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Roundtable session

Getting beyond the ZPD: Further possibilities for strengthening early childhood education through cultural-historical analyses

Roundtable paper title

Integrating digital technologies and popular culture in early childhood curriculum: towards a new cultural tool for practice

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Abstract

Poverty is understood for the purposes of the 2013 AERA conference to encompass not only a lack of material goods and options, but also an intellectual poverty with the potential to pervade education and education settings. This paper engages directly with the notion of intellectual poverty in early childhood education research – in particular, with research into the use of digital technologies, digital media and popular culture in early childhood education. Using the cultural-historical inspired idea of mediation, the paper argues that play represents an implicit cultural tool used by teachers to support children's learning. The poverty of ideas that has characterised existing research has resulted in a focus on what teachers do with technologies instead of developing a new conceptual tool that address the problem of how teachers can continue to use play as a conceptual tool for supporting learning in a way that integrates children's out of home technology, digital media and popular culture experiences. This paper describes the 'web mapping' model as one such possible conceptualisation and suggests that using the model as a conceptual tool for mediating the teacher object of supporting children's learning through play may well deepen understandings about how to best integrate technologies with play-based learning in early childhood education.

Objective

The AERA 2013 conference Theme – ‘*Education and Poverty: Theory, Research, Policy and Praxis*’ discusses poverty in broad terms and argues that “poverty exists not only through the lack of material goods; an intellectual poverty can also pervade educational organisations and society”. This paper is orientated towards the notion of intellectual poverty in early childhood education research and practice where it is argued that a reliance on traditional understandings of children’s play as a basis for pedagogy has hampered efforts to fully integrate children’s experiences of digital technologies and popular culture into the early childhood classroom. This is problematic, because as the conference theme alludes; ‘poverty’ also includes the failure of education to adequately address the divide between children’s experiences of technologies outside the classroom and their use of technologies inside the classroom as a basis for meaningful learning. This paper draws on cultural historical theory and the concept of mediated activity to examine how a new conceptualisation of children’s play might be of use in addressing the problem traditionally ascribed to the failure of early childhood education to more fully integrate digital technologies and popular culture in early childhood classrooms.

Theoretical framework

In Vygotsky’s conceptualisation of cultural-historical theory the relationship between subject and motive objects is understood as being mediated by valued cultural tools. Generally expressed as the basic mediational triangle, this idea sees the subject, the mediational means (tool) and the object as connected via three vertices. Using a tool (such as language) to achieve a goal is an act of cultural mediation (Cole & Engestrom, 2001, p. 5). Wertsch (2007) suggests that during the course of his writing Vygotsky distinguished between two types of mediation, including explicit and implicit mediation. Explicit mediation involves the use of a sign as a tool where the sign is used to organise action, whereas implicit mediation represents the use of a conceptual sign or tool that contains existing cultural meaning. Implicit mediation therefore involves more than the simple application of a tool to organise activity that is orientated towards the achievement of a goal. Rather, implicit mediation necessarily involves the negotiation of meaning in the achievement of a goal such that the initial tool itself becomes integrated with goal directed behaviour (Daniels, 2008, p. 6).

In early childhood education the concept of ‘play’ has operated for many years as an implicit mediating tool for the negotiation of curriculum experiences orientated towards supporting young children’s learning. Here the concept of play is represented by theories about play in addition to theoretical explanations for children’s learning and development that describe a role for play in the developmental process. Conceptual perspectives on play are offered in pre-service teacher education (Saracho, 2012), described in international curriculum documents (Department for Education, 2012; Ministry of Education, 1996; Ministry of Education, 2012, Ministry of Social Affairs and Health, 2004; NAEYC, 2009), evidenced in professional learning opportunities for teachers (Kennedy & Barlett, 2010) and continue to be used in early childhood education research (Brooker and Edwards, 2010). For example, typically used understandings of play suggest that dramatic play supports language development, that open-ended play promotes problem solving abilities and that outdoor play is necessary for fostering gross motor skills (Moyle, 2012).

