose, swaying in time to the music. Here she could survey the interactions of the participants. She was establishing her presence and place within the group.

After the first verse and chorus Sandra moved down to floor level in front of the group, rotating shoulders first to the right, then the left as she held arms out to the side, hands turned upwards.

Sandra brought her right arm down in front of her as in a ballet gesture and moved into the immediate foreground of the camera. She stepped towards her peers to join them.

Sandra skipped forwards imitating the syncopated rhythmic pattern of the melody. She turned to Bob, who was waving a ribbon wand in an arch and inviting her to move under it. An Aboriginal boy followed her movements.

As Bob smiled and leaned his left shoulder and head towards her, he invited her to "go under" the ribbon. He and his brother jumped high in the air. They were feeling the beat of the music with the entire body.

*Figure 13.* Image and descriptive analysis transcript showing music dialogue using movement.
Bob flicked the ribbon up into a backwards arc as he jumped, and created a space through which Sandra moved. She danced towards the three girls at the back of the room.

Sandra twisted her hips gently in time to the music as she moved her left hand out in front, and then behind her, keeping time to the music. At the same time she bent her left knee to keep her body balanced and poised.

Having moved from one side to the other on the first two beats, Sandra turned in a circle, her hands lifted above her head as she twirled. She moved towards the girls in the group and together they formed a circle and moved around to the music.

Sandra showed the even quaver divisions of the beat by clicking her fingers, and simultaneously stepped the crotchet beat, gently bouncing her body in time to the music.

Continuing to demonstrate this awareness of beat subdivision as she walked, she followed the other girls in a widening circle. Each participant bent their knees as they moved in time to the recorded rendition of "Kingston Way" and showed engagement in this Jamaican music performance event.

*Figure 13.* Image and descriptive analysis transcript showing music dialogue using movement (continued).
The music began with a four-bar introduction in which Sandra negotiated her way out from the back of the group (in bar one) and over to the side, stepping up on a riser on the strong beat of the second bar as she moved both arms up and out to the sides. On the strong beat of the third bar she stepped up to the second riser, arms lifting again and on the fourth bar she settled on the first riser. Standing in front of the group and to the side, Sandra gently swayed back and forth in time to the music, demonstrating the beat. Her gaze alternated between the group of children and the teacher/researcher (holding the video) and her raised position on the step gave her a certain advantage of being able to perform for others and communicate by *modes of gesture* (*arms, hands, legs, feet, gaze and facial expression*) (Figure 13).

After the first verse and chorus she moved down to the floor level in front of the group. Turning away from the camera, she began to weave amongst the children. Her arms, held in front of her body, bounced up and down on the quaver notes, skipping on the second beat of the bar. She was welcomed by Bob who was moving a ribbon wand, smiling and inviting her to “go under it” while flicking it in a backwards circle at the side of the room as he jumped high in the air (Figure 14a, Frame 2). Sandra moved towards the back of the room, twisting her hips gently in time to the music (Figure 14b). She stepped forward on the first beat, her right hand out in front, back on the second beat, twirled around on the third beat and both arms out to the sides on the fourth as she smiled at Bob. In the next bar she swayed from side to side in time to the music, having established a new position in the physical space, and her arms moved in front of her body, hands meeting, then back out again, continuing this pattern in time to the music.
Analysis

Analysis was presented using a sequence of ten image frames, accompanied by verbal commentary as displayed in Figure 13. The analysis of this video event helped specify ways by which Sandra interpreted the elements of music - phrasing, melodic motifs and pulse of the music - in performance. As seen in Figure 14, the embodied actions Sandra made once inside the circle were more complex, a *transformational redesign* or shift in *modal configuration* that involved hands (quaver patterns or division of the beat) and feet (crotchet beat) as *gestural modes* in a musical counterpoint made while surrounded by her peers.

*Figure 14*. Image transcript showing movement to music for Sandra outside the group (a. Frames 1 and 2) and Sandra inside the group (b. Frames 3 and 4).
Sandra’s facial expressions indicated pleasure and a sense of *music modes* while focused on the activity. On the next chorus she continued to sway and “conduct the beat” for two more beats, then on the phrase “I’ll come back, no more will I cry” she twirled around a second time in the music, this time with her hands held above her head in a pirouette position (Figure 14b, Frame 4). The next two beats were expressed by swaying from side to side as she clicked her fingers up high in the air, and on the next beat she made a third twirl on the phrase “Because the place I love is here down Kingston way.” In the repeat of the chorus she swayed to the crotchet beat but showed the quaver pulse with her hands held out in front, fingers clicking. She thereby demonstrated a secure sense of beat division and kinaesthetic mastery of balance and body movements (*gestural and music modes*) using gross and fine motor actions simultaneously. The rhythmic interest of the music was felt in her *whole body*. On the final *ritenuto* she stretched both arms far out either side and then behind her as she leaned back, as did two of her peers, forming a semicircle.

This music event featured performance creativities in which each child chose different ways to use the physical space and their bodies to express in detail and fix their prior experiences of music in movement. Sandra's facial expression, gesture, whole body movement, fine motor expressiveness and gaze expressed phrasing, the beat and pulse of the music through a *dialogue* between *modes of music and gesture* as she interacted. Figure 15 is to be interpreted as the order of *modes* in terms of importance to the children while communicating meaning in this event. Figure 15a shows salience of whole body movement, and relations to others while situated outside the space. Figure 15b shows salience of fine motor movements (*intra-modal* elements linking and interpreting *music elements*). These were *inter-modal* processes that changed as the music unfolded in time, indicating Sandra's learning as intentional, dynamic and active.
Figure 15. Comparison of configuration of modes: Principal mode of movement for modal configuration: Sandra outside circle (a), and modal configuration: Sandra inside circle (b).

Sandra began to dance to the music by remaining on the outer edge of the group, stepping to the beat and swinging arms in a way that focused attention on the sense of sound through whole body movement to the music (Figure 14a, Frame 1). The change of modal configuration that occurred after Sandra altered her proxemics in relation to the other children inside the circle (Figure 14b) indicated a more heightened awareness of interrelationship between beat and melodic rhythm patterns. Complexity of rhythm was expressed in her fingers while her feet kept a steady stamping beat pattern.

Discussion

Multimodal analysis of music play through movement suggested that Sandra made deliberate selections and redesign of modes to transform meaning through communication of experiences and ideas. Sequences of still images demonstrated her selections of movement responses, featuring her knowledge of the elements of music and developing music identity. Selections sometimes involved a process of negotiation
not only in movement in the physical space, but also changes in priority of other modes. This indicated learning through selection and redesign of modes to convey meaning, using the intra-modal elements of music. Such enculturation of musicality may remain unnoticed in the classroom if not examined through the lens of social semiotics. Sandra drew on a wide vocabulary of movement to interpret phrasing, expressive elements and rhythmic motifs in the music, revealing not only an awareness of these elements but also a musical habitus in formation. Immersion in music at the local church, at home and with her extended family may have assisted this. Her face showed affective responses of enjoyment and engagement as she interacted with children, first on one riser as she moved and watched the individual responses of children. Moving out of her “safe place” to weave amongst the others, she interacted in closer proximity to peers.

Once in the circle, Sandra demonstrated cognitive recognition of rhythmic features through her fingers in clicking motions, conveying an understanding of music concepts, and differentiation between beat and rhythm. Altogether her understanding of elements of music (intra-audio modes), her affective responses and her social interaction and communication transformed a passive listening activity of recorded music into music invention in the mode of movement. Interview and observations revealed that her responses were perhaps partly informed by her heritage of dance and song in community worship and play activities outside school, an inherent cultural expression of spirituality and a deep sense of relationship to people (Yunkaporta, 2009). Marsh (2008, 2011) also made this connection in her study of Aboriginal children's playground games. In the classroom it was possible to trace Sandra's understanding of elements of music, and social awareness, to observe her transformational redesign in the gestural mode during interactive music dialogue.
4.5 Transforming Narrative: Jeremy's Classroom Soundscape

In the previous event of movement to music, the principal organising mode of gesture was crucial for transformational redesign in music invention. Classroom soundscape as music invention, using verbal scripting (the mode of verbal linguistics) and instruments selected by the children from available sound sources in the environment (as audio mode), is also valuable for promoting narrative through music dialogue. This next event occurred in the inner-city state school where children selected a combination of Orff percussion instruments (xylophones, guiro, claves and drums) to assist Jeremy in co-constructing a soundscape in the audio mode, using Jeremy's story, a verbally invented narrative in the linguistic mode. Its focus was on children participating in a music class, and featured Jeremy's transformational redesign. The event was transcribed using still images in sequence, accompanied by verbal account, to demonstrate modes of gesture and audio - music (use of instruments) in combination with verbal scripting (linguistic mode). The transcript clarified important processes.

Description

In this example (Figure 16), coded as evidence of modes used by children in transformational redesign, new combinations of modes and sound sources in the classroom context were explored to convey a speech narrative. The principal audio mode of music was a channel of communication that assisted children as they wove strands of Jeremy’s narrative into a soundscape that heightened meaning. Puppets were the only resource (visual mode) introduced by the researcher into the classroom. These seemed to be used by all children to co-construct the story and redesign it using music as a soundscape.
Jeremy: One day the Rainbow Lorikeet was flying over the pond. When he wasn’t looking Owl swooped down for a little chat and they chatted together in the old gum tree. Then Koala came and chatted too, and then platypus came up out of the water, and Kangaroo came hopping by. And then the Emu came flapping by and the possum came clambering down. Platypus came up from the pond and they all chatted together in the old gum tree. Then Wren came swooping down and joined in with the big chat. Teacher/Researcher: Would you like to tell your story starting on the xylophone, please?

Jeremy carefully selected notes from the entire range – high, and then low – and working back up to the high register again. He thoughtfully crossed hands to play notes consecutively, allowing for more sonorous and soft tones. He gestured to Jack and Peter to start playing. The researcher used repetition of elements of Jeremy’s story as verbal scripts, but followed the children’s selections and actions rather than directing them to come in at different times. This was a supportive role: Jeremy remained firmly in control.

Another child, Jack, with the owl puppet, followed Jeremy, played a steady beat on his tambourine, using a mallet and synchronizing with Jeremy’s sounds. Peter then started playing sounds that subdivided the crotchet beat into quavers, lightly tapping his mallets on his xylophone to indicate quick shuffling movements of the koala running along the ground. The other children began to play on their xylophones and bongo drums. There was a crescendo of sounds, and an increase in tempo, as all children played quaver patterns until the volume was quite deafening.

The sound quickly died away as Jeremy spoke: And then they got very tired, and went back to their homes and had a good night’s sleep. There was silence.

Figure 16. Transforming narrative: Classroom instrumental ensemble.
Interactions were examined to see how meaning was transformed in the mode of music, through selections and rearrangement of resources. Children were invited to tell stories to a chosen partner using glove or finger puppets. Following this, participants were invited to select percussion instruments available in the classroom, exploring sounds of xylophones (tuned to C-E-G-A), tambourine or bongo drums. They began freely creating sounds that connected previous story ideas to the instrumental sounds. Some children suggested sounds to represent the movement of their chosen animal or bird. Following this experimental activity, Jeremy volunteered to tell a story about his Rainbow Lorikeet finger puppet (Figure 16).

**Analysis**

Through the audio mode of music, Jeremy appeared to transform his account of animals meeting in the old gum tree for a chat. The children contributed ideas, using affordances of instruments (timbre, melodic range and ways of playing) to help transform this story through music dialogue, exploring the elements of music as music modes. Peter introduced quick quaver notes and others followed. Effects of screeching birds (high, repeated notes on the xylophone) and shuffling sounds (the guiro and scraping of the surface of the tambour) combined with repeated crotchet beats or fast quaver passages as the children built an intensity of sound. Jeremy concluded the music invention by verbally scripting: “then they all went home for a good night’s sleep.”

A crescendo was achieved by all children playing fast and loud on their bongo drums, with alternate hands to create more effective crescendo sounds (audio mode). They appeared to be extremely satisfied with this learning experience, their faces showing delight as they exchanged laughter, gaze and enthusiastic gestures, and energetically moving their arms and hands over their instruments (Figure 16).
listened to Jeremy as he called for a denouement, and finished their music dialogue with diminuendo and then silence.

**Discussion**

Through their music invention, children became transfixed, not just in playing notes but in creating an atmosphere of a soirée in the Australian backyard, a familiar sound to these children, who lived with bushland parks surrounding their inner urban homes. The tree symbolised a site for social interaction, but more importantly was the icon of Australian sounds before sunset, the flurry of activity as birds and animals settled in for the night. Nelson (1989) noted that children could accurately and verbally recount past episodes that they had encountered. These memories held significance, contributing to building verbal structures in linguistic mode to help review, reconstruct and consolidate a memory of specific experiences. It may be concluded that relations between home and school influenced this semiotic import of composing resources, aiding learning. A summary of modal redesign for this event is in Table 4, Appendix 8.

*Music dialogue occurred as children used timbral (audio modes) resources, gestural modes and verbal linguistics in inter-modal transformational redesign, to recreate familiar sounds in a soundscape (Figure 17). Modes of gaze, gesture and proxemics added to the verbal narrative that was transformed into a soundscape where timbre and rhythm communicated meaning in musical invention.*
4.6 Discussion of Transformational Classroom Invention

To this point, four examples of music dialogue through transformational redesign of modes in music invention have been drawn on to illustrate music learning in multiple classroom pedagogies (embracing examples of classroom movement to music, classroom instrumental dialogue or duos, and vocal invention in classroom). Mavers (2011) built a convincing argument for learning through transformational redesign as children purposefully selected an ensemble of modes and orchestrated them using inter-modal redesign (Kress, 2010). These classroom examples support this. Within the audio mode of music there are patterns of music redesign evidenced by the configuration of elements of music as modes seen in all examples. These selected video recordings of events demonstrated music dialogue is transformational redesign in children's selections in music making. This is based on their interest of elements of music in relation to other modes. They may be gestural modes to feature elements of music and processes of expressing these in movement to music (Figures 8, 9 and 13); audio linguistic modes to feature rhythms and phrasing in speech modes (Figure 11); and intermodal redesign in music to confirm prior experiences (Figures 14 and 16). Such

Figure 17. Comparison of configuration of modes: Narrative to soundscape.
knowledge of children's interactions could prove useful in classroom pedagogy that is planned to incorporate children's redesign practices (Harrop-Allin, 2010).

All examples discussed above were moments of multiple creativities in performance, demonstrating students' abilities to express musical ideas across genres and contribute to formation of musical dispositions, musical habitus (Burnard, 2012). Children’s purposeful interactions and use of cultural representations and materials in the classroom demonstrated their agency, the formation of character and musical identity (de Castell & Jensen, 2010). They illustrated many ways in which children co-constructed their music to communicate understanding of musical elements within a particular situation, using audio modes of the elements of music, resources of instruments, voice and modes in interaction. Elements of music were central to their redesign (Tables 1-4, Appendix 8). Activity Theory was used to trace prior experiences of music in the rhythms, melodic patterns and rhymes (Figures 14 and 16) that contributed to the formation of a musical memory or disposition. Children revealed prior influences of classroom and home music practices. They did this as they sang melodic inventions, moved to music, explored sounds and rhythms to accompany new songs and CD recordings, and by interacting using musical instruments. The cultural (local classroom music practices) in particular appeared to impact on redesign. Application of Activity Theory assisted triangulation of data sets to interpret relations between children's actions, their school/home resources, and the music event. A holistic understanding of voices and agency of children with their particular histories, social and cultural experiences, was vital during analysis of interactions during music invention.

In the examples chosen for discussion above, children transformed their music knowledge of phrasing, genre and musical form by accessing modes of proxemics and gesture during movement to a piano piece (Figures 8 and 9) redesigning audio modes of
rhythm, sonics and timbre in an instrumental soundscape (Figure 16) and forged new syncopated rhythms and melodic patterns in improvised songs (Figure 11). Sandra used gesture to invent new and complex rhythms and harmonies (Figure 13). They all made adjustments of mind-sets (Swanwick, 1994). In addition, transient and otherwise unused spaces in schools came to life as the children contributed a vibrant cultural and social dimension to their learning environment. Situated resources and classroom learning environments contributed to transformational redesign in music invention.

Evidence of musical knowledge discussed in children's inventive redesigns in this chapter was indicative of diversity in creativity traced to unique cultural and social influences in each learning environment. The private suburban school promoted ways of creatively redesigning elements of music as music modes, but traces of Kodály song repertoire used in the program revealed somewhat restricted melodic and rhythmic aspects of invention, while nonetheless enhancing vocal and musical qualities displayed by children in their invented songs. Here (Figure 11), a multimodal analysis of invented songs revealed consistency across children's music responses and redesign: listening - audio - was the higher order mode, followed by voice and gaze, proxemics of peers and puppets (visual mode). Invented song material evolved from prompts and known song repertoire. Limerick devices were used in inventive rhymes. Children in the inner city multicultural school demonstrated diverse creative vocabularies of movement, plus fun and delight in interaction that pushed boundaries of conventional dance moves, or parodied them through exaggerated "gallop" or "trotting" moves. Initially oriented to proxemics of other children in movement to music, they grew in awareness of audio mode, musical style and articulation (e.g. staccato in the "trot") as listening became the main modal focus of the music event, influencing their responses, selections of modes and modal configurations (Figure 10). Resources selected during music invention were
combined and re-ordered by children to make sense of sounds and initiate learning (Barrett, 2006; West, 2009).

### 4.7 Edward's Transformational Music Invention on Drum in Home Setting

This music event, coded as a *transformational redesign* on drum, occurred in the home of twins, Edward and Bob, located in a country town in New South Wales. Their parents surrounded the three children with instrumental, vocal and recorded music, building their musical dispositions. Their father had taught the boys to play the drum kit, and the twins had access to the electric piano and guitars. Different music genres were played on the stereo at home. Dad played guitar and sang in a worship band at church every Sunday and when friends came around they played music and sang as a kind of relaxation. Their mother had been taught music (clarinet, piano and music theory) from an early age and she acknowledged the impact it had on her social life, her involvement in bands and singing groups with her peers. She agreed that reading music was an important skill, and as she had gained this knowledge for life, so she wanted to pass it on to her children. The learning, motivation and self-control that came from interaction in music events were, she believed, forms of life-long learning.

**Description**

During a visit to their home, the researcher brought a djembe drum and tone bells, a box drum, a guiro and puppets for the children to use in music invention. Prior knowledge of the elements of rhythm and phrasing, combined with movement, were redesigned to *transform* meaning using fresh resources (the djembe drum and printed music). In one moment while playing on the djembe drum, Edward invented syncopated rhythms. The following example (Figure 18) demonstrates *transformational redesign* occurring from bar eight to bar fourteen, the end of the piece. Edward moved his entire
body as he played, bending over the drum and jumping from one foot to the other in time to the beat, using both hands to play more complex note patterns in between beats. He gazed at print music while playing.

![Figure 18: Drum line and image transcript showing Edward's home music invention on Djembe drum.](image)

**Analysis**

Edward demonstrated *transformational redesign* by changing the rhythmic material of crotchet and quaver patterns to a more syncopated and lively pattern on the drum. A number of researchers, including Barrett (2005b, 2006; 2009), Custodero (2009) and John-Steiner (2006) have pointed to the importance of the everyday,
particularly the home context, as developing aspects of pedagogy. It was evident that Edward, while shaped by prior experiences of music invention in the home, was able to pin down his prior musical understanding of rhythm by feeling confident enough to move from 4/4 to 5/4 time, creating fresh meaning by experimenting with conventional or common time signatures and introducing dotted notes in syncopation (Figure 18).

**Discussion**

Edward combined the *audio mode of music* with the *mode of movement* (*gesture*) to support his meaning making by involving head, shoulders and arms. He referenced the *linguistic mode of reading* the score, and the *mode of gaze*, shifting attention to the music (imitating early reading behaviours) then into the distance, as he focused on extending the rhythm pattern of crotchets and quavers to dotted crotchets and semiquavers. He was *redesigning audio, gestural and visual modes* in his orchestration through *transformational redesign* while inventing the drum riff.

### 4.8 Transformational Redesign in Home Cultural Contexts with Music Technology as a Mode

As discussed in the literature review, research has demonstrated how children's musical identities can be strengthened by their collaborative and interactive responses to digital media and music technology. Using the *mimetic mode* (Hawley, 2013) is an effective tool to describe and interpret ways children appropriate, imitate and re-mediate other modes, including *music modes* (*elements of music*). In the following two examples children use *mimetic modes* familiar from their play, in production and remediation of recorded music on videos, MP3 players or YouTube. Children transform their inventive practice using pattern, repetition and order. This form of *music dialogue* broadens children's learning and music creativities as they interact with global forms and diverse
creative practices in music (Burnard, 2012; Folkestad, 1996; Mellor, 2002; Seddon & O’Neill, 2001; West, 2009).

In the following two sections, some coded video recorded examples from home demonstrate a musical habitus or disposition being formed through redesign of music technology. Children demonstrated transformational redesign in the mode of music as they used the mimetic mode to re-fashion music media: a mobile ringtone (Bob and Edward); or an MP3 player (Mimi). Their songs did not just copy or transpose those found in music technology, but inventing new melodic variations adding a rhythmic feature on the djembe drum (Ben and Edward) or while repeating syllables (Mimi). In both examples, the children were participating in familiar music in the home, everyday songs that they loved. By adding elements to the original track, and demonstrating affect through their bodily swaying, facial expressions and hand movements, they transformed the music in performance through multimodal redesign. Their choice of mode (singing, movement and facial connection between siblings) was important in transforming elements of music as music modes to find new meaning in these experiences. They were reinforcing their music identity. They did not use transmodal redesign to shift meaning by rearranging these modes into another genre or dominant mode. Music and mimetic modes were dominant modes in transformational redesign.

Both of these music moments were expressed playfully, joyfully and without hesitation. Connections were made with wider social practices. As Young (2009) has noted, early learning programs still focus primarily on the visual, but children use other modes to make meaning of the world. Activities that are abstract, linear (occur over time, or time based), and based on audio technology mode, need attention. Embodied meaning in music events involves cognition (holding one idea in mind while imagining what may happen next). Thinking ahead may be complex in that it really occurs when
the body is fully engaged with the mind in synchrony (Young, 2009, p.111). For example tempo or pitch may be sensed aurally and also kinaesthetically simultaneously. Music keeps conversations going between children and through dialogue promotes partnerships, represents learning and creates new ideas.

4.9 Edward and Bob's Transformational Song Using Mobile Ringtone in Home Setting

So far, in examples of transformational redesign in music invention at home and in the classroom, it was evident that elements of music were used by children as resources, a means of shaping their music and communicating meaning through selections and combinations that formed patterns. The music (audio) modes or elements could only take place in a context of other modes (spatial, gestural and sometimes linguistic) as children made sense of their music, but the elements of music were vital as modes in themselves, with interpersonal, textual and ideational functions. Diverse genres or musical styles were represented by each example discussed thus far, and choice of media, voice or instruments, shaping children's music inventions

Description

This music event is an example of transformational redesign from a mobile phone ringtone (the audio mode of music in media) to the audio linguistic mode of vocal invention in song. Redesign was demonstrated as Edward re-ordered and appropriated elements of music using the mimetic mode (Hawley, 2013) to re-fashion iPhone media in performance. Rhythmic and melodic patterns of the original melody became a fresh rendition with jazz-like qualities. Simple everyday music heard in an iPhone or ringtone tune on a mobile phone, appropriated, imitated and remediated in performance, were redesigned from the mode of music in technology to that of
instrumental (djembe drum) and vocal performance within the principal audio mode. Edward combined music modes with modes of bodily movement, and proxemics (Figure 19) to inspire new rhythms, re-fashioning those already present the song on his mother’s ringtone. The words of the song “Candy,” taught to him by his parents, were combined with the melody from the ringtone. In a pleasurable moment of fun and sharing of ideas, Edward performed this for the researcher during a visit to their home.

**Analysis**

Analysis was focused on music and mimetic modes as elements and intra-modal processes by which Edward demonstrated transformational redesign. Therefore, the music score was selected as the most effective way to display these elements of rhythm, beat, silence, melody and repetition. Other inter-modal influences shaped the redesign as seen by the still image: modes of proxemic, gesture and gaze. Edward selected the djembe drum, an instrument brought to the home by the researcher. Its resonance and timbral qualities were affordances shaping his musical responses. He used repeated melodic motifs of the song (Bars 1-2 repeated in Bars 3-4) underpinning it with a rhythmic quaver pulse on the drum as an extension of the melodic rhythm of Bar 2.

**Discussion**

While sitting with the djembe drum on his lap, Edward moved his shoulders from side to side in time to the music, keeping a steady beat. In between the beats, he sang the lyrics “I like candy – deh, deh, deh, deh. One for you, and one for me - deh, deh, deh.” His whole bodily attitude conveyed the sense of immersion in the sound, the complexity of the rhythm and the joy of singing funny lyrics in a catchy tune (Figure 19). Figure 20 shows how voices of both brothers, and djembe drum, were used together to co-construct meaning. The drum was used to punctuate the melodic line,
emphasising the beat (Figure 20). Following Edward's inventive drum riff to "Candy," the twins sang the song, Edward adding a lower harmonic bass line to the melody. A summary of the modal redesign for this event is given in Table 5, Appendix 8.

![Figure 19](image)  
*Figure 19. Image showing music dialogue: Vocal improvisation to mobile ringtone "Candy".*

![Figure 20](image)  
*Figure 20. Music score transcript showing Edward's vocal music invention using mimesic mode, a remediation from mobile ringtone.*

**4.10 Mimi’s Transformational Vocal Invention Using Song on MP3 Player in Home Setting**

A second example of transformational redesign was recorded on video at home as Mimi interacted with music technology. She spoke Portuguese in the home, having recently arrived in Australia from Brazil, and was an ESL student in school. From
observations and interviews in the home, the researcher saw that while requiring some
support in learning at school, she worked to master her alphabet and word recognition at
home, through computer applications, and by reading early readers with her older sister.

**Description**

Mimi sang along to the music on her iPod, as she listened through her
headphones. While the music she chose was a simple pop song, Mimi, through use of
the mimetic mode, re-fashioned the melody and completely changed the words to
syllables, with a few English lyrics. Her musical interactions, based on Western Pop
music, were mostly interpretive dancing and occasional singing of syllabic lyrics as
modes used to display prior understanding of music and for communication with self or
family. The genre of Pop music influenced her family music culture, and they relaxed
while watching and listening to music DVD's on the television, and by singing and
dancing to latest popular songs. In addition, the children played and danced to Latin
music of the Salsa and Tango, using maracas, tambourines and dance.

**Analysis**

The analysis was primarily focused on the *intra-modal elements of music*, so a
music manuscript served the purpose of featuring melodic and rhythmic elements,
silence and pulse. It was interesting to see on the video replay how Mimi's gaze, gesture
and facial expressions demonstrated her focus and engagement with the music. These
modes, occurring in simultaneity as the music unfolded in time (Figure 21) confirmed
Mimi's *transformational redesign* in outputting a fresh melody from the original.
Discussion

This event demonstrates how Mimi transformed the rhythms of the song as she listened and sang with it, adding syncopated dotted notes, tied notes, rests, and sustained notes. She gazed ahead as she sang, following the shape of the melody by gradually rising to a higher pitch, then returning to the same group of notes. The middle two bars, on the upper tonic, consisted of rhythmic variations on the one note. This showed her sense of climax, as she shaped the music, before adding a final four-bars to finish the piece. Musical elements of phrasing, rhythm, silence, melody, pulse and dynamics were *music modes* used by Mimi to transform the original song. She indicated that learning was taking place by making selections and new combinations of *music modes* as ways of knowing. Mimi made meaning through *transformational*
A summary of this modal redesign is given in Table 6, Appendix 8.

4.11 Discussion of Impact of Transformational Redesign on Music Learning

In Australian classrooms, the new national curriculum links the important process of exploratory play in early childhood learning (The Early Years Learning Framework, EYLF, 2009) to the development of cognitive skills and emotional intelligence. By interacting in group exploration and discovery through play, children are believed to learn to “challenge each other’s thinking and develop new understandings” (EYLF, 2009, p.70). Transformational redesign of composing resources in music invention has been shown, in examples discussed so far, to contribute to social construction of knowledge. Children co-constructed semiotic resources, developing new ideas as they incorporated old practices and built on these experiences in contextualised practices. Interaction was meaningful and engaged. Home events coded and analysed in this chapter were realised as having evolved within a more flexible and open-ended discourse of exploratory music invention. In this study, children's experiences of inventive music practices occurring in the home and classroom were viewed as holistic, open-ended, purposeful, and always exploratory and playful.

Ideas and problems explored through music invention can be “worked through” by children in order to transform previous understanding, to consolidate concepts or ideas with reference to musical elements, as seen in these examples of transformative redesign discussed in this chapter, and to form a musical identity. Educators may invest in children's abilities to make decisions, to create music that is unorthodox in musical style. Some educators in the Feedback to the Draft Australian Curriculum: The Arts (ACARA, 2012) unfortunately see these exploratory music events as promoting
superficial learning in a way that assumes all children are innately creative. The assumption is tested in this thesis and diverse children's creativity was affirmed in analysis of coded examples or cases.

However, some educators identify the free, inventive music activities as a denial of children’s ability to acquire knowledge and skills through more formal developmental discourse in the classroom. Music play is often problematised as an expressive activity that does not contribute to rigor or structured learning in the arts. On the other hand, Young (2002) saw musical exploration as central to motivation and cognitive development in music. Bamberger and Schön (1991) related children's movement backwards and forwards in reflection and in exploring materials as an essential part of conceptual learning. This chapter has used examples of redesign to demonstrate that music play and invention is redesign: purposeful reasoning, imagination, critical and creative thinking made visible through music practices, moving between elements of music as music modes and resources while processing meaning. Promoted in music education as a way of challenging and extending children’s learning, music invention may enhance problem solving abilities by requiring them to think beyond immediate situations, considering the "big picture” purpose and to engage music identities, and to focus on detail.

While in music in particular, the pedagogic content of the Draft Australian Curriculum: The Arts (ACARA, 2012) calls for music play to be included in Lower Primary classroom music, there appears to be a preference for sequential teacher-directed classroom pedagogy in most developmental learning programs (where teacher is central figure, as the classroom vocal inventions discussed in this chapter). There is still commonly a failure to acknowledge that embodied and situated music making
found in "everyday life" (De Nora, 2001) is linked to conceptual knowledge of music. Rather, elite and adult constructs of music are often privileged. However, attention to situated semiotic praxis in music is crucial, such as movement to music using selection of gestural affordances in modal redesign, or redesign of music technology, discussed in this chapter as purposeful *transformational redesign*. Social framing of music activities promotes learning across cultural and ideological boundaries. As Goble (2006) has emphasised, school music education that embraces the pragmatics of different cultural forms of musical engagement can enhance students’ thoughtful and critical engagement with music, and support culturally pluralistic ideals.

Educators can more accurately capture what children do know, their strengths and abilities, in activities where these elements are expressed through embodied and inclusive ways. In a recent study (Rabinowitz, Cross & Burnard, 2010) an experimental group of children took part in specially designed musical games in small groups, while the control group had none. Some of the games encouraged the young musicians to get “as rhythmically coordinated as possible;” others promoted the idea of “shared intentionality” - say, by having children compose music together. While not definitive, researchers note that the findings that intelligently structured group music making can promote “day-to-day emotional empathy.” This suggests that improvisation in small groups, transforming musical phrases of peers and adults, and moving expressively to music, are activities that strengthen emotional intelligence and identity in terms of empathy and musical understanding. These activities promote learning.

Within examples of music invention already discussed in this chapter, children show empathy in *music dialogue*, participating in intelligently structured music play demonstrated a secure understanding of elements in the music that they identified it as
belonging to a particular musical genre or style. They used a variety of strategies to select, redesign and express an understanding of different modes through movement (gestural (Sandra's dance and the group gallop/trot to piano music), playing instruments (audio mode) (Jeremy's soundscape), and in song (audio linguistic mode) (Bob, Edward and Mimi's song to music technology; classroom vocal inventions). There was a general preference for certain musical elements - melodic motifs and rhythms as music modes - over others (classroom vocal inventions; Bob, Edward and Mimi’s vocal inventions to music technology, and Jeremy’s soundscape). They also attended to the requests and musical responses of others in the group. In this chapter, the detailed analysis of a number of classroom and home transformational music events with children are indicators that children transform knowledge gathered through prior experiences by redesign of modes in detailed, complex and meaningful ways.

4.12 Transformational Redesign For Specific Meanings in Context

The argument in this chapter, broadly stated, is that children combine modes in transformational redesign during music invention, based on their interest and purposes, to explore new ideas or meanings. They also contextualise prior knowledge, realised through cultural and social experiences, in their musical creativities. Co-construction meaning in a dialogue of modes, they transformed musical experiences, focusing their interest by choice and preference of modes, particularly music modes (elements of music). Redesigned or rearranged modes, through resemiotisation, showed that fresh signs or meanings were being made. The challenge for the researcher in this study was to display this in transcripts appropriate for situations where modes of music, speech (linguistic) or movement were combined as affordances, ways of conveying meaning.
By taking risks in combining sounds and other *modes* in events of this chapter, children made overall sense of the sound. *Modes* selected by children in examples discussed in this chapter did not have fixed meanings, for when combined and re-presented afresh in each music event, they carried new meanings created through social processes. These meanings, while transforming meaning, were fluid and always subject to change. Music invention through audio linguistics (suburban classroom invented songs), dance (Sandra, and inner urban dance to piano music) and Jeremy's soundscape, freed children children to use semiotic import of resources from home to school, adding rich cultural and situated meaning. This was traced through triangulation of data using Activity Theory. The *modes* were therefore particular to a single music event in a specific context, sometimes carrying traces of prior cultural experiences in music (technological influences in both Mimi and Bob and Edward's songs; heightened sense of proxemics in Sandra's dance).

These resources (*modes*) also carried interpersonal meanings or functions, as children negotiated differences in cultural practices, resisting and contesting regimes of power in interpersonal relations (Edward and Bob's redesign of iPhone ringtone in mimetic mode; inner urban dance to piano music; and soundscape, where children resisted teacher autonomy by selecting gestural and audio modes to contest each other's ideas). The process of analysing socio-cultural influences of events selected for this chapter was facilitated by the use of Activity Theory. Agency of participants, their particular histories, social and cultural experiences, were linked to their use of *modal resources* in specific situated events. Networked power relations often involved institutional, technological and home practices (Foucault, 1984). Individual children overcame these by contextualised cultural practices: use of technology in music inventive practice (Figures 19 and 20), and accommodation of other people or creatures
into playful activities (Sandra’s dance with peers in Figure 13, Jeremy's rainbow lorikeet soundscape in Figure 16, and Edward's drum and vocal invention in Figure 18). Video transcripts facilitated the uncovering of these different "regimes of truth" (Jacobs, 2006, p. 142) and prior knowledge embedded in their choice and redesign of familiar cultural resources. The experiences show children using semiotic import of composing resources by their selective use of affordances in music invention (subsidiary question 1 of the thesis). They developed specific meaning in context using appropriate selections of resources for transformational redesign.

Detailed and complex interplay of modes in dialogue in music events, revealed through transcripts and multimodal analysis, have demonstrated that children were co-constructing learning through multimodal redesign to transform prior conceptual knowledge in music. The events discussed thus far were examples of children realising transformational redesign in music invention, resolving part of the overarching question in the introduction to this thesis. Children's music interactions in both classroom and home contexts were analysed in this chapter to feature pivotal conceptual elements of music. Recognised as modes operating in a multimodal ensemble, these were identified by children (demonstrating problem identification) and enacted to convey meaning (demonstrating problem solving). Selection, switching and redesign of modes, as children interacted in music invention in the events, also addresses the second subsidiary question of this thesis, the investigation of learning through modal redesign.

Learning trajectories of children were realised in transformational redesign. Mimi, Bob and Edward indicated that learning was taking place by making selections and new combinations of music modes as ways of knowing. Making meaning through transformational redesign, they accessed ringtone and iPod recording of songs re-
fashioned using the *mimetic mode*. Through classroom vocal inventions in the suburban private school, and Jeremy's classroom soundscape in the inner urban state school, children built *verbal structures into audio linguistic mode* to help review, reconstruct and consolidate a memory of specific experiences. It may be concluded that relations between home and school influenced this semiotic import of composing resources, aiding learning. This addresses the third question of the thesis. In the urban classroom transformation of piano music, and Sandra's group interaction by moving to music in the rural classroom, selections of movement responses featured children's knowledge of the elements of music and developing music identity. Given room to invent with little or no expert input, they enacted autonomy to make choices of affordances and redesign *modes* to demonstrate some knowledge of elements of music. Their *transformational redesign* directed their learning by integrated skills in improvisation, ensemble playing, media and music technology, verbal and audio linguistics. All music events analysed in this chapter engaged children in choice through *redesigning and transforming modes* during inventive practice and were, therefore, learning experiences of quality.

### 4.13 Summary

The music events selected and analysis in this chapter demonstrated that learning was taking place through *transformational redesign*. When occurring within a pedagogic classroom space in this study, coded examples of children's inventive music making were lightly scaffolded, the teacher/researcher standing back from centre stage but supporting children’s learning, building prior knowledge through the supply or setting up of materials and by occasional questioning or prompts. However, the focus was on the children's responses to each other and to the materials in the physical space. These were interactions that drove their *redesign*. In diverse contexts of rural, inner urban and suburban classrooms, and home music events, children were found to
purposefully select resources, explore affordances of instruments and voice, and transform prior knowledge of music in new settings. *Transformational redesign* in music invention was revealed using a framework of *music dialogue*, in order to understand the nuances of children's voices, to analyse their meaning making and forms of organisation in music invention.
CHAPTER 5: PROMOTING UNDERSTANDING IN THE CLASSROOM
THROUGH TRANSMODAL REDESIGN

The previous chapter was devoted to specific in-depth multimodal analysis of young children’s transformational music invention at home and school. Investigating video recordings of examples of the selection and re-configuration of semiotic resources as modes in music practices led to coding and interpretation of data as demonstrating transformational redesign. Children, in all settings and through situated music events, enacted music improvisation, particularly drawing on elements of music in a dialogue of modes. In transition from home to school, transformational redesign enhanced learning.

Some recorded and coded examples from the rural school were selected for analysis in this chapter, to indicate how children in classroom contexts chain together their prior experiences of music invention to sometimes make meaning across principal organising modes. Because this classroom was the only one that offered long-term music improvisation on a weekly basis over six months with the researcher, it was possible to see all children’s development of conceptual understanding of the elements of music over time, and their growing confidence and agency when given freedom to shape music away from usual institutional constraints. The focus of this chapter is transmodal redesign. The first two group music interactions, videoed in the first month of classroom music making, demonstrate transformational redesign. The following two show how children use these prior learnings to promote awareness of modal potentiality in music when selecting and redesigning semiotic resources, particularly elements of music, across principal modes. This occurred as they redesigned picture books and narrative (as principal verbal linguistic mode) to create fresh meaning in the mode of music (as principal audio mode) in transmodal redesign.
5.1 Transmodal Redesign: Understanding Elements of Music

Classroom music interactions can enable children to link prior knowledge of the elements of music, demonstrated in Chapter 4, to other forms of meaning making. These examples of transmodal redesign can be said to be coded instances where children from the rural school demonstrate conceptual understanding of music by moving meaning making across modes, by accessing prior knowledge of the elements of music (intra-audio modes). Evidence of this in the data may have been due to the length of time (six months) this particular group of children spent in these music invention classes, compared with the few weeks in the urban schools. It may also be due to the longitudinal nature of the study, creating further opportunities for observations and comparisons over time. Complexity in the dialogue of modes reveals how children built on previous knowledge and experiences of music. For example, by moving meaning across modes from verbal linguistic mode (storytelling) to the new principal mode of music drama, significant shifts were made in understanding with use of fresh resources.