Meanwhile, outside of the early childhood classroom, digital technologies have continued to evolve and children’s interactions with a range of digital media through such technologies have also increased (Gutnick, Robb, Takeuchi, & Kotler, 2011). The increase is now

commonly associated with children's interest in popular culture both in terms of their consumption of the characters associated with particular movies and/or television programs, and the associated artefacts that accompany the characters themselves (Goldstein, 2011). The sheer rate of digital exchange that now occurs across the world on a minute by minute basis suggests the digital experiences of young children may no longer align with existing understandings of play, such as the role of dramatic play in language development or open-ended play in learning how to solve problems. For example, a recent Intel™ (2013) investigation suggested that in one 'internet minute' 47,000 apps are downloaded, 20 million photos are viewed and 3,000 photos are uploaded to flickr™, 100,000 tweets are made via Twitter™, 2 million queries are posted to Google™ and 1.3 million videos are viewed and 30 hours of video uploaded to YouTube™ across the globe. That this represents just 60 seconds of worldwide activity means that at some point large numbers of young children are likely to be involved. Perhaps they are watching television programs posted to YouTube™, logging into virtual worlds, searching for favourite characters via Google™ or purchasing apps to use on adult mobile phones. Whatever this activity is, some way of understanding how children are negotiating digital technologies and the access these technologies provide to popular culture is needed. This is so that teachers can think about children's play not only in terms of existing theories of play, but also in terms of the range of digital play that is likely to occupy young children outside of the early childhood classroom.

From a cultural historical perspective this means thinking about the extent to which existing theories of play are still useful as an implicit mediating tool that informs the provision of learning experiences for young children. What may be needed is an alternative conceptual tool that still focuses on play as a way of understanding children's learning, and yet conceives of play in ways that connect with the possibilities for activity enabled by children's interactions with digital technologies and their experiences with digital media and popular culture.

Methods

This study set out to determine how young children's play with technologies, digital media and popular culture could be understood in relation to existing descriptions of play. This was so that a new conceptual tool for thinking about children's play could be developed for use by teachers in an attempt to better integrate digital technologies in the early childhood classroom. Given the study was focussed on understanding young children's play with technologies and digital media it was determined that information would need to be gathered from the context in which children were most likely to use technologies. Research suggests that children in the pre-school years increasingly access and use a range of technologies and digital media in the family home. This appears to be the case in minority world settings, including the United States of America (Parette, Quesenberry, Blum, 2010), Sweden (Zimic, 2009), Australia (Bittman, Rutherford, Brown & Unsworth, 2011) and Scotland (McPake & Plowman, 2010). Such research suggests that a logical starting point for learning more about young children's play with digital technologies would involve discussions with families of young children in their home.

Understanding the children's technology, digital media and popular culture play was used as the unit of analysis. A case study approach, in which a 'case' is understood as comprising a small number of intensively examined units of analysis, was employed (Gerring, 2007). Participant selection involved a snowballing technique in a neighbourhood based playgroup with parents of children aged 6 months to five years. Initial permission to contact families was obtained through the community managed centre providing the playgroups. The

researcher attended several playgroup sessions and spoke to parents individually, in pairs or groups of three about the project. Participants were provided with an information letter and an expression of interest form. Interested participants completed the expression of interest form which was collected by the researcher on a return visit to the playgroup the following week. Participants were then contacted via email to arrange a time for the first family interview. In total, ten families were recruited. All families were from a low-to-middle socioeconomic area of Melbourne, Australia. The families included up to 14 children aged 20 months to four years. All families used English as their main language, with one family indicating a language other than English was also used in the family home. All of the interviews were conducted in the family home in the presence of the children. In each situation the mother was the family member interviewed.

Data sources

Two interviews conducted eight months apart were planned for each family. This paper reports the findings from the first interview. The interviews were based on a three part semi-structured interview schedule (Cohen, Morrison & Manion, 2007). The first part of the interview focussed on discussing children's preferred activities. This included a range of questions such as, what type of activities does your child prefer to participate in? What toys does your child prefer to use? What television programmes or DVDs does your child prefer? What technologies (i.e. DS, iPad, computer, phone, Wii) does your child prefer to use? Of the above toys, television programmes/DVDS and technologies can you recall which one your child seemed to engage with first? The second part of the interview schedule focussed on identifying children's preferred popular culture characters derived from their engagement with digital media. This included one main question - does your child have a particular interest in a character from a television program, DVD or online? If parents answered 'yes' to this question, follow-up questions focussed on how their child engaged with the character and included questions such as, Where do you think this interest came from? Do you do anything to support this interest? How does your child learn about this character? Is your child interested in things that also represent this character, such as clothing, shoes, bags, food, drinks? The final section of the interview canvassed parental understandings about their child's play and learning in relation to their responses to sections one and two. This included questions such as, what type of things is your child most likely to use when he/she is playing? What do you think your child is learning when they are playing with these things? Do you think the way your child is playing and learning now is different to the way you played and learned as a child?