Two purposes will form the basis of this chapter:

- To explore transmodal redesign in classroom music invention over time, to demonstrate conceptual understanding of music (part 2 of Question 1).
- To seek evidence of diverse cultural practices revealing children's learning in music through semiotic import of composing resources (Question 2).

5.2 Transformational Classroom Responses to Recorded Music Using Xylophones.

This music event, captured in the music classroom of the rural school, was chosen to demonstrate an early example of classroom instrumental dialogue (still images) and feature modal configuration in responses to recorded music. It revealed children’s transformational redesign of their knowledge of music modes useful for
making meaning, and how this activity contributed to their *transmodal* redesign in later music inventions (Figure 25; Figures 27-39) through chains of semiosis (using elements of timbre, or tone colour; melodic and rhythmic invention). Children played xylophones to a recording of a Latin Tango (recorded with soprano, tenor and jazz band). The instruments were set up in a rural classroom and children were invited to improvise to the recorded music using notes C-D and F-G-A (pentatonic scale) set by the researcher.

**Description**

While the distinctive rhythm of the Tango was carried by a sung melody followed by the acoustic guitar, children on the whole kept a steady beat throughout the piece. Using two mallets, one in each hand, they varied the way they played on their alto xylophone or metallophone (Figure 22, Sequence A). Some alternated one hand with the other; some used one mallet only. Most held both mallets, striking two notes simultaneously. One struck the end of the xylophone to achieve a non-tonal wooden sound, and then alternated between both hands playing the notes (Figure 22, Sequence A). In the middle section children lifted mallets up, swaying to the beat, following the teacher’s gesture. They played on the next verse of the song (Figure 22, Sequence B).

The teacher/researcher gave the group in this example the opportunity to listen rather than play for that moment, and feel the beat in an alternate way by swaying with mallets held above their heads. Upper torso movement (sway) was initially the *dominant gestural mode* in relation to the *music (audio) mode of listening*, supported by gaze (following the lead of the teacher or of other peers). On playing again (Figure 22, Sequence C), there was a greater awareness of the affordances or potentials of the xylophones and mallets and *listening (audio mode) became the principal mode*, evidenced by the softer more rhythmic playing on the beat in ensemble.
Figure 22. Image transcript and modal configuration sequence showing Music Dialogue: Multimodal responses to recorded music.
One child, Bob, moved both hands close together for two beats and then apart for the following two beats, further demonstrating his focus on listening and his intent to keep accurate time. Proximity became more important to the children (Figure 22, Section C), as they swapped mallets or played across on their friend's xylophone, for they were curious to see how others played. This occurred as they ceased exploring their own instrument to sway to the music (Figure 22, Sequence B). They selected the same two notes as they provided a satisfying harmonic base to melodies on the CD recording.

**Analysis**

Children in the rural school were focused on exploration of affordances of the instruments, the development of a wide vocabulary of sounds sourced from the
instruments (timbral qualities, range of pitch and dynamics, the different ways of making sounds by hitting, tapping, crossing arms and sliding over notes, and the ways mallets made sharp or soft sounds depending on what end was used for striking the note). In *transformational redesign*, they began to pause and listen to recorded music and move in synchronous ways before returning to play and changing their design or *modal configuration*. They focused more on listening to the recorded music, keeping a steady beat with the music and with each other. The transcription shown in Figure 2 demonstrated the change in *modal configuration* in each sequence. Children appeared to listen and play together while exploring the potentials or affordances of the instruments.

In this music event, the discourse set up in the room was strongly influenced by two elements. Firstly, the selection of the Tango, a piece of music with saxophone, trumpet, conga drums, acoustic guitar and voice. Secondly, the Orff tuned percussion, ready with selected notes tuned to the recorded music that was in the key of F Major. The children were arranged in a semi-circle so they could take visual cues from each other. Therefore, proxemics may have influenced their decision to keep playing on the beat as it appeared to enhance their sense of collaboration and satisfaction in “jamming together” as a group. The physical sensation of striking an instrument using the whole arm or both arms was influential as the gross body movements (*gestural mode*) gave them some sense of control. The range of the xylophones, being fourteen notes when none were removed, allowed each child the space to move up or down the register, to make patterns or ostinato accompaniments with selected notes in *audio mode*.

All children displayed awareness of the recorded music and appeared to listen to each other and keep time accurately after having opportunity to pause and "listen and sway to the beat." Figure 22 shows changes in *modal configuration* (from higher to
lower order modes) in each of the three segments of the music event, indicating transformational redesign over time. A summary of the modal redesign is given in Table 7, Appendix 8. Affordances of instruments influenced how children responded to the music. They were focused, immersed and purposeful in their playing, their awareness indicating a heightened sense of musical style, timbre and beat as they listened and responded to the CD recording. Together, children used transformational redesign to create a time-based piece to set recorded music.

5.3 Transformational Instrumental Improvisation in Pairs on Xylophone

The previous section explored transformational redesign in children's large group music invention, playing xylophones to recorded music. The following example was selected to demonstrate how transformational music redesign was manifest in the same classroom, during interactions when these children chose a partner and invented duos on xylophone. This knowledge contributed to later transmodal redesign.

Description

This music event took place in the rural classroom, following on from the xylophone interaction described above. The five-year-old children chose a partner and played a short improvised musical piece on one Orff xylophone (the researcher removing some notes, leaving C-E-G-A on the lower octave, doubled an octave higher). The pair chose whether to play the high set of four notes or the low set. In each of the two examples, both children explored notes outside their “range” as they reached over the other and crossed paths with their mallets striking the keys. They also selected a tempo. Edward introduced a rhythmic motif that was disjunctive, as he resisted Anna by playing opposite elements such as repeated quaver notes (Figure 23). His partner, Anna, kept a steady beat that changed to an “off-beat” syncopation with wide intervallic leaps.
between the notes. Bob (twin to Edward) and his partner Millie quickly settled into playing the beat while varying melodic notes (Figure 24). Teacher’s selection of instruments that were “at hand” in the classroom, and notes on the xylophones, shaped the responses. The children also shaped their music identity through prior musical knowledge and skills: classroom singing, dancing and clapping activities.

![Image and music score transcript showing Edward and Anna engaged in instrumental dialogue.](image)

**Figure 23.** Image and music score transcript showing Edward and Anna engaged in instrumental dialogue.

**Analysis**

Analysis was made using music manuscript to feature elements of music in intra-modal dialogue, and still image to focus on inter-modal processes of gesture, gaze and proxemics in dialogue. Modal redesign occurred as children co-constructed meaning through interested action as their music invention unfolded. This was again a
situated moment where fresh meaning was made through *modal interactions* that could not be repeated, for they depended on variable factors. New challenges in terms of transcription arose. It appeared that the moments where *gestural mode* (bodily movements, gaze) and *elements of music as modes* (melodic, harmonic and rhythmic features) occurred in synchronicity, were moments where children redesigned music through *modal configurations* (selected designs). *This transformed* their music, shaping their ongoing decision making through reordering *modes of proxemics, gesture, gaze and music* (using features or affordances of the xylophone with some notes removed). Transcription using music with still image displayed this synchronicity most effectively.

*Figure 2.4. Image and music score transcript showing Bob and Millie engaged in instrumental dialogue.*
Within the parameters of this classroom discourse, children realised *transformational redesign* on the xylophones as they co-constructed music in pairs. They did this through adding new rhythmic ideas, melodic patterns and by “fitting in” with each other. While referred to as *music dialogue* in pairs, this was dialogue that did not take turns in space and time, but through interaction using *elements of music as music modes*: contrasting rhythmic ideas and changing time signatures occurred (Figure 23). Arm movements (*gestural mode*) influenced shaping of the melody in the music inventions where they crisscrossed or moved apart from each other. Children also interacted in responses through imitation of each other's rhythmic or melodic patterns (Figure 24). Affordances of the xylophones shaped their responses - a range of pitch from low to high; use of mallets (striking, glancing or softly bouncing off the notes); and the wooden notes with short duration. Limitations of notes in the range (the constraints of the xylophones) shaped musical responses, allowing for more complex rhythmic possibilities. A diatonic scale (all notes on the xylophone) may have created interesting dissonances with which children could respond. Wider range of notes or use of hard mallets could open up new possibilities, challenges and extensions.

One remarkable aspect of the *music dialogue* demonstrated by the transcript shown in Figure 23 was the originality of the rhythmic material and the change of time signature from 3/4 to 6/8, likened to Leonard Bernstein's (1957) rhythmic signature in *West Side Story*. Van Gestel's (2012) song "Clapping your hands, clapping 1-2-3" is written with young children in mind, to invent rhythms based on "three" with changes in time signature. Many of her songs are based on these alternations of time signature. It is interesting to compare Figure 23 to other rhythmic pieces by Edward in the home environment, where he again featured this rhythmic motif. Anna demonstrated sensitivity to rhythmic variation by adding accompanying parts, initially on the weak
beats and by adding syncopated notes (on beats 2 and 5 in Bars 6, 9 and 10).

The physicality of locating notes through gross motor movement of arms and hands, and sometimes crossing arms to seek out new notes, further engaged the children in this co-construction. Through embodied meaning making they were finding new meanings by the audio mode, listening to each other in between the notes, shaping the melody through foregrounding note repetition (Figure 23) and extending each other’s ideas as the music unfolded (melodies moved in parallel motion, or crossed over influenced by mode of proximity to each other - Figure 24). Visual communication made by swift glances at each other confirmed that it was all right to proceed and work around their partner at times when their mallets overlapped or notes were adjacent (Figure 24, Frames 2-3). Gestural mode (gaze) and proxemics (relation of children in the physical space) were as important as the sounds in shaping the ongoing music. Fluidity of thought and action, and influences of social interaction in performance were factors influencing authorship of this music event (Burnard, 2012, p. 253). There was evident trust between children and acceptance of each other’s ideas as the piece unfolded, indicative of a sense of control and satisfaction in performance.

Music dialogue between two peers on the Orff xylophone was a moment of learning where children discovered new ways of making sounds through redesign in the mode of music, using technical resources (affordance of the instrument) and formal resources (musical elements) and configuration of modes of gesture, proxemics and gaze (Table 8, Appendix 8). Melodic fragments, harmonies and rhythms fitted into a musical whole through modal redesign. Children listened and responded to each other, immersed in an improvised performance using a limited pitch range. They developed new rhythmic ideas and combinations of notes in harmony In Figures 23 and 24 there
was evidence that new learning was taking place through interactive redesign in *music dialogue*. Children explored affordances of the xylophone in greater detail, transforming meaning through modal redesign as they holistically integrated *modes of music, gesture, gaze and proxemics*.

To summarise thus far, two examples of *music dialogue* occurring in the rural classroom have been selected to feature ways by which children might use many semiotic resources or *modes of communication* interacting together in a *multimodal ensemble*. These have been chosen to demonstrate children's use of the principal organising mode of movement and playing of musical instruments respectively through which to co-construct and redesign music in combination with other communicational *modes* during inventive practice. The examples of *transformational redesign* demonstrated that *modal configurations* changed during the unfolding of the music while instantiated in time. At these points the children were altering their main focus of interest, and while other co-present *modes* still operated as resources for redesign of meaning, the *mode of highest order* was changed and featured as principal conveyor of meaning. In the following two examples in the same classroom, the change in *configuration of modes* also brought a shift of meaning as children used *transmodal redesign* across principal organising *modes, from verbal and written linguistics* respectively, to the *audio mode of music*.

### 5.4 Transmodal Redesign: Story to Metallophone Melodies

The third transcript selected for discussion in this chapter focuses on *transmodal redesign from speech to music*, involving the same children in the rural school as those featured in previous music events (Figures 22, 23 and 24). Their *transmodal redesigns* are featured in this and in the following music events (Figures 27-39; Figure 41). It
featured individual children recounting an event in the verbal linguistic mode of speech then later in the audio mode of music (on metallophone), demonstrating how new meaning was folded into the narrative form through the use of chains of semiosis, particularly elements of rhythm, phrasing and melody. Any resistance to expressing ideas verbally was overcome by using sound to convey meaning. Melodic range, long sustained sounds, variation of volume and dynamics, and phrasing simultaneously lifted the verbal account, adding meaning.

Description

This classroom music event was videoed during weekly group music sessions. It occurred after some weeks of transformational redesign using speech rhymes and singing games, and inventing new songs in turn while playing with puppets. Children explored materials and percussion instruments available in the room, and moved to music. As children sang known nursery songs they were asked to recount an experience at home or school, and later play their story using their music (on the bass metallophone, an instrument already set up with the diatonic scale of C Major). The children all volunteered to share an experience or event: each one had some element of danger instilled into it. As they were from a rural environment, they had encountered deadly snakes and spiders, challenging each other with accounts of their bravery. They re-expressed their accounts using verbal linguistic mode into a new mode of music.

Analysis

Mimi told of a green bird biting her arm and flying away (Figure 25) by repeating a sequence of three notes below the tonic, then a rising glissando followed by a repeat of the low sequence in diminuendo, finishing softly on the tonic. She demonstrated awareness of phrasing, dynamic range and rhythmic variation (dotted
quaver plus semiquaver; tied notes) as elements of music. Anna who told of her baby brother being pushed down the stairs by a ghost, captured ghost-like sounds by softly striking the bass metallophone and playing minor seconds in rising sequences, finishing on the supertonic and leaving her “unbelievable” story unresolved, in suspense. She was aware of shaping a phrase and using melodic repetition of intervals, with harmonic emphasis on the strong beat. Daniel made two darting, sharp, striking movements with his mallets, each note in turn, followed by two notes simultaneously, as a repeated motif with variation. This strongly emphasised the powerful story he earlier told of “a red snake lying in the grass” and then “biting my baby sister.” He demonstrated sophisticated awareness of structure and repetition in music through repeated intervals of thirds and fourths, use of crotchets followed by quavers organized around a tonal centre of “A”, and a well-shaped musical phrase rising up, then falling, “snake-like” (Figure 25).

**Figure 25.** Music score transcript showing transduction from storytelling to metallophone melodies.
Leighton “saw a red-back spider at my home – in the bathroom,” capturing this in music with back-and-forth consecutive fourths and fifths, (C-G; D-G), a repeated G, then a final high, suspended E (see Figure 25). Bob explained how he “was just thinking it in my head, and then it made the sounds I wanted.” While he kept a steady beat without rhythmic variation, he explored pitch potentials of the instrument, making interval leaps. Edward, his twin brother, “falled over – you know those cement steps – and I hurted my knee.” He expressed this on the metallophone by scanning the whole range, repeating the lowest note six times, followed with a high note at the top of the range. Repetition and intervallic leaps were featured elements of his music.

The example above, when examined through multimodal analysis, demonstrated a transformation from children apparently reporting events or experiences to realisation of a fuller, richer interpretation of experiences. The complex interplay of music modes (elements of music), occurring in simultaneity, indicated a shift in the understanding of children as they moved across modes from linguistic to audio. As summarised in Table 9, Appendix 8, the modes of gesture (hand and arm movement), gaze, whole body orientation to the instrument and proxemics, were also simultaneously instantiated in time, along with the principal mode of music (the main focus of their interest), to shift meaning in a multimodal ensemble.

Individual stories were highly symbolic representations of experiences, first expressed in the verbal linguistic mode of speech then transducted through transmodal redesign into the audio mode of music on the metallophone by selecting salient features of pitch, dynamics, rhythm and phrasing. Each child heightened meaning by switching from speech to music and supporting this with gestural mode (use of fine motor control of mallets) and gaze (scanning the melodic range of the instrument) combined in eye-
hand co-ordination. The sense of the narratives remained, but aspects were enhanced through awareness of selecting and combining formal resources (elements of music). *Transmodal redesign* of experiences, initially verbally inscribed, occurred as they were later communicated musically on a metallophone. The essence of the experience not the sequence of events was important. A short musical phrase was effective in immediately shifting previous verbal representations, giving the experience new meaning.

*Transmodal redesign* involved externalisation of previous experiences expressed in another *mode* (verbal linguistics), then later "re-pinned" using a fresh *audio mode* (*music*) with new resources: materials (a metallophone with a range of high and low notes in a diatonic scale and two soft mallets) and *gestural modes of arm movements and gaze* (scanning the range of notes). Resistance and effort occurred in children's meaning making and *redesign* in the *mode of music*. Children had also built on prior experiences of *transformational redesign* discussed in this chapter, and Chapter 4, drawing on *elements of music as music modes*. In this event, they chained together prior learning in *transmodal redesign*, demonstrating conceptual understanding of music.

This *transmodal* or diaphonic moment of *music dialogue* or interaction between modes was a concentrated experience of a temporal period, where the essence of a child's experience was realised by *redesign* of conceptual elements (pitch, phrasing, dynamics and rhythm) using the metallophone during interaction. Characteristic aspects of the *verbal linguistic mode*, such as phrasing and inflexion, were also amplified, used to greater effect through the tone colour or timbre of the musical instrument. Children had previously explored these elements of music and used prior knowledge to enhance meaning during *transmodal redesign*. It was in the crossover between the previous *linguistic mode* and the new *mode of music* where a shift of new understanding was
realised. What occurred in this moment of meaning making was an apt representation of the interest of the child as sign makers, for they selected from known *elements of music as modes, incorporating modes of gaze, arm and hand movements (gesture)* to support their redesign of meaning in the context of the classroom, using fresh materials, fresh resources. Choice gave new shape to meaning (Mavers, 2011).

### 5.5 Transmodal Redesign from Storybook to Instrumental Ensemble

An outstanding example of the shaping of musical awareness and prior experiences by children in the rural classroom occurred in a moment of *transmodal redesign* after many weeks of group music activities. While appearing to be improvised oral modes of thought (Ong, 2012) because of the fluidity of the event, children made deliberate selections based on timbral qualities of instruments as characters in drama. They shaped their music *redesign* using these *elements of music*, escaping the fixidity of print-like design systems through their use of music temporally instantiated in time.

**Description**

The children had together read a picture book “Crocodile Beat” (Jorgensen and Mullins, 2004). Lying in the water, Crocodile heard a multitude of animal sounds. He planned on having a tasty dinner, but was sent away by Lion after a confrontation. As the researcher introduced each new jungle animal, children invented vocal sounds to capture the character and sound that it made. They sang a refrain: “Crocodile beat, crocodile beat! Listen to the music of the crocodile beat.” Children re-invented the story using Australian animal puppets, moving around, acting out narrative events and embodying various animals or reptiles. They selected percussion instruments (bells, guiro, maracas and claves) to add interest. Finally, the researcher invited children to choose a djembe drum or a xylophone (tuned C-D-G-A) for "your music." In this
example, the music score was used to highlight when *modes*, instruments and voice occurred in synchronicity, or when each took a turn, and others had a rest (Figures 29-30). Silence was an important element of music in this event. The transcript has been presented as four sub-examples (Figures 27 to 39), and includes still images to show where shifts of meaning occurred through simultaneity of proxemics, verbal challenges, new rhythms and timbres played on an instrument (e.g. Figure 32, Bar 36). The overall *modal configuration* is shown in Figure 26, and the *modal density*, for each of the four sub-examples (as shown in Tables 3 to 6).

**Figure 26.** Overall modal configuration in Crocodile Beat.
Figure 27: Music score and image transcript showing transduction from story to instrumental ensemble: Bars 4 to 6.
Figure 28. Music score and image transcript showing transduction from story to instrumental ensemble: Bars 7 to 10.
Table 3

*Modal Configuration and Density of Crocodile Beat: Bars 4 to 10.*

<table>
<thead>
<tr>
<th>Modal Configuration - High to Low Order</th>
<th>Modal Density</th>
<th>Bars</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Voice</td>
<td>Instrument Timbre</td>
</tr>
<tr>
<td></td>
<td>singing voice</td>
<td>Millie played an ostinato pattern of notes on the metallophone to accompany the singing. She used even quaver patterns of notes.</td>
</tr>
<tr>
<td></td>
<td>music ostinato</td>
<td></td>
</tr>
<tr>
<td></td>
<td>arm, hand movement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>proxemetics</td>
<td></td>
</tr>
</tbody>
</table>

The story was explored and re-shaped using artifacts (puppets), affordances of instruments (pitch, rhythmic, timbral qualities and ways of striking, tapping or rubbing), and constraints (limitations of pitch variability in djembe drums, and of ways of striking xylophones). Using the picture book "Crocodile Beat" (Jorgensen & Mullins, 2004) for inspiration, the children selected instruments. They formed a circle, facing inwards to sing "Crocodile Beat." Millie added an improvised ostinato pattern on the metallophone. Children began to explore the music together, each in turn expressing their ideas using selected tuned percussion instruments with two contrasting timbres (girls chose xylophones, the boys selected djembe drums).
Bars 18-20 are omitted from this transcript, being repetitions of Figure 29, Bars 11-14.

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**Figure 29.** Music score and image transcript showing transduction from story to instrumental ensemble: Bars 11 to 14.
Figure 30. Music score and image transcript showing transduction from story to instrumental ensemble: Bars 15 to 17.
Figure 31. Music score and image transcript showing transduction from story to instrumental ensemble: Bars 21 to 24.
Figure 32. Music score and image transcript showing transduction from story to instrumental ensemble: Bars 25 to 28.
Figure 33. Music score and image transcript showing transduction from story to instrumental ensemble: Bars 29 to 31.
### Modal Configuration and Density of Crocodile Beat: Bars 11 to 31.

<table>
<thead>
<tr>
<th>Modal Configuration - High to Low Order</th>
<th>Modal Density</th>
<th>Bars</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voice</td>
<td>Instrument Music Timbre</td>
<td>Crocodile, Lion, Tiger, Elephant, Fish, Monkey, Snake, then combining stomping elephant (djembe drums) with snake (xylophone)</td>
</tr>
</tbody>
</table>

The researcher initially guided children, inviting them to demonstrate a chosen animal, amphibian or reptile by using "your music" (through affordances of their instruments). Together they shaped the music: instruments represented characters in the story or capture movement. For example, when introducing a "fish" sound Stephen introduced this new character into the story by making soft swishing sounds on the skin of the djembe drum (Figure 30).
Figure 34. Music score and image transcript showing transduction from story to instrumental ensemble: Bars 32 to 34.
Figure 35. Music score and image transcript showing transduction from story to instrumental ensemble: Bars 35 to 37.
Figure 3. Music score transcript showing transduction from story to instrumental ensemble: Bars 38 to 39.

Analysis

Exploration of the attributes or affordances of instruments, their timbral qualities and ways of creating rhythms, sound effects and melodic fragments, contributed to children's expressive vocabulary in the mode of music (audio mode), in combination with the mode of speech (verbal linguistic) to transform the story using verbal scripting, percussive sounds, and silence. Affordances of instruments became a palette of sounds from which they could select and redesign the storybook into a group music invention. Children made meaning by their selections of modes (speech, music, gesture, gaze and proxemics) and materials (instruments plus the use of the conceptual elements of music) and by combining them to reshape the story by adding new characters, featuring their interactions. This was transmodal redesign of storybook mode into the mode of music.
Table 5

Modal configuration and density of Crocodile Beat: Bars 32 to 39.

<table>
<thead>
<tr>
<th>Modal Configuration - High to Low Order</th>
<th>Modal Density</th>
<th>Bars</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>spoken voice</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>proxemics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>music timbre</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>hands, arm movement</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Voice</strong></td>
<td>Xylophone</td>
<td>Boys sat next to girls. All children turned to each other and worked together by imitating arm and hand movements to play in parallel. Gaze assisted this accuracy of beat and the building of tension.</td>
</tr>
<tr>
<td><strong>Instrument</strong></td>
<td>syllabic rhythms of the lyrics and formed them into invented melodies consisting of two notes.</td>
<td></td>
</tr>
<tr>
<td><strong>Music Timbre</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hands</strong></td>
<td>Millie, Anna, Sophie and Tracey added their own melodies on Bars 38-39.</td>
<td></td>
</tr>
<tr>
<td><strong>Arms</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Head</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Proxemics</strong></td>
<td></td>
<td>Closer relations of each other in the physical space assisted in building interest and crescendo of sound, as children co-constructed meaning while being absorbed in redesigning meaning using new resources.</td>
</tr>
</tbody>
</table>

As the boys stood at the front of the group with their djembe drums, they threw ideas to others in the group by suggesting characters and the sounds that accompanied the entry of these new characters (crocodile, lion, tiger, fish, monkey, elephant and snake, then giraffe - not a character in the storybook) into the drama (Figures 29, 30, 31, 32, 35; Tables 4-5). In Figure 33 all played simultaneously in a crescendo of sound, keeping a steady beat using *elements of music as modes* (using the sound to suggest all animals now marching in a parade, mimicking the *visual mode* of the storybook animals). Then the children suddenly stopped, using the *audio (music) mode* of silence to add tension.
Figure 37. Music score and image transcript showing transduction from story to instrumental ensemble: Bars 40 to 41.
Figure 38. Music score transcript showing transduction from story to instrumental ensemble: Bars 42 to 43.

Figure 34 displayed two xylophones playing a soft duet as two children co-constructed a return to the action, Tracey whispering: "crocodile is coming near!"

Daniel then announced the crisis loudly, articulating the climax in this music drama, the coming of the crocodile: "Watch out, giraffe! Croc is after you" (Figures 34-35).

Through drumming sounds played with arm movements, Daniel and Bob led the climax, simultaneously nodding heads.
At the crucial moment or climax (Figure 34, Bar 34) the accented notes of Daniel's drum and his verbal scripting ("Here comes croc!") created cognitive dissonance, where meaning was not co-constructed, conjunctive. It was disjunctive, conflicting, introducing the problem. This is where new conceptual knowledge was established and transmodal redesign realised through problem solving processes. Millie’s giraffe idea followed this, initiating a faster tempo and crescendo of sound that built tension, creating disjunct meaning. Millie, after gazing at Daniel and Bob, played on the metallophone some rapid melodic quaver patterns on two consecutive notes, C and D (Figure 36, Bar 36). All children built the intensity of this, responding to new rhythmic material with a crescendo to indicate the climax (Figure 36, Bar 38).
Table 6

*Modal configuration and density of Crocodile Beat: Bars 40 to 46.*

<table>
<thead>
<tr>
<th>Modal Configuration - High to Low Order</th>
<th>Modal Density</th>
<th>Bars</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Voice</td>
<td>Instrument Music Timbre</td>
</tr>
<tr>
<td></td>
<td>Voice of Stephen begins moderately soft and ends in a whisper. Others listen and respond.</td>
<td>Soft tapping of djembe drums using two fingers. Soft mallets held close to keys of xylophone to create softer quaver phrases. Some djembe drums are rubbed on skin surface for sustained notes.</td>
</tr>
</tbody>
</table>

Millie deconstructed or introduced cognitive dissonance through changing the rhythm patterns from crotchets to quavers, thereby quickening the pace to demonstrate an escape from the crocodile. This idea was reinforced as all girls played quaver notes on the metallophone, quickening the pace (Figure 35, Bars 35-37). This echoed the original rhythmic quaver ostinato that Millie created to accompany the singing in the introduction. Problem solving occurred by resolving tensions and making a bid to play, deciding what should occur next in the music drama.

A shift in learning occurred in Figures 35-36, a fresh *redesign of modes where music, gesture, gaze, proxemics, movement and speech* aligned in simultaneity to
convey a climax in the principal mode of music. At this point in the music drama this rhythmic pattern created cognitive dissonance, through the disjunct quaver patterns that seemed to make the musical invention "run" in divergent paths (Figure 36). On hearing this, the boys responded by sitting down in a semicircle, close to the girls who were playing on xylophones. They continued to lead by maintaining a steady beat on the drums and by gazing at the girls, nodding their heads in time to steady the tempo as they played quaver patterns with the girls (Figure 36, Bars 38-39). This overcame the problem introduced in the dissonant climactic section (Figure 35, Bars 35-37).

Stephen solved the problem, introducing softer drumming sounds with two fingers rubbed softly on the surface of the drum (Figures 37-39) to create a coda. He spoke of the crocodile moving away quietly, after it snapped at the Lion's chair: "He went away with sore teeth."

**Discussion**

The children co-constructed the dénouement, more closely working together and listening to the contributions of each other and of the timbral qualities of their instruments as they created a diminuendo. This resolved the struggle and uncertain outcome of the drama. They made this shift across modes using semiotic import of prior experiences of *transformational redesign* in music invention as detailed in prior events in this chapter. The children explored playing in diminuendo, in ensemble, shaping phrasing, and using different affordances or ways of playing stroking, glancing and repeated high notes on the xylophone to create a coda in diminuendo, ending on a pianissimo (Table 6). They demonstrated fresh understanding of the elements of music and, through *modal redesign* and disjunctive meaning making, lifted the meaning to a new level with *music as the principal organising mode.*
In this classroom event that incorporated elements of drama, speech, movement and music, the children had moved into new territory, like crossing a border into a new country. Using the new language of music and action to reinterpret the picture book "Crocodile Beat" gave them opportunity to explore new resources (instruments, verbal scripting, movement in the physical space and body language), to introduce new characters (the giraffe) and problems, and thereby giving the original narrative a fresh meaning. Broad constancy of character and plot remained, but some meanings were reconfigured, some highlighted and some explicitness lost as the children engaged in problem solving. In the tradition of folk music, their improvisatory or open-ended music making was a way to “re-pin” for a moment the children's prior experiences of music invention in the classroom (Kress, 2010; Mavers, 2011; Newfield, 2009; Stein, 2008).

This final music event in the chapter was chosen to demonstrate how children's prior experiences contribute to conceptual understanding of how timbre, dynamics, rhythms, silences and ensemble playing could become a way of renewing the original narrative by focusing on crucial elements through music invention (Bamberger, 2001). Urgency was amplified in the dramatic tension of the narrative. Children used problem solving to resolve the musical tension of the climax and return to co-construction and a resolution. This required cognitive effort, higher order thinking, as they configured all *modes* in simultaneity at this point. They invested affective responses to story elements by embodying in movement and *audio (instrumental) mode* the threatening crocodile, animals running, brave lion, and by drawing on elements of music in ensemble to create a coda. Social, listening and verbal skills were enhanced through the activity, and the fine motor control of playing "in time," but the shift of meaning was noticeable as *modes* occurred in simultaneity.
Therefore the significance of this coded example of transmodal redesign was in the way it became a vehicle for shifting meaning to a new level of conceptual understanding in music through resolving conflicts in rhythmic variation and subsequent development of plot (Figure 34). Through moments of change in modal configuration (highlighted in Tables 3 to 6), children shaped prior knowledge of the elements of music by drawing together the modes necessary to convey meaning into a fresh “multimodal ensemble.” Selection and redesign through appropriation of intra-modal elements of music indicated that children were symbolically fluent in the use of modes as abstract symbols. At first the audio linguistic mode was salient (Table 3); then the mode of speech (verbal linguistics) dominated to make transitions (Tables 4 and 5); and finally the timbral quality of the various instruments chosen by the children were salient (Table 6). Modes of gesture (hand and arm movement), gaze and proxemics supported the shifts in meaning made during moments of cognitive dissonance. Prior self-initiated exploration of musical instruments developed the children’s vocabulary of music modes (elements of music) and time space structuring (Young, 2003) and realised the transmodal redesign seen in this music event. A summary of modal redesign for this event is shown in Table 10, Appendix 8.

5.6 How Transmodal Redesign Informs Music Invention

Remaking meaning using embodied or externally visible semiotic action has been alternatively termed transmodal redesign, taking into account the complex interplay of modes that shift the meaning during the framing of the social environment (Mavers, 2011), making room for other possible meanings. This allowed children in the rural classroom to participate in problem finding. They had been involved in weekly sessions of music invention with the researcher over six months, unlike the metropolitan classrooms, which only experienced a few. Therefore, transmodal redesign in the
metropolitan classrooms did not occur. Substance of meaning was obtained in the rural classroom by the introduction of a dialogue of modes that, over time, enhanced the quality of interpersonal interactions, listening skills and problem solving. This was evident in the examples discussed in this chapter, that demonstrated how repeated chains of semiosis in music interactions led to children's purposeful selections of music modes, central to their interactions, using them to re-present narratives (expressed in written and verbal linguistic modes) in the new mode of music, and creating fresh understanding of the problem of meaning making.

Children's conceptual understanding of the music modes was shown to be central to these transmodal redesigns. The final two examples in this Chapter (Figures 25 and 27-39) demonstrated these ways by which children in the rural classroom fixed meanings made in prior experiences (Figure 22 and Figures 23-24) through transmodal redesign. Chains of semiosis contributed to conceptual understanding and problem solving, promoting music learning (subsidiary question two). Children's music identities were established as they gained confidence that enabled them to step across boundaries of established genres or principal modes in order to make new meaning (subsidiary question two). This was a process of higher thinking, of problem finding and problem solving, because it demanded resolution of conflicting ideas and disjunctive elements during re-presentation in a new mode. Transmodal redesign was realised in shift of meaning while moving from the written/verbal linguistic mode to the audio mode in the Crocodile Beat, and the metallophone melodies (part two of question one - part one having been addressed in Chapter 4). Concrete identifications of children's meaning making in music invention were facilitated by the framework of music dialogue, which allowed for identification of all modes co-present and operating in each music event analysed in this chapter. It was also a useful framework for triangulation of observations.
and interviews (using Activity Theory) contributing to richer interpretations of data to make sense of children's social and cultural orientations and knowledges. Each child brought ideas of ways of playing. Daniel was inventive in exploring many ways of playing the djembe drum (rubbing, tapping, slapping in centre and on edge), having played drum kit at home. Mlliei added an underlying running quaver rhythm to the melody (song) as a dance movement (linking her home piano playing to classroom music by semiotic import). This motif was again introduced to portray a running giraffe.

The wider context of multidisciplinary education was addressed in analysis of the classroom examples of music invention and *transmodal redesign* in this chapter. Understanding of nuances of children's *music dialogue* was assisted through *multimodal analysis* of children's meaning making in *transmodal redesign*, as they linked literacy texts (picture books and verbal scripting) to their music inventive practices. Possibilities of enriching literacy practices through music invention, by revealing children's selections of semiotic tools to communicate meaning through music, have been made clear. This finding has implications for local, national and global educational policy and practice.
CHAPTER 6: PORTRAITS OF DIVERSITY: CHILDREN'S SEMIOTIC IMPORT OF COMPOSING RESOURCES IN TRANSMODAL REDESIGN

Following the previous chapter's focused discussion of transmodal redesign in a rural music classroom, the purpose of this chapter is to further explore transmodal redesign of some individual children's situated inventive music practices in home and classroom settings, in all metropolitan and rural locations. This is in order to demonstrate the richness of children's multimodal music events, initially conceived as inventions using transformational redesign but, in some instances of repeated "chains of semiosis" (Kress, 1997) leading to transmodal redesign. This chapter uses visual and music transcripts and multimodal interaction analysis for a descriptive, analytic interpretation of children's varied, situated transmodal practices, and how these promote conceptual understanding in music. It also orients the music event in the child's personal experience of the world and its broader social significance.

Therefore the questions to be addressed in this chapter are based on thesis questions:

- How is transmodal redesign realised in young children's music invention?
- What does transmodal redesign through chains of semiosis reveal about conceptual learning and ways of knowing in music?
- How may diverse cultural resources and contexts influence children’s semiotic import of resources in redesign across principal modes?

After a detailed description of each music invention as a performative event, its
multimodal nature was explored, showing how the child as learner manipulates available resources, and uses transformational redesign for expressive, narrative purposes. In this chapter it is demonstrated that each child does, in some music events, take this redesign capacity further and shifts meaning, through transmodal redesign, across modes into a principal organising mode of verbal linguistics, movement or dance. New understanding of previous music experiences is traced, as these particular children use holistic understanding of elements of music (music modes) and other situated modal resources to re-present meaning in a new mode.

In this chapter, therefore, prior experiences of transformational redesign, occurring over time, appear to enhance understanding of the conceptual elements of music as children use these with purpose to redesign meaning across principal modes. This process of transmodal redesign has, at its centre, the modes of music: elements of pitch, rhythm, dynamics, phrasing, form and timbre. In essence, the video recorded examples in this chapter reveal how individual children are enabled, through transmodal redesign, to shift meaning across modes to other principal forms of meaning making when making selections and redesign of various combinations of modes based on their interest and understanding of the elements of music.

6.1 Mimi’s Transformational Song Using Puppets in Home Setting

Initially, through analysis of video recorded examples, Mimi (from the rural school, as glimpsed in the previous chapter) was seen to transform music in multiple creative ways in the music classroom and at home (Chapter 4). In particular, over six months, her classroom interactions revealed a growing confidence and awareness of the elements of music, increasing her ability to shift meaning from the mode of speech to that of music, and to add new textual ideas into her original narrative. This adeptness
was also influenced by Mimi's prior experiences in the home context, through semiotic import of composing resources into school contexts. Through this type of problem solving, prior knowledge, in particular transitory and *transformative experiences of redesign* in music, was consolidated. The *elements of music* became resources or *modes* that facilitated a shift in meaning through *transmodal redesign.*

Mimi, an E.S.L. (English as a second language) student, had recently arrived in Australia with her family from Brazil. Portuguese was spoken in the home. She and her older sister participated in dance classes, and sang and danced together at home to video clips on television. At other times Mimi sang songs learned at school, adding dance steps or other bodily movements, or swinging her body or arms to accompany the songs. She would sing with earphones to her MP3 recordings (Figure 21), making interesting melodic variations as she sang along. Mimi used resources of dance to pop music, folk songs, gaze and gesture as ways to express her ideas, to connect with music and culture of her Brazilian heritage. In particular, Mimi celebrated music and dance in the home with her parents and sister. Her parents recorded many videos of her improvised dance moves to both Brazilian and Popular music. These communicative modes were inscribed with particular meanings when used in home and classroom contexts. She often selected the "shaking" instruments (bells and maracas), and her rhythms on xylophone (Figure 25; Figures 33-35) or drum often featured the dotted quaver followed by the semiquaver so prevalent in Latin Salsa and Tango.

**Description**

Mimi sang an invented song to the researcher after having played with the glove puppets and selecting a possum with which to tell her story. Although a little hesitant in creating a story, she constructed ideas to report a sequence of events. The researcher asked: “Can you tell the story using your music?” She responded by using her tuneful
singing voice to invent a fluent song. The *modes of music and movement* (the actions of
the possum puppet on her hand) assisted this flow in creative performance. Mimi’s
gaze, directed at the puppet while singing, was also a *mode* that added meaning to the
music event. Together the *modes* combined as Mimi effectively redesigned her story,
transforming the original ideas from verbal communication into a *multimodal ensemble*
of meaning. A summary of Mimi’s *transformational redesign* of modes is given in
Table 11, Appendix 8. Figure 40 transcribes the lyrics and melody.

![Figure 40](image)

*Figure 40.* Music score and voice transcript showing Mimi’s invented song using
puppets in home setting.

**Analysis**

The *audio mode of music* (invented song) was a re-presentation of a prior
account using the *mode of verbal linguistics.* There were added expressive elements of
melodic and rhythmic invention that gave the original text a new sense or meaning,
through rearrangement of *modes.* While *music* became the *salient mode* of meaning
making, *gesture* (the hand movements making the puppet jump like a kangaroo), Mimi’s
gaze at the kangaroo puppet, and the *spatial mode of proximity* of sister and researcher
as "audience" worked in simultaneity in *redesign* of meaning. No new ideas occurred,
as music elements were not used for a shift in understanding.
Focusing on her use of music elements for holistic effects, Mimi frequently used wide intervals of a 4th or 5th (Figure 40, Bars 1, 2, 3 and 5) to build her melody. These intervals suggested the distance of a kangaroo's hopping motion, along with the up and down movement (reinforced by hand movements of the kangaroo glove puppet in her left hand) as her right hand held the mallet, striking the box drum in simultaneity. She told the researcher in an interview her intention was to make hopping sounds. There was a dotted rhythm (dotted quaver followed by a semiquaver) on one repeated pitch to lend playfulness and skipping motions, again like a kangaroo, as Mimi later told the researcher during an interview. This rhythmic element created a chain of semiosis leading to Mimi's classroom invention on metallophone (Figure 25), building on the dotted quaver-semiquaver rhythmic figure identified in Latin tangos danced at home. Gesture as salient mode featured again in a subsequent music event, in which Mimi linked music elements as modes in inventive practice, creating a chain of semiosis.

6.2 Mimi's Transmodal Redesign from Story to Musical

This example follows the previous home music invention to demonstrate the way that transmodal redesign in music invention, following previous home examples of transformational redesign in Chapter 4 (Figure 21) and this chapter (Figure 40), form chains of semiosis. The music invention, when analysed through still image to feature gaze, movement, gestural modes and proxemics unfolding in time, also revealed ways by which Mimi, recently arrived in Australia from Brazil, transformed her fluency of verbal communication and interaction. She was using English as a second language during this narrative reconstruction. Music provided her an alternate way of expressing herself, in light of her developing ability in English. It gave her freedom of choice to solve redesign problems where relationships of power were shifted away from teacher and focused on the children.
Description

This event occurred in the rural school as the teacher/researcher led the group in a half-hour music session scaffolded by Mimi, the room having been set up for video and a variety of percussion instruments from the classroom cupboards and puppets made available as resources (Figure 41). It was a composing event demonstrating conceptual knowledge developed after many weeks of music interactions, drama and dance in the rural classroom, including the music drama "Crocodile Beat" (Figures 27-39), involving the same children. The first fifteen minutes of this classroom music event consisted of children selecting puppets and telling a story based on these. Mimi’s selected puppet was an owl. In the second half, Mimi volunteered to lead the group in telling her Owl story in music with the children using selected musical instruments.

Mimi: *There was a little bird in the tree. The little boy, he pulled a apple and he felled.*

Teacher: *Show me how the bird fell.*

Mimi: *Like this.* (She made the bird puppet spiral downwards).

Teacher: *Show me what happened when the apple knocked it.*

Mimi: *The boy saved him.*

Teacher: *And then what did the boy do?*

Mimi: *He tried to - to pick it up and put it at home.*

Mimi then led the group in redesigning her story across modes, from verbal linguistic to audio (music), inviting peers to choose familiar percussion instruments. This event was transcribed using still images accompanied by verbal scripting of Mimi and description. Mimi began: "There was a owl that couldn’t fly and it needed wings … I need Sandra, Millie and Sophie." Tracey gestured to Sandra and Millie to play, Sandra selecting low notes successively while Millie played two notes simultaneously up and down the register of the metallophone. Sophie and Stephen added rasping sounds on the
guiro. Mimi listened, gazing around the group, noting each child’s contribution.

a. Mimi: "There was a owl that couldn’t fly and it needed wings. I need Sandra, Millie and Sophie." Mimi directed the performance, selecting Sophie who began scraping the guiro, setting a steady beat, and Sandra and Millie, who played the metallophone.

b. Mimi: "Stop. Now Daniel, Bob and Edward." Daniel continued to maintain the steady tempo by playing crotchet beats on the bass drum, with Bob on the box drum and Edward on the xylophone.

Figure 41. Image and verbal description transcript showing transduction from spoken account to music dialogue.
c. Millie used organisational skills to select children and listened to timbre of instruments to assist her choices.

d. Weighing competing viewpoints, Mimi successfully conveyed her ideas in the verbal linguistic mode to shape the music invention. Mimi made thoughtful, deliberate selection of resources and co-constructed meaning by interacting with peers, exploring alternative solutions.

*Figure 41.* Image and verbal description transcript showing transduction from spoken account to music dialogue (Continued).
e. Mimi continued: "The kangaroo tried to get his (the owl’s) wings, but - but the little girl saved him (the owl)." Bob, showing initiative, volunteered to play a steady beat on the box drum to represent the kangaroo.

f. Leighton then began to play the box drum with Bob, and Edward, Bob’s twin brother, on the xylophone, without a prompt, co-constructing the meaning by maintaining steady “hopping” sounds that continued throughout the performance as a cohesive thread.

Figure 41. Image and verbal description transcript showing transduction from spoken account to music dialogue (Continued).
g. The teacher asked, "Who was the little girl? Who tried to save the owl?" Mimi replied: "Sandra," gesturing for her to provide the contrasting timbre of the metallophone. Sandra played a light, repeated melodic pattern, capturing the idea of the girl gently picking up the owl.

h. Daniel added "punctuating" notes on the bass drum. The low, emphatic sound (uninvited) suggested disjunctive or opposite meaning to that intended by Tracey, and this tension enhanced the importance of this pivotal moment, introducing a "crisis" in the narrative. As revealed in 531 Mimi told of a crocodile trying to get the girl.

*Figure 41.* Image and verbal description transcript showing transduction from spoken account to music dialogue (Continued).
Daniel played the bass drum, Bob the box drum consisting of four tones, and Edward the xylophone. Millie listened to the timbre of the instrumentation, intent on negotiating with peers by using organisational skills to co-construct the music from this point. Mimi continued, "Um - the kangaroo tried to get his wings – but – but the little girl saved him." Bob played steadily on the box drum in response to the "kangaroo" idea. The teacher confirmed this by asking, "This is the kangaroo jumping, is it?" She nodded as Leighton, Bob and Edward provided “hopping” sounds, using a steady pulse.

After a silence the teacher questioned, "Who was the little girl? Who tried to save the owl?" Mimi immediately replied “Sandra,” gesturing to her to play in solo, aware of the sustaining sounds of her metallophone. Sandra moved lightly over the metallophone, her fingers, eyes and hands reaching for the notes. She chose a repeated melodic pattern of C-A-E-G, playing even, sonorous notes, then looked up, smiling with satisfaction and pleasure. Daniel spontaneously interspersed a few punctuating sounds on the bass drum. Both children provided dialogue with each other through tension or opposing meaning in sounds. Millie added high, sustained metallophone notes. As the sounds died away, Stephen volunteered three rasping notes on the guiro, (disjunct/opposing sounds) followed by Bob’s box drum notes (the kangaroo), a dialogue in sound.

Mimi verbalised the shift in meaning provided by disjunct bass drum and guiro sounds. She brought the story to a climax with a crisis and resolution. "Then the crocodile tried to get her but he couldn’t, because the kangaroo caught her." Identifying Daniel’s bass drum as the crocodile, she built on Bob’s kangaroo idea.
i. Sophie overlaid some notes on the high register of the metallophone. As the sounds diminished, Stephen played three rasping notes on his guiro (another disjunct sound), followed by Bob, who resumed playing his "hopping" notes on the box drum. These sounds suggested a link in the story.

j. Sophie pointed to Edward, indicating he should recommence his “kangaroo” sounds on the xylophone. Mimi noted this suggestion, shifting meaning. The crisis was woven around the "kangaroo" sounds and Daniel’s bass drum sounds, suggesting the idea of a "threatening crocodile." She cleverly integrated all elements.

*Figure 41.* Image and verbal description transcript showing transduction from spoken account to music dialogue (Continued).
k. Mimi: "Then the crocodile tried to get her but he couldn’t, because the kangaroo caught her." She bent down near Edward’s xylophone, "hiding" from the "crocodile", gazing at Daniel, whose bass drum represented the crocodile.

l. Mimi concluded: "Then the little girl was saved." All children played instruments on the beat, in crescendo, with accents on the cymbal. There was a diminuendo as Tracey signalled: “Stop.”

Figure 41. Image and verbal description transcript showing transduction from spoken account to music dialogue (Continued).
Analysis

The events selected for discussion so far, show how Mimi’s prior experiences in the home (Chapter 4, Figure 21) and this chapter (Figure 40), were linked to her ability to conceptualise elements of music, such as timbre, as modes, and use these to shape her understanding of music in the context of the classroom. The elements of beat and articulation were found in the musical genres of the Salsa and Tango. These were represented in kangaroo hopping sounds in this and the prior music event discussed in this chapter. This prior knowledge enhanced her conceptual understanding, and facilitated communication from home to school contexts through semiotic import of cultural resources. Timbres of diverse percussion instruments were elements in the semiotic chain that linked her music experiences. Gesture was the salient mode linking Mimi’s music experiences, for she used it to shape her learning (Figures 41k and 41l in this event) the kangaroo puppet (Figure 40), and the xylophone glissando (Figure 25). In this instance, her selections and redesign of modes from verbal linguistic to audio (instrumental dialogue), promoted co-constructed as well as asymmetrical, disjunctive ways of shaping meaning, demonstrating learning occurring in narrative form.

The use of musical instruments transformed Mimi’s expressive and communicative capacity, for instrumental music was a familiar cultural resource with which to make meaning in everyday interactions. The introduction of a fresh organising mode of music made possible her “re-pinning” of conceptual knowledge gathered in prior music experiences. As her story developed in this mode, movement, crisis and change were achieved through sound (a box drum represented the kangaroo, the timbre of the metallophone with high, light sustained sounds represented a "saving" of the owl by the little girl; the guiro suggested danger and the bass drum provided the climax). Mimi realised the counterscript suggested by Daniel, weaving it into a climax and
resolution by drawing in his disjunct sound to represent a crocodile (Figure 41k). These apt selections of resources made the music a meaningful communicative act in which children combined elements to shift meaning in a moment of transmodal redesign.

Discussion

John-Steiner (2006) wrote of the power of the icon in recall of important events. She observed that the mind is dependent on sustained human relationships for renewal and reflection, and that cultural and historical experiences impact the creative process. The affect and the cognitive aspects combine to assist memory and to forge new learning. Mimi had accommodated these prior musical and cultural experiences into her dance and music inventions, such as those mentioned above. In addition, her parents had mentioned in an interview her allergic reactions to a pet bird while in Brazil and, when incorporated in her prior transmodal redesign in classroom composing processes (Chapter 5, Figure 25) this served as an icon to assist in verbal scripting of new composing processes. It assisted her in pinning her previous knowledge and experience across borders, to use semiotic import of a visual and sensory image, a bird, from prior experiences in Brazil, in the transmodal redesign revealed in her verbal recount and subsequent music invention. This icon formed a link in the semiotic chain that informed the realisation of her transmodal redesigns. The conceptualization of time as past, present and future in children’s use of iconic memory has been recorded as significant in shaping children’s language acquisition (Nelson, 1989; Pahl, 2007b).

As Moran and John-Steiner (2003, p. 65) have observed, “Individuals synthesise diverse influences - through internalisation - and these generate creative concepts, strategies and creativities.” Semiotic import and weighing of competing viewpoints were used by Mimi to convey her ideas and successfully shape the music invention.
Mimi made thoughtful, deliberate selection of resources and co-constructed meaning by interacting with peers, exploring alternative solutions. She “re-pinned” (Stein, 2008) previous experiences of music, knowledge of elements of music: instrumental timbre, rhythm, beat and dynamics. These assisted her transmodal redesign from the principal organising mode of verbal linguistics to that of music. For example, in this event Mimi invited Daniel, Bob and Edward to play and, having heard their steady drum beat and suggesting a kangaroo (Figure 41b) as a character that tried to take the owl's wings, she later used it (Figure 41l) to reintroduce the kangaroo as the animal that saved the girl from the crocodile. This complexity in narrative co-construction, led by Mimi through her verbal scripting, highlighted the need to broaden assessment practices to meet the needs of culturally and linguistically diverse populations. Nelson (1989) emphasised the importance of predicting the language needs of young children through listening out for their use of verbal scripting and to implement a transdisciplinary framework for children with vastly different cultural backgrounds.

This activity transformed the original idea presented in the mode of speech into a new transmodal event in the mode of music. All modes occurred in simultaneity to make a shift of meaning (Figure 41j-41k). Mimi negotiated this shift in meaning by maintaining a quiet control through posture, supporting verbal script with gesture, gaze and selection of instruments to represent her ideas and shape the music event. She synthesised conjunct and disjunct elements provided by peers, particularly responding to opposing (disjunct) ideas suggested by Daniel (bass drum) and Stephen (guiro), juxtaposing them with other sounds and meanings from children to build a crisis and cognitive dissonance to the composing event. Her awareness of timbre, silence and phrasing as elements of music assisted this shift in understanding. Together, children made meaning using music invention. Ideas were synthesised to resolve the problem.
Mimi in particular demonstrated cognitive processing and higher order thinking through choice of sound sources (affordances of instruments based on the musical element of timbre), resolution of conflicting ideas by responding to contrasting timbres, and skills of organisation and social awareness. Through decision-making that shaped the dialogue, she retained elements of the original narrative, and lost some (the boy in the apple tree). Meanings were added (a threatening crocodile, a kangaroo rescuing the girl, who had rescued the owl). The bass drum sound suggesting a threatening crocodile was a pivotal moment, a shift of meaning, in the improvisation. Moments of redesign where modes were aligned in simultaneity indicated a shift in meaning, marked by the disjunct meaning making (provided by the bass drum, the box drum and the guiro) as instruments of contrasting timbre to that of Sandra's metallophone invention, creating a crisis in the plot that initiated Mimi's invention of a new story element, the crocodile (Figure 41h). The influence of Mimi's prior experiences of transformational redesign in music (Figures 21, 25 and 40) were realised in her conceptual understanding of elements of beat and instrumental timbre, confirmed as she selected modes in simultaneity (Figure 41h). Here, Mimi selected modes of speech, gaze and movement in combination with sound and proxemics.

This moment of transmodal redesign indicated the extent of empowerment available to Mimi, for whom English as a Second Language (ESL) was no longer a barrier to her verbal communication when meaning was made across principal organising modes. While the fluidity and flexibility of Mimi's oral modes of thought were evident, they became fixed momentarily in simultaneity with instrumental sounds, gestures and gaze and by the resource of the physical space (proxemics). Still images in Figure 41 revealed how these modes contributed to ways in which Mimi negotiated meaning. Children, arranged in a circle, closely monitored each other's actions and
contribute to redesign of meaning, mostly through *modes of gaze, proxemics and timbral qualities* of instruments. It was indication of the usefulness of fresh semiotic resources for *transmodal redesign*. Prior experiences (the icon of the bird) were used for semiotic import of composing resources across cultural borders, and from home to classroom. *Transmodal redesign* realised conceptual understanding through the elements of music, and securing Mimi’s understanding and confidence in the use of the verbal linguistic mode for communicating ideas and shaping activities with peers.

Children in the rural classroom built a holistic knowledge of music through prior experiences of invention in the classroom “re-pinned” in moments of *transmodal redesign* that reinforced knowledge in music. By fixing their attention on an aspect of a literary event (a character, development of plot, or experiences of creatures in the wild) at significant moments they used available resources to *redesign* meaning in music. Apt selection of resources shifted boundaries: children as sign-makers re-made stories by adjusting to their communicative environment with the intent of having fun, of liberating self (Newfield, 2009). In particular, Mimi was shown to display confident selection and *redesign* of resources based on phrasing, silences and instrumental affordances or sound properties (timbre), by referencing these *conceptual elements of music (modes)*. She anticipated how the narrative might continue by drawing on prior experiences (the bird, and the crocodile) already expressed in earlier classroom creative music events. This verbal scripting, observed in music invention at home, assisted her to make transitions to school and allowed her to solve problems of crisis and cognitive dissonance intended to disrupt the flow of events. All children returned to co-construction as she wove those asymmetrical ideas into her storyline. A summary of Mimi’s transmodal redesign in this classroom event is given in Table 12, Appendix 8.
6.3 Heidi’s Transformational Music Dialogue Using Voice: Home Music Invention

Voice is an important, and often central, element in music dialogue, either spoken or sung. It is therefore important to include in this chapter examples where improvisation in sung texts is the principal organising mode in music dialogue. Illustrations are provided in this and the following example, linking both to see how Heidi manipulates transitions from transformational to transmodal redesign. Transcript uses musical notation to guide the reader in looking for synchronised meanings between lyrics and text (Figure 41), and are accompanied with tracings from the video recording of the event (Figure 42). Modal configurations demonstrate which modes claim the main focus of interest, and which ones support efforts to communicate musically to make meaning more complete through transmodal redesign in home interactions.

Description

Heidi, in her first year of a suburban private school, volunteered to be videoed in home music activities with mother and sister, and in a school music event with her peers. A trace of cultural capital establishing a musical habitus was seen in the video clip where Heidi and her mother singing to each other at home (Figure 42). There was a music dialogue initiated by the mother. She, as conductor and Director of State Schools Choirs Extravaganzas and large-scale State Music Festival events, had influenced Heidi through many interactions from birth, and this forged a strong and intimate shared musical understanding, a musical habitus. This constituted a rich cultural capital for Heidi. From Heidi’s birth her mother sang to her daughter who, in the example chosen for analysis in this study, responded with a variation of the pop song “Can’t Take My Eyes Off You” by Frankie Valli.
In a moment of tender and intimate *music dialogue*, Heidi’s mother sang to her daughter who was cradled in her arms: “I love you Baby … trust in me when I say.” Heidi responded by smiling and looking up into her mother’s face as she began: “O pwetty Mummy.” She sang her mother’s melodic, syncopated song.

**Analysis**

The analysis of this home music event was done using a music manuscript, as this best captured the *intra-modal elements of music* used by Heidi in her *transformational redesign*. She used *elements of pitch, dynamics, phrasing, rhythm and tone colour as modes* that were redesigned by her as she varied her musical responses to her mother. These processes selected by her in dialogue were interpretational differences: shorter phrases and a contrasting vocal timbre. Heidi used a variation of the words sung by her mother, switching their order but keeping the rhythm and intonation.
the same. At the end Heidi initiated a coda to “round off” the song, inviting mummy to sing with her. Her mother half-chuckled this last part of the song (Figure 42, Bars 15-16) in unison with Heidi. She transmitted warmth, love and happiness in her voice, her gaze and with her physical closeness. Heidi responded in the same manner, her gaze (gestural mode) fixed on her mother. The coda signified the completion of a shared musical moment where mother and child co-constructed the meaning by responding with integrity to each other. Affective responses realised the close personal and intimate ties between mother and daughter, carrying meaning through the dominant mode of voice, chest vibrations, facial expressions (gesture) and the sense of oneness (spatial) that made this musical experience a holistic one incorporating all modes as one, with variation only in the decision making of Heidi who shaped the music melodically.

**Discussion**

Therefore, in the example discussed above, Heidi shaped her musical responses by interacting with her mother and making choices in music dialogue, communicating an understanding of the form and structure of the song, its rhythmic and melodic elements and the genre. This is demonstrated in the summary of modal redesign shown in Table 13, Appendix 8. There was learning taking place within an existing framework of understanding, and formation of a musical habitus. Meaning was transmitted between mother and daughter through the modes of song, (audio linguistic – highest order mode), proxemics (spatial mode – higher order) and facial expression, gaze, whole body (gestural – lower order or supportive modes). This had transformative impact on Heidi’s musicianship, establishing it, not shifting understanding through transmodal redesign. No new elements were introduced to challenge existing knowledge or provide cognitive dissonance. This shared musical moment between mother and daughter consolidated previous understanding of music by co-constructing in context within a
secure framework of a known song. Music invention in the home had tremendous value to strengthen Heidi’s music identity and contribute to a musical memory or disposition in formation. Another music event in her home, Heidi’s piano improvisation at home (Figure 43) also revealed her effortful transformational redesign as she forged new meanings by exploring rhythmic, melodic and harmonic elements of music. Figure 44 shows her transmodal redesign at home.

When looking at the conditions in which children explore and sometimes inhabit different ways of being musical, all children appear to have some form of an embodied music memory, comprised of sounds, rhythms, and sometimes associated movements, gesture or dance, that is learned in a variety of situations (home, school, listening the radio, watching television, nursery rhymes). The researcher in this study proposes that it is these forms of music when taken into memory that can be the bases for a musical disposition or habitus in formation. There is a synthesis of complex multimodal interactions existing in children’s music inventions. When these interactions occur there is learning taking place through repeated inventive music play, or chains of semiosis. Conditions for applying this embodied musical habitus to new situated learning include play, innovation, risk taking, imagination, agency (self-determination drawing on embodied musical memories) and intentionality in actions.

**6.4 Heidi’s Transformational Music Invention on Home Piano**

A transformative moment on piano was video recorded in Heidi’s suburban home, where the family celebrated and cultivated music. As the family developed this music capital, particularly singing games and piano playing, these interactions forged conceptual understanding of the elements of music in dialogue by combining many modes, particularly music modes, to transform meaning (Figure 42, above).
Description

At home, Heidi played her own music on the piano. Her mother made a video recording of this transformational redesign as Heidi improvised spontaneously on the piano. It was transcribed using a music score to feature redesign through the elements of music, of which Heidi had prior knowledge. She revealed this as she was focused and intent on making patterns such as recurring three note figures or a series of repeated notes within her music, and exploring the dynamic range of the keyboard (Figure 43).

The transcript (Figure 43) was useful as a piano score that featured rhythmic and melodic elements, sequences and repetitions, dynamics and phrasing. While there were some bars changing time signature in performance, it was firmly placed within a framework of 4/4 time and very fast tempo. Both of Heidi’s hands were coordinated, playing together on the beat, although at times the music featured the right hand. Mostly the music was articulated with short almost staccato sounds, and timbre was very bright. As shown in Table 14, Appendix 8, this was achieved by consistently combining gestural modes of hand and arm movement, finger independence, gaze, and posture (shoulders straight but relaxed).

Analysis

Heidi demonstrated her knowledge of note sequences such as the descending pattern over three notes (bars two and three) and also a sophisticated fine motor control of her fingers (playing these three-note figures with three consecutive fingers). She achieved the rhythmic and melodic accuracy and control by her mastery of eye-hand coordination (gestural mode). As her mother confirmed, she had been experimenting with note combinations, using both hands since she sat in front of a keyboard as a baby.
Figure 43. Music score transcript showing Heidi’s home music invention using piano.
Apart from a few dotted rhythms in Figure 43, Bar 31, played softly before the coda, Heidi maintained a marching rhythm of quavers, and often introduced syncopation by delaying the sound until the second beat of the bar (Figure 43, Bars 23, 25, 27 and 29). On these bars she switched from soft to very loud dynamics, as a playful way of surprising the listener (and herself in dialogue with the affordances of the piano). The subito or suddenly soft semiquaver run in the final bar, followed by two final accented quavers, was again a playful gesture as a flourish and a quite cheeky statement to finish the performance. Two important rhythmic figures were introduced as interesting material, and extended over three or four bars. One was the three-note figure followed either by a rest (Figure 43, Bars 11, 12 and 14) or by a sustained note (Figure 43, Bars 2, 3, 7, 8 and 10). The other was the repeated note on one pitch using four quaver then two crotchet beats. The audio mode of music was dominant, supported by gestural mode.

Discussion

While Heidi’s mother had not given her formal lessons, she frequently interacted with affect in a manner of shared music dialogue on the piano keyboard. These situated moments of music invention were always accompanied by much fun and laughter, and so the joy, the beauty and the emotional intensity of such shared music activities were essential components. Therefore when Heidi performed in this particular music event, her invention unfolded with ease. Music, gestural and spatial modes (keys) co-existed.

6.5 Heidi’s Transmodal Redesign of Conducting Gesture and Gaze as Dialogue

This particular music event was chosen to demonstrate how Heidi (five years) selected modes of music and redesigned them in the principal mode of gesture to shape the music invention of her older sister. An example of transmodal redesign, it
demonstrated that the choices in modal redesign indicate cognitive understanding. Perceptiveness of forms and elements of music, traced over time with Heidi's mother (Figure 42) and sister or by exploring the piano (Figure 43) was seen to develop in Heidi's transformative music interactions. Her increased conceptual understanding evident as she built on experiences of redesign through many music events, combining and re-organising modes, culminated in this next example of transmodal redesign from the gestural mode of conducting to the audio mode.

**Description**

For this study, the researcher introduced music activities in Heidi's home. Both she and her seven-year-old sister were engaged in playing tuned percussion, singing and inventing songs using glove puppets as ideas or the basis for stories then songs. Heidi volunteered a music activity involving her sister. Having drawn music in lines on a piece of blank paper, she placed it on the music stand, took a chopstick (her baton) and stood in front of the stand, facing her sister. Together they invented a "flute" solo, Heidi "conducting" the pretend play (Figure 44). Heidi's sister indicated: "I’ll do the music. I’m goin’ t’ be thaa …" (Heidi tapped three times on the music stand while waiting, indicating ‘hurry up’). "I’m goin’ ta be the – um" (Heidi leaned forward on the music stand, gazing at her sister) "ah-um, I’m going to be a … flute!" She lifted both arms and, cued by Heidi’s upbeat gesture, mimed the flute while whistling an invented tune. Heidi kept both arms raised using relaxed wrists and hands as primary modes to indicate a steady beat. She combined gestural modes of gaze, affect and body language in communicative dialogue, occasionally leaning forward with one arm on the stand while keeping the beat to elicit responses. Her sister giggled at this (bar three). At times she looked down at the “music score.”
Figure 44. Music score transcript and modal configuration for Heidi’s home orchestration using gesture ("down" and / "up") and gaze.

Analysis

Moments when modes of movement (body language), gesture, gaze, facial expression and music coincided in simultaneity were moments when Heidi demonstrated mastery of the music event through the fluidity of her conducting gestures. A shift of meaning occurred through use of the principal mode of conducting gesture. Heidi’s responses could have alternatively been interpreted as those of a kind of puppet master (the seventeenth century idea of a choral or orchestral conductor) with no real influence on her sister's whistling tune, but very successful in her command of the situation. However, on closer analysis below, the modal configuration indicated small
changes to the older sister's melodic line: repetition, decision to start or stop, and insertion of rests plus different lengths of phrasing. In a way, the dynamics between sisters were invitations to make shared responses; ways of shaping the music based on prior conceptual knowledge such as harmonic underpinnings, nurtured by their exposure to choral music from early years. From interviews with their mother, they frequently attended performances of her choirs, and other special music events for children.

**Discussion**

Most likely, Heidi was participating in the larger sense of what it means to be a conductor. Today's conductors continually predict, shape and mold the sound (D'Ausillo, Badino, Li, Tokay, Craighero et al, 2012), and are also inspired by it, as a kind of musical dialogue between musicians when they are closely allied, thus producing better music. This *music dialogue* was previously observed by the researcher as Heidi made playful, focused interactions with her sister in the home. In this music event, Heidi at times leaned forward to sustain interaction and provide support for continuity in this self-initiated “music play,” checking her sister's response by looking around the music stand, leaning to the right, and gazing at her to establish eye contact (Figure 44, Bar 6). This occurred in simultaneity with her conducting gestures, and her sister responded by inventing an interesting syncopated rhythmic motif over bars five and six. This riff was repeated as Heidi "cut off" the sound using gesture, creating silence by inserting a quaver rest, and requesting it be repeated. It was a moment of simultaneity where all *modes* interacted as orchestrated by Heidi, with *gaze and body movement (gesture)* becoming the *dominant mode*. It resulted in a new melodic rhythmic idea, a melodic and rhythmic sequence. This was a shift in conceptual understanding of the elements of rhythm, sequential repetition and phrasing occurring in simultaneity (Figure 44, Bar 9). Figure 44 depicts this *modal interaction of music*, hand
movements (gesture), body language and affect. Figure 45 shows the shift in transmodal redesign.

Heidi's sister repeated the rhythmic pattern, establishing this new idea. The motif was repeated a third time but cut short after three beats by Heidi tapping on the music stand, stopping her sister for one beat (a crotchet rest). This became the second point of simultaneity in the music event, featuring audio mode. Here the three-note idea was repeated as a fragment of the two-bar motif of bars three and four. Then followed a two-bar motif similar but ending on an upward melodic rise and interrupted cadence. This point was mid-way in the music invention: a rhythmic sequence. The three-note pattern was repeated three times as melodic sequence, the third being extended to a full two bars with an imperfect cadence. The pattern reoccurred, indicating the decision for repetition as a composing device. During the final repeated phrase (Figure 44, Bars 17-20), Heidi made very clear cut-offs with both hands after each three-note pattern, looking up from the music. This third point of simultaneity indicated to her sister that the musical event was to end. Together they created meaning through music dialogue.

In all three music events captured in Heidi's home and analysed in the previous sections, Heidi negotiated musical responses to make transformations in her music, using a dialogue of modes. In particular, this last example of transmodal redesign demonstrated how she inserted small "crises" in the unfolding of the music over time; using gesture, and how she resolved them, doing so convincingly through transmodal redesign in performance. Gesture was a salient mode used in various ways in her music making and formed a chain of semiosis linking her three music events discussed in this chapter. In this event, both siblings displayed engagement in the activity through gestural modes of facial expression, bodily language and affect. Heidi shaped the music
by combining and reconfiguring modes in a multimodal ensemble of meaning making in music that shifted in the course of the performance (Figure 44, Bars 9-11). The reconfiguration of modes after that moment in the music is displayed below (Figure 45). The first nine bars are represented in Figure 45a where gesture of arms and movements of Heidi’s wrists and hands indicated a strong regular beat that directed the whistling music, a ditty made up by her sister. The second half of the music, represented by Figure 45b, was more innovative, as Heidi actually shaped the music itself through gaze, hand and arm gestures and body (leaning forward). Those modes became the salient modes, music (audio mode) absorbing all their attention from this point in time.

Figure 45. Changes in modal configuration in Heidi’s home orchestration.

A summary of modal redesign is given in Table 15, Appendix 8. The modes of proxemics, music and gaze were also vital to sustaining this dialogue of sound, but the mode of gesture, specifically the fluidity of Heidi's conducting, was the principal mode through which meaning was realised in a moment of transmodal redesign. The changes in modal configuration, initiated by Heidi, acted as conduits to sometimes add asymmetrical or disjunctive meaning such as change in rhythmic patterns.
This coded example of *transmodal redesign* was also an example of musical dispositions: both girls demonstrated inner audiation (Gordon, 2011). This was nurtured and supported in the ways by which the family members drew on resources to enrich music practices. From interviews and observations, it was evident that a well-defined socio-cultural space of music, transmitted through their mother’s musical identity, shaped a kind of habitus or disposition-forming way of being, nurtured in the home and supported in their musical community (Bourdieu, 1972, 1993; Burnard, 2012). The parents built a reality for relating to the world, a playful, inventive approach to music. Engaged play impacts many areas of the brain because it involves emotion, cognition, language, and sensorimotor actions, and thus it may promote the development of dense synaptic connections (Bergen, 2002; Bergen & Coscia, 2001), developing higher level thinking functions and cognitive strategies such as self-regulation, divergent problem finding and problem solving, and rule understanding. Heidi explored processes of signing to represent ideas through a multiplicity of means at one and the same time (Cox, 2005; Kress, 1997).

### 6.6 Transmodal Redesign from Music to Dance: Sara’s Arabic Music Dialogue

Through the mode of movement, a video recording of the family interacting was coded as meaning made in *transmodal redesign*. It also revealed Sara's shift to deeper understanding of the familiar mode of Arabic music played in her home. The principal mode (dance) became a way of continually challenging and refreshing her prior knowledge of the elements of music and of its holistic cultural meaning. *Redesign of modes of gesture, facial expression, whole body movement and proxemics were selected by family members to feature elements of music as mode*, and promote values such as bonding, knowledge of familiar cultural dance, and Arabic music during interaction.
Music filled Sara’s home, and was played in the family car whenever the children travelled with their parents. It was significant as a part of extended family get-togethers, and special feasts such as weddings, where singing and dancing to Arabic music was central to a week of celebrations. Music served as a backlight to the gestures, dance and social interactions of Sara and her family as they established a new life in Australia. It was essential to their socio-cultural heritage in Iraq and informed their new lives in Australia. As they moved across borders into unknown territory, forging new friendships and settling into the life of school and community in a new culture, they maintained values such as music and dance that were vital to family interactions.

**Description**

The dance captured on video in Sara’s home involved all family members responding through interaction to familiar Maqum music from Iraq (Figure 46). It has been said that this music captures the “soul” of middle-eastern music, and the dance always accompanies it, a joyous celebrative music event. Instruments featured were the oud, a lute-shaped instrument made of a thin piece of wood with five pairs of strings plus a bass, on which any intonation could be played. The buzuq produced the microtones and while narrower and longer in shape it was made of metal strings and movable frets to achieve the shifts in sound.

The qanun, an Egyptian-type harp, could also be heard. These string instruments were mostly plucked or hammered (belonging to the naqr family). The sahb family consisted of the violin (often played gamba style, resting on the knee) and the nay, a cane open-ended flute, and sounds were “pulled” to extend them indefinitely. The sound was unlike western music because not only did it access microtones, it rarely used silence or rests in between the sounds. In this way it was more complex, as were the
range of instruments. Another essential element was the percussion: the daff or frame drum; and the riq, or tunable tambourine with a wooden frame, brass cymbals and a goatskin stretched across the frame.

Figure 46. Image transcript showing Sara and her Iraq family dancing to Arabic music: Frames 1 to 8.

Analysis

A series of still images was used to capture the important moments as the music
unfolded in time, rendering them more suited to analysis. Sometimes the two eldest children were seen to use familiar whole body movements to dance: bending the body sideways in quick rebounds (Figure 46, Frame 1); wiggling down to a squatting position and up again with arms held above their heads or hands under their chins (Figure 46, Frames 2, 3 and 4). These quick, sharp moves were akin to the plucking or hammering of the naqr family of instruments, and seemingly dialogued with this sound by inventing dance moves. Their mother provided the energy and drive to the whole music event, by clapping a steady beat and using facial expression and gaze: smiling and nodding to the children and occasionally raising her eyebrows in a playful expression to encourage continued participation (Figure 46, Frames 1, 3 and 4). She gestured to children to move into a different part of the room if they needed space in which to move without inhibition. Clapping and nodding, she gently supported the children’s movement interactions in gestural mode, maintaining engagement and leading them to improvise.

The eldest daughters were confidently communicating, using movement vocabulary. Sara at times selected and extended one movement (Figure 46, Frames 1-3: a sideways movement, hands in the air; Figure 46, Frames 6, 7, and 8: a head rotation). In these moments she challenged her sister to follow her in expanding and exploring one featured movement through interaction. It became a dialogue in movement where the two older sisters added new understanding to their previous repertoire of movement. This freedom of interaction enabled the children to be agentive in creating fresh dance moves to redesign their musical experiences using the dominant mode of gesture. Sara realised new ways of expressing elements of music previously reinforced at home.

Their father supported the youngest members of the family through a stable beat directed through his arms, body movement and presence as he held the baby. His wife
(as confirmed in the interview afterwards) provided reinforcement of the children’s ideas, ways of solving problems of interaction to communicate ideas in the family environment. The music permeated the room. The vibrations of instruments, the combined effect of their sounds (audio mode), were felt physically, inviting response and redesign through movement (gestural mode). Sound wrapped the family around, threw their actions and interactions into relief, acting as a bed or “takht” (an ensemble) on which the children could explore new ideas, acting out their roles by interacting through dialogue with music in order to redesign it in the new gestural mode of dance.

**Discussion**

*Transmodal redesign* from the principal mode of music to the principal mode of dance was realised as Sara and her family co-constructed meaning (Table 16, Appendix 8). This was possibly because of prior experiences of spontaneous dance improvisations to Arabic music in the home, where they enhanced musical understanding, communicating meaning by listening to subtleties and nuances in the music and responded to them in interaction. Therefore they could “re-pin” certain elements of the music to make fresh meaning in this mode of music (Stein, 2008). They were aware of how they could draw on a suite of modes in their familiar environment and make them work in new situations or contexts. This was important for Sara as she transitioned from home to school. Her prior experiences in Iraq worked to her advantage for she had practiced ways of communicating meaning in new forms and by using fresh materials.

As in the classroom examples of transmodal redesign discussed in Chapter 5, these family cultural gatherings were a way of getting everyone sitting around the same fire, a way of helping each other during periods of change and transition, through music dialogue. Listening, using tonal language (a holistic form of literacy where lyrics or
texts are only part of the total meaning in music and dance), and intersections of culture to communicate prior learning experiences (Custodero, 2009a), were vital to advance learning through this transmodal redesign in music dialogue. Their father, during the interview, said the family was a secure place in which to explore new meanings. The children displayed symmetrical conventions of turn-taking and expressing meaning through dance and music, but the home appeared to also be important as a space, a proximal mode where disjunct or asymmetrical meanings could be explored in safety.

Through this music event, family members, and Sara in particular, demonstrated a shift in previous understanding through transmodal redesign from music to dance. Music invention was redesigned as an intimate, complex and beautiful expression of family interactions. The dance, interwoven with the music, expressed holistically the vulnerability and uncertainty, as well as the hopes and aspirations of life as experienced by people moving into a new culture but desiring the established and familiar cultural practices of their country of origin. Confined and conventional forms of music were affirmed but also given new meaning, as powerful lived experiences, through the children’s redesign in the mode of movement. Conventions and cultural practices also provided the backlight for new discoveries, new ways of being in the world.

6.7 Sebastian's Transformational Redesign Using Instruments

The following music events that close this chapter focus on the multimodal creativities of Sebastian's music inventive practices, at home and in the music classroom. Sebastian's lived experiences of playing various instruments and exploring their timbral affordances, singing and dancing, were captured by video recording at home. They revealed him transforming music through a dialogue of modes, and moving across modes from music to speech or dance. The first two music events analysed here
reveal ways by which he transformed music in class using the rhythmic mode on bongo drums while accompanying the piano, and then how he transformed known songs by his rhythmic, melodic and harmonic inventions on the garage piano at home.

Sebastian's mother taught Ethiopian dance in the community, worked in the film industry and rehearsed Michael Jackson songs and dances with Sebastian using video recordings. From observations made at home and school, he appeared focused on embodied meaning making: moves put to music, and widening his vocabulary of sound through exploration of voice and instruments. At home, Sebastian’s mother used moments of music making with her son to interact more closely in dialogue, exchange ideas and build his musical understanding. These were moments of mother and child bonding. She shared some of these events, captured on video, with the researcher. They were opportunities to gain detailed insight into the way in which Sebastian created new music, extending and expanding on previous music sung in the classroom (Cali Mera, There Was An Old Woman), and at home (Michael Jackson’s “I Wanna Be Where You Are” interspersed with new ideas and materials.

6.7.1 Sebastian's Transformational Redesign in Classroom Music Invention

This example occurred in his inner-city urban classroom with children playing xylophones (tuned to the pentatonic scale) and bongo drums, while the teacher/researcher accompanied them on piano, blues style (Figure 47).

Description

Most children kept a steady beat. Of interest here, the reason for selection of this and the prior example, was the manner in which transformational redesign on the part of one child with a rich cultural resource, gave the music a new life and direction.
Sebastian was the focus in this event and, while most of the group of seven children played a steady crotchet or quaver pattern or sometimes experimented by making glissandos on the xylophones, he played a complex cross-rhythm of syncopated notes that fitted perfectly between the notes.

Figure 47. Image transcript of transformation using instruments: School context.