Children were present for the duration of the interviews, playing in the vicinity, watching a DVD or having snack. Children joined in the interviews by sharing favourite toys or demonstrating expertise in using a range of technologies. Sometimes this sharing was unprompted as children listened to the interviews. At other times it was encouraged by the mothers who would invite their children to collect a favourite toy, DVD, book or technology from another room in the house to show the interviewer. These interactions were all audio-recorded alongside the interview discussion with the parent. Each interview lasted for approximately 40-50 minutes and was later transcribed by a professional transcription service.

An initial thematic analysis was conducted of each transcript to determine the main forms of play and activity described by parents and illustrated by the children during the interview process. This resulted in two broad areas of categorisation, including 'traditional play' and 'converged play'. Traditional play types included descriptions of play offered by parents that aligned with well-known and established play in the early childhood literature, including for

example craft activities, pretend play, role play and construction based play (Wood & Attfield, 2005). Converged play drew on concepts about digital play that increasingly reference the relationship between children’s digital technology use, their digital media viewing and their consequent engagement with characters from popular culture (Marsh, 2010; Plowman, McPake & Stephen, 2010). In this category, convergence was associated with the extent to which children’s technology use related to the type of digital media they might watch and a consequent interest in playing with or using trademarked toys. This character included playing games on an iPad™, watching DVDs or movies and/or using a mobile phone.

Following the establishment of the two categories points of intersection were sought to determine where the children’s play in the traditional category related to their play in the converged category and vice versa. This was because the parents had frequently identified examples in their children’s play where either their traditional play (such as role play) was informed by their digital media viewing and interest in particular characters, or their technological play tapped into interests derived from their traditional play (for example, an interest in craft being carried over into using an iPad™ craft app).

Results

Table 1.0 illustrates the range of activities located in each category. Points of intersection across the categories are shaded. These shadings indicate where parents discussed children’s traditional play as being influenced by their activities in the converged category, or where traditional play was enacted using technologies or media associated with the converged category.

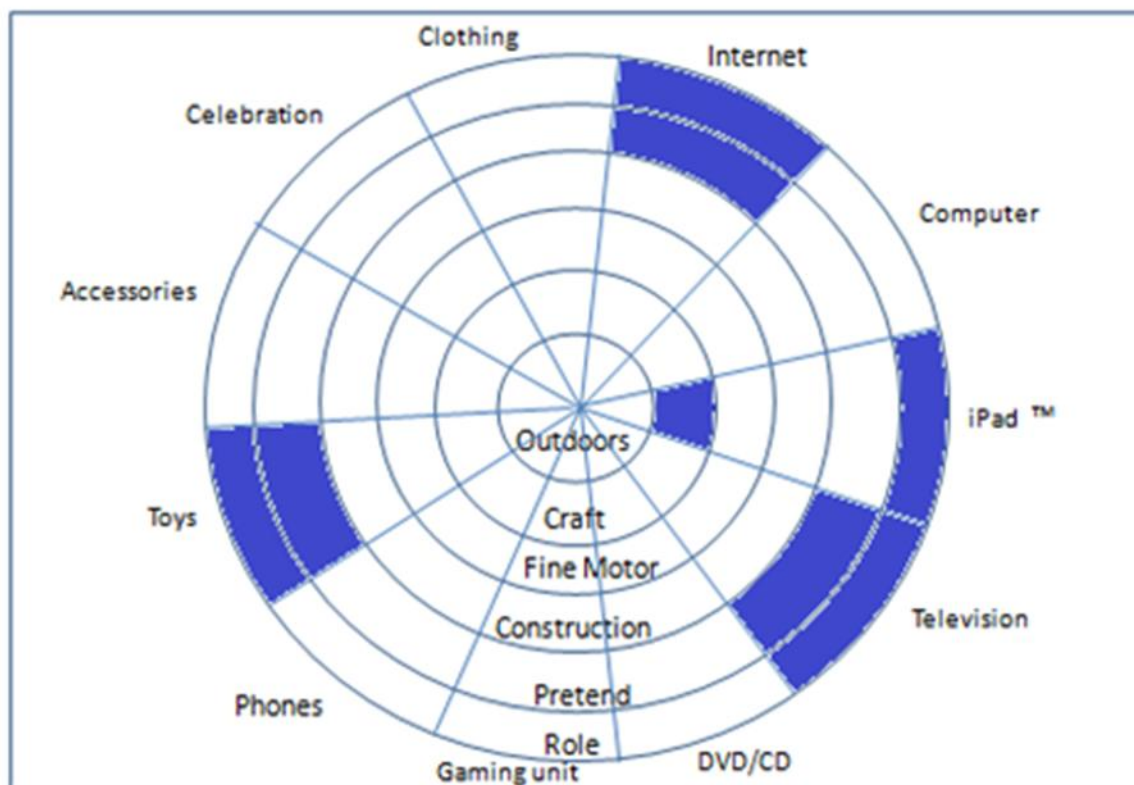
Table 1.0 Intersecting activities in the traditional and converged categories of play (from Edwards, 2013).