Analysis

The urban classroom music event was transcribed as a music score to show how modes were co-constructed with the music. It focused on the actions of Sebastian. He experimented with his musical instrument, its timbre and potential for *music dialogue* with other children. He also interacted with the piano piece, listening to the rhythmic motifs and echoing some or playing “in between” the beat to extend and expand meaning through the *audio mode*: rhythmic variation and syncopation (see Figure 48, bar 11; bars 13-14). Wrists and shoulders were completely relaxed as his whole body (*gestural mode*) was at one with the drum and with the music.
Figure 48. Extended music score transcript with modal configuration showing transformational music invention: School context.
Through intentional and purposeful embodied meaning making he explored new ideas, and established understanding of musical form. Vygotsky (1997, p. 211) has noted, "Intention is a type of process of controlling one's own behaviour by creating appropriate situations and connections." Sebastian used gestural modes of shoulder, arm movement and gaze to carry the semiotic load in order to make meaningful responses to the music. Through interpersonal responses he also communicated by audio mode, listening and responding to rhythmic patterns of other children or sometimes to the researcher's patterns on the piano (Figure 48, bars 15-16), making new meaning the principal mode of music. The materiality of all modes connected with his senses (visual, audio modes, touch) as he used timbral qualities of bongo drums to patterns of music.

The conditions in which this transformation unfolded are worthy of consideration, as (1) Multimodal input from a child has capacity to shape innovation in a group, and (2) A situation where this was least likely to be hindered by adult influences on the processes of learning through transformational redesign in the mode of music. All modes were interconnected in ways that communicated Sebastian's music knowledge of rhythms, phrasing, dynamics, tempo and an ability to play in ensemble (Figure 48) in simultaneity with modes of gesture (shoulder and arm movement), gaze, proxemics (See Table 17, Appendix 8). John-Steiner (2006) documented young children's interactions and creative collaborations and invented a language that coupled affective and cognitive interactions contributing to dynamic joint efforts. She observed that past cultural influences were connected to new experiences in children's play in ways that encouraged self-mastery and more flexible interactions with others. This can enhance learning by internalising diverse influences and strategies, and by reorganising these through a synthesis of known songs, rhymes or rhythms and readily available cultural or musical resources.
Discussion

Sebastian's prior experiences of Ethiopian music and dance (remembered well, as he was a recent arrival in Australia) could be traced as musical identity. His mother incorporated dances from Ethiopia and Michael Jackson into his musical experiences at home. Michael had visited Ethiopia on tour and his music was embraced there. As John-Steiner has observed, "A person comes to know about the world not through absorbing – but through transforming – the information received from others’ speech and actions; s/he must reconstruct knowledge based on these experiences" (John-Steiner, 2006).

Traces of African and American cultural influences were present in Sebastian's music improvisations (syncopated jazz rhythms originating in Afro-American blues; American pop hip hop and post disco culture and moonwalk and robot dance styles promoted by Michael Jackson). These enriched his music and social interaction skills.

6.7.2 Sebastian's Transformational Redesign in Home Music Invention

This section explores music inventive practices in Sebastian's home environment, establishing how links were made to his school practices through emergence of skills and conceptual knowledge of music in the home. In transformative redesign in the mode of music, prior experiences of selecting and combining modes to communicate meaning were folded in a new performance. Sebastian explored the piano for its affordances: dynamics, timbre and range of pitch, its sheer physical largeness. He overlaid on the keyboard rhythms from nursery rhymes learned at home and at school, in the form of clustered notes (One, Two, Three, Four, Five, Once I Caught A Fish Alive). His dialogue with the piano in music invention involved exploration of gestural (movement mode) (stroking, striking, swaying, spinning, pulling the notes out), listening with eyes closed, and singing or speaking words in rhyme. Ways of approaching the keyboard included caressing notes or for strength and power through music invention.
Description

The example that follows is a transcription of one of the piano pieces captured on video by Sebastian’s mother (Figures 49 and 50). Apt resources were selected by him to represent meaning in music invention. *Modes* are represented in the music transcription.

![Figure 49. Image transcript of transformational music invention using piano: Home context.](image)

Sebastian understood the rhythm of the rhyme on which he based his clustered note accompaniment. He played the quaver subdivisions of the beat that underpinned the rhyme and then continued on the piano, extending the rhythm by inserting another beat to create a 5/4 bar (bar 37). Then he focused on the quaver pattern using a run of quavers descending down the full range of the keyboard (bar 38). The coda (bars 39-42) consisted of sustained notes interspersed by two crotchet rests. The music was loud, bright in timbre and notes were articulated in a staccato fashion, plucked from the piano keys with relaxed wrists and whole arm action (see Figures 49 for *modes of arm and hand action and interaction, in simultaneity with voice, head/shoulders, piano instrumental and voice involved in the principal mode of music invention*). The following music manuscript represents music, head, shoulders and hands as *multimodal* interactions that comprised his invention (Figure 51).
Sebastian's Piano

Figure 50. Music score and voice transcription with modal configuration showing transformational music invention: Home context [Voice: Transcribed on top line of music score (boy soprano) and also indicated by the blue line at the bottom of transcript. Begins on p. 277].
Figure 50. Music score and voice transcription with modal configuration showing transformational music invention: Home context (Continued).
Shoulders relaxed – move with head from side to side. Smiles at his mother, who says gently, “Can’t you sing?”

Voice (Softly at first): spoken not sung in a robotic style. Increasing in volume.

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**Figure 50.** Music score and voice transcription with modal configuration showing transformational music invention: Home context (Continued).
Right Hand  X  X  X  X  X  X  X  X  X  X
Left Hand  X
Head/Shoulders  Initially focused on the keyboard, head gaze is looking ahead
Voice

Right Hand  X  X  X  X  X  X  X  X
Left Hand  X  X  X  X
Head/Shoulders  Gaze directly ahead at his reflection in the piano.
Voice

Figure 50. Music score and voice transcription with modal configuration showing transformational music invention: Home context (Continued).
Figure 50. Music score and voice transcription with modal configuration showing transformational music invention: Home context (Continued).
Sebastian sometimes played with both hands simultaneously, for emphasis (usually on a strong beat of the bar) but at most times alternating one with the other. He occasionally featured the dotted quaver-semiquaver rhythm in the rhyme (matching the words “sev-en”, “did you” and “fin-ger”: bars thirty-two and thirty-three). This familiar Western rhyme, learned in the classroom, became the basis of this vocal and piano improvisation, plus fragments of syncopated rhythms from his mother’s Ethiopian dance and drumming. Such actions and interactions were observed by the researcher during home visits, and were captured on video by his mother.

Figure 51. Image transcript of Sebastian’s home music event: Frames 1-8.
Analysis

The wide range of dynamics and tempo in the *multimodal piano transcript* (Figure 50) was used by Sebastian to further explore his emotional responses to the affordances of the instrument. His use of *gestural modes* of gaze, movements of head, shoulders, hands and arms, and whole body movement in *transformational redesign* and the whole range of the piano keyboard (*audio mode*), indicated his love of an instrument that had wide melodic range and was *visually* and kinesthetically engaging. He occasionally selected clustered notes on the black keys, or white keys adjacent to the two black. He used *gestural mode*, his whole body, to lean into the notes when playing slow, soft, expressive sections (Bars 16-23), lifting his shoulders, then leaned back as he turned, grinning in anticipation and announced to his mother, “now I’m going to make it loud again” (Bar 26 to the end). His arms flew into the air and back down, striking the keys in contrast to his soft, close stroking of the notes in the previous section. In all, Sebastian appeared to be immersed in exploring the affordances or potential dynamic and tonal range accessible on the instrument (*audio mode*), and the fact that he could literally stretch his arms to either end, spanning the entire width of the keyboard and embracing sounds as he played. The home garage had become his studio, a place where he could play and create music, selecting from a palette of tonal colours, textures and dynamics. Modes of gross and fine motor expression, voice, gaze and proxemics combined with other affordances (*the elements of music as modes*) to convey meaning.

Discussion

As already mentioned earlier, Sebastian had recently relocated from Ethiopia to inner-urban Australia, and was fluent in both English and Amharic. His mother worked in the film industry, possessing diverse talents incorporating dance, acting and vocal skills. During visits to their home, it was not unusual to see Sebastian dancing, singing
and playing instruments in quick succession, often simultaneously. At times his mother prompted a response by posing a question or making an observation, scaffolding his music invention by focusing attention on one aspect of his activity or singing to a recording of Michael Jackson’s "Smooth Criminal" and clicking the beat with her fingers as he danced. She also built his song repertoire through song sharing of nursery rhymes or songs that Sebastian had learned at school, and taught him dance moves to Michael Jackson songs (Figure 5). She spent time as a volunteer assistant in the classroom, supporting his transition from home to school in many ways.

Sebastian used the interaction and *dialogue of modes* and prior cultural influences to create a multimodal ensemble of meaning making. They operated as a vocabulary that expanded possibilities for expressing the inexpressible, for making dialogue with the music and with his mother, and for re-presenting his prior knowledge, in order to strengthen his musical identity (Pahl & Roswell, 2006). In classroom music invention, Sebastian played animatedly on the djembe drum, xylophone and ukulele, demonstrating a stable sense of beat and working in complex rhythmic patterns to extend previous ideas. At home he experimented and transformed his musical inventions using *modes of bodily movement*, head tilted from side to side and shoulders raised and lowered, gaze directed up, and *visual/audio mode* of the piano, “reaching” for a new idea, and mode of expression. His stories were sometimes sung, or half-spoken, incorporating resources for music invention included Ethiopian song and dance, music technology, instruments and his mother’s songs. He was purposeful in making selections of loud and soft, right and left hand or both together while playing the piano, *redesigning* them to support the meaning in the lyrics. Exploration of the *music mode: elements of music*, particularly pitch and rhythm, made his inventions cohere in a holistic way to transform meaning in situated communication with his mother and
himself. Combinations of *modes* (Table 18, Appendix 8) *redesigned to transform* meaning made in home music inventions imbued Sebastian's communication at school. This enabled him to more confidently transition from home to school learning.

**6.8 Transmodal Redesign from Music to Speech Rhyme: Sebastian’s Garage Rap**

This example of *music redesign into the mode of speech* was coded as *transmodal redesign* in the home. As in the previous example, it demonstrated transduction or fresh realisation of familiarised concepts of music by semiotic import of prior exploratory moments of music invention in the home. Home was the primary place for music habitus, building a reality for relating to the world and making transitions from home to school. Captured by his mother, using video recording, Sebastian was interacting with her as she sat next to him while he played the piano in their garage (Figure 51). His mother had, in earlier sessions (Figure 50), suggested familiar rhymes and pop songs for him to sing, and he did so, accompanying his singing with clustered notes played on the keyboard. This music event was different, as Sebastian led the music, exploring his own music vocally as well as in accompaniment. It demonstrated furthering of understanding gained through Sebastian’s chaining of prior repeated experiences of *transformational redesign* discussed (Figures 48 and 50).

In previous events, Sebastian was outstanding in his ability to re-order or *reconfigure modes* to feature selected elements of music. He responded by interpreting these using selections of notes and playing phrases with a variety of dynamics and tone colour, sometimes repeating the rhythm to listen to the timbre of the piano. His mother would question: "How about the Michael Jackson song when he was little: A-B-C?" She then modelled the singing using a tunefully modulated and projected voice revealing a slight American accent, inviting Sebastian to follow her in the same manner.
Encouraging him with by saying: "Sing it to me: use your real voice" to enhance his tone production, his mother developed his capacity as a musician and as a performer. She expanded his vocabulary using verbal linguistic mode by requesting he find another way to sing or describe events: "use different words to describe the piano;" "what sort of animals are in the song?" "What did you like about our trip to the city last week?" His expressive language skills and sense of self-efficacy were remarkable for his age. Consequently he displayed purpose, method, character and strength in his music inventive practices and affective responses through social interaction.

**Description**

In the example discussed here, speech/verbal linguistics as principal organising mode reflected the rhythmic, rhyming and repetitive elements of his music. Sebastian used the upright piano at home to rehearse, refine and fix previous experiences of music into speech rhyme. In previous music events at home, Sebastian also looked to his mother for cues as to how he might continue (Figure 51, Frames 5 and 8). He used transmodal redesign to shift an operatic rendition of songs, some of which he learned at school (There Was An Old Woman; 1-2-3-4-5, Once I Caught A Fish Alive; Hello Everybody) and some of which his mother taught him (Michael Jackson’s “Smooth Criminal” and “A-B-C”) from the mode of music to a principal mode of speech. He had previously made transformations in the mode of music as he spoke these while making percussive sounds on the beat, clustered notes played over the entire register of the piano. Sometimes he alternated hands (Figure 51, Frames 2 and 4); at other times he played simultaneously. Sonar effects were similar to Stockhausen’s compositions in following a design that was not a-tonal, but similar to a 12-tone row. His playing was rhythmically complex and structured but fluid, redesigning subtle nuances of sounds.
On playing a very soft, slow and expressive segment he explored the lyrical potential of the piano, one note at a time, swaying his body and head in circular movements, tilting his face and gazing upwards to listen to the sounds (as in Figure 51, Frame 1). Sebastian’s fingers curled over the notes, and his knuckles were sometimes vertical to the keyboard as he rotated his hands in a relaxed manner. He was riveted on this activity as he explored the affordances of the instrument. Sometimes he used voice and piano, and jumped into the air excitedly using the *gestural mode* of whole body movement to transition from a song to another, using multiple *modes* in simultaneity. At other times he slid his feet sideways, moving from the low to high register. His motor responses shaped his *dominant gestural mode of communication through movement*.

Sebastian’s mother was partial to the quieter, more expressive section of playing (Figure 52, bars 1-4 and bars 35-42), adding “I *love* it!” In these segments Sebastian was more reflective, displaying his affective responses to intimate experiences such as playing with mummy on the piano or in the park. His mother later shared with the researcher her thoughts on his playing: “when he plays like this I can see his soul.” The rapport between mother and son was important for building focus, attention, social skills such as sharing and co-operation in learning experiences through the medium of music. Involvement of his mother made *redesign* in the space more complete. She supported his playing by asking questions about his favourite music, singing the first line of a Michael Jackson song then allowing Sebastian to take over with his own rendition. She had, during infancy, taught him many English nursery rhymes that emerged in his singing or in the rhythmic motifs of his piano playing. She suggested he make up a song (Figure 52).
Figure 52. Music score transcript and modal configuration showing music to speech rhyme: Sebastian's Garage Rap.
Analysis

The transcript in Figure 52 demonstrates the interaction of music (audio) and other modes, the modal configuration being aligned to the piano and voice to demonstrate when music mode has principal focus of attention and when the mode of speech (linguistics) is dominant. Throughout this invention, the gestural mode of movement was also powerful and became the principal mode when a shift of meaning occurred in the last two bars (Figure 52). Proximity to his mother was also influential when Sebastian needed support in how to continue. However, he quickly forgot her presence as he weaved words together with the underlying support of the piano music. His meaning making was important as a way of consolidating his musical identity and also his ability to draw on appropriate modes in redesign of meaning across domains. This assisted him in making an effective and fluent transition from home to school learning. The modal density (the modes Sebastian used for redesign) is represented in Figure 53 and a summary of modal redesign shown in Table 19, Appendix 8.

Figure 53. Modal density of Sebastian's home music event: Garage rap.
This composing event was characteristic of a *transmodal moment* in the space of a familiar cultural context, the home. The space was the foundation for possible shifts in meaning while moving from the *audio mode of music* (singing and playing the piano to Michael Jackson Pop songs) to a *mode of speech rhymes*. The rhymes began as words of a traditional English rhyme found in a familiar literacy text used in school: “There Was An Old Woman” and integrated fragments from “1-2-3-4-5, Once I Caught A Fish Alive!” This was discussed in detail previously in this chapter (Figure 50).

However, in this fresh invention or playful experimentation, Sebastian pinned down prior experiences expressed in the principal mode of music by articulating his conceptual understanding in the *principal mode of speech/verbal linguistics*. As seen in Figure 53, Sebastian included some words from the traditional Amharic language of his Ethiopian origin while inventing a new speech rhyme through *transmodal redesign*:

Sebastian:
*My lov-ly piano is ve-ry a use-ful.* (spoken in meter, adding piano clusters)
*My use-ful pi – ana! Piano is ve-ry good.*
*It’s ve-ry shiny and ve-ry dee- clean.*
*Very, very good to play on.*
*There– was and old wo-man\nWho swallowed – a piano!\nThe piano was so lo – swallowed\nAnd I had no piano!\nI had no piano - I had no piano,\nNo more pianos Daddy could play!\nI need to play – ready to play!\n1-2-3-4-5 Then he sit me te-ri did a\nThere was an old wo-maannn! (Mum: make up a song about Mummy).\n*My mummy is ve-ry zihg- ny and I love to play with her* (spoken as a strong metrical rhyme)\n*I love to eat with her\nPlay at the park with the netball hoooops.\nAnd I love to play with the netball hoops.\nAnd then: (Sebastian began a ‘rap’ dance, sliding from side to side, playing over all the keys).
Original familiar nursery rhymes were transformed through *redesign* in the *mode of speech* as Sebastian grappled with cognitive dissonance, synthesising ideas to solve the problem of creating new songs/rhymes (Custodero, 2006). He built on the underlying rhythmic motif and ideas in the original text with the disjunctive (conflicting or nonsense) idea of a ‘swallowed’ piano (Figure 52, Bars 16, 18 and 20). Here Sebastian added percussive piano clusters, shifting the mood, presenting a new idea that resembled “opera” combining *movement, gesture, voice and music in a multimodal ensemble of meaning*. The modes he drew upon to make meaning occurred in simultaneity at this point in his music invention, indicating the realisation of *transmodal redesign* (Figure 52). He had not only transformed previous musical knowledge and experiences by reordering these *modes*. He had knowingly and purposefully pinned down the meaning during a moment of folding of previous experiences through *transmodal redesign*. Sebastian did this as he used syncretism by drawing on cultural practices related to his previously acquired music repertoire in the composing process. He also selected features of music and repeated, extended or expanded these.

Sebastian extended and expanded ideas to shift the meaning through the text, the lyrics. This was achieved using rhythmic elements and devices of language. The text became not just an account, nor a narrative, but a more condensed form, a poem or rhyme using meter, extension of phrases (I had no piano, I had no piano – no more pianos daddy could play) or syllabic repetition (I need to play – ready to play). He also used the device of expansion of an idea using the word "play" and what that meant in terms of playing a piano and later playing in the park with the netball hoops. The rhythmic elements of the rhyme were representations of time that organised and underpinned Sebastian's invention and word play, closely allied to spatial representations. He invested in the element of musical duration, just as a musical
geometer would use numbers to divide space. All these elements demonstrated Sebastian's cognitive effort.

For much of the music event Sebastian improvised freely with fast, syncopated and complex rhythmic phrases, using the entire register of the piano in loud and percussive effect, and with diminuendo to the end of the passage. He stretched both hands out to either end of the keyboard to encompass its length (Figure 51, Frame 4). His arms flew up and down energetically with hands raised to shoulder level then returning to the keys (Figure 51, Frames 3, 6, 7). Shoulders were raised then relaxed in response to variations in dynamics and tone. The whole body movement of the rap and the accompanying speech rhyme were the dominant modes for most of this invention in verbal linguistic mode (Figure 52).

When Sebastian realised the climax in the intensity of the music's sound, he used all modes in simultaneity (Figure 52, Bars 39-46) and, in the final three bars, he leaped from one end of the piano to the other in wide strides to emphasise the joyousness, the affective response, connected to his game with his mother whilst throwing the ball into the netball hoop. This seven-bar climax to his garage rap demonstrated the shift in meaning associated with drawing on and combining all modes in simultaneity to realise the music mode as a new dominant mode of speech rhyme. His gaze at his reflection in the piano (Figure 52, Bar 10) influenced the lyrics of his speech rhyme about his "shiny" piano. The proximity of his mother and the emotional ties to her may have been influential in his shift from the use of nursery songs and extensions of these, to a verbal realisation of meaning as he wove his spoken rhyme about his mother. All modes interacted in relationship to each other in complex ways to shape the meaning made by Sebastian's garage rap. It was a masterful example of music invention.
Overall, the moment of music invention on the piano was an opportunity for
Sebastian to draw on prior experiences of songs, nursery rhymes, dance rhythms and
affordances of the piano and voice to create a beautiful and spontaneous linguistic text.
Expansion of ideas worked into the driving metrical rhyme of the text created new
meanings, new understandings of the structures and elements of music and language.

**Discussion**

Sometimes these repeated features were elements of music, such as accent (bars six and seven; eighteen and twenty-one) or dynamics (Figure 52, bar 34 and bar 43) or
rhythmic motifs such as crotchets followed by a minim (Figure 52, bars 35-40) repeated
for emphasis and to reinforce meaning. Sebastian's inventions in playing and singing
were musical in the sense of both Bach's (1723) two part inventions and the tri-tone in
Messiaen's (1928-9) *Préludes* for piano in terms of their operatic forms incorporating
small elements of colour and rhythm that "resolve sense and rational thought through a
resonance structure pinned to the lyrics" (Metzger & Rainer, 1982). The tri-tone, used
so often in Messiaen's works, was frequently selected (preferred) by Sebastian to add
colour (Figure 52, Bars 1-7; 14 and 15; 17 and 18; 35, 43).

**6.9 Transmodal Redesign from Music to Movement: Sebastian and “Billie Jean”**

Another example of transmodal redesign, this time from music to dance,
revealed the complexity of social relations and diverse cultural influences at work in the
lives of Sebastian and his mother. In chains of transformational redesign observed in
home music events, such as the music invention by Sebastian discussed in Chapter 5, he
had practiced ways of combining and rearranging modes such as voice (audio
linguistic), audio (music), movement and proxemics to effectively communicate in
everyday situations. Gathering ideas from prior songs and dances in traditional and pop
music cultures, he became skilled in reorganising these by featuring *elements of music modes and gestural mode* to most effectively conveyed meaning. Thus, he was using semiotic import (van Leeuwen, 2005) to enable import of meanings across borders. Transcripts use tracings of still image to most effectively display *gestural mode*.

**Description**

A video of Sebastian and his mum dancing to Michael Jackson’s “Billie Jean” was made in his home, his mother having set up a video camera next to the television screen, which was displaying the D.V.D. recording of Michael Jackson's hip hop dancing as he sang this famous song. Figure 54 is a tracing of a sequence of still images that represent the dance to "Billie Jean," capturing the moves of mother and son. Some images indicated co-constructed or symmetrical meaning making; others showed disjunctive or asymmetrical meaning making.

![Image tracing transcript showing Sebastian and Mother Dance to Michael Jackson D.V.D. “Billie Jean”](image-url)
Analysis

From interviews with Sebastian's parents, and observations, it was traced that family knowledge of American hip hop and Ethiopian dance cultures, and the home library of D.V.D. recordings of popular musicians, contributed to diversity in home music inventions and the formation of Sebastian's musical disposition. Kalantzis and Cope have observed, "As people are simultaneously members of multiple life worlds, so their identities have multiple layers that are in complex relation to each other" (Kalantzis & Cope (2000, p. 17). In the following section on classroom music redesign (Figures 55-57), it is shown that Sebastian portrayed this strong musical disposition by assuming the identity of a masterful conductor. Semiotic import of gestural and verbal linguistic modes were partially culturally derived resources that he used to cross borders from home to school, while redesigning meaning in classroom interaction.

Discussion

In “Billie Jean” both mother and son used these composing resources to assume another type of music identity as they sometimes sang or sometimes "lip synced," always interpreting the music by moving smoothly and “in sync” with Michael's moves on the D.V.D. recording. As Sebastian's mother was a competent dancer, her fluidity of movement, gesture and balance inspired Sebastian. For the most part he moved in parallel formation to his mother (Figure 54, Frames 3, 6, 7, 8, and 9) or in similar mode (Figure 54, Frame 5). He had been shaped by prior experiences of redesign in these modes of music and dance moves. In Figure 54 Frames 1, 2 and 4), however, Sebastian used his own bodily interpretations, derived from the familiar moves on the D.V.D. In these moments he demonstrated an opposite feeling or asymmetrical response to the music to that of his mother. His disposition was expressed as a display of confidence, resistance, and a mastery of interpretation.
Because Sebastian had experienced many musical situations at home and in the community, where he danced with his mother and other family friends, and had been exposed to Ethiopian dance and American Pop music genres from early childhood, his music language embraced a whole vocabulary of movement, rhythmic patterns and songs. Interspersed with the nursery rhymes taught by his mother he had learned songs from Michael Jackson Albums: Smooth Criminal; Billie Jean; and ABC Baby You And Me, to name just a few. His movement vocabulary was already extensive and diverse, secured through repetition and imitation in dialogue with his mother.

In Figure 54, it is clearly displayed that in some moments of his dance to music, Sebastian chose to edit the moves made by Jackson on the video. In some instances this was due to his aversion to “crossing the midline” of the body while moving arms, legs and hands - as though he had “edited out” certain moves and focused on others. Yet there were moments (Figure 54, Frames 5 and 9) when his focus was on “crossing the midline” with one arm while the other was extended above his body. This was contrary to what at first glance seemed like he was only choosing responses that were appropriate for his stage of development.

On closer inspection, frame by frame, Sebastian’s moves were intricate, fluid and selected to feature and extend a bodily attitude, to express a feeling or interpret a particular musical figure such as the short syncopated phrases that followed a long phrase, pulling up his fists in front of him on the first strong beat of each short syncopated phrase (Figure 54, Frame 2). Sebastian moved in parallel to his mother at first, and mostly co-constructed the music through movement responses that complemented each other in meaning-making (Figure 54, Frames 3, 5, 7-9). Most new material in terms of movement responses to the music occurred when he chose when he
chose disjunct or opposite ideas to those of his mother: to spin around while his mother jumped high on one spot (Figure 54, Frame 1), to lift both fists in front of his chest and pulled both arms down as his mother spun around (Figure 54, Frame 2) or lean forward and to one side holding his groin while his mother stretched up with left hand behind her head (Figure 54, Frame 4).

In these moments Sebastian selected and conveyed disjunctive meaning or opposing ideas to those presented by his mother, moving out of the symmetry of mirrored responses in proximity and choosing asymmetrical ways to represent meaning through movement. Sebastian treated movement as representing a line of music independent to the melodic line of the song but linked through rhythmic patterns. As such he demonstrated understanding of the music by representing it in the dominant mode of movement through extension and expansion of previous knowledge (introducing new phrasing and rhythmic ideas through gesture and whole body movement). The exploration of contrapuntal rhythmic figures demonstrated in his "moves" made in opposite ways to those of his mother while clearly related to the melodic line of the song, were similar to those found in the two part inventions of Bach (1723) or Messiaen's Préludes for piano (1929), particularly with regard to asymmetric use of infinite variations of a figure, an idea, resolved in the overall form of music.

A high level of affective responses and social interaction skills were displayed in Sebastian's actions and interactions. His combinations of the modes of movement (gesture), proxemics and music (prior understanding and perception of the elements of phrasing, syncopated rhythms and melodies) demonstrated Sebastian's ability to balance innovations in the style of hip hop with those of traditional Ethiopian moves - the leaps in the air, twirling around. Together, he and his mother revived Michael Jackson’s
songs and dances, in transmodal redesign breathing new life and meaning into the music. In particular, Sebastian made new meaning in redesign from the mode of music to that of movement (gesture), by challenging old ways and “being himself,” bringing his own ways of knowing to the music. In this way he went further than other children in this study in demonstrating conceptual understanding of the elements of music, being able to re-present prior knowledge in fresh modes. This transcended cultural and social representations and political ideologies to engage a politics of the spirit. Essential to the dynamics of transmodal redesign, present in much of Messiaen's creative musical works (Fulcher, 2002; Metzger, H-K. & Rainer, 1982) and associated with non-western musical systems and aesthetics, this way of knowing was important to his family as they made a transition to a new country. A summary of the modal redesign for this event is given in Table 20, Appendix 8.

6.10 Sebastian's Transmodal Classroom Instrumental Orchestration

This urban classroom music event of transmodal redesign is presented here as a demonstration of selection and redesign of modes where Sebastian organised his peers in realising meaning. He incorporated the verbal linguistic mode of speech (verbal scripting) with mode of movement or gesture (displayed in tracings of still images, Figures 55-57) to interpret and display his prior knowledge of the elements of music as modes in this classroom orchestration, realising new meanings through interaction. In preparation, Sebastian’s inner-city music classroom was set up with bongo drums, a box drum and alto xylophones arranged in a semi-circle. The eight children selected an instrument. The beginning four bars are shown below in Figure 58. Transcripts using tracings of still images were used to effectively display the movement (gestural mode).
Figure 5. Image transcript showing Sebastian’s classroom music event: Frames 1 to 9.

Figure 56. Image transcript showing a continuation of Sebastian’s classroom music event: Frames 1 to 9.
Figure 57. Image transcript showing a continuation of Sebastian’s classroom music event: Frames 1 to 9.

Figure 58. Music score transcript showing transformative orchestration: Classroom instrumental event.
Description

Proxemics or relations of children to each other in the physical space, was an influencing factor in how the music unfolded. Children sat in a semicircle in front of Sebastian with their instruments placed on the floor in front of them (Figure 59). Eye contact was maintained between participants and Sebastian (the director). The central circle in Figure 59 represents Sebastian; the smaller ones in the semicircle represent the other children, their proximity to each other and Sebastian.

![Proxemics: Children in Classroom Instrumental Event](image)

Figure 59: Proxemics: Children in Classroom Instrumental Event.

Sebastian stood at the front of the semicircle and began his “percussion ensemble.” Figures 55 to 57 show tracings of still images in sequence to capture and display movement, and to demonstrate how the music invention unfolded in time. As seen in Figure 56, he directed his gaze towards the drums, beginning: “All the dr ... All the,” and paused. He added authoritatively, “One box drum starting now!” Sebastian’s right hand and arm formed a conductor’s gesture, palm facing down and wrist relaxed, with his left hand supportively held near his side ready for use (Figure 55, Frame 1). Siobhan began playing the box drum, using both mallets simultaneously on two tones on the left side, followed by two on the right, alternating in a steady repeated quaver pattern. She initiated the tempo and rhythm. Turning to the other drummers, Sebastian
gestured with extended arm to include them: “Then the drums … that are together.” (Figure 55, Frames 1-2).

Children played the bongo drums with alternate hands, continuing the quaver pattern. By gesturing with both upturned palms for the whole ensemble to play (Figure 55, Frame 3), Sebastian gazed at the three xylophones. Though slightly uneven, they adhered to the quaver pattern initiated by Siobhan, exploring the entire register of the instrument (some notes were removed, leaving only C, E, G and A). Sebastian noted that instruments were not "sounding together." Children were focusing on individual instrument potentials. Instead of indicating a beat through gesture, he simply stated, "Together ... you've got to be together!" He listened and added, "Look at me and …" then he exclaimed, "Now everyone, stop!" and a gesture of crossed arms flung apart, achieved this (Figure 55, Frame 6). Silences importantly maintained control.

In a way observed in his piano improvisations (Figure 50 and Figure 52), Sebastian used instrument groups as affordances. He did likewise in this classroom music event. "Then – I’m going to do an ... different order" (Figure 55, Frame 7). This referred to two groups: drums and xylophones. Sebastian responded to the children’s sounds, first in terms of instrumentation and order of entry, and then "playing together." “First – now I’m going to start with the xylophones.” He leaned towards them, inviting them to be ready. He punched his fists downward for "start" and placed his hands on hips as they played, listening and maintaining a steady gaze (Figure 55, Frame 9). The xylophones continued quaver note patterns, each child moving between three notes, differently ordered but synchronised. “Now xylophones, stop,” he spoke softly in, relaxed tone. He waited until all children were listening attentively.
There was silence for a moment. Sebastian appeared to be thinking about how to achieve the sounds he had imagined. He touched his nose, (Figure 56, Frame 1), looking down for a brief second. Lifting his head and swinging his arms backwards, he bent his knees and leaned forward. "Can all of the ... " he called, as he jumped high into the air and threw his arms straight up above him. He twisted to his left, locking his ankles, turning a complete 360 degrees in the air, uttering "aand ... (play)." He seemed to gain a new perspective of the situation as he spun around, which brought the children to notice his manoeuvres with added interest (Figure 56, Frame 5). As he looked around, he exclaimed, "the…box drum!" gesturing with his left arm crossed over the right and pointing to Siobhan. Now the children displayed heightened interest and engagement. Sebastian looked left, waiting a moment while listening, visually scanning the ensemble in anticipation of his next move (Figure 58, Frame 9).

Meanwhile, (Figure 57, Frame 1), Siobhan moved the two mallets, side to side, repeating the two pitches seven times in a slower, regulated pulse. She paused, began to repeat the seven-note pattern, at which point Sebastian gestured and exclaimed, "Stop!" His arms extended forward and crossed over, as he pointed to Siobhan. She immediately stopped and silence returned briefly. He bent down to the spare bongo drum on the floor next to Siobhan. "Then the drums that are together," he called (Figure 57, Frames 4-5), playing along with them. This assisted in maintaining a steadier pace. It moment was pivotal: an immediate change of attitude and mood.

The children now listened more attentively to each other and to Sebastian. "Now all the drums that are together – stop." Sebastian gazed at them, hands folded. He smiled, adding: "And then … Make the music ... all together!" He raised the pitch of his voice to support the idea of this being a climax (Figure 57, Frames 4-5). As he began to
speak, he crossed his arms in front of him, lifting them and gazing upwards as if wanting the music to follow his upward lift of the body and follow a new direction. He flung his arms out to the sides and smiled this idea: "All together!" Then on hearing the sounds, loud and erratic, he lifted his palms towards the children, fingers spread wide: "Look! No! Not loud ... Softly!" He leaned forward, exclaiming: "That’s better!" The sounds were softer, but the tempo had also slowed. The children were absorbed, listening to him and playing together in awareness of the sounds and each other, demonstrating affective response. Sebastian appeared to be supportive using relaxed, flexible body language and raised eyebrows.

Quietly Sebastian turned to the xylophones: "Now every ... can all the xylophones stop?" He appeared to be planning a way to make the sound recede into the coda. There was an immediate reduction in the intensity of the sound. The timbre, too, had mellowed rather like that of rain falling. "And then all the drum boxes stop?" He asked quietly. He moved his right hand toward the drums (Figure 57, Frame 8). Siohan continued to play, offering in fun a disjunct or opposite meaning. "Stop - You!" His voice was harsh as he gazed at Siobhan, still playing and determined to finish, as she had begun, with a solo. Her box drum sounded a little "cheeky" as the uneven rhythm and the hardness of the wooden sound intruded into the quietness. Then the door opened behind them. They all turned, looking at the teacher returning to the room, breaking their child-created activity and transforming them back to their classroom world. Their shoulders went down, arms folded and facial brows drawn.

Analysis

It was possible to gain an understanding of how, from this sequence, the children had in effect created a world in music invention through choice and use of
materials, their embodied interaction and shaping of sounds to co-construct and transform meaning. They represented their ideas through a multiplicity of modes (body language, proximity, use of the instruments through striking or softer bouncing and glancing of the mallets), often simultaneously, creating a transformation or redesign of their music invention. Sebastian used body language (gestural mode) in action as a supportive mode for communication, but his command of regularities in vocabulary (verbal linguistic modes) was the dominant mode to convey the meaning of his musical ideas and, with action, to create shifts of meaning. He understood elements of music as modes: phrasing (start, stop), to play softly, in sections, or “all together.” He indicated starting and cut-off points clearly through verbal scripting supported by gesture.

Gesture sometimes dominated (arms crossed and pointing, or arms outstretched and encompassing the players in that section). Sebastian’s verbal request to play softly was accompanied by palms forward, fingers spread and knees slightly bent (Figure 57, Frame 7). His conducting (gestural mode) aligned with the verbal linguistic mode of his verbal scripting, supporting his intentions through bodily movement. He turned to one instrumental section by twisting his body slightly, bending one knee to invite them to play, then waiting with hands on hips and feet turned out while he listened to the playing of his peers (Figure 55, Frame 9; Figure 57, Frame 1). The attention of the whole group was directed to Sebastian as they shaped the sounds together. First resisting, (Figure 55, Frame 8), they finally acknowledged regularities of "start, stop, take turns, all together, soft" (Figure 56, Frame 1; Figure 57).

In terms of eclectic response in this composing event, the children began with a lot of enthusiasm but not much demonstration of ability to listen to each other. They were focused on exploring the melodic range of their own instrument, the timbre, and
the different ways of producing sound. Often they imitated the rhythmic riffs of others, and sometimes the arm actions of a partner playing the same xylophone as they moved up and down their four-note range, crossed arms or moved to the edge of the xylophone to create different timbres and percussive effects. They negotiated power relations, sometimes following Sebastian’s requests “start; stop,” but initially not united in achieving what he had conceived. They were introducing a problem through resistance. Sebastian used multiple layers of meaning to solve this problem: stopping and starting, using silence, and often the simultaneity of bodily action, gaze, speech and gesture. His verbal requests, accompanied with gesture, bent knees and fingers outspread, gradually impacted the way his peers played in ensemble. In particular the meaningful communication to ”play softly” achieved a slowing of the music as well as a diminuendo (Figure 57, Frame 6). At this point distinctions between concepts of ”soft” and ”slow” were beginning to be established within the group as musical elements, for through this activity the children were building aural discrimination.

While each player chose his or her own method of tapping, hitting or glancing the instrument, and selected combinations of pitches to be played simultaneously with the others, as a group they cohered together by imitating the fast, evenly spaced rhythm structure set by Siobhan. Children together made dynamic contrasts and tempo variations as Sebastian encouraged them to make greater effort in listening to each other. His problem-solving techniques succeeded: he exclaimed, “That’s better!”

From the audio mode of music to that of linguistic, Sebastian’s transmodal redesign reordered and reconfigured modes using verbal scripting to remake aspects of the music. Changes involved phrasing, sectional instrumental timbres, dynamics and silence, the elements of music as modes. There was also a shift in understanding with
peers through his selection and use of the *modes of movement (gestural) and proxemics* (Figure 56). He used interpersonal functions of these *modes* to negotiate power relations, seen in tracings, descriptive analysis and *modal configurations* in Tables 7 - 9.

Each of Tables 7, 8 and 9 represents a summary of the three tracings of still images (Figures 55, 56 and 57). These contain *modal configuration* and accompanying detailed descriptions of what was occurring in each *mode*, how it was identified and how it interacted with other *modes* to make meaning. The three tables are different in configuration because there is a shift in meaning making clearly identified in Sebastian's speech, actions and subsequent selections of *modes* at three distinctive points in the video recorded event. He shifted meaning by foregrounding the *higher mode* of *verbal scripting*, combining it with *movement (gestural mode)*, as he leaped in the air (Figure 56 and Table 8). This had the combined effect of eliciting a change in the response of all children. New understanding of "soft," "loud" and "all together" were realised by the group as they played the instruments in ensemble, and Sebastian regained a dominant position of power as the listening skills of all children were heightened and attention focused on him (Tables 8 and 9). Through detailed analysis of *modal configuration*, combined with the tracings of still images, it was possible to gain some insight into Sebastian's logical progression of thought and the shift in understanding through *transmodal redesign* from *music to speech* ("together," "softly," and "stop," Table 9).

At the close of the music invention, Sebastian’s position of power as leader was again challenged. The girl to his right resisted his call: “Stop! All the drum boxes - stop now!” However, there was an interesting shift in understanding of the *elements of music as modes*, particularly on the part of Sebastian, as he enacted this ensemble in a classroom setting. He was able to establish, or “re-pin” prior conceptual knowledge of
music by moving it into the *dominant mode of speech (linguistics)* through his verbal scripting, and by re-configuring or redesigning modes to elicit desired musical responses from his peers. Music invention assisted his transition from home to school as he implemented verbal and non-verbal negotiation skills in social interaction, accessing prior music experiences of *transformational redesign* at home (Figures 50 and 54).

Table 7

*Modal Configuration Related to the Transcript Presented in Figure 55.*

<table>
<thead>
<tr>
<th>Modal Configuration - High to Low Order</th>
<th>Modal Density</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>spoken voice</strong></td>
<td>&quot;All the ... one box drum starting now.&quot; &quot;And then the drums that are together.&quot; &quot;And then the xylophones.&quot; &quot;Together. You've got to be together. Now everyone - stop!&quot; &quot;Then I'm going to do an different order. First I'm going to start with the xylophones. Now the xylophones stop.&quot;</td>
<td>55 secs</td>
</tr>
<tr>
<td><strong>arm, hand, body movement</strong></td>
<td>Sebastian's arms held in front, right hand pointing. Body twists to the side and palms up to invite children to play. Shoulders are back to command start/stop. All children look to each other and instrument, glancing at Sebastian smiling. Arms, hands, heads are constantly moving.</td>
<td></td>
</tr>
<tr>
<td><strong>music</strong></td>
<td>Drums and xylophones are hit hard to create staccato effects. Sometimes the drum section plays alone; other times the xylophones.</td>
<td></td>
</tr>
<tr>
<td><strong>proxemics</strong></td>
<td>Children are closely seated together in a semicircle, some sharing the same xylophone, facing Sebastian. The girl playing the box drum is to the right hand side of Sebastian at a little distance from the other children.</td>
<td></td>
</tr>
</tbody>
</table>
Table 8

*Modal Configuration Related to the Transcript Presented in Figure 56.*

<table>
<thead>
<tr>
<th>Modal Configuration - High to Low Order</th>
<th>Modal Density</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spoken Voice</td>
<td>Arm, Hand, Head, Body Movement</td>
<td>5 secs</td>
</tr>
<tr>
<td>Music Timbre</td>
<td>Proxemics</td>
<td></td>
</tr>
</tbody>
</table>

"And ... can all of the ... box drum start. Stop!"

"Then the drums that are together."

Sebastian has hands on hips then crosses arms, and flings himself into the air. He twists around at the same time in a 360-degree spin with legs and feet crossed, and lands facing the children to his right. He points with arms crossed at girl to the right, leaning towards her.

In front of the group of children, Sebastian gains their attention by leaping and then leans in to elicit more thoughtful responses from the children.
Table 9

Modal Configuration Related to the Transcript Presented in Figure 57.

<table>
<thead>
<tr>
<th>Modal Configuration - High to Low Order</th>
<th>Modal Density</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spoken Voice</td>
<td>Arm, Hand, Body Movement</td>
<td>Music Timbre</td>
</tr>
<tr>
<td>&quot;Now all the drums that are together stop. And then ... make the music all together!&quot; &quot;No, not loud! Not loud!&quot; &quot;Softly!&quot; &quot;That's better. Now can all the xylophones stop? And then all the drum boxes stop? Stop! You! Can all the drums stop together? Stop!&quot;</td>
<td>All are down on the floor playing in simultaneity. Sebastian then resumes his position in front of the group, lifting head to listen, leaning from one section to the other, gazing and pointing, then signalling &quot;stop.&quot;</td>
<td>Soft, rhythm of drums is more what Sebastian wanted but all playing together make noise. He listens, then adjusts the sound to softer tones.</td>
</tr>
</tbody>
</table>

The shift of meaning in this music invention was Sebastian’s jump (Table 9), followed by his idea of playing with the group on the floor. Eclectic responses were, after this point of change, more in harmony with each other and with Sebastian’s intentions. Other modes operating together “in dialogue” indicated this was a moment of learning through transmodal redesign. Sebastian’s prior experiences of music in Ethiopia, where whole body movements have various meaning potentials, were used as semiotic import of composing resources as he overcame a disjunctive moment in this
music event, where children appeared to be playing different rhythms and tempos very loudly, and not focused on listening to each other or to his verbal requests. His leap and twist was an apt representation of his interest as sign maker. His exercise of choice and investment of interest gave new shape to the meaning. Meaning was re-established on a new level as the children listened to each other, to Sebastian, and to their instruments, playing more softly, with musical timbre.

**Discussion**

All children interpreted and found new conceptual meanings through redesigning the music together, by their selection and use of available instruments and resources of ways of playing these (striking, tapping, glancing off the note, playing softly or loudly). They increased their understanding elements of music through interaction and *music dialogue*. Dialogue (as relationships between *modes of music, speech, action, gesture and eclectic response from peers*) occurred as children took turns, played together (in response to Sebastian) or changed from striking to glissando styles influenced by a *partner in proximity* (*mode of proxemics*).

The children, at first problem finding or deconstructing the music through disjunctive or opposite sounds in combination (Table 7), shifted to problem solving by a co-construction of meaning as they responded to Sebastian's speech (verbal scripting), gesture and movement and to each other in *music dialogue*. Through conjunct meaning making (Table 9) they solved problems of how to play together, and ways of playing, by these intentional means of combining *modes* to make meaning. As Vygotsky (1997, p. 211) has written, "Intention is a type of process of controlling one's own behaviour by creating appropriate situations and connections."
The significance of this music event for learning was the way it engendered joy and enthusiasm, and promoted sensitivity of expression and musical understanding through interaction. Children realised transmodal redesign. Shifting meaning and mood through music dialogue from the mode of music to that of speech (verbal linguistics), Sebastian solved problems such as effective and apt use of resources during interaction to reach a common goal (see Table 9). This involved experimentation, listening to and challenging peers during interaction, and responding to actions, gesture and speech. Resources of tempo, dynamics and phrasing (music modes) were attended to, as children became more aware of these music elements as modes of communication throughout the composing event (particularly Figure 58). The music event clearly demonstrated language (verbal linguistics) as the dominant mode, but one of many modes (notably music and gesture) operating in a complex network of meaning making, facilitating communication and problem solving. A summary of the transmodal redesign is shown in Table 21, Appendix 8.

6.11 Discussion: Intersections and Chains of Semiosis Across Modes

In the examples chosen for analysis in this chapter, there was a noticeable shift in meaning made as children demonstrated growing understanding of the elements of music as modes (rhythmic motifs, melodic sequences, timbre, phrase structure, dynamics and articulation) as they accessed new resources to move meaning across modes in moments of transmodal redesign. They also demonstrated confidence and competence in expressing these across modes from speech to music, or vice versa, and from music to movement, through transmodal redesign (Mavers, 2011). In examples discussed in this chapter, the selections of principal modes - movement (gestural), song (audio linguistic), instrumental (audio) or verbal modes - were not arbitrary but deliberately made by children to better support and convey meaning, and therefore
became signs that learning was taking place (Newfield, 2009). Conceptual understanding of music grew with self-initiated learning in *redesign* activities, and was established in peer as opposed to adult (parent or teacher) interactions.

Children used *redesign across modes* where a shift from contextual understanding of concepts to a more universal or fixed understanding of the conceptual elements of music occurred during *music dialogue* and invention. They indicated this by the way in which they expanded on, elaborated, extended prior learning (knowledge of timbre, phrase structure, dynamics and articulation), the *formal elements of music as modes*. For example, Mimi's "Owl Story" was developed by her ability to find and use *modes of dramatic gesture*. Crisis and change were achieved through the *audio mode* of sound (box drum as kangaroo, the timbre of the metallophone with high, sustained sounds represented a "saving" of the owl by the little girl; the guiro suggested danger and the bass drum provided the climax). Resolution of conflicting ideas was realised by children's response to contrasting, disjunctive timbres to co-construct dramatic meaning.

Heidi's change of *modal configuration* through gesture acted as a conduit, adding asymmetrical or disjunctive meaning: change in rhythmic patterns, accents, rests and phrasing. Sara realised new ways to express *elements of music as modes* - rhythm, staccato/legato, phrasing and dynamics and the complex interaction of melodic and rhythmic lines - by redesign realised in dance, not by imitation. She extended movement ideas, leading her sister. Building on prior learning led to new understanding. All three girls built on prior knowledge of these elements of music through chains of semiosis or prior learning in the home. This promoted music understanding in *transmodal redesign*.

All examples of *transmodal redesign* in this chapter demonstrated a range of
possibilities of shaping children’s musical knowledge. In the Australian context, it could be said that Sebastian's classroom music invention (Figures 55-57) was like a form of corroboree, a partnership. All children sat around the "fire" and equally contributed, breaking the traditional procedures of the music classroom, expectations of taking turns, of listening and responding only when requested (information gathered from interviews, observations and field notes). It was a moment of *aporia* (Derrida, 1993) where for a moment, the children reversed the power relations between teacher and were oblivious of anyone observing them, taken up in their world of playing, problem finding and problem solving, until the door opened behind them and they swung round, looking as though they had been "caught" in the act. Sebastian himself maintained an authoritarian role at first, imitating that of a teacher by standing in front of the seated semicircle of children (Figure 59). His directions and expectations, and his perceived status in the group, altered (Table 8) as he jumped in the air, got down on the floor and played along with the children. By becoming one with their actions, he was better able to achieve his objective of "playing all together" and "playing softly" as well as "start" or "stop," and all children responded.

Children, at first deconstructing the music using disjunct or opposite sounds, shifted to respond in co-construction of meaning with Sebastian's speech, gesture and movement and by listening to each other in *music dialogue*. Sebastian drew on semiotic import of composing resources (Hip Hop rhythms and phrasing, and timbres of instruments) in the *audio mode of music*; and the twisting, spinning round and jumping of Ethiopian dance moves in the *mode of gesture* (movement), to promote understanding. Verbal and non-verbal interactions, built in chains of semiosis during home events (Figures 50 and 54) were accessed to *create transmodal redesign* in the classroom (Figures 55-57).
By listening and using tonal language (a musical form of speaking where lyrics or texts are only part of the total meaning) Sebastian built on these prior elements of music learning in a chain of semiosis to create this transmodal redesign in classroom music. Redesign, using prior knowledge of the elements of music as modes (dynamics, phrasing, timbre) as central to his music dialogue, in addition to other modes, involved him accessing processes already familiar to him in the home or community. These processes created a context where intersection of cultures gave Sebastian a greater degree of agency (Custodero, 2009a, 2009b). The elements of music, as modes, were salient to his meaning making. However, other modes, particularly verbal linguistic, audio linguistic and gestural modes, were seen in this and other events discussed in this chapter, to shape Sebastian's responses, forming a semiotic chain that allowed him to build on prior experiences of learning in music.

Following on from examples of these children using transformational redesign in their inventive music practices (Chapter 4, Figure 16), Sebastian's classroom music event revealed how chains of meaning promote conceptual knowledge of music over time. After many experiences of semiotic import in the audio mode of music, he consciously "re-pinned" prior musical experiences through transmodal redesign across modes to the verbal linguistic, thereby enhancing understanding (Newfield, 2009). Transmodal redesign was realised in this music event as he was given opportunity to reinforce ways of meaning making in his transition to school (Jorgensen, 2002). In all examples selected for discussion in this chapter, momentary shifts of meaning across modes were influenced by children's interest in featuring affordances of one mode, or by prior learning. Verbal and non-verbal influences sometimes caused resistance, conflict and deconstruction of meaning in addition to co-constructed meaning making, in
situated representations of music invention. These interactions revealed what was meaningful in their music (Burnard & Younker, 2002; Dillon, 2007).

Attention to all the modes used for transmodal redesign by the children, using the space of music dialogue, was a productive way of highlighting how learning was enhanced in music improvisation. On a surface level, children were refining their ability to discriminate sounds: instrumental timbre, dynamics, tempo, rhythmic elements and pitch as they reached for the notes. Less obviously they redesigned meaning through selections of sound sources and rhythm riffs (Heidi's conducting, Sebastian's garage rap, Sebastian's dance to "Billie Jean" and Sara's family dance). Meaning made using elements of music was heightened in transmodal redesign using speech (verbal linguistics) as dominant mode accompanied by modes of gesture, visual, kinaesthetic and proxemics in dialogue. Over time, children became masterful in music invention, reshaping meaning using a multimodal ensemble in moments of rich, powerful learning.

The culmination of this research, the multimodal analysis of redesign in children's music invention, has convincingly demonstrated in this chapter, and in Chapter 5, that the choices in modal redesign indicate cognitive understanding. Perceptiveness of forms and elements of music, traced over time with parents and siblings in home music events, was seen to have developed through children's increased conceptual understanding as they built on experiences of redesign to make sense of sounds, combining and re-organising modes (Barrett, 2006; West, 2009). In particular, children's purposeful redesign across principal communicational modes, using their knowledge of elements of music as modes, was evident. They understood how these modes might be reconfigured in an ensemble of meaning. This was clearly apparent in the transmodal redesign revealed in Mimi, Heidi, Sara and Sebastian's music invention.
6.12 Cultural Resources and Contexts: Resistance and Return

There has been increasing emphasis on holistic learning in recent years, less concerned with socially constructed cultural identities and more informed by individually constructed ones (Barrett, 2011; Burnard, 2012; Green, 2011). Cultural backgrounds of children used to be the motivation for exploring diverse ethnic and cultural music. However, “music educators increasingly acknowledge that the relationship between ethnicity and musical tastes, skills and activities is increasingly fluid … even considering confusion as a pedagogical tool, deliberately applying cognitive dissonance to the learning process in music education” (Schippers, 2010, p.41). There is a reappraisal of transmission through aurality, a new emphasis on intangible elements (identified as multimodal), and holistic learning. Context realises the cultural and social.

By triangulating interviews and observations using Activity Theory, music events discussed in this chapter (Sara and Sebastian's home dance, Heidi’s conducting, Sebastian's garage rap and Mimi's owl story) demonstrated how children, accessing unique cultural influences and prior learning, used these as resources in transmodal redesign of music. The space of music dialogue was developed in this thesis to account for prior learning in community and home social and cultural experiences, combined with resources of modes, that together promote conceptual understanding during interaction in music invention at school and home. All modes, when occurring in simultaneity in a music event, shifted the meaning, particularly as children accessed elements of music in redesign across principal modes. Their redesign capacities in conflicting situated home or classroom experiences enabled these young children to not only realise meaning but to heighten conceptual understanding of the elements of music while communicating in moments of cognitive dissonance.
Children’s music performances and inventions, when recorded on video in context of home and school, and analysed using multimodal social semiotics and a framework of music dialogue, revealed designs that moved and shifted with each new moment of music. Activity Theory (CHAT) was useful to see how children made meaning through semiotic import across borders, roots and cultures, and from home to school. This was particularly apparent when tracing Sebastian and Heidi’s formation of a musical identity in the home and community, over time, and glimpsing how this played out in the realisation of transmodal redesign in both classroom interactions and home inventions. When viewed through the framework of music dialogue over of time, individual children's music inventions told much more about children's representations of conceptual knowledge of music, their chains of semiosis. There appeared to be an underlying pattern of Sebastian, Heidi, Mimi and Sara in importing meaning across borders and contexts. In both rural and urban settings there was an interconnectedness of roots/routes and cultures found in interactions with family members that indicated a habitus, a musical disposition in formation (Green, 2011) that transcended boundaries.

Activity Theory (CHAT) will therefore be elaborated on here, as a way of analysing the broader social and cultural aspects and influences in each music event, to contextualise the cases and also to answer one of the subsidiary questions of the study:

How may diverse cultural resources and contexts influence children's import of semiotic resources within and across principal modes in redesign?

Activity Theory, a system of relationships between elements (the subject), making his or her voice heard in a particular event or text (the object) by the possible choices of mediating tools: modes or semiotic resources and artifacts. The many voices
and agency of participants, their particular histories, social and cultural experiences, were of interest during interaction. Cognitive dissonance, contradictions, and discontinuities were some ways an event was played out in the classroom or in the home (Mimi's "Owl Story"; Sebastian's classroom ensemble; Sara's home family dance and Heidi's conducting gestures in the home). Other influences - the social system (the school or the home as an institution, with its specific structures or hierarchies, and its rules), impacted on the way the event unfolded. Children began with turn-taking and cautious experimentation, aware of classroom conventions, and ended these events with greater empowerment and control of music redesign, in Sebastian's classroom ensemble and the classroom redesign of the picture book, "Crocodile Beat." See Chapter 3, Figure 2a, for the way these relationships are represented as interacting in this study.

Use of Activity Theory assisted in determining how children discussed in this chapter had developed a "habitus" or musical disposition over time. They were quick to see connections with other modes (Kress, 1997, 2010; Mavers, 2011; Young, 2009) and demonstrated agency by highlighting some features at the expense of others, or adding new ideas, in this process of transmodal redesign. Through semiotic import of Sara and Sebastian's dance moves to music and Heidi's conducting gestures, hey were freed from conventions or restrictions that would confine or limit their agency when featuring elements of music as modes. Expression and ownership of complex interplay of the conceptual elements inherent in the modes of music, movement and speech (Ruthmann, 2008) gave them the tools to move across domains of classroom learning in the arts and literacy. They were agentive in selecting essential units of speech, music and dance, re-ordering them through transmodal redesign in a new communicative form to convey meaning in a new context ("Crocodile Beat"; "Owl Story"; Sebastian's Classroom Ensemble). It afforded possible paths to enhancing cognitive skills of problem solving.
social interaction and making appropriate affective responses to the challenges of border crossing between home and school, and between countries, which was a real challenge for Sebastian, Mimi and Sara. Through interviews and observation, it was seen that parents of all three recognised and supported their transitions through music interaction.

Music meaning making at home and during classroom music invention connected with children's various prior cultural experiences of dance, literacy, speech and drama. Music events discussed in this study created contexts for children's learning (Custodero, 2006). Examined using the double helix of Activity Theory and multimodal analysis, children's music invention, explored in this chapter in particular, and in Chapters 4 and 5, promoted understanding and communication of music concepts, and enriched dance practices, drama and role-play. Multimodal forms of expression were folded together ("Crocodile Beat" and "Owl") to heighten meaning, giving it vibrancy in situated, ordinary music events (Elliott, 2012) in the rural classroom and in Sebastian's inner-urban classroom ensemble. Children were seen to advance learning, being engaged actors in socially constructed environments where they framed, interpreted and responded. Home events, captured by video recording and analysed, were opportunities to see how children gained mastery of redesign (Sebastian's piano rap, Sara's family dance and Heidi's conducting) through the fluidity of situated music practices and activities in the home (Regelski, 2004). These children were thereby able to access prior knowledge and communication skills to transition from home to school. An interview with Sara's mother, of Arabic heritage, revealed the high value she placed on music, its importance for learning language, culture, family relationships, and a whole way of life:

*The music is important for making you feel good and for supporting emotions. If you are feeling down or lonely, it lifts you up, especially singing and dancing together.*
At school the children can’t always be doing the hard job. They need those times for music because they are at school for a long time. It helps them to listen. That is very important for learning a language. It is also very important for our family in the home. It helps things to run smoothly when we listen to each other. It is good for communication. Music helps with that. (Interview with Sara’s mother).

Elements of music were recognised, selected and used in fresh ways by children in the examples of transmodal redesign displayed in Chapters 5 and 6, particularly in the classroom "Crocodile Beat" and Mimi's "Owl Story", in Heidi's use of conducting gestures, Sebastian's "Garage Rap" and Sara's family dance. Through a multimodal ensemble of meaning making, children interacted with materials to present a rich understanding of conceptual elements of music during their redesign of modes from music to dance (gesture) or verbal linguistics. Music invention acted to inform other creative arts through rhythms, timbre, dynamics, melody and phrasing, enhancing flow and embodied practices. During music invention, children used conflict as well as co-operation to make ongoing choices of how they might rearrange and feature recognised and familiar aspects of performance. Some moments of music invention coded in Chapters 5 and 6 showed that "the transmodal moment is a moment of learning … shifts in mode are able to encourage rich and powerful learning" (Newfield, 2009, p.185). This was particularly noticeable in moments of cognitive dissonance that required resolution by application of prior conceptual knowledge and semiotic import of composing resources (Sebastian's classroom ensemble and Mimi's "Owl Story").

Through examination of a variety of situated practices that drew on diverse cultural resources, it was evident that learning in children’s music invention was heightened when the learner re-articulated prior experiences and understandings of the
elements of music in a new *mode*. Concepts in music were challenged in examples discussed in this chapter as children shifted meaning *across modes*, and this disequilibriation, their disjunctive meaning making, created opportunities for them to find new resources, or combinations of *modes*, to rearticulate these concepts in redesign. In addition, it facilitated communication and interaction, positive learning dispositions, when making transitions from home to school, particularly in the case of Sebastian, who had developed a strong musical habitus. As Elliott (2012, p. 23) has noted: “sounds are always inherently multidimensional social, cultural, political, gendered, and economic constructions.”

### 6.13 Conceptual Understanding of Music Through Transmodal Redesign

The experiences of music invention in the home explored in this chapter gave these children opportunity to use familiar cultural resources in their music redesign, enhancing their learning through interested, engaged activity. Through this type of problem finding and problem solving, prior knowledge, in particular transitory and *transformative experiences of redesign* in music, was consolidated (particularly in activities of Mimi and Sebastian). The elements of music were featured as resources for *transmodal redesign across modes*. This shift in modal design, meaning and interpretation found a parallel in the ideas of equilibration, internalisation and distributed learning in the work of Lave & Wenger (1991), Piaget (1977), Rogoff (2003) and Vygotsky (1978).

*Multimodal analysis* of examples of *transmodal redesign* in music revealed cognitive dissonance leading to conceptual understanding. The researcher's poststructural view of children's interactions in their world, and application of both critical theory and *multimodal* social semiotic theory, informed interpretations of
disjunctive meaning making and cognitive dissonance observed as children reinvested prior knowledge when moving meaning across modes to discover new ways of knowing. This they did autonomously, without adult scaffolding, by resisting and adapting prior learning, and then chaining it to new knowledge in new modes to enhance their understanding of the elements of music. The use of redesign across principal modes assisted children in “re-pinning” (Stein, 2008), or re-shaping new inventions with conscious, deliberate and effortful choices of modes, and realising conceptual understanding of music in a new principal mode with the use of fresh resources. Embodied meaning making and cognitive understandings were both realised in transmodal redesign in young children’s music invention. Disjunct or asymmetrical ideas in children's embodied meaning making during music invention actually extended and expanded meaning, contributing to learning (Schippers, 2010).
A group of children were huddled together with me on the steps outside the classroom, excitedly sharing what they liked about music. Sebastian leaned forward: “I like my useful piano ... I like exploring the different sounds of the different instruments, and I like playing music games.” Heidi elaborated: “I just do it! Singing and speaking: singing games and telling stories.” When I asked: “What do you do when you are playing music?” Sara replied, “You have fun! You play!” I then questioned, “What is play?” Bob replied: “Playing outside in the sandpit - and playing musical instruments.” Edward added, “Play is moving and action. When you are tired you go and rest and when you are healthy and playful you go and play.” Stephen explained, “In music, it means you get to do something.”

From children's comments above, and from multimodal analysis of their music events in this thesis, experiences of meaningful, engaged and playful interaction during music invention contributed to active learning in music. Exploration of children's music invention through thematic case studies of their classroom and home transformational redesign (Chapter 4) leading to classroom transmodal redesign (Chapter 5) and individual children's transmodal redesign (Chapter 6) revealed how this active learning was realised. The procedure of this study was to capture through cameos, or selected music events of young children, the ways by which they developed redesign capacities of music invention. This was done by examining in detail the interplay of modes, an "ensemble of meaning" (Kress, 2003) in these cameos of music invention, to determine how young children in diverse cultural contexts redesigned modes to transform meaning in interactions and negotiations of music across environments of classrooms and home. The aim was to develop a conceptual tool and a meta-language for thinking about and
understanding the complex reconfigurations of resources that young children access to realise modal redesign and thereby to promote conceptual knowledge in their music invention. The first section in this chapter revisits how "exploring different sounds and instruments" using modes in context, impacts learning. Patterns of learning through transformational and transmodal redesign in young children’s music inventions will be discussed. The subsidiary questions: how diverse cultural resources and contexts influence children's import of semiotic resources in and across principal modes in redesign; and how children's redesign of semiotic resources in music inventions promotes conceptual understanding, will be addressed. The implications for future research and practice will be outlined, and the value of this research for policy and classroom practice on local, national and global scales will be presented.

Pluralistic histories, discussed in Chapter 6, informed children's music invention, their ways of knowing and their dispositions. Mimi and Sebastian's use of verbal scripting to link prior experiences to new music inventions in the classroom, Sara's use of dance gestures to consolidate prior experiences of Arabic music, and Heidi's conducting gestures, demonstrated ways children continually shaped and re-formed their music identity. How children realised embodied meaning making and cognition in situated practices through music dialogue, particularly redesign of elements of music, was revealed in examples of transformational redesign discussed in Chapter 4. This they did by demonstrating structure and phrasing in movement to music; by selecting repeated melodic and rhythmic patterns on xylophones; by vocal inventions in school; or by re-shaping Pop songs at home using music technology (Bob, Edward and Mimi).

Conceptual understanding of audio (music) modes, the elements of music, emerging over time, was demonstrated in children's growing ability to use these to shift
meaning made across principal organising modes (Chapters 5 and 6). This was traced through examples of transmodal redesign following on from chains of semiosis (moments of transformational design). These were discussed in selected classroom examples in Chapter 5, the rural classroom musical orchestration of the story "Crocodile Beat," plus the home and school inventions of Mimi and Sebastian, and home inventions of Sara and Heidi, discussed in Chapter 6. Music events analysed in home or school events promoted culturally shared knowledge and actions, as children redesigned elements and used cognitive dissonance to enhance understanding. Poststructural theory informed interpretations, assisting in identifying disjunctive meaning making in events.

Patterns of children's interactions through their selections and redesign of modes need to be viewed through a framework of music dialogue (Figure 61), as seen in examples analysed in this study. Intra-modal elements of music form an essential core of this framework, within and amongst other modes. Vital to embodied cognition and interaction in music, children select and redesign them to transform meaning.

The analysis of selected video recorded music events in Chapter 4 suggested that these music inventions were moments of transformational redesign of learning through music dialogue. Children selected some elements of music as modes, combining and reordering them with other modes that were effective for redesign, in order to make sense of experiences in music as principal mode. Chapter 5 focused on the thematic case study of chains of semiosis leading to transmodal redesign during music events in a rural music classroom, over time. In Chapter 6, individual children's transmodal redesign and learning was formed in chains of semiosis, each being an event of situated transformational redesign of modes. This was seen to promote children's conceptual understanding as, over time, these children connected processes and elements of prior
learning to engage in transmodal redesign. In transcripts of video recordings of music invention in home and classroom contexts, children redesigned meaning across modes using more knowledgeable and skilled use of resources. They drew on prior experiences in a moment of transmodal redesign where existing knowledge was challenged. This shaping created a sense of community and music identity. Children communicated using both co-constructed (conjunct) music invention and asymmetrical, disjunct meaning making (deconstruction) resolved in interaction, and marked by a shift in conceptual understanding.

By application of multimodal processes of analysis to classroom practice, it can be seen that listening to children’s voices in their music, by capturing their redesign of communicative modes, is paramount when planning for music activities in the school curriculum. Within music learning, there is an imperative to plan for music inventive practices because they encourage and support children by validating their learning experiences and competencies, their dispositions and music identities (classroom movement to music; ensemble playing; inventive songs; music drama; and soundscape). In the examples analysed in this thesis, it was evident that music learning, approached through real-life situations and investigations, is intrinsically motivating. Children applied imagination and organisational skills, sharing and building on musical ideas through understanding of the elements of music (Sebastian's garage rap; Heidi's conducting; Sara's family dance and Mimi's "Owl Story." They co-constructed music, evaluated it, negotiated change or new ideas, and developed confidence in their ownership and expression of music (Sebastian's classroom ensemble; "Crocodile Beat." Music events discussed in this study revealed children's capacity for redesign.

Children were seen to be drawing on resources of modes, materials and prior
experiences to redesign meaning and to assist in transfer from home to school
(Sebastian using syncopated rhythms in home inventions and in "Banana Bop" in the classroom; Mimi listening for instrumental timbres to assist her classroom music drama, "Owl Story"; Sandra interacting in "Kingston Town" with meaningful redesign of gesture in classroom music invention). To varying degrees in both classroom interactions and home music activities, children could be said to be employing skills of multimodal redesign to enhance learning:

- Problem finding and problem solving, listening skills and critical thinking skills were developed during music invention as children rearticulated meaning in new modes.
- Responding to and shaping sounds during group interaction by commanding the attention of peers, using semiotic resources of gaze, verbal expression, gesture and whole body movement, and sound and silence.
- Sensitive adult scaffolding.
- Either resisting through use of opposite (disjunct) ideas, or co-constructing by adding similar (conjunct) ideas, or both, to create music inventions through redesign of modes during music discourses.

7.1 Transformational and Transmodal Redesign in Music Invention
The principal question emerging from the literature review, with useful applications for researchers and teachers, was:

**How are transformational and transmodal redesign realised in young children’s music invention?**
In prior research, Young (2003) had observed forms of organisation and strategies used by children in their music invention practices. These were *multimodal* in nature (Harrop-Allin, 2010) as children redesign music to interpret experiences and aspects of their world (West, 2009). While Harrop-Allin (2010, 2011) investigated how this redesign occurred in playground singing games, and some of the forms it took, there was need to see the progression over time of children's capacity for transformational and *transmodal redesign* across home and school contexts, to gain insight into their mastery of *music modes* (the conceptual elements of music). It was necessary to investigate further whether children reconfigured *music modes* to transform their ideas of sound (West, 2009). The *space of music dialogue*, developed as a conceptual framework in this thesis, made it possible to capture in time, explore and analyse in detail, prior cultural learning and a diversity of contextualised musical patterns, forms and styles. This was displayed in summaries of *modal redesign* of each music event in Appendix 8.

*Redesign* (Figure 59) was at the forefront of this study. Children's music invention was seen as the playful and purposeful arrangements and *redesign of modes* made by children as they interacted through *music dialogue* in diverse cultural settings. In each situated music event in this study there was dialogue of the *modes of music*, *linguistics, gesture, mimetic mode and facial expression, proxemics or visual artifacts*. *Transformational redesign* occurred in children's interactions with peers, an adult, or both in classroom or home contexts (Chapter 4), through transmission of familiar cultural forms of music and their ways of knowing (represented by the blue circle on the left in Figure 60). Over time, some children (Chapters 5 and 6) enriched their inventions by drawing on prior events, cultural resources and *modes* (see Figure 59). As these children gained confidence in their *transformational redesigns*, often through frequent
music dialogue at home or in the classroom, they learned in more exploratory ways through transmodal redesign (represented by the blue circle on the right in Figure 59). They used disjunctive meaning making, testing prior knowledge and reactions of adults and peers during interaction, as well as exploring ways to use technical affordances of instruments (timbral elements, range of pitch, rhythmic and harmonic possibilities).

Such chains of semiosis, breaking down and linking up, created transmodal redesign. Observed in some music events in Chapters 5 and 6, Mimi, Sebastian, Heidi and Sara demonstrated a form of enculturation, ability to move across domains: home to school; and across modes of music, dance and linguistics. They were border crossing.

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**Figure 59.** Dialogue and the formation of conceptual knowledge through redesign.

Tendencies and trends in terms of children's growth in conceptual knowledge were ascertained over time as children transformed given material, such as melodic and rhythmic phrases from known songs, and particularly when they transduced their previous music activities by expressing essential elements of what was learned previously and then adapted them in a new mode: Sebastian's "Billie Jean" movement to
music, Chapter 6; speech modes in Sebastian's classroom ensemble, garage rap and Mimi's "Owl Story"; media in Chapter 4, Bob and Edward, and Mimi's use of music technology such as ipod or mobile ringtone for transformational redesign in music invention; or transmodal redesign from speech/storybook to music as in the "Crocodile Beat" in Chapter 5. This process added new ideas about an experience or learning activity and removed some original material not possible or necessary for meaning making in the new mode. It would appear, in all twenty-two examples analysed in this study, that music dialogue involved transformational redesign through configurations between modes that changed according to transfer of knowledge in situated practices in any music event as it unfolded in time. Some music dialogue went further (Chapters 5 - "Crocodile Beat"; "Metallophone Melodies"; and Chapter 6, Sebastian's home and classroom transmodal redesigns from music (audio) to linguistic mode and Sara's family dance (audio to gestural mode). These music inventions involved the pinning down of prior knowledge to make a shift in conceptual understanding. This process, referred to in the research question as transmodal redesign, was revealed through analysis of eight video recorded examples.

On the basis of transmodal redesign as a crucial factor in music dialogue, it may be proposed that the more noticeable the shift in understanding of concepts in music across time and place, using embodied and interactive forms of meaning making, the richer the learning that was taking place. This was noticed through coding of cases to facilitate the making of connections and relations between elements of children's responses by examining differences and contrasts in their situated responses over time and in diverse settings. Tendencies, patterns and trends were more readily identified and rich learning thereby ascribed to these creativities in formation. Sebastian (Chapter 6, Figures 52, 54 and 55-57) went furthest in enacting habitus in transmodal redesign.
In examples analysed in Chapters 5 and 6, children’s conceptual understanding was realised through a shift (change) in representation offered by a new communicative mode. Figure 59 provides a graphic representation of the way in which music dialogue can promote learning through a progression from conceptual knowledge of elements of music in moments of transformational redesign, to conceptual understanding where, over time, many embodied experiences or chains of semiosis enabled children to gain more permanent understanding of the elements of music through transmodal redesign.

While the nature of multimodal redesign in music invention cannot be generalisable, due to changes in modal configuration in each music event examined in context, varying levels of modal configuration were analysed to gain deeper insight into the progress and understanding of children across multiple creative activities and music events. The way in which children selected and used affordances of instruments, materials, voice and formal resources (concepts or elements of music) revealed their self-assessment of actions. It demonstrated the potential of these affordances for their creative practice (Burnard, 2012, p. 259). This type of insight aids the educator to plan more robustly, designing activities such as those discussed in this study appropriate for classroom dialogue that facilitate the discovery of elements of music by improvised work. If dialogue of modes is the basis of all young children’s music interactions, and a way by which teachers can support music learning, a discussion of the usefulness of the space of music dialogue as a conceptual tool for research and pedagogy must occur.

### 7.2 Multimodal Redesign: The Space of Music Dialogue

Previous research (Swanwick, 1994; Alexander, 2008; Burnard, 2012 and Green, 2011) has noted that intuitive prior knowledge is passed on in music invention as children enact agency and identity, building on cultural ideas and framings. These
observations were the basis of the formulation of a conceptual framework as a lens for investigation of young children's contextualised music invention. The researcher in this study saw that a systematic approach to analysis of such diverse music would assist in determining how transmodal and transformational redesign in music invention was realised, and how this contributed to learning. When examined closely and in detail, each music event was different, and it was impossible to draw general conclusions from these. However, through the use of the conceptual framework of music dialogue (analysing what music modes, as elements of music, were evident in children's music, interacting with other modes), it was possible to see trends or patterns emerging: to perceive a new way of understanding how transformational and transmodal redesign were realised. The Table summaries in Appendix 8 indicate how this was done in each event, and how patterns of music modes (elements of music) realised new meaning.

For example, a shift in meaning was made in transmodal redesign of Sebastian's classroom instrumental ensemble when all modes occurred in simultaneity. Children, at first deconstructing using music (audio mode) in disjunct/clashing sounds, shifted to respond in co-construction of meaning by using music modes of dynamics, timbre, rhythm and phrasing in response to Sebastian's verbal scripting (linguistic mode), supported by modes of gesture and movement. Sara realised new ways to express the elements of music - staccato, legato, phrasing and dynamics and the complex interaction of melodic and rhythmic lines, in audio mode - by redesign realised in dance (gestural mode). Heidi made a shift in meaning and mode from music to conducting gesture by adding asymmetrical or disjunctive meaning: change in rhythmic patterns, accents, rests and phrasing. Prior knowledge of these elements of music was through music "habitus" in the home. Here they promoted music understanding. Mimi's transmodal redesign of "Owl Story" from speech mode to instrumental music mode was achieved as she
accessed contrasting, disjunctive timbres to co-construct meaning in the classroom. In *transmodal redesign* from storybook to instrumental ensemble, disjunctive meaning in the climax established new conceptual knowledge through shifts in music (fast running quaver sounds) and *transmodal redesign* was realised. A diminuendo by hand and arm gesture on drum, and *proxemics*, created the coda. In cases of *transmodal redesign*, the co-occurrence of *music modes* (*elements of music*) selected by children in simultaneity with other *modes*, resolved dissonant (disjunctive) elements, resolving conflict.

When beginning to analyse the data, it became evident that dialogue (Wiggins, 2012) was unfolding as musical interaction between children, with parents and siblings, or by individual children listening, observing and experimenting with sounds (West, 2009). It was noticed that what was vital to the quality of music invention was a *dialogue of modes*. Important to selections and *redesign of these modes* was children’s engagement and interaction. They were focused on how, through interaction in music, they could express new ideas by combining *audio modes of instruments, media and/or voice with gestural, visual and verbal linguistic modes*. Therefore the exploration of interactions made with sounds and other modes or systems of communication was crucial to *music dialogue* explored by children. They were fascinated by the way music opened up new possibilities for them to express ideas, initiate dialogue with an instrument or with others. Further discoveries were made during music invention of the usefulness of the *embodied modes* for communication and dialogue: *gestural modes* of whole body or fine motor actions. These could enrich meaning and impact on the creation of differences in sounds, particularly when combined with the *spatial mode of proxemics*, the ways by which children interacted in the physical space. Complex and surprising nuances in sound were made possible by the ways children played or sang (hitting, scratching, rubbing, glancing, or vocal variations of tone and dynamics). Each
instrument had particular affordances (potentials and constraints) providing a particular “voice” with which children could transform meaning in music dialogue.

Transformational and transmodal redesign were at first difficult to identify in children's music invention. The aim was, therefore, to explore through the framework of the space of music dialogue (Figure 60) whether children used modal redesign, and over time developed conceptual understanding, as they "took on" various identities, situated creativities or cultural framings (Burnard, 2012) and chained them into coherent lines of thinking and enquiry (Alexander, 2008). Based on observations over years of experience as a music teacher, the researcher wished to explore the extent that music dialogue, as a conceptual framework, might be contextualised by exploring multimodal resources, plus experiences in a wider socio-cultural context, in interactions between children and/or an adult (parent or teacher/researcher) over time.

A significant contribution of this study, then, has been the development of this conceptual framework, the space of music dialogue, found by problematising existing attempts in the academic literature to represent learning in children's inventive music practices. Introduced in Chapter 3, the framework of music dialogue has proved to be a useful model for investigating transformational and transmodal redesign in children's music invention in case studies of music events thematically coded and analysed as modal redesign. The framework has made a major contribution to the analysis of music invention and interpretation of children's learning processes in music. Without it, there would be difficulty in approaching the multimodal analysis of the music events, temporally instantiated in time, and to view interaction of all modes co-present in creative music practices. In addition, multimodal transcriptions of children's music inventions, made through combinations of music score, modal configuration, tracings
and still image of video recorded music events, uniquely and effectively displayed how *transmodal and transformational redesign* were realised through music invention.

Music events discussed in the category of *transformational redesign* (all events in Chapter 4, and Chapter 5, the rural classroom xylophone responses to recorded music and Chapter 6, Sebastian's garage piano invention and his classroom Banana Bop improvisation; Heidi's piano invention and her song with her mother, and Mimi's kangaroo song) were all examples of *music dialogue*. However, music events discussed in Chapters 5 and 6 were unusual in that they demonstrated a shift in understanding through *transmodal redesign*. Children in the rural classroom re-organised resources and elements of music across *modes*, using pre-existing musical experiences in xylophone melodies and Crocodile Beat (Chapter 5). Sebastian's classroom ensemble, garage rap and dance to "Billie Jean", Mimi's "Owl Story", Sara's family dance and Heidi's conducting, built on prior experiences of music (Chapter 6), to express meaning in a new organising mode (Harrop-Allin, 2010; Newfield, 2009). *Multimodal analysis* featured children’s *modal redesign* in interactions, revealing the link of mind and body by substituting concepts for concrete embodied social practices and interactions (Kress, 2010, p. 83). “In the process the concrete can be transformed into the abstract, the specific into the general, and ‘doing’ into ‘being’” (van Leeuwen, 2005, p. 111).