Traditional Play		Converged Play	
Outdoors	Bike riding; balls; climbing; digging; scooters; tent	Internet	Skype, Play School website, YouTube
Craft	Pasting; cutting; drawing; gluing; play-doh; Play School Art Maker app collage	Desktop computer	ABC Reading Eggs
Fine motor	Play School puzzles; colouring books; In the Night Garden sticker book; Octonauts sticker book	iPad™	Play School Art Maker app, Toy Story movie
Construction	Lego; cardboard boxes; Duplo	Television	Octonauts, Play School, Mike the Knight, Angelina Ballerina, Little Princess, Wot Wots, Thomas the Tank Engine, Mr Men, In the Night Garden, Chugginton, Sesame Street, Bob the Builder
Music	Piano; drums; guitar; singing; Giggle and Hoot DVD	DVD/CD	Fireman Sam, Toy Story, Cars, Bob the Builder, Giggle and Hoot, Dora the Explorer, Miffy
Pretend	Wrapping, feeding, and putting dolls and teddies to sleep; playing ‘school’, ‘doctors’ or ‘farms’ with Play School Jemima doll; In the Night Garden scenarios with figurines, wooden Ninky Nonk, and Upsy Daisy and Iggle Piggle dolls; Toy Story scenarios with Buzz Lightyear doll; farm set, Thomas the Tank Engine scenarios with trains and track; Bob the Builder scenarios with trucks, dumpers, and diggers (in sandpit)	Gaming units	Nintendo DS: Toy Story, Sesame Street
Role	Fixing broken cars as an Octonaut, building an Octopod and rescuing ocean creatures, Spiderman and Buzz Lightyear rescuing teddy bears, vacuuming, cooking,	Smart phones	Taking or looking at photographs/video of family, Monkey Math, Monkey Preschool, Angry Birds, Cover Orange, Thomas the Tank Engine, apps
		Toys	In the Night Garden figurines, Upsy Daisy™ doll, Iggle Piggle™ doll, wooden Ninky Nonk™, Play School Jemima doll; Toy Story Buzz Lightyear doll, cardboard figures; Giggle and Hoot soft toy; Cars vehicles; Spiderman costume; Thomas the Tank Engine trains, train track; Winnie the Pooh: Tigger™ figurine. Bob the Builder: figurines