The *space of music dialogue* (Figure 60) is essentially a space of *multimodal redesign*, revealing how children orchestrate *elements of music as central modes* within a space of other possible *modes*. Moments of *music dialogue* explored in this study were opportunities for learning, some initiated by actions of a teacher or parent, with children responding in ongoing music invention using *modal dialogue*. These *modes* included gesture, spoken and sung voice (verbal and audio linguistic modes), mimesic
and audio modes (instruments, and elements of music: pitch, meter, tempo, rhythm, dynamics and timbre) (Figure 60, the space of modal designs - the "cornea" of the eye). Mimesic mode (Hawley, 2013) is refashioning of existing media by representation, imitation, and performance. Edward and Bob's redesign of a mobile ringtone melody "Candy," Figures 19-20, and Mimi's remediation of MP3 tune "Baby," Figure 21, both in Chapter 4, are examples. As children expressed verbalised ideas in musical form through song, instrument or both, re-interpreting a recorded piece through movement, or orchestrating a group performance on percussion, they were seen to synthesise one or more musical ideas or elements of music, and extend these through multimodal combinations. This was identified as the use of music dialogue for redesign.

Complex interactions of modal redesign in music are represented in the central circles in the diagram (Figure 60). In viewing music invention, the outer circle (the "iris") represents ways by which all children use transformational redesign during interaction to enhance learning. Transmodal redesign is represented in the innermost circle (the "pupil"), where ways of knowing that promote conceptual understanding during transfer of meaning across modes, are observed in only some recorded interactions, after children have experienced repeated transformational redesign in a chain of semiosis over time. The space of music dialogue (Figure 60) represents ways children realise conceptual knowledge by redesign in music invention. Examination of aspects of redesign is assisted by a framework with which to examine music events.
Figure 60. The Space of Music Dialogue
Researching prior music experiences and socio-cultural practices found in children's music invention in school and home environments selected for this study has revealed how viewing of facets (selected music events) provides insight of the whole. Children's *music redesign* is influenced by local or situated elements (social and cultural resources, and classroom and home practices) as well as global elements discussed above (*modes*: gestural, linguistic and audio - *elements of music*), as ways of knowing. This insight into children's *music redesign* is useful for researchers and teachers. Voices and agency of children with their particular histories and socio-cultural experiences were of interest in music invention (Figure 61: the "eyelid"). In discussion of children's *transformational* classroom inventions (Chapter 4), prior experiences of class and home music added meaning to *modes selected for redesign*, using application of Activity Theory. Cultural synergy between local, newly arrived and Indigenous Australians in the rural classroom context was enhanced as Sandra, of Aboriginal heritage, negotiated power relations using proxemics, elements of music and gesture in dance moves to music (Chapter 4). In Chapters 5 and 6, relationships between diverse children's actions, the resources and the music event revealed conflicts of purpose and *redesign*, contested power relations, in children's classroom events ("Crocodile Beat," "Owl Story" and Sebastian's ensemble), and home music (Heidi's conducting and Sara's family dance). Situated home and community, social and cultural experiences formed over time, and transcultural exchanges occurring through border crossing, were explored in Chapter 6 (in Sebastian's classroom ensemble; Mimi's "Owl Story", and Sara's family dance), using an application of Activity Theory to see how power relations were contested.

Cognitive dissonance, contradictions, and discontinuities were noted as each event was played out during *transmodal redesign*. These were explored in relation to Derrida's (1988) poststructural theory of différence or paradoxical connections made
between different genres, learning disciplines, or communicational *modes*. In all
learning contexts, triangulating the wider cultural influences on music invention in the
classroom and at home, using Activity Theory, assisted in the formation of a holistic
view of how children selected resources and orchestrated *modes in music*.

The space of *music dialogue* contains the way that all modes interact in that
moment of redesign; how gesture, proxemics, verbal linguistics, mimesis and materials
are used with *music (audio) modes as elements of music*, to co-construct meaning in
*music dialogue*. From the literature (Kress, 2010; Mavers, 2011; Newfield, 2009),
analysis of video data by examining a *dialogue of modes* (when each *mode* takes
precedence or is foregrounded in overall redesign during a music event) revealed
children’s capacity for *modal redesign* in music invention, and subsequently, their
learning. Organising principles for salience in the *modes* was evident in the way
children accommodated their interests from what was available in terms of affordances
of materials, music elements and voice (Figure 60: the "iris"). Awareness of context
was important when identifying influences of genre and resources, the formal and
informal music and arts experiences at home, school and community, and available
resources and capital within the wider economic and political sphere (Bourdieu, 1994;
Foucault, 1984) (Figure 60, the "eyelid"). Music invention realised through *modal
redesign* was central to this dialogic space.

The development of a framework of *music dialogue* for analysing children's
interactions revealed *transformational redesign* with learning shaped by interest that
encapsulated the diversity of these children's responses: a range of vocabularies in
dance movements, song and meter, that enriched their *music dialogue*. The space of
*music dialogue* was also used for demonstrating how a shift in learning might occur
across modes in these moments of music invention, and to what extent children demonstrated conceptual understanding through their music practices. It put a boundary around all the situated examples of redesign, containing and giving meaning to apparently disconnected events (Figure 60, the outer "lid" of the diagram). While these moments of redesign were in themselves not generalisable to other such music events, the conceptual framework of the space of music dialogue allowed for confirmation that purposeful redesign occurred in young children’s interactions in music invention (as in Sebastian's garage rap) and assisted in seeing emerging patterns that interpreted these interactions, contributing to an understanding of how redesign might be realised.

Music invention, as communication not always dependent on words, is proposed in this research to be a vital form of modal redesign. In this way, transmodal and transformational redesign are "determinations," forms of dialogue that involve many ways of listening, singing, remediating and playing to communicate meaning as part of a social event. Wittgenstein (1958) saw dialogue as involving deep reflective communication in a social context, by combining richly textured cultural tools and embodied signs, often without the use of words (as Sara and Sebastian's family dances). He argued that dialogue facilitated redesign and problem solving by using semiotic resources that had potential for more than one meaning, depending on their use or purpose. Meaning could be co-constructed, or deconstructed. According to Bakhtin (1984), creative activity through dialogue was the optimal way to solve problems, as meanings are explored through multiple mediated discourses or, in this study, multiple events of music invention (heteroglossia). All that cannot be communicated through artistic practice must take on a substitute conventional form. Bakhtin (1981, p.368) stated, this is "because a literary and language consciousness operating from the heights of its own uncontestably authoritative unitary language fails to take into account the fact
of heteroglossia and multi-languagedness ... that rages beyond the boundaries ... of its naive absence of conflict."

To summarise processes of music dialogue, it has been seen, through detailed, complex transcripts and analysis of transformational redesign, that a pattern emerged of children enriching learning by transforming multimodal music events in selective redesign or rearrangement of modes, through dialogue in the principal organising mode of music (Chapter 4). Repetition of these patterns in experiences over time, as chains of semiosis, revealed children furthering understanding by consolidation of music concepts through transmodal redesign. These music inventions across principal organising modes (Chapters 5 and 6) occurred through conflict/deconstruction and resolution. Disjunct or opposite meanings in children's "hidden" literacy and music interactions extended and expanded meaning in a moment of shift and change (Figure 61). Children enhanced conceptual knowledge through assimilation and accommodation of elements of music and affordances of instruments, redesigning elements of music across principal modes in music invention ("Crocodile Beat; Sebastian's classroom ensemble). Diverse cultural resources and contexts promoted learning.

Embodied interactive practices and situated socio-cultural resources (Figure 61) assisted deconstruction and reconstruction in the shaping of meaning as children switched representational modes (Kalantzis et al, 2003). Embodied modes were seen as prime carriers of meaning in this study, not reliant on narrative or metaphorical (dialogic) thinking, the linguistic (Bruner, 1996) to form new meanings through music dialogue.
Figure 61. Schematic representation of multimodal redesign.
Identifying ways to analyse music events was initially a problem, as identifying switching of *modes* required a way to transcribe music to feature the elements of music (formal resources for making meaning) and affordances of instruments (technical resources) occurring in simultaneity with the other representational *modes of speech, movement, gaze, and proxemics*. In Sebastian's Piano Rap (Figure 52) the "music score" of audio modes arranged with other representational modes, incorporating modal density and configuration, was a significant contribution to multimodal transcription useful for future applications. It displayed the interdependence and equality of *modes*, how embodied modes were equally as useful as audio linguistic modes for cognitive representation and the conveyance of meaning.

### 7.3 Situatedness in Music Redesign: Enhancing Understanding through Dialogue

There were two subsidiary questions identified for examination in this thesis. Related to contextualised learning and classroom pedagogy, they are discussed here.

| 1. How may diverse cultural resources and contexts influence children's import of semiotic resources in and across principal modes in redesign? |

Examination of these music events using the social semiotic lens has also revealed how no two music events are the same. Even within familiar singing by copying or "imitating" a known song at home or at school, each child's performance is different in the way the notes are pitched, their duration and the dynamics, phrasing and other slight variances in articulation. The complexity of each music event as it unfolded in time meant that there was an infinite number of ways by which children could communicate meaning. Within the *principal mode of music*, no two situations were alike. Music and arts need contextualisation in the curriculum, across subject areas. As
Custodero (2009, p. 88) noted: "intersections of culture create contexts for children's development." West (2009) and Burnard (2012) argued that cultural orientations in learning settings enhance interest, engagement and creativities (Figure 62).

It was observed in coded examples, through use of the "double helix" of multimodal analysis and Activity Theory, that inventive practices of children as they made transitions from home to school gave them the space in which to demonstrate prior conceptual knowledge, the elements of music. These were traced in all their interactions. In particular, it was consistently displayed in the inventions of Sebastian of Ethiopian heritage, Mimi of Brazilian heritage, and Heidi of multi-generation Australian heritage (Chapter 6). They maintained their ability to invent complex rhythm patterns, musical phrasing, discrimination of timbre and pitch and their love of melodic variation, as they moved across domains of home and school practice, accessing a palette of diverse modes of communication, materials, instruments and media. The syncretism of bilingual children's practices in multicultural classrooms was considered as part of this concern for contextualising the diversity of cultural practices during communication. Celebration of diversity assisted in children's transitions (Mimi's dance rhythms in her "Xylophone Melody" and perception of timbres in "Owl Story"). Music dialogue promoted interconnectedness of roots and cultures increasingly circumscribed in realities of classroom interactions and pedagogic practices. Music in the classroom was considered as only part of the story: the children's out-of-school practices, prior experiences, and home interactions (particularly Heidi, Sebastian) were demonstrated to be vital to the quality of their music dispositions, the formation of a musical identity.

The composing events discussed in Chapter 6 demonstrated how multimodal music interactions reveal ways by which children of diverse socio-cultural origins can
successfully transform meanings in and across modes to communicate in situated spaces and places. Examples of interactions at home (Chapters 4 and 6) had revealed complex shaping of meaning through transformational redesign in a dialogue of modes: music (audio), speech (verbal linguistics), gesture, mimesis and proxemics (Sandra's classroom dance to "Kingston Town," Jeremy's soundscape, classroom vocal inventions, Mimi's kangaroo song and iPod vocal invention; and Bob and Edward's drumming to a mobile phone ringtone). In Chapters 5 and 6, at home and school, children used transmodal redesign in music invention to negotiate meaning with technical resources (affordances) of instruments, formal resources (affordances) of music elements (duration, pitch, structure, dynamics and tone colour) and speech turns. In Chapter 6, it was seen how Sebastian (from Ethiopia), Sara (from Iran) and Mimi (from Brazil) - bilingual students - used composing events to co-construct, resist, transform and reinvent their sense of the world in multimodal redesign that drew on rich prior conceptual knowledge and habitus. Sara's family dance, Sebastian's piano rap and dance to "Billie Jean," and Heidi's conducting, were examples of this.

It became apparent by transcribing in various ways the music events in this research, that the children were testing previously held frameworks of a musical experience by representing meaning using redesign of selected modes. This was not mere representationalism or a process of cognition, but the use of resources and the reorganisation of modes (as systems of communication) to create a new dialogue that expressed a shift in understanding, a movement into a different genre or organisational mode where the concept stayed the same but the understanding of it was enlarged upon, expanded, tested and challenged ("Crocodile Beat"). Through risk-taking practices, children demonstrated a willingness to move outside their comfort zone to test new ways of knowing. They managed challenges of disjunct or opposite meanings.
introduced by members of the group (Mimi’s "Owl Story") or challenged themselves with ideas partly influenced by their cultural traditions and partly from new resources, *gestural modes* (Sara) or affordances of musical instruments (Sebastian's garage song).

All music events analysed were more than narrative or metaphorical communications in which modes of music and movement were mapped onto literacies. They were inventive practices of *music dialogue*, creativities that were a vehicle for making meaning through *multimodal redesign*. Integrating the arts in classroom composing practices was shown to enhance literacy through dialogue and selection of resources to co-construct meaning and promote learning. "Children becoming aware, thinking, developing, understanding - all components of learning - are dependent on the quality of dialogue (verbal or musical)" (Young, 2009, pp.113-114), broadening the semiotic boundaries of young children’s authoring practices (Jewitt, 2007). Traces of prior music learning or practices of meaning making were evident in known songs, rhythms, dance moves and musical genres. Children (Bob, Edward, Jeremy, Sandra, Heidi, Mimi and Sebastian) took these and transformed them through *redesign of modes*, or through *transmodal redesign* from one *mode* to another (Sara, Heidi, Sebastian, Mimi), a process of synthesis indicating higher order thinking. Children communicated meaningfully through *music dialogue* and exchange of ideas. They used embodied meaning making to extend and expand meaning, to develop understanding through a rich learning process: the *dialogue of modes in a multimodal ensemble*.

Contextual resources of family, school, community popular and formal music genres are drawn into the musical identity of the child, as Piaget (1977) suggested, as he or she consolidates learning through a gradual transfer from assimilation to accommodation of conceptual knowledge. The use of a social semiotic lens and *multimodal analysis* revealed how children creatively and flexibly negotiated,
transformed and communicated prior experiences using the elements of music in one principal mode or from one *mode* to another, to enhance their music making dispositions, and shape new experiences through music invention. Because the musical experiences analysed in this thesis were revealed to be complex, elusive, diverse, transitory, and never the same, *multimodal* manifestations of music should shape educational procedures and constructs (Harrip-Allin, 2011; Swanwick, 1979).

**2. What does children's redesign of semiotic resources reveal about their learning, and further, their conceptual understanding, during music invention?**

This study has investigated the inter-connectedness of routes/roots and cultures increasingly circumscribed in realities of classroom music interaction in a rural, an inner urban and a suburban setting in Australia. This was in response to the literature that documented children's diverse manifestations of music identities in their selection and use of modes and resources, and how this should shape learning in classrooms (Barrett, 2005b; Green, 2008, 2011; Marsh, 2008, 2011). Sandra's rural classroom dance gestures interpreted the music "Kingston Town," and children in the inner urban classroom co-constructed a soundscape (audio mode) in response to Jeremy's story in the mode of verbal linguistics. Chapter 6 of this thesis highlighted the music narratives of Mimi, Sara, Heidi and Sebastian at home, and how semiotic resources were imported to classroom practice through their cultural music identity or habitus emerging over time. Inventions were realised in *music dialogue*, captured on video and analysed using a *multimodal* lens. As Griffin (2011) has noted, articulation of music narratives is crucial to promoting a critical music education research, as educators realise the value of relevant, contextualised music experiences in school contexts and beyond.
Through some examples analysed across classroom and home settings, (Sebastian, Mimi and Heidi's music inventions) context revealed how discourses operate: how modes are organised and validated in music practice. This subsidiary question in the thesis has guided analysis to see whether music inventive practices, when contextualised and made appropriate for situated school and community contexts, and particularly when designed by students themselves, develops higher thinking, problem finding and problem solving, and enriched understanding of music concepts through transmodal redesign of prior learning. Chapters 5-6 provided examples where not only do young students develop understanding, but further their creative practices through transmodal redesign, across the Arts and Literacy. By triangulating data sets using Activity Theory, it has been shown in the classroom music inventions of "Crocodile Beat", Sebastian's "Classroom Ensemble" and Mimi's "Owl Story", that children progress further along the path to mastery of skills, techniques and conceptual knowledge as they have freedom and autonomy to practice their design over time, by being consciously in control of the conceptual transduction of meanings in multimodal classroom interactions. Mavers (2011) noted learning occurs through mastery of many modes. By weaving culturally familiar resources and social processes, all children in this study were implementing redesign of modes in music invention.

Application of Activity Theory to children's classroom redesigns assisted in triangulating multimodal analysis of these with interview and observational data of situated resources and social processes (diverse dance repertoire, musical genres and ways of interacting). The children's music inventions were seen as collaborations with the wider community. In considering musical creativities in collaborative partnerships between classroom music teacher and visiting artist, Burnard (2010) noted: "the visiting artist typically uses a more improvisational, open-ended approach, whereas the
classroom teacher typically uses a more structured, compositional approach" (p. 243). Both working side by side would make possible an emergent and co-constructed pedagogy. However, the perspective of children, their cultural resources, inventiveness and communication in redesign may be overlooked or stifled, and needs to be factored into the collaborative partnership approach to conceptual learning and creative practice.

Without collaborative partnerships between parents, community and school, Sara's rich home and community experiences of Arabic music, Sebastian's continuous participation in Ethiopian music using song and dance, plus his instrumental exploration of ukelele, piano and drums at home, and Heidi's experiences of conducting and singing with family members, could be overlooked. This barrier to empathy in teacher-child relationships and development of holistic learning practices, is removed by investigating home influences using observations, participation of researcher in music in the home, and interviews, triangulating data using Activity theory in relation to situated classroom experiences of music invention. Children (Chapter 6) imported semiotic tools across home/school and national or cultural borders, redesigning resources and modes to make new meaning. Semiotic music resources carry meanings important for redesigning prior ways of knowing across modes and contexts, promoting learning (Harrop-Allin, 2010). Interested and engaged in their music improvisation, these children played a meaningful role in education, being more inclined to learn and mastering higher thinking and problem solving techniques through their redesign practices.

Such an approach to Arts education and music invention facilitates a community of engagement that conforms to requirements of the learner, whether gifted or in need of additional support. Derrida's (1993) concept of aporia, or justice, never possible in reality but always to be considered, is a position that teachers can assume on occasions
where there is need in the classroom of a glimpse of justice to liberate students who may otherwise not be recognised by their peers as equal in communicative capacity (as, for example, Mimi, an E.S.L. student, Chapter 6, Figures 40 and 41). Differentiation of the curriculum to capitalise on students' redesign capacity, their cultural resources and creativities, their prior conceptual knowledge and ways of knowing, is vital to promote conceptual understanding, communication and metacognition. In an increasingly digitalised world, implementation of such a proposition is indeed a possibility.

### 7.4 Opening up Debate

The underlying epistemological position of this study was based on a premise of social semiotics that assumes young children possess purpose and goals, and learn new ways of acting in the world by developing new tools, discourses and identities (Mavers, 2011; Wortham 2006). In this research, conceptual learning in music is recognised as occurring as children engage in music invention. The discussion and analysis built on the social semiotic theory that learning occurs through principled, purposeful and negotiated communication of real world experiences and the selection of materials that transmit meanings found in these experiences (Gee, 1999; Kress, 2010; Mavers, 2011). The case studies examined this theory of learning in the context of school children's experiences of music invention in their first year of schooling, through *transmodal and transformational redesign in music dialogue*. In so doing this study gave a thick description provided by multiple data sets and microanalysis of *modal dialogue* in music events, appropriate when a holistic, in-depth investigation and analysis was needed (Feagin, Orum, & Sjoberg, 1991). The way children built on their knowledge of music concepts was a crucial factor in determining the extent of their *redesign*. Some children were seen to do this with greater competence *over time*, both as a group (the rural music class, Chapter 5) and as individuals (Sebastian, Sara and Heidi, Chapter 6).
Tracking multimodal patterns in music events was essential to determining the diverse ways multimodal redesign was realised in each situated moment of music dialogue. This was the primary purpose of the analysis. The reading of embodied music events was an active process, whereby music identities were contextualised, located within music dialogue to bring about changes of meaning and power relations in performance. The making of music events as performance in practice was a moment of active dialogue, so the role of research was to foreground lived practices and how these were instantiated within multimodal texts. Materiality or actualising of music dialogue in practice enabled the researcher to analyse how musical identities may be revealed through choice of semiotic resources that carry cultural influences. Checking this interpretation was necessary through interviews and observations of children in the home or in the classroom, to confirm cultural identities and conceptual understandings as revealed in their music invention.

The use of cross-cultural social semiotics in analysis also enhanced the understanding of communication by children in music events and how they used readily available resources to master different modes for representing the world and diverse ways of knowing. Modes can be seen as metaphors in the way they realise or represent criteria chosen for communication (Figure 60). No one mode takes precedence over all others at all times. The detailed analysis of children's inventions in this thesis has led to the conclusion that they are not merely perfunctory, but contain depth of understanding that is revealed through closer examination using the social semiotic lens. One sure outcome of this study was to realise that educators cannot superficially or rapidly draw conclusions when assessing the quality of children's music inventions, their somewhat playful and diverse communications and modal redesigns. Over time, children's redesigns and expansions of meaning lead them to make interpretations across principal
modes. Their conceptual understanding and cultural awareness is expanded and enriched in the process. Sebastian did this with mastery. Change leads to new meaning.

As Vygotsky (1987, p. 170) observed, "direct instruction of concepts is impossible." He concluded: "The teacher who attempts to use this approach achieves nothing but a mindless learning of words." Following this line of thought, the research settings were designed to observe how children's thinking might be connected to the conditions and interactions in which it developed in self-directed play and exploratory music invention. Articulation of thought was necessary to conceptualise ideas and to further develop the meaning of these concepts. While Vygotsky largely referred to processes of speech and drawing for development of concepts and cognition, this study referred to processes of transformational and transmodal redesign in music invention as thinking-oriented and promoting cognition through embodied articulation of ideas, as seen in Sara's family dance and Sebastian's "Billie Jean."

The video events explored in this study revealed this conceptualising process occurring in music dialogue as children developed embodied meaning with regard to concepts in music invention. Analysis of complex interactions of modes in children's music events showed that thinking and embodied music invention go hand in hand. Vygotsky's view of rationality is not based on the idea that meaning is developed through abstraction, but rather, through contextualised and systematic exploration of concepts (Brandom, 1994). There is a complex system of "mediating connection and relations" to realise the concept in all its complexity. Vygotsky concluded, "Only when we recognise the thing in all its connections and relations, only when it is synthesised in a word, in an integral image through a multitude of determinations, do we develop a concept" (Vygotsky, 1998, p. 53). This is similar to Derrida's poststructural views of
thought and symbol as variable, not fused or fixed, and thought as often symbolised through an embodied "word" or event rather than linguistic "word" or text.

Children's instinctive use of more than one mode for communication in music invention has been seen in this study to reveal a depth of thinking that transcends communication, being a form of resistance (Deleuze & Guittari, 2011) and, indeed, of conceptual understanding. This was particularly observed when there existed conflict or tension and subsequent resolution in the unfolding of music drama as modes occurred in simultaneity (Chapter 5, Figure 25 and Figures 27-39; Chapter 6, Figure 41). Modal redesign, when realised, is useful for implementing and assessing inventive music practices in elementary school (lower primary) settings. The conceptual framework of the space of music dialogue (Figure 61) assists teachers in this process. Social activities, events and practices in cultural contexts co-ordinate discourses and semiotic domains (Gee, 2005). These are constitutive of musical identities in music dialogue. Conflict and tensions realised by language differences (Chapter 6, Figures 40 and 41) are overcome in music dialogue. Issues of cultural identity influence choice of semiotic resources in redesigned music. These were observed in Sebastian's redesign of syncopated rhythms on bongo drums ("Banana Bop"), and compared and contrasted with rhythms from his classroom ensemble, and his home piano inventions and dance to "Billie Jean," as he moved between home and school to consolidate a music identity. The scope of his constructs was enlarged, contributing to the robustness of understandings established.

By looking at a range of similar and contrasting sites, diverse cultures and children at home and school, both the precision and the stability of the emerging conceptual framework have been strengthened (Miles & Huberman, 1994). Meta-situational contexts are the social, cultural, political, historical and economic forces
intersecting at local sites and in the practices of individuals and groups (Gupta & Ferguson, 1997). This larger socio-cultural context was “articulated in unfolding interactions” at the local level (Dyson & Genishi, 2005). In analysis, the interaction between data and context was never completely realised, but selection of salient features among the rich data sets assisted in tracing what was most pertinent to describing children’s selection of resources in redesign as they communicated in music invention. This took account of issues of uniqueness in localised cultural contexts, and deepened understanding of contextualised music invention in this multi-site case study.

Music invention seen through a social semiotic lens in this study has, therefore, proved not to be a monolithic and singular ideal, but mediated, culturally situated and diverse. Children's music events "can be viewed contextually as interpretive and transformative, culturally ‘scaffolded’ by pre-existing forms and ideas but creating specific critical vocabularies or images" (Banaji & Burn, 2007, p. 68).

7.5 Identified Areas For Ongoing Research

Further issues for consideration and ongoing research areas were identified. There is a need of further development of multimodal analysis of music activities by using the space of music dialogue as a methodological framework. It is particularly necessary to specifically investigate music invention or improvisation as redesign of music modes within a multimodal ensemble, useful for linking action (embodied meaning) and cognition. Exploring ways by which multiple methods of transcription can be incorporated to display relationships between modes is also essential in future studies of music invention. Investigation of contextualised music invention across learning domains is another important area to be explored in future studies.
The construction of music "learning cultures" in an ethnographically-informed case study of a U.K. conservatoire, investigated by Rabonowitch, et al. (2012) showed in initial studies that long-term music group interaction also had a positive effect on children's empathy. The experimental group displayed a noticeably elevated sense of other-focused activity. Initial results confirmed a positive increase in empathy and ongoing studies showed that other-directedness and inclusivity of children engaging in music activities created emotional alignment and capacity to "sense the inner lives of coparticipants" as they "direct their attention towards the actions of others in a process of musical empathic creativity" (Cross, Lawrence & Rabinowitch, 2012, p. 351).

More studies in multimodal music redesign are needed to further explore the links between action and cognition in music. In this study, external signs of internal or cognitive music redesign were made collectively, purposefully and individually in many ways (in "Crocodile Beat," "Owl" and "Xylophone Melodies" of the rural music class, Sebastian's classroom ensemble in the inner urban setting, and in Sara, Sebastian and Heidi's home music inventions. Kress (2003, p. 3) clarified this: “meaning is made by individuals, though always acting in social environments, using socially and culturally shaped and available resources.” He referred to “interested action” “of socially located, culturally and historically formed individuals, as the re-makers, the transformers and the re-shapers of the representational resources available to them” (Kress, 2000a, p. 155). His observations of children's multimodal redesign confirmed that mind (concepts) and body were linked through concreteness of embodied social practices and interactions (Kress, 2010, p. 83).

Research has identified that the many creative forms of music engagement are in need of further study. This thesis has likewise provided some initial evidence, worthy of
further investigation, as to whether music dialogue as a form of creative multimodal interaction and redesign can heighten children's awareness of each other's musical identities, expanding their musical vocabularies as they become more familiar with the elements of music (the music modes). This occurred in Sebastian's classroom ensemble, in "Crocodile Beat" and in Mimi's "Owl Story." A capacity for peer informed musical knowledge and empathic creativity was realised in these moments of music invention.

This study has convincingly demonstrated that music invention is a productive form of learning and means of promoting conceptual understanding in classroom settings. However, this needs further investigation in longitudinal studies within music classrooms. Hickey (2009, p. 295) observed, after sustained periods of observations and research on children's music inventive practices, that practical realities of the classroom situation made group improvisation a real challenge. However, Dillon (2007) noted, "It is not necessary to like the music the students bring, but value their interest in it" (p. 136). Management of music invention is thus achievable. It was observed in this study.

As seen in the analysis (Chapters 4 to 6), trusted group inventive practice encouraged social synchrony in hybrid classroom spaces where musical and social identity can be promoted, and where peer tutoring endows students with a sense of mastery and aporia. It is likely that such trusted group practice, as evidenced by music events in this study, can be developed and mastered through creative invention and musicianship in the context of everyday school structures. Can this be achieved through ongoing transformational redesign in classroom creative practice across all years of the school curriculum, consolidating music knowledge and building on that knowledge through transmodal redesign? It is a question that must be addressed in ongoing longitudinal research. If students consistently showed interest in the process of
creativity by combining or substituting sounds in meaningful ways to discover and shape something new, it is likely that these experiences were meaningful and that ongoing learning had occurred. Kress (1997), Lancaster (2007) and Mavers (2011, pp.12-31) challenged assumptions that meaning making is mere transfer, or copying. In this study, children selected modes and transformed materials over time in minute, unnoticeable ways to shape meaning. Music understanding, the result of effortful, sustained, interested action and interaction, was observed occurring through chains of semiosis that connected mind and body during music invention (Heidi and Sebastian's music inventions) culminating in ability to shift meaning across modes.

In music events discussed in this study, meaning was richly inscribed in a multimodal ensemble that indicated the interest, engagement and transformational redesign capacities of children in creative music invention. Using music dialogue for analysis of video events confirmed that children were consistently competent and agentive in selecting semiotic resources to co-construct and communicate meaning in inventive music practices. Their innovative use of embodied resources and modes transmitted experiences and ideas through music invention, demonstrating awareness of elements of music by the ways they selected some of these as modes useful for orchestrating new meanings in everyday interactions. Ongoing peer mentoring and and assessment during interaction was effective in realising these ways of knowing. Through music invention, children in this study forged strong, resilient music identities. These observations need further investigation in future studies of music activities.

7.6 Implications for Music Education Policy and Practice

Throughout the study the evidence has been gathered and presented to demonstrate that music invention, in the form of music dialogue, is possible and occurs
primarily in learner-directed activities. Given opportunities for redesign, children developed music inventive practices and shaped meaning across modes to demonstrate understanding. Conceptualisation of a framework of music dialogue facilitated the application of the social semiotic multimodal approach to the investigation of children's music invention. More importantly, this has provided a working tool with which to identify holistic learning processes taking place in music invention and, indeed, in all music activities. Through application of this framework, multimodal analysis and discussion of music events of young children in this study revealed emerging patterns that characterised and distinguished their music invention as transmodal or transformational redesign. Children over time developed self-initiated and purposeful cognition in redesign, problem finding and problem solving skills, and expressive performance techniques, through music invention. The resulting picture of how children redesign meaning in music invention adds weight to the promotion of holistic music pedagogic practices, like those described and analysed in this thesis, in order to develop inventive music identities, to encourage all children to be lifelong creative musicians.

The pedagogy of music was seen to operate in transmodal and transformational redesign in educational settings as a hermeneutic practice that developed new ways of selecting music materials and resources through interpretive music dialogue. Awareness of the space of music dialogue, when planning and assessing classroom music activities that incorporate music invention, has been shown in these examples to promote inclusiveness and transformation of learning, and to allow for a deeper insight in children’s capacity for music redesign by featuring their knowing and artful use of the elements of music in enriched design practices (Wiggins, 2012). Transmodal redesign seen in Heidi, Mimi, Sara and Sebastian's inventive music interactions was particularly marked by an ability to shift meaning to a new level of conceptual understanding. This
should be useful for informing educational policy and practice at local, national and
global levels, of multimodal programs that are inclusive of and sensitive to cultural
material and embodied musical representations of knowledge. Young children’s
learning, particularly their conceptual understanding in music, will be enriched.

From the analysis of coded music inventive practices observed and video
recorded in this study, and through observed chains of semiosis traced as children
redesigned meaning across modes, it has been seen how music invention helps
individuals to create, express ideas, construct solutions, seek alternatives and variations,
evaluate and design plans for improvement, collaborate and apply or synthesise
knowledge: to develop higher thinking skills. This was particularly evident in classroom
transmodal redesign of "Crocodile Beat," in Mimi’s "Owl Story," Sebastian's classroom
ensemble and home garage rap, and Heidi and Sara's home music inventions. Making
room for "messy" activities in music that encourage spontaneity, movement and
participation, also allows educators to connect with children from culturally and
linguistically diverse populations (inner urban classroom"Banana Bop" and "Jeremy's
Soundscape," rural classroom dance to "Kingston Town" suburban "Classroom Vocal
Inventions"). Designing a context-specific, differentiated curriculum that provides this
level of music improvisation to all students is crucial to our society in the second decade
of the twenty-first century, and beyond. It promotes learning, problem solving skills
(redesign of music modes with other modes to make meaning), relevant practice, and
collaborative interaction. Reorientation towards this mode of thinking in relationships
of students and teachers is made possible by implementation of continuous, sustainable
music invention in socially inclusive education.
When classroom environments are expanded to be inclusive of media-rich resources, children purposefully select these resources, put together *modes* and co-construct music, dance, drama and digital technology to more effectually communicate meaning. This develops literacy and language skills and is forward-looking in promoting the concept of embodied meaning making (domains of dance, media and music) as being part of the multiliteracies program. In all situated contexts of the music/arts curriculum, the idea of ongoing formative assessment building on prior learning in a spiralling process replaces the requirement for repetitive summative assessment, particularly in the early primary (elementary) years of schooling. A model of students' meaningful engagement and involved teacher interaction and feedback would facilitate a richer learning environment that encourages cumulative learning through intentional teaching, using *the space of music dialogue*.

Such a model extends learning by being open to diversity in resources and relationships with children and teachers, and enriches learning by advocating an inclusive open-ended approach that makes vital ongoing links to community and family. As seen in analysis of music events in the classroom (Chapter 5) and the home (Chapter 6), conceptual understanding was made possible through deconstruction (disjunctive) and co-constructed (conjunctive) redesign. The rural classroom ensemble, "Crocodile Beat" and "Mimi’s Owl Story," and the inner urban invention "Sebastian’s Classroom Ensemble" were examples of deconstruction within co-constructed music events. In these examples of music invention, children applied thinking skills across principal *modes*, across domains of learning (music and literacy/linguistics), to develop deep content knowledge. Removing scaffolding in music teaching allowed these children to further their metacognition, higher order thinking and problem solving to develop deep content knowledge. *Multimodal* practices, viewed through the lens of *the space of music*
dialogue, reveal shallowness of mainstream assessment practices that stifle meaning making and different ways of knowing.

Another important outcome of the study, therefore, is its implications for learning, pedagogy and music identity. Thus far, music dialogue was shown to be useful for children to accelerate their own learning during interaction with resources and peers. How useful is recognition of children's redesign of semiotic resources in music dialogue, through application of the conceptual framework developed in this thesis, as a tool for teachers? Curriculum organisation in Australia has undergone a shift from an outcomes-based approach (the Arts grouped as one key learning area) to an essential learning approach where rich curricula contexts are developed to meet relevant standards (Forrest & Watson, 2012). Metacognition or thinking-oriented curricula in Australian schools are prioritised, and values based education is now an important factor in learning. The contextualised nature of this innovative music curriculum is realised in "play-based activities" to "explore the elements of music" in early primary years (Draft Australian Curriculum: The Arts (ACARA 2012, p. 93).

However, this does not adequately equip non-specialist classroom music teachers to implement quality music experiences (Forrest & Watson, 2012, p. 156) and they are challenged further when assessing these. Examples of classroom music invention discussed in this thesis are quality, embodied experiences useful for implementation to enhance cognition, problem finding and and problem solving skills in a variety of contexts. In so doing, these vignettes support the argument for more free improvisation in school music and indeed across all domains of learning, to balance the current skills approach (Hickey, 2002, 2009; Sawyer, 2003; Welch, 2005). Multimodal analysis, through use of a framework of the space of music dialogue demonstrated in
this study, will assist teachers with reshaping the formative assessment of children's music interactions.

This framework is an important outcome of the study, useful to understand the nuances of music dialogue by capturing children’s co-construction and forms of organisation, and providing a way to concretely identify elements of music in children’s music invention. Examples of concrete classroom identifications through multimodal analysis of music events, using the space of music dialogue, are found in Appendix 8 - Table 1: classroom transformational redesign using gestural mode in inventive dance to piano music Table 4: modal redesign for transforming narrative: Jeremy's classroom soundscape; Table 8: transformational redesign using instrumental improvisation in pairs on xylophone; Table 10: transmodal redesign from storybook to instrumental ensemble; Table 17: Sebastian's transformational redesign of bongo drum rhythms in classroom ensemble and Table 21: Sebastian's transmodal redesign from audio mode of classroom instrumental music to linguistic mode.

The framework of the space of music dialogue is also a key to evaluating performance in a flexible, dynamic and responsive manner using intentional teaching. Authentic assessment practices are linked to children’s personal understandings, capabilities and dispositions. Their current knowledge, ideas, culture, abilities and interests, can be prioritised in formative assessment during classroom improvisation (Sebastian's transformational redesign of bongo drum rhythms in classroom ensemble; Sandra's transformational redesign in music and dance modes in classroom movement to music; Mimi's "Owl Story"). By planning for enrichment through music invention, teachers act as facilitators, building on existing interests and co-constructing further knowledge, enabling children to take a more active role in decision-making ("Crocodile
Beat”; "Owl Story”). Individual and whole group learning is balanced (Sebastian's classroom instrumental ensemble; Jeremy's soundscape).

Educators planning for an emergent curriculum use contextualised music invention to incorporate children's socio-cultural experiences with teacher's ideas and expertise in a multi-arts learning (dance, drama, music and visual arts with music technology). "It becomes an important consideration for both experienced teachers and for pre-service teachers to articulate how and why a discipline such as music has a place within the curriculum of a school" (Forrest & Watson, 2012, p. 157). In Tasmania, the arts are included within communication, as essential to thinking. Yet there is no specified link made between arts as literacy and the teaching of music concepts, skills and techniques. As Burnard (2012, p. 238) concluded, "there is a need to claim a place for musical creativities as a critically important area of musical knowledge, musical learning, and pedagogical knowledge of a different type."

The framework of the space of music dialogue is useful to enable teachers to respond to diverse cultural communicative repertoires, facilitating authentic participation by parents, families and community members, integrating community priorities, diverse understandings, ideas and capabilities in a child-responsive program. Teachers take an active, intentional role in developing learning that is shaped by children's music-mediated experiences, as was seen in the xylophone melodies in the rural school; children's agentive transformational redesign in the inner urban classroom movement to piano music; and in suburban private school classroom vocal inventions. Educators build continuity by connecting children’s prior knowledge to new learning, leading to deeper understandings. Theories of learning (Bruner, Piaget, Vygotsky) are made visible in purposeful contexts for learning in an emergent curriculum. In response
to these theories, the framework of the space of music dialogue is a tool to identify, capture, measure, and investigate inventive practice and conceptual understanding in music education, with the possibility for this tool to be further used in broader contexts. In applying the framework to classroom music practice, educators can teach from a dynamic, evolving curriculum. Multimodal analysis is an alternative to perfunctory assessment practices that can often shut down rather than open up meaning making.

7.7 Concluding Comments

The changing social semiotic landscape in music education has had a powerful effect on what is learned. Reading and writing (linguistic modes) were once seen as the most important ways by which thinking skills could operate and be measured. The consideration of music invention as music dialogue in classroom practice, an equally important mode of communication and a way of resistance as children present new ideas, promotes cognition through transmodal redesign, is still seen by some educators as problematic. In multimodal creative practices found in the space of music dialogue, educators can determine how resources are selected for meaning making; how new conceptual knowledge (elements of music, ideas and events) is being created; and how diverse modes or media are featured. Together these strands influence and enrich pedagogic choices in the delivery of music curricula, as in other essential learning areas.

Through the framework of music dialogue, in this thesis it was possible to see how children's music inventions could engage them with music in ways that were increasingly multimodal. Their music inventions revealed their redesign of different modes of communication. These were drawn from visual arts (children transforming cartoon images in the inner-urban classroom as they mimed horses by moving to piano music, and the rural classroom transmodal redesign of illustrated picture books to
instrumental music drama in "Crocodile Beat") language arts (suburban private school transformational redesign of spoken narratives to invented songs; Sebastian's transmodal redesign in the inner urban garage rap; his transmodal redesign of audio mode during instrumental ensemble, to speech mode) dance (Sandra's transformational redesign in rural classroom dance to "Kinston Town;" transmodal redesign from audio to gestural mode in Sara's inner urban family dance; and Sebastian's dance to "Billie Jean") drama (Mimi's transmodal redesign from verbal linguistic mode to music drama in "Owl Story") and digital media technologies (transformational redesign in the mode of music in Bob and Edward's iPhone ringtone; and Mimi's invention of iPod pop song).

From the data, it may be concluded that there are multiple pathways through which children are engaged in the arts. Integrated arts education is a key to educating children in today's digital and globalised world. This research study featured music invention where interconnectivity of perspectives formed a multimodal ensemble “suggestive of discrete parts brought together as a synthesised whole, where modes, like melodies played on different instruments, are interrelated in complex ways” (MODE, 2012). It has been shown, by multimodal analysis of diverse children's learning through music invention, that understanding cultural ecologies and learning trajectories in a wide variety of contexts assists in expanding learning opportunities in multi-arts and literacy. Learning consists of children being provoked to solve problems in a broad spectrum of tasks and achievement. Learning through music invention speaks to parts of a child's being that is otherwise untouched, to spark curiosity and encourage diverse ways of engaging in the culture of learning, given the right conditions, and to introduce a broader range of opportunities and possibilities in education.

A new formation of music in the classroom through music invention opens up
new ways for children to make meaning by transformational and transmodal redesign. It assists them to become more "critically literate" by resolving contradictory and disjunctive forms of meaning making. Through music invention children learn to understand the ways multimodal texts work, to position themselves in new worlds, to facilitate semiotic import of composing resources across national and cultural borders and from home to school. It assists their agency, their ways of enacting and owning change by linking past and present constructions of literacy through multimodal redesign in music invention. Inclusion of music invention empowers children to stretch their text-making ability and to transform texts in new situations over time.

Realisation of what sits underneath the surface, the redesign, is crucial to extending and expanding children's capacity for music invention. There needs to be a transformational attitude to music events in classroom contexts where music invention is not viewed as "a product to be taught in a strict methodological or pedagogical manner, but as a process to be encouraged on the way to learning freedom and self-actualization" (Hickey, 2009, p. 296). This view of music education acknowledges that contemporary processes of teaching and learning, influenced by a poststructuralist perspective, occur in a more discursive and dialogical way. By adopting this view, this study has affirmed that conceptual understanding in music education is accessed by young children as they problematise and resist established and familiar practices through cognitive dissonance, thereby realising new meaning in transmodal redesign. Learning seen as a process of movement, shift and change, of semiotic redesign and linkages (Newfield, 2009), will ensure that pedagogic approaches to creativity in the arts, and in particular music, do not confine but offer choices and makes possible the establishment of strong, confident, vibrant and creative identities in learning, communication and performance.
REFERENCES CITED


Praxial music education: Reflections and dialogues (pp.177-196). Oxford, United Kingdom: Oxford University Press.


new handbook of research on music teaching and learning (pp. 63-84). New York, NY: Oxford University Press.


In N. Yelland (Ed), Critical issues in early childhood education (pp. 115–131). Berkshire, United Kingdom: Open University Press.


Diagnault, L. (1996). *Children's creative musical thinking within the context of a computer-supported improvisational approach to composition*. Northwestern University, USA.


dissertation). University of Washington, Seattle, WA.


Erickson, F. (1986). Qualitative methods in research on teaching. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (pp. 119-161). New York, NY: Macmillan.


for Research in General Music, Tucson, AZ.


Heath, C., Hindmarsh, J., & Luff, P. (2010). *Video in qualitative research: Analysing*


Multiliteracies: Literacy learning and the design of social futures (pp.182-203).
London, United Kingdom: Routledge.

Routledge.

Kress, G. R. (2007). Thinking about meaning and learning in a world of instability and
multiplicity. Pedagogies, 2(1), 19-34.

multimodal analysis (pp. 54-67). London, United Kingdom: Routledge.


In R. Rogers (Ed.), An introduction to critical discourse analysis in education

of contemporary communication. London, United Kingdom: Edward Arnold.


Science, 10, 110-120.


Lancaster, L. (2003). Beginning at the beginning: how a young child constructs time
multimodally, in Kress, G. and Jewitt, C. (Eds.), Multimodal Literacy, New


Online: [http://act.maydaygroup.org/articles/Regelski1_1.pdf](http://act.maydaygroup.org/articles/Regelski1_1.pdf)


difference.’ Educational Philosophy and Theory, 37(1), 7-27.


CA: Sage.


**APPENDIX 1: DATES AND PERIODS OF DATA COLLECTION**

Table 1

_Dates and Periods of Data Collection: Interviews, Observations, Field Notes._

<table>
<thead>
<tr>
<th>Type of Data</th>
<th>Source of Data</th>
<th>Period Collected (April-Oct. 2011)</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviews with children</td>
<td>Audio recording on iPhone</td>
<td>August to October (Once per month)</td>
<td>Classroom and Home</td>
</tr>
<tr>
<td>Interviews with parents</td>
<td>Laptop/Audio recording on iPhone</td>
<td>August to October (Once only)</td>
<td>Home</td>
</tr>
<tr>
<td>Interviews with classroom teachers</td>
<td>Laptop</td>
<td>August to October</td>
<td>All three schools, One per month.</td>
</tr>
<tr>
<td>Observations of children and family interactions in the home</td>
<td>Laptop, immediately after the event</td>
<td>August to October (Monthly)</td>
<td>Homes of six families, 3 rural and 3 city locations</td>
</tr>
<tr>
<td>Observations of children and teachers in school, community.</td>
<td>Laptop, during or immediately after activities.</td>
<td>April to October</td>
<td>School, Church, Dance School.</td>
</tr>
<tr>
<td>Field notes: community interactions and resources: home/school</td>
<td>Laptop: immediately after the event.</td>
<td>April to October</td>
<td>School, home and community.</td>
</tr>
</tbody>
</table>
Table 1 (Continued)

*Dates and Periods of Data Collection: Video Data.*

<table>
<thead>
<tr>
<th>Type of Data</th>
<th>Source of Data</th>
<th>Period Collected (April-Oct. 2011)</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole group movement to music - gallop, trot</td>
<td>Researcher's video</td>
<td>August 2011</td>
<td>Inner urban classroom: Q</td>
</tr>
<tr>
<td>Jeremy's whole group soundscape</td>
<td>Researcher's video</td>
<td>October 2011</td>
<td>Inner urban classroom: Q</td>
</tr>
<tr>
<td>Sebastian's whole group ensemble</td>
<td>Researcher's video</td>
<td>September 2011</td>
<td>Inner urban classroom: Q</td>
</tr>
<tr>
<td>Sebastian's drumming in whole group music</td>
<td>Researcher's video</td>
<td>September 2011</td>
<td>Inner urban classroom: Q</td>
</tr>
<tr>
<td>Whole group vocal inventions</td>
<td>Researcher's video</td>
<td>October 2011</td>
<td>Suburban private school: Q</td>
</tr>
<tr>
<td>Sandra's movement to music in classroom</td>
<td>Researcher's video</td>
<td>September 2011</td>
<td>Rural state school N.S.W.</td>
</tr>
<tr>
<td>Xylophone: whole group; duos (classroom)</td>
<td>Researcher's video</td>
<td>April 2011 to May 2011</td>
<td>Rural state school N.S.W.</td>
</tr>
<tr>
<td>Storybook to music ensemble (classroom)</td>
<td>Researcher's video</td>
<td>October 2011</td>
<td>Rural state school N.S.W.</td>
</tr>
<tr>
<td>Mimi's puppet story to group music ensemble</td>
<td>Researcher's video</td>
<td>October 2011</td>
<td>Rural state school N.S.W.</td>
</tr>
<tr>
<td>Mimi's puppet song and MP3 song in the home</td>
<td>Father's video</td>
<td>October 2011</td>
<td>Rural home</td>
</tr>
<tr>
<td>Heidi's invented song and piano piece</td>
<td>Mother's video</td>
<td>June-Sept 2011</td>
<td>Suburban home</td>
</tr>
<tr>
<td>Heidi's conducting</td>
<td>Researcher's video</td>
<td>September 2011</td>
<td>Suburban home</td>
</tr>
<tr>
<td>Sara's family dance</td>
<td>Father's video</td>
<td>October 2011</td>
<td>Inner urban home</td>
</tr>
<tr>
<td>Sebastian's Rap, piano inventions</td>
<td>Mother's video</td>
<td>September 2011</td>
<td>Inner urban home</td>
</tr>
<tr>
<td>Bob/Edward song and drumming</td>
<td>Researcher's video</td>
<td>September - October 2011</td>
<td>Rural home</td>
</tr>
</tbody>
</table>
APPENDIX 2: ETHICAL ISSUES

The following is an explanatory document of ethical considerations concerning procedures for the collection of data and dissemination of information. It was prepared for the application for ethical clearance. Ethical principles that embody this research study are contained in the Australian National Statement on the Ethical Conduct in Human Research endorsed in March 2007 (reviewed in August 2009) that guide the design, review and conduct of research. This is sourced from the National Health and Medical Research Council.

A. Values and Principles
The National Statement focuses on the ethical aspects of the design, review and conduct of human research and involves important considerations for this project that include the principle values of respect, research merit and integrity, justice and beneficence.

Respect
According to the Australian National Statement on Ethical Conduct of Research (ANSECR), respect is the central value, as it recognises that each human being has value in himself or herself that informs all interaction between people. Additionally, it recognises the value of human autonomy and provides protection of those with diminished or no autonomy, and of vulnerable communities. In terms of Aboriginal research, the Aboriginal people express agency when they are co-partners and co-benefactors in the research (Chase, 1990; Tuhiwai Smith, 1999). In this case study, as outlined in the data collection section, parents or caregivers will be co-partners in the research and will benefit from outcomes.

Research Merit and Integrity
As outlined in the ANSECR, unless research has merit and the researchers have integrity in conducting the research, the involvement of human participants in the research cannot be ethically justifiable.

Justice and Beneficence
The application of justice within a research project involves a regard for human sameness, recognising the need to be treated in accordance with such justice, and involves fair treatment in recruitment of participants and review of research. Beneficence is applied by assessing and taking into account the risk of harm to participants and the wider community against the potential benefits of the research, and being sensitive to the welfare and interests of the people involved in the research. It also involves having cognisance of the social and cultural implications of their work in conducting the research.

During the study, the researcher will provide support by letter, telephone calls and Skype, or SMS where appropriate, to remind them of the tasks required of them and the upcoming music sessions. She will also make links with music groups, music professionals in the community, and teachers in the local school. These will be for the benefit of families should the participants want ongoing support in the music education of their child, and all available information will be passed to them. The intention of facilitating these group activities will be to build undeveloped musical identities and aspirations, and to enhance the participants' communication skills in and across modes by integrating music and dance into literacy practice.
B. Themes
In addition to the values and principles of ethical conduct, a number of themes exist in research ethics outlined in the ANSECR that involve the risks and benefits of the research and consent requirements.

Risks and Benefits
A number of risks have been identified with the participants involving the privacy and protection of their identity. There is no potential for physical harm, but psychological harm has been addressed with the provision of voluntary and anonymous participation. Discomfort has been allowed for with the understanding that options are available for the place in which the data collection takes place. Inconvenience is acknowledged by setting the day or week of interviews and other data collection to fit in with other commitments or holidays on the part of participants. The information sheet will be available in the preferred language of the participant. This letter outlines that a participant may withdraw at any time, though continued involvement over the course of the study is highly desired. A copy of this letter is attached in Appendix 3.

Benefits of the study include participants being offered ongoing support in music education and workshops with peers by the researcher as music specialist, over the course of the research project. Participation of families in research through the collection of data will promote positive music text making practices, an ongoing celebration of cultural music activities and foster children’s creative music play and creativity. Importance of sharing or interface of culture and music will be recognised and implemented through communicative playful activities in music and the recognition of children’s investment of semiotic work in their music texts. Children should develop resilience and confidence in their text making abilities, particularly music texts, as they enact agency when exposed to new experiences in learning. Music dialogue sessions should stretch their text-making ability and assist them to transform texts in new situations over time. Participants will be given opportunities to assume responsibility by recognising their efforts to be imaginative, to experiment and to create.

“Nurturing positive text-making dispositions that are full of initiative, confidence and openness can enable children to participate in the world responsibly and with dignity” (Mavers, 2011, p. 129).

Consent Requirements
According to ANSECR, participation that is voluntary and based on sufficient information requires an adequate understanding of the purpose, methods, demands, risks and potential benefits of the research. Additionally, the ANSECR further states that participants are able to withdraw at any time despite giving their consent to participate. Accordingly, the information sheet is available setting out the above information with translation, and an information session will be conducted.

C. Ethical Considerations Specific to Research Method
Data Banks
The term “databases”, as used in the ANSECR, includes databases and involves the storage of data that is collected during the interview process. For the purposes of this project, the data is labelled as non-identifiable data, which have never been labelled with individual identifiers. In this instance, the custodian of the interviews and video recordings - collected as soft copies - will be myself as researcher, and the parent/guardian of the subject. The same applies to journals kept by the parent or caregiver, and by myself. They will be, in both cases, stored in a locked filing cabinet in the collector’s place of residence and not made available to anyone outside the research team. Data analysis methods and transcriptions will not use computer programs specific
D. Ethical Considerations Specific to Participants

The written discussion of individual participants in the case studies will be made available to their parents or guardians, along with a summary of the video analysis. Conclusions will be added to this report sent to parents participating in the study. Reporting of findings in conferences and seminars, and publication in academic publications will be possible outcomes, and parents will be made aware of this in the informed consent material outlining possible uses of the data (see Appendix 3). If requested by participants, alternative ways could be suggested to digitally disguise identity. Representational drawings of each frame in video transcripts could be an alternative way of protecting identity. Support for children, their families and communities, will be ongoing throughout the study, if desired, in order to minimise any concerns. A priority for the study is to promote positive educational outcomes, so assurance will be given to parents and educators involved in the study, that programs in key learning areas will not be disrupted while gathering data. Knowledge gained through the study will be returned to the community.

As mentioned previously, the researcher will undertake to withhold full disclosure of information gathered and presented in the final thesis, and in any presentations at conferences or seminars. Risks to the well being of the participants will be exemplified and limits to access of information agreed upon. Ongoing summative reviews from stakeholders and from the research community are necessary and there will be avoidance of low-priority probing of sensitive issues.

Students from minority communities will apply their learning techniques to customising the group music environment during data collection, the procedures, the activities and the content, to suit their needs. In this way they “become active participants in the study instead of passive objects of the research” (Yunkaporta & McGinty, 2009). Denzin (2005) refers to ethnographic methodology that acknowledges the Indigenous standpoint and methodology. This positions the researcher to seek knowledge from an Aboriginal perspective rather than superficial use of tokenism in cultural investigations. Parents will assist in collecting data. Interviews and observations will be conducted in the home. Parents will cross check discussion of individual cases for verification, though interpretations may vary from those of the researcher. Analysis will be sensitive to Aboriginal sovereignty and issues of ancestors and the land.
20-Jul-2011

Dear Mrs Tomlinson

I write further to the additional information provided in relation to the conditional approval granted to your application for ethical clearance for your project "Young Children's Communication Using Semiotic Resources In Music Play." (GU Ref No: EBL/82/10/HREC).

This is to confirm receipt of the remaining required information, assurances or amendments to this protocol.

Consequently, I reconfirm my earlier advice that you are authorised to immediately commence this research on this basis.

The standard conditions of approval attached to our previous correspondence about this protocol continue to apply.

Regards

Ms Karen Moorehead
Office for Research
N54 2.39 Nathan Campus
Griffith University
ph: 07 3735 4277
email: k.moorehead@griffith.edu.au
web:

CC:

At this time all researchers are reminded that the Griffith University Code for the Responsible Conduct of Research provides guidance to researchers in areas such as conflict of interest, authorship, storage of data, & the training of research students. You can find further information, resources and a link to the University's Code by visiting

PRIVILEGED, PRIVATE AND CONFIDENTIAL
This email and any files transmitted with it are intended solely for the use of the addressee(s) and may contain information which is confidential or privileged. If you receive this email and you are not the addressee(s) [or responsible for delivery of the email to the addressee(s)], please disregard the contents of the email, delete the email and notify the author immediately
APPENDIX 3: INFORMED CONSENT FORMS

Consent form

I hereby consent for my son/daughter

……………………………………………………………………………………………

……………………………………………………………………………………………

………..

…

……………………………………………………………………………………………

Parent/guardian

Address

Signature

Phone: Home …………………. Mobile ……………………………………….

Privacy Statement

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 the data may be used for other research purposes. However, your anonymity will at all times be safeguarded.
APPENDIX 4: INFORMATION ON THE STUDY

Children’s communication in music play

Who is conducting the research?

Chief Investigator: Dr Bob Funnell
Student Investigator: Michelle Tomlinson
School of Educational & Professional Studies Griffith University Mt Gravatt,
Ph: (07) 3735 5745 Griffith University, Mt Gravatt
Em: r.funnell@griffith.edu.au Em: m.tomlinson@griffith.edu.au

Why is the research being conducted?

This research is being conducted to fulfill the requirements for Doctor of Philosophy in Education for Michelle Tomlinson. The study will explore how young children use voice, movement, musical instruments and other sound sources to communicate through music play. How children in their first years of school develop relationships and communicate through music in home and school activities is interesting, for musical ideas are valued as one way children can tell their stories or celebrate new experiences in their world. The research is designed to be sensitive to music making of children belonging to diverse social and cultural heritage. The researcher as a musician will support their musical efforts throughout the two years of the study and develop community resources for ongoing music participation.

What will I be asked to do?

If you and your child agree to be involved in the study, you will be given a small video camera on which to record when convenient any music play your child initiates in the home, the park, with friends or with you. This includes songs, drumming, dancing to music and other spontaneous music activities with family members. You will be asked to keep a journal describing these activities if the camera is not available at the time. This is not an educational assessment.

Michelle will visit every three months with a collection of instruments and organize some music play with your child at home for twenty minutes. Every six months she will involve some of your child’s friends in a small group music session of thirty minutes, and she will arrange this at the local school. At these times, your child will be videoed participating in music play with Michelle and friends (whose parents must give consent). Parents will be present at these. After the sessions, both you and your child will in turn have a brief time with Michelle, talking about favourite music in the family and other music activities.

What is the basis on which participants have been selected?

The children in the study must be commencing school in 2011. A parent or guardian must give informed consent, and the child should demonstrate creativity and willingness to be involved in music activities. As children are to be from diverse socio-cultural backgrounds, Michelle will invite two of Aboriginal heritage and also two bilingual migrants of recent arrival in Australia who are keen to participate. Two children who are Australian citizens of European heritage will also be included in the study.
What are the expected benefits of the study?
The study is being conducted for educational purposes, informing us of how children communicate using music. It may also assist researchers, curriculum writers and policy makers to recognize how instruments, voice, puppets, dance and facial expressions are used by children, and sometimes together, to communicate meaningfully in spontaneous music making. The study promotes children’s ability to create, to invent, and to participate in the world responsibly and with dignity. The study may further the opportunities of children to recognize and respect diversity, and alternative viewpoints, as well as being sensitive to music making by other participants.

Benefits of the study include children being offered ongoing support in music education and activities by Michelle as music specialist, over the course of the two-year project. Participation of families in research through the collection of data will promote a sense of family bonding, through the ongoing celebration of cultural music activities and their children’s creative music play and creativity. Educational benefits will also flow to children as they explore ways of communicating knowledge particular to music, with the researcher who is a music specialist, and with group music sessions facilitated by her. There will be a sharing or interface of culture and music through communicative playful activities in music and the recognition of children’s investment of semiotic work in their music texts.

Your confidentiality
Individual information from this research is strictly confidential. No individual information will be identifiable in published reports of this research.

Your participation is voluntary
You may stop at any time if you do not wish to continue.

The ethical conduct of this research
Griffith University conducts research in accordance with the National Statement of Ethical Conduct in Research Involving Humans. If you have any concerns or complaints about the ethical conduct of this research, please contact the Griffith University Manager of Human Research Ethics on (07) 3735 5456 or research-ethics@griffith.edu.au

Feedback to you
A summary of the results of this study will be made available to you.
APPENDIX 5: INFORMED CONSENT FOR USE OF VIDEO DATA

Informed Consent: Video Recording

Dear Parent/Guardian,

As both you and I will be collecting video data for the study, this letter includes information to clarify the ethical considerations. I can assure you that your privacy will be protected at all times by:

1. All data gathered will be labeled as non-identifiable (not labelled with your child’s name or other identifiers).
2. Your child’s facial features may be disguised if you do not wish them to be revealed. This will be done by blurring, or by the use of representational drawings for each frame.
3. Data transcription and analysis methods will be done manually rather than using computer programs, so that privacy of participants is further protected.
4. Any data collected will be stored in a safe place in my home and not made available to anyone outside the research team.
5. Presentations at conferences or lectures, and academic journals, will be possible outcomes.
6. Video analysis, discussions of individual participants and results will be available to you for discussion and cross-checking of interpretations.
7. I will try to organize to meet with you at a time that does not conflict with family commitments and holidays. I will offer to set up a Facebook site, Email or electronic messaging for general communication and a reminder of upcoming visits. You will also be contacted by telephone before the visits.
8. Please let me know if you feel pressured to make video recordings. I can suggest ways to ease this, and other family members, even siblings, may be able to do these tasks. Use the journal if you forget the camera.
9. Tasks are not for any educational assessment at the school or any other institution.

Thank you for being willing to take part in this study.
Kind regards,

Michelle Tomlinson.

Privacy Statement

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 the 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 www.griffith.edu.au/ua/aa/vc/pp or telephone (07) 3735 5585.
Educational Benefits of the Study

Contributions to the Field
This study may be of interest to researchers, educators, and policy makers as it investigates ways of facilitating a positive interface of culture and music through communicative playful activities in music and the recognition of children’s investment of semiotic work in their music texts. Deeper understanding of children’s music text making and the significance of apparently mundane and unexceptional music play will focus a lens on the semiotic work of representation in music. This may alter the way in which music is taught and assessed, particularly in terms of music imagery and genre in texts. It provides insight into the range of meanings made in children’s texts and respect for what they do and how they shape meanings through initiative, imagination and ingenuity.

Within a curriculum that recognizes instruction and directed tasks in order to create different texts for different purposes, and allows for children’s agentive behaviour, there needs to be a balance providing opportunities for children to frame their self-initiated and self-directed projects, opportunities to assume responsibility, to be imaginative, to experiment and to create (Mavers, 2011).

The dominant view of children progressing from asociality to sociality, from simplicity to complexity and from incompetence to competence has proven “extraordinarily resistant to criticism” (Prout & James, 1997, p. 22). An alternate view taken in this study is that “children aspire to be free, equal and rational agents who exercise free will in order to become coherent and unified beings” (MacNaughton, 2000). Consequently, children who are participants in this study are seen as social agents who communicate meaningfully around the kitchen, in the park, while shopping and while in the classroom. Using the social semiotic lens of Jewitt and Kress (2003), they are not viewed in a framework of social determinism concerned with children’s “acquisition” of skills, but as engaged actors in socially constructed environments where they frame, interpret and respond. “This marks a shift from socialisation to disposition, from ‘being done to’ to participation” (Mavers, 2011, p. 3). The focus is on the child’s perceptions of a reality within the world, and how they represent this experience by communicating through their playful music texts.

Benefits to Participants
Benefits of the study include participants being offered ongoing support in music education and activities by the researcher as music specialist, over the course of the research project. Participation of families in research through the collection of data will enhance their research skills and promote a sense of family bonding, through the ongoing celebration of cultural music activities and their children’s creative music play and creativity. Educational benefits should also flow to participants as they engage in discourses or ways of communicating knowledge particular to music, with the researcher who is a music specialist, and with group music sessions facilitated by her. They may increase their sensitivity to texts made by others from varying cultures.

Benefits to Teachers
Teachers may learn something new that changes the way they think about their practice, the need to re-think ideas. A type of formative assessment that helps teachers plan and implement more apt, engaging and relevant content will be developed. New designs of literacy learning may emerge from new understanding of children's multimodal text redesigns in music.
APPENDIX 6: INFORMATION FOR ADDITIONAL PARTICIPANTS

Additional Participant’s consent form

I hereby consent for my son/daughter

..........................................................................................................................................................

to participate in the study “How Do Young Children Communicate Using Semiotic Tools in Music Play?” I understand that I can choose to withdraw my child at any time from the study. I consent to video recordings of my child participating in music play to be used by Michelle Tomlinson in her analysis as part of her PhD and for use in educational conferences and seminars.

I realise that at all times the right to privacy of my child/children will be protected, and no data will be labelled with identifying names or other identifiers.

I understand that any data collected will be stored in a safe place, and will not be analysed by anyone except Michelle Tomlinson and her immediate supervisors.

Signed

..........................................................................................................................................................

Parent/guardian

Address

..........................................................................................................................................................

..........................................................................................................................................................

...............

Phone: Home .........................
Mobile.......................................

Privacy Statement

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 the data may be used for other research purposes. However, your anonymity will at all times be safeguarded.
Additional Participants

This research is being conducted to fulfill the requirements for Doctor of Philosophy in Education for Michelle Tomlinson. The study will explore how young children use voice, movement, musical instruments and other sound sources to communicate through music play.

Your son/daughter has been invited by a friend to be part of this study in the small group activities after school. These activities involving six to eight children are half-hour music sessions in which your child will be given the opportunity to explore many percussion instruments and use these along with their friends to tell their stories. Puppets and other materials such as ribbons and interesting objects found by them and brought to the lesson will help them express their experiences in their music play and then to make these into stories using the musical instruments, movement and sung/spoken words.

The sessions will take place at a time convenient for those who participate and their parents. Every effort will be made to fit in with other family activities. The research is designed to be sensitive to music making of children belonging to diverse social and cultural heritage. The researcher as a musician will support their musical ideas and efforts. You as parent/guardian are expected to remain in the school during the half-hour sessions, and may observe unobtrusively.

What are the expected benefits of the study?
The study is being conducted for educational purposes, informing us of how children communicate using music. It may also assist researchers, curriculum writers and policy makers to recognize how instruments, voice, puppets, dance and facial expressions are used by children, and sometimes together, to communicate meaningfully in spontaneous music making. The study promotes children’s ability to create, to invent, and to participate in the world responsibly and with dignity. The study may further the opportunities of children to recognize and respect diversity, and alternative viewpoints, as well as being sensitive to music making by other participants.
APPENDIX 7: INTERVIEWS

SARA

22nd September 3.30

What do you like about music?
I like singing and playing instruments.
What are the places where you like to do music? Where do you like to play music?
Here. In the house.
Anywhere else?
In the car?
And what about school? Do you like music at school?
Yes.
And what is playing? What do you do when you are playing music?
You have fun!
Yes. Thank you for that.
I can hear some music. (Her father puts on a recording of Arabic music).

SARA’S MUM

What’s the best thing about music?
The music is important for making you feel good and for supporting emotions. If you are feeling down or lonely, it lifts you up, especially singing and dancing together.
What’s important about music at school?
The children can’t always be doing the hard job. They need those times for music.
Why do you think they need those times?
They need music because they are at school for a long time.
Do you think music helps children learn their language?
Yes.
In what way does it help?
It helps them to listen. That is very important for learning a language. It is also very important for our family in the home.
Why?
It helps things to run smoothly when we listen to each other. It is good for communication. Music helps with that.
I can see how it works in your home. Thank you.

BOB and EDWARD

13/9/11

Edward (What do you like about music?) It’s very nice and I just really like it. (Why do you like music?) I just like the sound. (How do you make sounds with the music?) It (the sound) bounces down and so when I hit this it bounces down and back up through the holes. (And when it bounces back what happens?) If you do it really hard it makes a really loud sound. (And what happens when you play gently?) It makes a really low sound.
Bob (And what about you, Bob?) I like music ‘cause I just like playing stuff like the drums. (And what about you, Edward? What is your favourite instrument?) I really like this. (You really like the box drum! And what about the piano? I’ve heard that you do lots of things on the piano). I’ll show you. (Edward plays on the piano). (Bob, how do you play on the drum kit?) I just put my foot on the pedal and my hands on the sticks, and I just go “boom, boom, snap. Boom, boom, snap.” And it’s really fun doing it. (And what about Edward, what did you do on the piano? You did lots of things.) Yes, but I wasn’t very good. (I thought you were really good! You made some wonderful sounds on the piano).

(Now I want you to think very carefully and tell me, what is play?) Bob – I play on the swings and in the sandpit. And playing musical instruments. Edward - Play is moving and action. When you are tired you go and rest and when you are healthy and playful you go and play.

MUM (childhood). We had to learn a musical instrument – piano, then the flute in a high school band. My friends and I used to sing, so we had lots of concerts and during Sunday lunches we sat around and sang together. It was fun, and relaxation and having friends around. My friends were very musical, more so than I. (Did that help, having friends who were good role models?) Definitely, it was a social thing and we often interacted through music. (And did learning the piano and playing in the band help you to read music?) Definitely, because when learning the piano I did all the theory side of it to about grade five. I can still read music now – I can pick up anything and play it. (So it’s life-long learning). Yes.

(And does it help to have that music knowledge now that you have children? How do you share that with them?) I think it really helps them. My husband teaches Bob the drums and we let them use the piano, so giving them that access is important. And by playing music (on CD/stereo) and putting different sorts of music on to play at home is really good. (Yes, because they have the role model of doing or seeing others playing musical instruments and their dad playing. And so when they have music in the home it is a kind of music education?) Yes. (How do you think music education should be introduced in schools? What do you think is music education in school contexts?) I think music education emerges from the nursery rhymes they learn in the classroom, and being given lots of opportunities to explore music in different ways. The kids have this access in their classroom. When the boys enter the classroom their teacher has music playing and that sets the tone for the day. I think it is a good support for the emotions and for management of behaviours. I think that it motivates children to learn and it helps them control and direct their interests and learning in a way that can influence them for life.

SEBASTIAN

What do you like about music? Do you like to play music? I like Michael Jackson and I also like to play WII games. I like playing with my kite. It is very useful. I like playing with the ball.

I like these xylophones, and the drums. I like dancing and playing with the puppets. I like singing Old MacDonald Had A Farm, Twinkle Twinkle, and even Humpty Dumpty. (Sings the song). I can sing it very quick. (Sings faster).

I like “I’m A Little Teapot” – he sings and plays on the djembe drum.
TRACEY

What do you like to do when you are playing?
I like playing on my computer – the Barbie one.
What do you play on the computer?
I play cookie game – the sounds - and ABC - to learn the alphabet and words.
What did you like about the music you did with me today?
I liked the clicky things – the castanets – and the drums.
What sort of things do you like to do with your friends when you do music with them?
Play musical chairs
What do you like to do at school with me during music time?
I like the shakey things that you play (Bells, maracas).
At home do you like to do music with your friends?
I dance to the music with Victoria
What do you do when you play?
I like acting things, and climbing things, and dancing. I like to make pictures too.

STEPHEN

14th Sept 2011 4.30pm

Hello Stephen.
What do you like best about music?
Because you get to play stuff and you get to do stuff, like play on the instruments.
Is that what you like best about music? What about singing?
Because you play lovely songs and sleepy songs.
Do you like to do music by yourself or with other people?
By myself.
What about when you do the music in the group with other children playing together.
What do you like to do there?
I like to … I just do it.
What’s play?
It means you get to do something.
So it’s not sleeping.
Sleeping?
What do you do when you are playing?
You get to do something and you play games – any kind of game. And you get to go somewhere.
Where do you go?
To school, and to the park.
Do you play at home?
No … yes!
Do you play inside or outside?
Both. I play Lego and I play in my room. I like playing on the drum kit.
What do you do outside?
I play chasing, and hiding. I have one good place to hide. And I play in my tree house.
HEIDI

What do you like about music?
Playing things
Why do you like playing?
Because I like guinea pigs
They make lots of sounds
What do you do with your voice?
Sing, and speak
You have different kinds of ways to use your voice. Can you use your singing voice and sing a song you like?
Parlez-Vous (dotted rhythm 6/8 time)
What do you do in music at school?
Play games; tell stories.
Does everyone join in?
They play “bell horses – and they go skipping around the music, and when the music stops you freeze and you can’t touch anyone or the floor. The one who wins gets a sticker.
Sings “The Farmer In The Dell” (6/8 time).
Mum reminded her of another song she heard Heidi sing the other day.
Georgie Porgy, pudding n’ pie. (Dotted rhythm; so-mi-re-do).
What do you do with your music at home – with mummy?
Mummy: Go and get your baton, Heidi. Here comes the baton. Get the music stand, Ashleigh. Do we have our music?
Heidi writes the music on a blank piece of paper.
### APPENDIX 8: SUMMARIES OF MODAL REDESIGN FOR MUSIC EVENTS

**Table 1**

*Summary of Modal redesign for Whole Group Transformation of Piano Music Through Movement*

<table>
<thead>
<tr>
<th>Movement to music - Trotting, Galloping</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials</th>
<th>Objects, Materials</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom</td>
<td>Proxemics Gesture: whole body Shoulders Arms Knees Music Facial, gaze</td>
<td><strong>Salience</strong>&lt;br&gt;1. Gallop Proxemics Whole body Music Listening.&lt;br&gt;2. Trot Whole body Music Proxemics</td>
<td><strong>Semiotic Weighting</strong> Whole body movement and music in relation to space were the focus and critical to the purpose of imitating horses through mime.&lt;br&gt;<strong>Relations Between Modes</strong> Knees bent, arms, face, shoulders and torso link music</td>
<td><strong>Gestural</strong>&lt;br&gt;Ribbon wands&lt;br&gt;A range of xylophones and drums, plus bells, maracas, claves, tambourines and wood blocks and a vibraphone were also available around one side of the room.</td>
<td><strong>Ribbon wands</strong>&lt;br&gt;Gestural mode: whole body movements occurred in synchronicity with all other body movement (arms, knees, shoulders, head), the spatial mode of proxemics, and the audio mode of music. These were given equal rating as modes in the convention of movement. This gave extra weight to the children's interpretation of the contrasting music styles. Contrasting musical styles evoked very different movement responses.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Content</th>
<th>Two pieces of music of contrasting style and form played on the keyboard. Children responded with trot or gallop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Context</td>
<td>Inner city classroom with a large open space.</td>
</tr>
<tr>
<td>Prior Experience</td>
<td>Horse movements: Disney movie cartoons, picture books</td>
</tr>
<tr>
<td>Verbal, Musical Images</td>
<td>Horses, Staccato or Legato style. Dotted versus evenly spaced rhythms.</td>
</tr>
</tbody>
</table>
**Table 2**

*Summary of Modal Redesign for Classroom Transformational Vocal Inventions*

<table>
<thead>
<tr>
<th>Music Inventions using voice in classroom</th>
<th>Modes</th>
<th>Role of Mod</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
<td>Listening, Timbre and Pitch of Voice, Gaze, Visual (puppets), Proxemics, Gesture.</td>
<td><strong>Salience</strong></td>
<td><strong>Finger Puppets; Glove Puppets; Voice: spoken and sung.</strong></td>
<td><strong>Finger Puppets; Glove Puppets; Voice: spoken and sung.</strong></td>
<td>Characteristics of puppets captured in lyrics. Humour and rhyme were fresh resources explored in invented lyrics. Intervals of a minor 2nd and major 3rd were explored. No change in modal configuration: indicated that children were bounded by a structured classroom activity and were given little opportunity for open-ended music exploration outside confines of known intervals and rhythms (use of crotchets and quavers in 3/4 time, and dotted crotchets in 6/8 time). Music identity strengthened in transformational redesign of many modes.</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td>Suburban private school</td>
<td><strong>Verbal Linguistic.</strong></td>
<td>Spoken - questions of researcher</td>
<td><strong>Audio Linguistic, Singing of children. Listening.</strong></td>
<td><strong>Finger Puppets; Glove Puppets; Voice: spoken and sung.</strong></td>
</tr>
<tr>
<td><strong>Prior Experience</strong></td>
<td>School music - Kodály singing games and nursery rhymes.</td>
<td><strong>Gesture</strong></td>
<td>Hands, arms, head turn with puppets and each other.</td>
<td><strong>Finger Puppets; Glove Puppets; Voice: spoken and sung.</strong></td>
<td><strong>Finger Puppets; Glove Puppets; Voice: spoken and sung.</strong></td>
</tr>
<tr>
<td><strong>Verbal, Musical Images</strong></td>
<td>Australian birds and animals - finger/glove puppets.</td>
<td><strong>Visual</strong></td>
<td>Puppets Gaze Facial expression.</td>
<td><strong>Audio Linguistic, Singing of children. Listening.</strong></td>
<td><strong>Finger Puppets; Glove Puppets; Voice: spoken and sung.</strong></td>
</tr>
<tr>
<td><strong>Spatial</strong></td>
<td>Proxemics of children sitting in semi-circle in front of the researcher.</td>
<td><strong>Spatial</strong></td>
<td>Proxemics of children sitting in semi-circle in front of the researcher.</td>
<td><strong>Finger Puppets; Glove Puppets; Voice: spoken and sung.</strong></td>
<td><strong>Finger Puppets; Glove Puppets; Voice: spoken and sung.</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Finger Puppets; Glove Puppets; Voice: spoken and sung.</strong></td>
<td><strong>Finger Puppets; Glove Puppets; Voice: spoken and sung.</strong></td>
<td><strong>Finger Puppets; Glove Puppets; Voice: spoken and sung.</strong></td>
<td><strong>Finger Puppets; Glove Puppets; Voice: spoken and sung.</strong></td>
<td><strong>Finger Puppets; Glove Puppets; Voice: spoken and sung.</strong></td>
</tr>
</tbody>
</table>

**Modes**
- Listening
- Timbre
- Pitch of Voice
- Gaze
- Visual (puppets)
- Proxemics
- Gesture

**Salience**
- Listening - to questions, to each other.
- Singing: timbre, the quality of sounds, focus on in-tune singing.
- Gaze at puppet and researcher.
- Proxemics Closeness of children to researcher.