	Accessories	Toy Story toothbrush, toy box, torch, sticker book; Giggle and Hoot books, blanket; Bob the Builder books; Winnie the Pooh feeding bottle, tissues, books; soft toy; In the Night Garden books, stickers, show bag, drink bottle, umbrella; Play School books; Sesame Street books; Octonauts sticker book; Spiderman toothbrush; Mr Men books; Thomas the Tank Engine mirror
	Celebration	Giggle and Hoot cake; Toy Story cake, pureed fruit, yoghurt, serviettes, plastic cups; Cars yoghurt
	Clothing	Thomas the Tank Engine boots, t-shirt; Toy Story apron, t-shirt; Winnie the Pooh nappies; Giggle and Hoot pyjamas

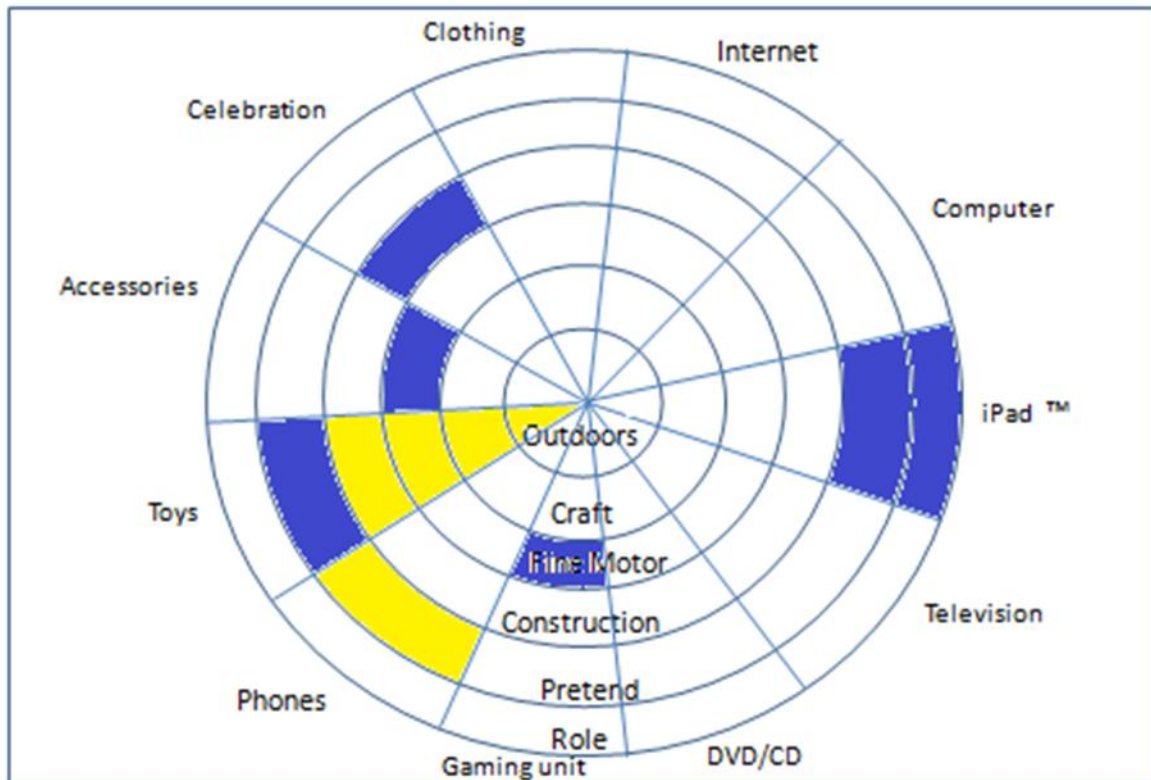
To represent the points of intersection a ‘web’ model was developed. The notion of the web was informed by Geertz’s (1973) description of “culture being a web of meaning that man [sic] himself has spun” (p. 5). Converged play was represented by the sectors of the web and traditional play by the radial rings. This enabled the points of intersection identified by the mothers to be mapped by the researcher for each child. Figure 1.0 illustrates this for a 20 month old female child and show how her interest in the television program Play School related to her role play with a character doll from Play School and her interest in using a Play School app on the iPad.

Figure 1.0 Web map for a 20 month old female child showing points of intersection across traditional and converged play activities (from Edwards, 2013).



The initial mapping suggested potential for teachers to plan for children’s learning using their home based interests and expertise in digital media, technologies and popular culture by highlighting possible ‘gaps’ in the web model that teachers could actively plan to further support children’s learning. Figure 2.0 illustrates one such use of the web model, highlighting in darker shading a four year old boy’s interest in the Toy Story™ movie and associated technologies, and in lighter shading where a teacher could plan to further support learning via this interest.

Figure 2.0: Web map for a four year old boy showing existing points of intersection between traditional and converged play and potential planned points of intersection for supporting learning (from Edwards, 2013).

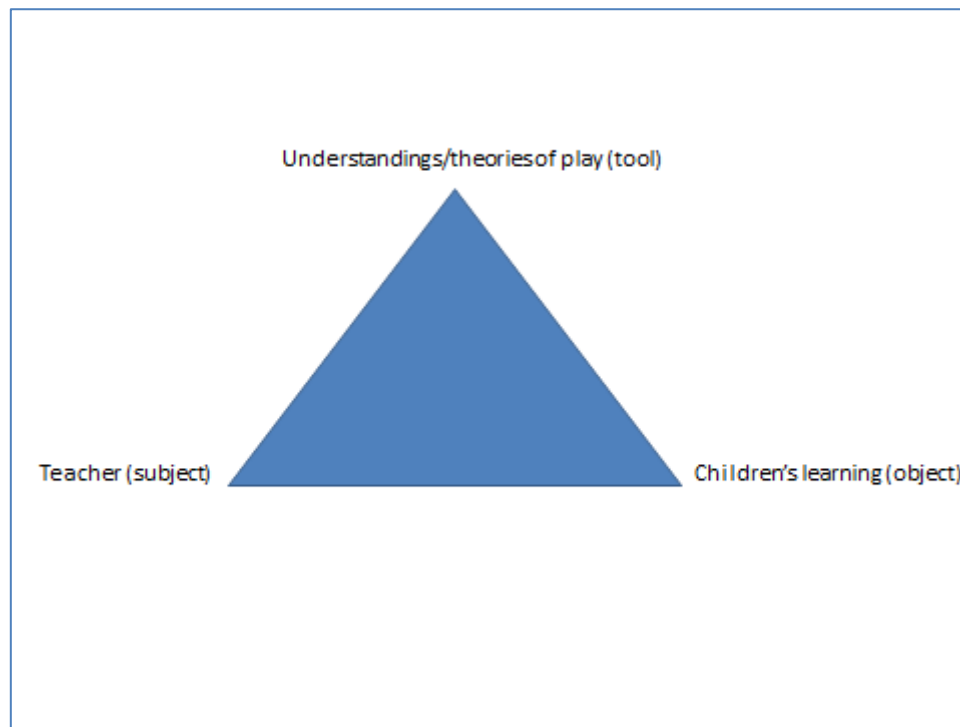


The poverty of intellectual thought which has seen much of the digital technology research in the early years conducted to date focus on technologies and teachers is addressed in this paper by engaging the cultural historical notion of mediation via a cultural tool. Applied to early childhood education, this involves understanding the role of play as an implicit conceptual tool for informing approaches to children’s learning. Examining children’s play as a unit of analysis in the family setting provides insight into the development of an alternative tool might address the range of experiences children now have with technologies, digital media and popular culture. The use of the web mapping model as one such alternative tool is the now focus of further research with teachers seeking to more fully integrate children’s technological and media inspired play into their plans for children’s learning.

Scholarly significance

From a cultural historical perspective early childhood education can be understood in terms of the ways teachers use understandings of children’s play to provide learning experiences. A mediational triangle for this perspective would have teachers as the subject, understandings about children’s play as the tool and children’s learning as the outcome (Figure 3.0).

Figure 3.0 A cultural historical perspective on early childhood education where understandings/theories of play are used as a conceptual tool for mediating the relationship between the teacher and children's learning.