**Semiotic Weighting/Relations Between Modes**
- Listening and singing (audio) in foreground
- Gaze (visual)
- Proxemics and prior song repertoire supported all other interactions.
Table 3

*Summary of Modal Redesign for Sandra’s Classroom Movement to Music*

<table>
<thead>
<tr>
<th>Sandra's transformational redesign while moving to music in a Rural classroom.</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
<td><strong>Gestural Mode</strong></td>
<td><strong>Salience</strong></td>
<td><strong>Ribbon wands</strong></td>
<td><strong>Ribbon wands</strong></td>
<td>Embodied actions of Sandra once inside the circle were more complex, involving a shift in modal configuration that involved hands (quaver patterns or division of the beat) and feet (crotchet beat) in a sophisticated musical counterpoint made while in the centre of the room, surrounded by her peers. She showed a secure sense of beat division and kinaesthetic mastery of balance and body movements to interpret phrasing, dynamic features and rhythmic motifs in the music, revealing an awareness of the elements of music.</td>
</tr>
<tr>
<td>Through gesture, Sandra communicated and negotiated her position (proximity) in the physical space in relation to peers.</td>
<td>Whole body, feet, fingers express the elements of music (beat, rhythm, phrasing).</td>
<td>1. Sandra stepped up on a riser on the strong beat of the bar as she moved both arms up and out to the sides. She began to communicate by gesture - whole body - gaze &amp; facial expression at that height. 2. Sandra moved to the centre of the circle: used fingers for rhythm of song; feet to keep the beat.</td>
<td></td>
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</tr>
<tr>
<td><strong>Context</strong></td>
<td><strong>Visual Mode</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Rural classroom: free movement to recording of Jamaican dance</td>
<td>Gaze, face, Ribbon wand.</td>
<td></td>
<td></td>
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</tr>
<tr>
<td><strong>Prior Experience, Musical Images</strong></td>
<td><strong>Audio Mode</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Ballet, home singing and dancing to pop music, church music (instruments and song).</td>
<td>Recorded music.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Spatial Mode</strong></td>
<td><strong>Semiotic Weighting Between Modes</strong></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

431
Summary of Modal Redesign for Transforming Narrative: Jeremy's Classroom Soundscape

<table>
<thead>
<tr>
<th>Classroom Instrument Ensemble: Transform Narrative</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Linguistic Music Dynamics Melody Harmony Rhythm Accent Silence Gesture Gaze</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>Gestural Mode Arm, hand movements Visual Mode Gaze Puppets Audio Mode Dynamics Rhythms Melody Harmony Accent Silence Timbre Structure</td>
<td></td>
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<tr>
<td>Children transformed story by combining modes of gesture and sound sources. Children wove strands of Jeremy’s narrative into a soundscape, heightening meaning.</td>
<td></td>
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<tr>
<td>Context</td>
<td>Prior Experience, Musical Images Australian bird and animal sounds from the environment - suburban backyard sunset: birds.</td>
<td></td>
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<tr>
<td></td>
<td>Salience of Speech then music - salience of the elements of music - rhythm, dynamics, silence, timbre tempo melody shaped the meaning of the narrative</td>
<td></td>
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<tr>
<td></td>
<td>Semiotic Weighting 1. Music 2. Speech 3. Gesture Relations Between Modes Music (Audio mode) amplified and transformed the narrative (Linguistic) mode, supported by gesture.</td>
<td></td>
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<tr>
<td></td>
<td>Finger and glove puppets. Xylophones Tambours Bongo Drums Claves Bells Maracas Finger and glove puppets. Xylophones Tambours Bongo Drums</td>
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<tr>
<td></td>
<td>Children contributed ideas using affordances of instruments (timbre, melodic range and ways of playing) to help transform this story through music dialogue. Children explored the elements of music to gather ideas of how to create effects through dynamic contrasts (crescendo, diminuendo) and legato or staccato sounds, plus harmonies and differences in pitch on the xylophones. They responded to tempo change from slow to fast and crotchet to quaver notes.</td>
<td></td>
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</tbody>
</table>
The twins reordered and transformed elements of music, both singing as Edward kept a beat on the drum. The rhythmic and melodic patterns of the original melody on iPhone became a fresh rendition with jazz-like rhythms and harmonies. It was simple, everyday transformation of prior music experiences.

The drum was used as a punctuation of the melodic line, adding emphasis on the beat. Following Edward's inventive drum riff to "Candy," the twins sang the song, Edward adding a lower harmonic bass line to the melody. The whole body movements, proximity to each other and the focus on the drum made the music invention vital and alive. The twins were immersed in the sounds they made together, and transformed prior music experiences through this music invention. Introduction of a fresh instrument, the djembe drum, assisted this invention.

<table>
<thead>
<tr>
<th>Bob and Edward's Invented Song to Mobile Ringtone</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>Gestural Mode</td>
<td>Salience</td>
<td>Djembe drum</td>
<td>Djembe Drum</td>
<td></td>
</tr>
<tr>
<td>The twins reordered and transformed elements of</td>
<td>Head</td>
<td>Music (Audio mode) from</td>
<td>Piano</td>
<td></td>
<td></td>
</tr>
<tr>
<td>music, both singing as Edward kept a beat on the</td>
<td>Shoulders</td>
<td>iPhone to audio</td>
<td>Drum kit</td>
<td></td>
<td></td>
</tr>
<tr>
<td>drum. The rhythmic and melodic patterns of the</td>
<td>Arms</td>
<td>linguistic mode</td>
<td>Tone bells, a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>original melody on iPhone became a fresh</td>
<td>Torso</td>
<td>with harmony of 2</td>
<td>box drum, a</td>
<td></td>
<td></td>
</tr>
<tr>
<td>rendition with jazz-like rhythms and harmonies.</td>
<td>Mimetic Mode</td>
<td>voices and drum riff.</td>
<td>guiro and puppets</td>
<td></td>
<td></td>
</tr>
<tr>
<td>It was simple, everyday transformation of prior</td>
<td>Visual Mode</td>
<td></td>
<td>brought by researcher.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>music experiences.</td>
<td>Gaze</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>Audio Mode</td>
<td>Semiotic Weighting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Context</td>
<td>Rhythm</td>
<td>1. Music</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rural Home</td>
<td>Melody</td>
<td>(Audio and audio</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior Experience, Musical Images</td>
<td>Harmony</td>
<td>linguistic)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pop music listened and moved to in the home and</td>
<td>Beat</td>
<td>2. Gesture</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>on the MP3 player.</td>
<td>Syncopation</td>
<td>3. Spatial</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Audio Linguistics</td>
<td>Spatial Mode</td>
<td>4. Visual (Gaze)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lyrics of known song used to inspire the rhythm.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relations Between Modes</td>
<td></td>
<td>Relations Between</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All occur in simultaneity to make meaning of</td>
<td></td>
<td>Modes</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>new rhythmic and melodic elements in the music.</td>
<td></td>
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<tr>
<td>Introduction of a fresh instrument, the djembe</td>
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<tr>
<td>drum, assisted this invention.</td>
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</tbody>
</table>
Table 6

Summary of Modal Redesign for Transformational Vocal Invention Using Song on MP3 Player in Home Setting

<table>
<thead>
<tr>
<th>Mimi's Transformational Song to MP3 Recording in her Rural Home.</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>Music - Rhythm</td>
<td>Mimi</td>
<td>Ipod</td>
<td>Ipod</td>
<td>Though she spoke Portuguese in the home, having recently arrived in Australia from Brazil, Mimi's musical interactions were based on Western Pop music.</td>
</tr>
<tr>
<td>Mimi sang along to the music on her iPod, as she listened through her headphones. A simple Pop song was transformed. Mimi changed the melody and rhythm while altering words to make syllables, adding a few English lyrics.</td>
<td>Melody</td>
<td>Salience</td>
<td>Mimi transformed the rhythms of the song as she listened and sang with it, adding syncopated dotted notes, rests, and sustained notes. She altered the melody but followed the shape by gradually rising to a higher pitch, then returning.</td>
<td>Ipod</td>
<td></td>
</tr>
<tr>
<td>Context</td>
<td>Rests</td>
<td>Audio</td>
<td>Ipod</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Home listening to music.</td>
<td>Phrasing</td>
<td>Linguistic</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prior Experience, Musical Images</td>
<td>Dynamics</td>
<td>Relations Between Modes</td>
<td>Synchronous</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pop music and Latin dance music in the home, responding in song and dance</td>
<td>Gesture</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gaze</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mimetic</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**Gestural Mode**
- Arms
- Hands and body swaying to music.

**Visual Mode**
- Gaze

**Mimetic Mode**
- Appropriate elements of existing media
- Melody
- Rhythm
- Phrasing
- Dynamics
- Silence
- Lyrics of the song altered, syllabic lyrics added with some original text.

**Salience**
- Mimi transformed the rhythms of the song as she listened and sang with it, adding syncopated dotted notes, rests, and sustained notes. She altered the melody but followed the shape by gradually rising to a higher pitch, then returning.

**Semiotic Weighting**
- 1. Music - Elements
- 2. Audio Linguistic
- 3. Gestural
- 4. Visual

**Relations Between Modes**
- Synchronous
Table 7

Summary of Modal Redesign for Transformational Classroom Responses to Recorded Music Using Xylophones

<table>
<thead>
<tr>
<th>Group Response on Xylophones</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials</th>
<th>Objects, Materials</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beat - making sense of recorded music. Listening and responding by playing.</td>
<td>Proxemics Sway Play beat Harmony Timbre</td>
<td>Salience 1. Playing beat and Proxemics. 2. Music and Gesture: sway, gaze. 3. Music listening - harmony &amp; instrument timbral affordances - and playing beat.</td>
<td>Bass xylophones Alto xylophones Mallets Djembe drums Bells Maracas Claves Metallophone Tambourines Scarves Ribbon wands</td>
<td>Bass xylophones Alto xylophones Mallets</td>
<td>1. Children danced to Latin tango, explored xylophones then played to Latin tango, keeping a beat and gazing at each other. 2. When the second section of the music began, they switched to waving mallets in air, swaying to keep the beat, as suggested by teacher who stood out the front using gesture to ask them to follow her beat. They gazed at the teacher during this segment. 3. Then, returning to playing in the last section, their timbre was musical as they kept &quot;in time&quot; while listening to each other.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Content</th>
<th>Gestural Modes</th>
<th>Audio Modes</th>
<th>Visual Mode</th>
<th>Spatial Mode</th>
<th>Relations Between Modes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classroom instrumental group dialogue in response to recording of Latin tango. Alto and bass xylophones played in simultaneity.</td>
<td>Sway Play beat</td>
<td>Recorded music Xylophone affordances Range of notes C D F G A Timbre</td>
<td>Gaze</td>
<td>Proxemics Sitting in 2 rows facing teacher. Four children on the right facing the 2 rows of players. All played xylophones</td>
<td>Simultaneity but music was more apparent over time.</td>
</tr>
</tbody>
</table>

Context
Rural classroom audio visual room

Prior Experience
Exploration of xylophones. Dance to Latin tango experiencing dotted rhythms.

Verbal, Musical Images
**Table 8**

*Summary of Instrumental Improvisation in Pairs on Xylophone*

<table>
<thead>
<tr>
<th>Music Invention in Pairs on Xylophone</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
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<tr>
<td>1. Edward: a rhythmic motif of even crotchet quaver notes, Anna: an “off-beat” syncopation, melodic leaps</td>
<td><strong>Audio Modes</strong> Music: Rhythm Melodic riff Phrasing Harmony Silence Timbre</td>
<td><strong>Salience</strong> 1. Rhythm: 3/4 - 6/8 Syncopation 2. Melody: note repetition, Wide intervals, Harmony.</td>
<td>Alto xylophones with some notes removed to place some limitations on the range of notes for melodic invention.</td>
<td>Alto xylophones Mallets</td>
<td>1. Timbre of hitting or glancing notes influenced rhythm - syncopation - by accents on beats 2 and 5 (Anna). Torsos were straight and upright, showing confidence.</td>
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<td></td>
<td><strong>Visual Modes</strong> Gaze Facial expression</td>
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<td></td>
<td><strong>Spatial Modes</strong> Proxemics</td>
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<tr>
<td><strong>Context</strong></td>
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<tr>
<td>Rural Classroom: two people on each xylophone with notes C, E, G, A repeated an octave higher</td>
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<tr>
<td><strong>Prior Experience of Playing</strong></td>
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<tr>
<td>Beat, dotted rhythms</td>
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</tbody>
</table>
Table 9

Summary of Modal Redesign for Story to Metallophone Melodies

<table>
<thead>
<tr>
<th>Transmodal Redesign: Story to Metallophone Melodies</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Audio - music</td>
<td>Salience Verbal linguistic to Music (Audio).</td>
<td>Metallophone Xylophones Mallets (soft, hard)</td>
<td>Metallophone Soft mallets</td>
<td>It was in the crossover between the previous mode of speech/verbal linguistics and the new audio mode of music where meaning was realised. What occurred in that moment of meaning making was an apt representation of the interest of the children as sign makers, for they selected from the elements of music and incorporated modes of gaze, arm and hand movements to support their redesign of meaning in the context of the classroom, using fresh materials and modes.</td>
</tr>
<tr>
<td></td>
<td>Timbre</td>
<td>Music: selecting salient features of pitch, dynamics, rhythm and phrasing. Each child heightened meaning by switching from speech to music and supporting this with gestural mode and gaze.</td>
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<td>Melody</td>
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<td>Phrasing</td>
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<td>Dynamics</td>
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<td>Gesture</td>
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<td>Proxemics</td>
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<td></td>
<td>Gaze</td>
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<tr>
<td></td>
<td>Verbal linguistic</td>
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<tr>
<td></td>
<td>Audio Mode</td>
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<td>Timbre</td>
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<td>Melody</td>
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<td>Rhythm</td>
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<td>Phrasing</td>
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<td>Dynamics</td>
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<td>Silence</td>
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<td></td>
<td>Spatial Mode</td>
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<tr>
<td></td>
<td>Proxemics - to peers, researcher and instrument</td>
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<td></td>
<td>Verbal Linguistic</td>
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<td></td>
<td>Short narrative</td>
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<td></td>
<td>(As verbal recount of events).</td>
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</tbody>
</table>

Content
Individual children recounted an event in the verbal linguistic mode of speech then later in the audio mode of music (on metallophone), demonstrating how new meaning was folded into the narrative through the use of music.

Context
Rural Classroom

Prior Experience, Musical Images
Exploring metallophone (melodic range, timbre, Striking/glancing with mallets). Storytelling using puppets
### Table 10

**Summary of Transmodal Redesign From Story Book to Instrument Ensemble**

<table>
<thead>
<tr>
<th>Classroom Transmodal Redesign From Story Book to Instrument Ensemble</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>Shaping of musical awareness and prior experiences of fixed print by making selections based on timbral qualities of instruments, and how these could be incorporated as characters in the unfolding drama.</td>
<td><strong>Gestural Mode</strong></td>
<td><strong>Salience:</strong> Principal mode of Linguistics shifted to Principal mode of Music.</td>
<td>Story book &quot;Crocodile Beat&quot;</td>
<td>The crucial moment or climax and resistance was initiated by verbal scripting: &quot;Here comes croc!&quot; This cognitive dissonance was where meaning was not co-constructed, conjunctive. It was disjunctive, conflicting. Here new conceptual knowledge was established through shifts made in music (fast running quaver sounds) and transmodal redesign was realised. Later, a diminuendo made from rubbing drum (timbre) using hand and arm gesture and proxemics, created the coda.</td>
</tr>
<tr>
<td>Context</td>
<td>Rural A.V. Classroom</td>
<td><strong>Visual Mode</strong></td>
<td><strong>Timbre</strong></td>
<td>Mullins &amp; Jorgensen Alto xylophone Drums Drum kit Claves Maracas Bells Wood blocks</td>
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<tr>
<td></td>
<td></td>
<td><strong>Beat</strong></td>
<td><strong>Melody</strong></td>
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<td></td>
<td></td>
<td><strong>Melody</strong></td>
<td><strong>Harmony</strong></td>
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<td><strong>Harmony</strong></td>
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<td><strong>Dynamics</strong></td>
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<td><strong>Gesture</strong></td>
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<td><strong>Gaze</strong></td>
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<td><strong>Proxemics</strong></td>
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<td><strong>Picture book</strong></td>
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<td><strong>Head turn</strong></td>
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<td></td>
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<td><strong>Hand</strong></td>
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<td><strong>Arm</strong></td>
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<td></td>
<td></td>
<td><strong>Circle</strong> (singing)</td>
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<td><strong>Sitting in a line next to each other</strong> (Playing)</td>
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<td></td>
<td></td>
<td><strong>Story retold - sung</strong></td>
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</tbody>
</table>
### Table 11

**Summary of Transformational Redesign in Song, Using Puppets in Home Setting.**

<table>
<thead>
<tr>
<th>Mimi’s Transformational Song Using Puppets in Home Setting</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
<td><strong>Gestural Mode</strong> Glove puppet jumping movements with arm.</td>
<td><strong>Salience</strong> Elements of music - Rhythm Melody Phrasing</td>
<td>Possum puppet</td>
<td>Possum puppet</td>
<td>Music afforded Mimi with a resource to fully realise and enrich her communication and add meaning to a prior verbal interpretation of events.</td>
</tr>
<tr>
<td>Possum song using modes of music (audio linguistic) and movement (gesture: the actions of the possum puppet) assisted this creative performance. Mimi’s gaze, directed at the puppet while singing, was a mode adding meaning to the music event. Together these modes combined as a redesigned narrative, transforming the original ideas from verbal linguistics to a multimodal ensemble of meaning.</td>
<td><strong>Visual Mode</strong> Gaze at puppet</td>
<td><strong>Semiotic Weighting</strong> 1. Music 2. Audio Linguistic 3. Gesture 4. Proxemics 5. Gaze</td>
<td>Box drum Maracas Bells</td>
<td></td>
<td>The music invention promoted interaction with her family and with the researcher as she captured the character of a possum in song.</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td><strong>Audio Linguistic Mode</strong> Audio linguistic - lyrics of song.</td>
<td><strong>Relations Between Modes</strong> Simultaneity to transform prior linguistic mode to music drawing on modes. Not transmodal redesign as there was no shift of understanding from prior experiences of the elements of music.</td>
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<tr>
<td>Rural home</td>
<td><strong>Spatial Mode</strong> Proxemics of researcher and sister listening to Mimi’s song.</td>
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<td></td>
<td><strong>Audio</strong> Music: Rhythms Melody Phrasing</td>
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</tbody>
</table>
Table 12

Summary of Mimi's Modal Redesign from Spoken Account to Musical: Owl Story

<table>
<thead>
<tr>
<th>Transmodal Redesign from Spoken Account to Musical</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
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<tr>
<td>Children selected puppets and told a story based on these. In the second half, Mimi volunteered to lead the group in telling her Owl story in music with the children who selected and used musical instruments.</td>
<td>Gestural Mode</td>
<td>Salience</td>
<td>Verbal linguistic shifts to Elements of Music</td>
<td>Djembe drums</td>
<td>From speech to fresh organising mode of music made possible Mimi's “re-pinning” of conceptual knowledge gathered in prior music experiences. Her story developed in this gestural mode, movement, with crisis and change achieved through sound (box drum kangaroo; timbre of metallophone with high, sustained sounds represented a &quot;saving&quot; of the owl by the little girl; the guiro suggested danger and the bass drum provided the climax). Resolution of resistance/conflict of ideas was achieved by responding to contrasting, disjunctive timbres, to co-construct meaning/drama.</td>
</tr>
<tr>
<td>Context</td>
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<tr>
<td>Rural class</td>
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<tr>
<td>Prior Experience, Musical Images</td>
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<tr>
<td>&quot;Crocodile Beat&quot; and other music interactions: singing games, exploration of sounds and rhythms on percussion instruments, drama and dance.</td>
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<tr>
<td>Spatial Mode</td>
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<tr>
<td>Mode</td>
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<tr>
<td>Hand, arm, head and torso - sit/stand/ squatting</td>
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<tr>
<td>Visual Mode</td>
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<td>Gaze</td>
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<td>Audio Mode</td>
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<td>Timbre</td>
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<td>Rhythm</td>
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<td>Silence</td>
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<td>Melody</td>
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<td>Phrasing</td>
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<td>Dynamics</td>
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<tr>
<td>Proxemics - arranged in circle, facing Mimi</td>
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<tr>
<td>Verbal Linguistic</td>
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<tr>
<td>Storytelling - personal recount shifter to group conjunct or disjunct meaning making in dialogue.</td>
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<tr>
<td>Semiotic Weighting</td>
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<tr>
<td>1. Music: Timbre Silence Rhythm Dynamics Melody</td>
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<tr>
<td>2. Verbal scripting</td>
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<td>3. Gesture</td>
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<td>4. Gaze</td>
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<td>5. Proxemics</td>
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<td>Relations Between Modes</td>
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<tr>
<td>Shifts in meaning through re-ordering of modes in simultaneity. This made possible a shift in meaning, making central the redesign of elements of music.</td>
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<td>Bass Drum</td>
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<td>Box drum</td>
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<td>Alto</td>
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<td>xylophones</td>
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<tr>
<td>Metallophone</td>
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<tr>
<td>Hat Cymbal</td>
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<tr>
<td>Guiros</td>
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<tr>
<td>Wood blocks</td>
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<tr>
<td>Box drum</td>
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<td>Alto</td>
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<td>xylophones</td>
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<td>Metallophone</td>
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<tr>
<td>Hat Cymbal</td>
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<td>Guiros</td>
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<td>Wood blocks</td>
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</table>
Table 13

Summary of Modal Redesign for Shared song: Dialogue of Heidi and mother in home music invention.

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<thead>
<tr>
<th>6.3 Shared song: Dialogue of Heidi and mother in home music invention: I Love you, Baby: F. Vallie</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Music – phrasing, timbre. Proxemics. Movement - Whole body, chest Facial Gaze.</td>
<td>Audio linguistic Mode</td>
<td>Salience</td>
<td>Singing Voice</td>
<td>Synchronised meanings between lyrics and text, e.g. the coda, sung by mother and daughter. Heidi finishing the affirmation in the final bar: “Yes, I love you.” This final melodic sequence was a tone lower.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spatial Mode</td>
<td>Audio linguistic – variance through elements of music: phrasing, accent timbre</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Proxemics between mother and daughter</td>
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<td></td>
<td></td>
<td>Gestural Mode</td>
<td>Semiotic Weighting</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Whole body. Head turn.</td>
<td>1. Audio linguistic</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Visual Mode</td>
<td>2. Proxemics</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Gaze</td>
<td>3 Visual Gaze</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Facial Expression.</td>
<td>Facial</td>
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<td></td>
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<td></td>
<td>4. Gestural whole body, head.</td>
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<td></td>
<td></td>
<td></td>
<td>Relations Between Modes</td>
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<td></td>
<td></td>
<td></td>
<td>Simultaneity of above modes support salient modes (the elements of music).</td>
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</tbody>
</table>

Content: Heidi imitated her mother’s singing, the same melody, syncopated rhythms but interpretation differed: shorter phrases, contrasting vocal timbre, variation of words sung by switching their order.

Context: Home music dialogue in song.

Prior Experience: Frequent use of song since Heidi’s birth.

Verbal, Musical Images: Protection, love, warmth.
Table 14

Summary of Heidi's Modal redesign for Transformational Music Invention in Home

<table>
<thead>
<tr>
<th>Heidi’s Transformational music invention on piano.</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Piano improvisation in 4/4 time and tempo: Presto. Prior knowledge of other elements of music was revealed as she focused on making patterns: recurring three note figures; a series of repeated notes; exploring the dynamic range of keyboard.</td>
<td>Audio – piano Rhythm Melody Harmony Dynamics Gesture Gaze</td>
<td>Salience Elements of music: rhythmic and melodic motifs; tempo; dynamics; timbre; harmonies.</td>
<td>Piano</td>
<td>Piano</td>
<td>Heidi, through featured repeated rhythmic and melodic motifs and interesting harmonic combinations with occasional left hand notes, showed understanding of balance between bass and treble voices. Sequences and repetitions, dynamics and phrasing, were musically added. Heidi achieved the rhythmic and melodic accuracy and control by her mastery of eye-hand/fine motor coordination. As her mother confirmed, she had been experimenting with note combinations and use of both hands from birth.</td>
</tr>
<tr>
<td>Content</td>
<td>Gestural Mode Eye-hand Fingers Arms Head nod Shoulders</td>
<td>1. Audio Piano music</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Spatial Mode Proxemics of keys.</td>
<td>Relations Between Modes Simultaneity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Context</td>
<td>Suburban family home.</td>
<td></td>
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</tr>
<tr>
<td>Prior Experience, Musical Images</td>
<td>Mother’s piano playing and singing; conducting; observing Classical Performances</td>
<td></td>
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</tr>
</tbody>
</table>
Table 15

*Summary of Heidi’s Transmodal Redesign Using Gesture and Gaze in Music Dialogue*

<table>
<thead>
<tr>
<th>Heidi’s Transmodal Redesign using Gesture and Gaze in Music Dialogue</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
<td>Gesture</td>
<td>Torso, Arms, hand Phrasing Sequence Rhythm Melody Gaze Proxemics Affect</td>
<td>Torso: leaning forward, head to one side. Hands/arms above head, indicating rhythm and phrasing by cut offs. Music - whistling - elements used for dialogue by responding to gesture.</td>
<td>Chopstick Music stand Paper Pencil</td>
<td>Chopstick Music stand Paper Pencil</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>Prior Experience, Musical Images</strong></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Suburban family home</td>
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<tr>
<td>Mother’s conducting, singing and piano invention and music games at school and home.</td>
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</tr>
</tbody>
</table>
Table 16

Summary of Sara’s Transmodal Redesign from Music to Dance

<table>
<thead>
<tr>
<th>6.10 Transmodal Redesign from Music to Dance: Sara’s Arabic Music Dialogue</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Content</strong></td>
<td><strong>Gestural Mode</strong></td>
<td><strong>Salience</strong></td>
<td><strong>Listening</strong>, using tonal language (a holistic form of literacy where lyrics are only part of the total meaning including <strong>music and dance</strong>), and add meaning through <strong>gesture</strong> to communicate prior learning experiences</td>
<td><strong>Digital recording of Arabic music</strong></td>
<td>Parents supported the children, their movement and interactions, maintaining their engagement in the music event and challenging them to extend their ideas through dance improvisation.</td>
</tr>
<tr>
<td>Movement became a way of continually challenging and refreshing her prior knowledge of the elements of music and of its holistic cultural meaning. The elements helped promote values such as bonding, knowledge of familiar cultural dance, and Arabic music during interaction.</td>
<td>Gesture</td>
<td><strong>Semiotic Weighting</strong></td>
<td>1.Gesture 2.Music 3.Spatial 4.Gaze</td>
<td><strong>Digital recording of Arabic music</strong></td>
<td>Both older sisters resisted, added new ideas to previous repertoire of moves. This freedom of interaction at home enabled them to create fresh gestures and redesign prior musical experiences. Sara realised new ways to express the elements of music - staccato, legato, phrasing and dynamics and the complex interaction of melodic and rhythmic lines - by redesign realised in dance, not by imitation. She extended movement ideas, leading her sister. Building on prior learning led to new understanding through redesign.</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td><strong>Visual Mode</strong></td>
<td><strong>Relations Between Modes</strong></td>
<td><strong>Quick, sharp movements match plucked or hammered instruments. Music is dialogued with dance</strong></td>
<td></td>
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</tr>
<tr>
<td>Inner urban family home</td>
<td>Gaze</td>
<td><strong>Quick, sharp movements match plucked or hammered instruments. Music is dialogued with dance</strong></td>
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<tr>
<td><strong>Prior Experience, Musical Images</strong></td>
<td><strong>Audio Mode</strong></td>
<td><strong>Relations Between Modes</strong></td>
<td><strong>Quick, sharp movements match plucked or hammered instruments. Music is dialogued with dance</strong></td>
<td></td>
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</tr>
<tr>
<td>Arabic song &amp; dance music during home &amp; family celebrations.</td>
<td>Music rhythms</td>
<td><strong>Quick, sharp movements match plucked or hammered instruments. Music is dialogued with dance</strong></td>
<td></td>
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<tr>
<td><strong>Spatial Mode</strong></td>
<td><strong>Timbre</strong></td>
<td><strong>Quick, sharp movements match plucked or hammered instruments. Music is dialogued with dance</strong></td>
<td></td>
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<tr>
<td>Proxemics in relation to family members</td>
<td>Dynamics</td>
<td><strong>Quick, sharp movements match plucked or hammered instruments. Music is dialogued with dance</strong></td>
<td></td>
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</tr>
<tr>
<td><strong>Role of Modes</strong></td>
<td><strong>Pitch</strong></td>
<td><strong>Quick, sharp movements match plucked or hammered instruments. Music is dialogued with dance</strong></td>
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</tbody>
</table>
# Table 17

Summary of Sebastian's Transformational Redesign of Bongo Drum Rhythms in Classroom Ensemble.

<table>
<thead>
<tr>
<th>Sebastian's transformational redesign of bongo drum rhythms in classroom ensemble</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Music - Rhythms</td>
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<tr>
<td></td>
<td>Phrasing</td>
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<td></td>
<td>Silence</td>
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<tr>
<td></td>
<td>Shoulders</td>
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<tr>
<td></td>
<td>Arms</td>
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<tr>
<td></td>
<td>Gaze</td>
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<tr>
<td></td>
<td>Proxemics</td>
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<tr>
<td><strong>Content</strong></td>
<td>Gestural Mode</td>
<td></td>
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<tr>
<td></td>
<td>Shoulders</td>
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<td></td>
<td>Arms</td>
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<td></td>
<td><strong>Visual Mode</strong></td>
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<tr>
<td></td>
<td>Gaze</td>
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</tr>
<tr>
<td></td>
<td>(Peers, Teacher)</td>
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<tr>
<td></td>
<td><strong>Audio Mode</strong></td>
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<tr>
<td></td>
<td>Piano, drums, xylophones</td>
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<tr>
<td></td>
<td><strong>Spatial Mode</strong></td>
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<tr>
<td></td>
<td>Proxemics</td>
<td></td>
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</tr>
<tr>
<td><strong>Context</strong></td>
<td><strong>Salience</strong></td>
<td></td>
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</tr>
<tr>
<td></td>
<td><strong>1.Audio: elements of music:</strong></td>
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<tr>
<td></td>
<td>Syncopation</td>
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<tr>
<td></td>
<td>(Dynamics, phrases, rhythms and silence/rest)</td>
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<td></td>
<td><strong>2.Gesture:</strong></td>
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<tr>
<td></td>
<td>Shoulders and arms</td>
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<tr>
<td></td>
<td>relaxed and controlling the rhythm.</td>
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<tr>
<td><strong>Prior Musical Experience</strong></td>
<td><strong>Semiotic Weighting</strong></td>
<td></td>
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<tr>
<td></td>
<td><strong>1.Music:</strong></td>
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<tr>
<td></td>
<td>listening making and responding.</td>
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<td></td>
<td><strong>2.Gestural:</strong></td>
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<tr>
<td></td>
<td>Arms, shoulders</td>
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<td></td>
<td><strong>3.Proxemic:</strong></td>
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<td></td>
<td>Peers, teacher</td>
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<td></td>
<td><strong>4. Gaze</strong></td>
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</tr>
<tr>
<td><strong>Relations Between Modes</strong></td>
<td><strong>Synchronous</strong></td>
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<tr>
<td><strong>Multimodal input from a child has capacity to shape innovation in a group.</strong></td>
<td>Sebastian's self mastery through prior experiences, his knowledge of rhythms, phrasing, dynamics, tempo and an ability to play in ensemble occurred in simultaneity with modes of shoulder and arm movement, gaze, proxemics.</td>
<td></td>
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<tr>
<td></td>
<td>This input was not hindered or scaffolded by adult influences on the processes of learning through transformational redesign in music.</td>
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</tbody>
</table>

Children playing xylophones on beat (tuned to the pentatonic scale) and bongo drums, while the researcher accompanied them on piano, blues style. Sebastian: made complex cross-rhythm of syncopated notes that fitted perfectly between beats.
Table 18

*Summary of Sebastian's Transformational Redesign for Home Piano/Song Invention*

<table>
<thead>
<tr>
<th>Sebastian’s transformational redesign in home piano/song invention.</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Audio - piano music,</td>
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</tr>
<tr>
<td></td>
<td>Audio - linguistic (voice).</td>
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<tr>
<td></td>
<td>Gesture - hands, shoulders, head.</td>
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</tr>
<tr>
<td></td>
<td>Proxemics.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Content</td>
<td>Gestural Mode</td>
<td>Salience</td>
<td>Piano</td>
<td>Piano</td>
<td>Sebastian explored the affordances or potential dynamic and tonal range accessible on the piano.</td>
</tr>
<tr>
<td></td>
<td>Head turn, shoulders, right, left hand.</td>
<td></td>
<td></td>
<td></td>
<td>It had a wide melodic range, was visually and kinesthetically engaging.</td>
</tr>
<tr>
<td></td>
<td>Visual Mode</td>
<td>1. Quaver</td>
<td></td>
<td></td>
<td>Fragments of syncopated rhythms from his mother’s Ethiopian dance classes were repeated and extended over the range of the keyboard. Dotted rhythms from nursery rhymes were featured.</td>
</tr>
<tr>
<td></td>
<td>Gaze</td>
<td>subdivisions of the beat underpinned the rhyme and then on the piano, Sebastian extended the rhythm by inserting another beat to create a 5/4 time.</td>
<td></td>
<td></td>
<td>Dynamic range was explored to fullest extent.</td>
</tr>
<tr>
<td></td>
<td>Audio Mode</td>
<td>2. Dynamics.</td>
<td></td>
<td></td>
<td>Movement supported dialogue: head tilted side to side, shoulders raised and lowered, gaze directed up.</td>
</tr>
<tr>
<td></td>
<td>Spatial Mode</td>
<td>Modes of arm and hand action and interaction, in simultaneity with voice, head/shoulders, piano and voice, in the audio mode of music.</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Width of keyboard, mother at side of keys.</td>
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<tr>
<td>Context</td>
<td>Home garage piano.</td>
<td></td>
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<tr>
<td>Prior Experience, Musical Images</td>
<td>Rhymes, songs from home and school folded into new rhythms and melodic phrases.</td>
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</tbody>
</table>
Table 19

*Summary of Transmodal Redesign from Music to Speech Rhyme: Sebastian's Garage Rap.*

<table>
<thead>
<tr>
<th>Transmodal Redesign from Music to Speech Rhyme: Sebastian's Garage Rap</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>Verbal linguistics, Rhyme, Rhythm, Harmony, Rests - silence, Gesture, Gaze, Proxemics</td>
<td>Salience</td>
<td>Piano</td>
<td>Piano</td>
<td>Shifts of understanding were made as he used voice (verbal linguistics) and piano (audio), and jumped into the air excitedly using the mode of whole body movement (gesture) to transition from a song to a new idea, using multiple modes in simultaneity. Sebastian grappled with cognitive dissonance, resistance then synthesised ideas to solve the problem of creating new songs/rhymes. Prior learning with mother in home assisted his knowledge of elements of music. The proximity of his mother helped shift from the mode of song to spoken rhyme.</td>
</tr>
<tr>
<td>Sebastian, by transmodal redesign, shifted an operatic rendition of songs from school (There Was An Old Woman; 1-2-3-4-5, Once I Caught A Fish Alive; Hello Everybody) and home with his mother (Michael Jackson’s “Smooth Criminal” and “A-B-C”) from the mode of music to a principal mode of speech. He invented a new rhyme about his piano, then playing netball with his mummy.</td>
<td>Gestural Mode</td>
<td>Whole body, Torso, Head, Shoulders, Finger independenc e.</td>
<td>Salience</td>
<td>Shift of the meaning was through the text, the lyrics. This was achieved using rhythmic devices of language. The text became a condensed form a rhyme with meter, extension of phrases (I had no piano, no piano, no more pianos daddy could play) and syllabic repetition (I need to play – ready to play).</td>
<td></td>
</tr>
<tr>
<td>Audio Mode</td>
<td>Piano affordances, Rhythm, Silence, Phrasing, Inflexion, Accent</td>
<td></td>
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</tr>
<tr>
<td>Spatial Mode</td>
<td>Proxemics</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Visual Mode</td>
<td>Gaze</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Verbal Linguistics</td>
<td>Rhyme, Repetition “Very ... Swallowed No ... Play” Humour Nonsense</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Context</td>
<td>Inner city urban home</td>
<td></td>
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</tr>
</tbody>
</table>
Table 20

Summary of Sebastian's Transmodal Redesign from Music to Movement

<table>
<thead>
<tr>
<th>Transmodal Redesign from Music to Movement (Billie Jean)</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>Gestural Mode</td>
<td>Salience</td>
<td>Video recording of Michael Jackson</td>
<td>Video recording of Michael Jackson</td>
<td>This illustrates the complexity of social relations and diverse cultural influences at work in the lives of Sebastian and his mother. Semiotic import of composing resources (Hip Hop rhythms, gesture and phrasing; plus twisting, spinning round and jumping - Ethiopian dance moves). Resistance then combining the modes of movement, proxemics and music (through perception of the elements of phrasing, syncopated rhythms and melodies) in simultaneity realised shift of understanding as he reinterpreted these elements of music.</td>
</tr>
<tr>
<td>Sebastian and his mum danced to &quot;Billie Jean,&quot; capturing the moves, some of which indicated co-constructed, symmetrical meaning making; others showed disjunctive or asymmetrical meaning making.</td>
<td>Beat Rhythm Whole body Hand/Arm Feet/Leg Proxemics Visual</td>
<td>New phrasing and rhythmic ideas shown through gesture and whole body movement.</td>
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<tr>
<td>Context</td>
<td>Audio Linguistic Mode</td>
<td>Semiotic Weighting</td>
<td></td>
<td></td>
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<tr>
<td>Prior Experience, Musical Images</td>
<td>Spatial Mode</td>
<td>Relations Between Modes</td>
<td></td>
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<tr>
<td>Songs and dances in American Hip Hop and Ethiopian dance cultures. Nursery songs self-accompanied on ukelele or piano.</td>
<td>Proxemics to mother; to video screen</td>
<td>Exploration of contrapuntal rhythmic figures was demonstrated in his &quot;moves&quot; made in opposite ways to those of his mother while clearly related to the melodic line of the song. He challenged old ways, “being himself,” bringing his own ways of knowing to the music.</td>
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</tbody>
</table>
Table 21

*Summary of Transmodal redesign: Classroom Instrumental Music to Linguistic Mode.*

<table>
<thead>
<tr>
<th>Sebastian's Transmodal Classroom Instrumental Music to Linguistic Dialogue</th>
<th>Modes</th>
<th>Role of Modes</th>
<th>Objects, Materials Available</th>
<th>Objects, Materials Used</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>Verbal, Linguistic</td>
<td>Verbal scripting</td>
<td>Alto xylophones, Bongo</td>
<td>Alto xylophones, Bongo</td>
<td>Children achieved transmodal redesign in meaning and mood through music dialogue from the mode of music to that of speech, solving problems such as effective and apt use of resources during interaction to reach a common goal. This involved experimentation, listening to and challenging each other and responding to actions, gesture and speech. Children, at first deconstructing resisting the music using disjunct/opposite sounds, shifted to respond in co-construction of meaning with Sebastian's speech mode, plus gesture and movement and by listening to each other in music dialogue.</td>
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<tr>
<td>Gestural Mode</td>
<td>Arms, Hands, Torso, Legs, Feet, Head, Whole body</td>
<td>Verbal, linguistic supported by reference to elements of music - &quot;soft, loud, all together, stop, take turns.&quot;</td>
<td>Bongo, Drums, Box drum, Vibraphone, Claves, Bells, Maracas, Djembe, drums, Bass, Xylophones, Piano</td>
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<tr>
<td>Visual Mode</td>
<td>Gaze</td>
<td></td>
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<tr>
<td>Audio Mode</td>
<td>Dynamics, Timbre, Start/stop, Phrasing</td>
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<tr>
<td>Spatial Mode</td>
<td>Proxemic - peers in a semi-circle</td>
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<td>Verbal Linguistic (Scripting)</td>
<td>Soft loud, rise/fall of inflections. Use of the rhetorical - invitation - and verbal commands to achieve specific responses.</td>
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</table>

**Context**

Inner urban classroom

**Prior Experience, Musical Images**

Spoken and sung dance music in the home.