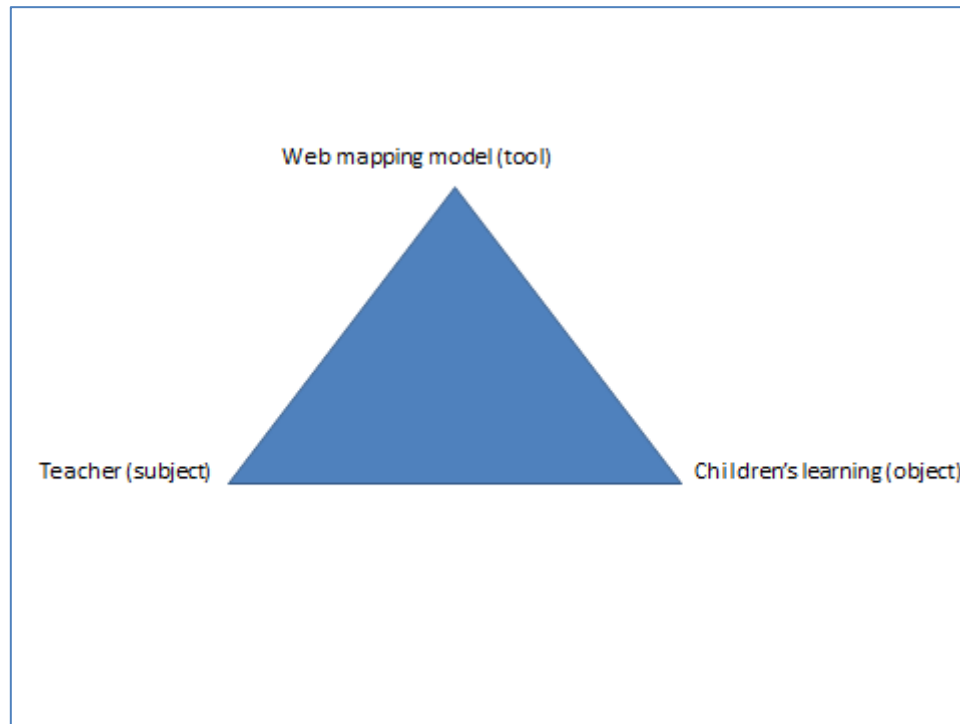


For many years, early childhood education has relied on understandings or theories of play that emphasise the importance of open-ended activity in supporting children's learning or the role of dramatic play in supporting social development (see for example, Moyles, 2012). These theories of play represent implicit cultural tools because in the community of early childhood education they have formed and represent particular cultural meanings about children's play that are now related to the object (or practice) of using play to support learning. However, there is now a body of literature that continues to show that technologies have not been effectively integrated into the early childhood curriculum (Lin, 2012). So far, the literature seems to suggest that this failure is due to teachers not understanding how to use technologies, or the need for greater professional learning about how to use technologies (Morgan, 2010). Some research also attributes the problem to a lack of technological support in early childhood settings.

The problem with these suggestions is that they continue a line of thought that characterises a poverty of ideas with respect to technology and popular culture research in early childhood education. This is because the focus continues to be on imploring teachers to take greater notice of children's out of home technological and digital media experiences without providing a well-grounded conceptual tool for integrating such experiences (Urbach & Eckhoff, 2012). The tool needs to be one that relates to existing conceptual tools for providing learning experiences in early childhood education as research has shown that early childhood teachers are most effective at implementing change to their practice when new tools relate to or build on existing tools (A. Edwards, 2000; S. Edwards, 2007). In this case, it has been argued that the existing implicit cultural tool is understandings of children's play. The newly proposed 'web mapping' model provides a new tool for thinking about children's technological, media and popular culture experiences because it integrates traditional ideas about play with the emergence of converged play activities as described by parents as

occurring in the family home. Here, the web mapping model can be used as tool for mediating the practice of supporting children's learning through play-based activity in early childhood settings (Figure 4.0).

Figure 4.0 A cultural historical perspective on early childhood education in which the web mapping model is used as a new conceptual tool by teachers to support children's learning



The use of the web mapping model as a new conceptual tool for teachers forms the next phase of a research agenda directed towards increasing the integration and use of digital technologies, digital media and popular culture in early childhood education. This work provides platform for moving early childhood technology research beyond a focus on using the technology as a tool in early childhood education (Hatzigianni & Margetts, 2012) to understanding the role and use of technological, digital media and popular culture based play in the early years.

Human subjects research protection

This research has ethics approval from the Department of Education and Early Childhood Development (Victoria, Australia) and the Australian Catholic University Human Research Ethics Committee.

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