Theorising digital play: A cultural-historical conceptualisation of children's engagement in imaginary digital situations

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Abstract

In the early childhood education literature, a growing number of studies have referenced *digital play*. Many of these studies seek to describe how young children play with digital devices, notably, how they engage with different kinds of apps. This work collectively illustrates a range of play behaviours where a number of important understandings about how young children engage in virtual contexts are given. However, little theoretical work has been directed to determining if what children do on these devices would constitute play. This paper seeks to examine this literature and present a theoretical discussion on what might characterise a cultural-historical conception of digital play where the essence of digital play for children aged 3 to 5 years is considered. The analysis and theoretical discussion presented draws attention to the special nature of digital play as including an imaginary digital situation, the emergence of special forms of digital talk, digital placeholders and digital pivots to support imaginary play, and the intermeshing of digital play and social pretend play. Development of digital play, the dialectical relations between play–digital play themes, and the psychological dimensions of digital play were also noted as key for conceptualising digital play. Together, these ideas extend Vygotsky's (this issue) original conception of play and capture new societal conditions where children readily access and engage in new forms of play on digital devices.

Keywords

Cultural-historical; digital; play; early childhood

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Introduction

Researchers have used the term *digital play* to name how children use digital devices in their respective studies (see Edwards, 2014; Ellis & Blashki, 2007; Johnson & Christie, 2009; Linderoth, Lantz-Andersson, & Linderstrom, 2002; Moore, 2014; Thai, Lowenstein, Ching, & Rejeski, 2009; Verenikina & Kervin, 2011). But what does this term really mean? How do these researchers define what constitutes digital play? Is there a common understanding about the term digital play evident in the literature? We know from the play research that there are many different ways to conceptualise play (Burghardt, 2011). We also know that there is little agreement about what is meant by this term (Sherwood & Reifel, 2010). Some longstanding researchers have even claimed that the term play has been used to capture every type of activity that a child engages in, except sleep (Rubin, Fein, & Vandenberg, 1983). This body of work suggests that although a lot is known about children's play, there is still no agreement across the literature about what is the nature of play. So without agreement about what is play, how can researchers discuss what *digital* play might be? In this paper, Vygotsky's original view of play (this issue) is used as the basis for examining the empirical play examples found in the literature so as to put forward a theoretical discussion about what might constitute a cultural-historical conception of digital play.

This paper begins with an examination of what is understood by the term digital play as currently presented in the literature, where there are a growing number of papers that draw upon a cultural-historical (e.g., Verenikina & Kervin, 2011), reconceptualist (Nolan & McBride, 2014), ecological (e.g., Smith, Iversen, Hjermitslev, & Lynggaard, 2013), Piagetian (e.g., Cooper, 2005), or a developmentally appropriate (e.g., Ward, 2015) conception of play to discuss findings or theorise about the context of digital play. This is followed by an analysis of what the characteristics of digital play might be. Vygotsky's (this issue) original conception of play is used to frame this theoretical discussion. Scenarios taken from a broad range of studies are reproduced to illustrate what is unique about digital play in the early childhood period. Overall, the theoretical analysis seeks to determine what might be the essence of a cultural-historical conception of digital play.

What is understood about the concept of digital play?

As with the concept of play, digital play has also been presented in the literature across a scattered landscape (Linderoth et al., 2002; Young et al., 2012), with obvious polarization between advantages and disadvantages being noted (e.g., Marsh, 2004). However, as argued by Marsh (2010):

> These virtual worlds are fast becoming a part of the online landscape of play for young children and rather than dismiss them as irrelevant, or deride them as potentially harmful environments, academics and educators need to examine their affordances more closely in order to identify what children gain from their playful engagement in these worlds and how their experiences can be built upon in early years settings and schools (p. 36).

Early childhood researchers, in examining the available literature, have analysed the playful engagement of children as noted by Marsh (2010). In drawing upon cultural-historical theory, Linderoth et al. (2002) examined the broader Western literature into gaming technologies for children and determined that although gaming technologies allow for cultural activities technically not possible before, there are still more assumptions than empirical data to tease out what is afforded through digital gaming. This finding has also been noted recently by Young et

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al. (2012), who reviewed the broader literature in the context of digital gaming showing a dearth of studies on play interactions, and Björk-Willén and Aronsson (2014) who noted the scarcity of research into preschool children's social interaction with peers when playing computer games. What these researchers collectively describe as missing is data gathered on children's social pretend play when using digital devices.

What we do know from analyses of the literature is that there exists a range of views about how digital play should be categorised. For instance, Linderoth et al. (2002) states that: "As a result of our readings, we have found that the research can be categorised as having covered five different, sometimes overlapping, areas (UOAs [units of analysis]): computer games as a part of Western society, rhetoric about computer games, elements in computer games, effects of using computer games, and finally, the activity of using computer games" (p. 244). By contrast, Edwards (2014) believes there are three categories: 1) using existing play literature to describe and research digital play interaction; 2) comparing differences in affordances when using toys and digital toys; and 3) analyses of how digital technologies are embedded in the sociocultural context of children's lives. In relation to the third approach, Edwards introduces the concept of the Digital Consumerist Context (DCC). She suggests DCC "as a way of bridging the gap between play as a basis for pedagogy in early childhood education and the use of technologies and digital media in the early years" (p. 201).

Importantly, Young et al. (2012) have identified a methodological gap in digital play literature, suggesting more needs to be understood about what is, and how to research, digital play. In keeping with a cultural-historical approach where the broader research context should be included in the analysis to form the dynamic whole, Young et al. (2012) noted that most of the research has focused on video games as the site of learning, where the role of the teachers is rendered invisible. The learner is conceptualized in isolation. In drawing upon the analogy of book reading, they state "just as students are not given books and told to learn independently, games cannot succeed as stand-alone solutions to education" (p. 83). They suggest that there must always be a teacher available to guide learning, that what is experienced can be generalisable outside the context of the game, and "that deeper, metacognitive gains are attained as a result of socially constructed game play" (p. 83).

These researchers each give some insight into the context of digital play, where specific contemporary problems are identified and discussed. The research landscape briefly summarised here gives a backdrop for examining what might constitute digital play in the early childhood years, where key psychological elements of children's interactions in virtual worlds have been noted. These approaches represent a range of ways we can understand the literature. However, what is missing from the broad analyses of the literature is a theoretical discussion of what might constitute the essence or relational unit of digital play for children in early childhood. Investigating the essence of digital play as a foundational concept gives the possibility for better understanding the contemporary context of young children. That is, a determination of the unit of analysis for digital play is urgently needed.

Determining the unit of analysis

What is the smallest unit that represents the dynamic whole for digital play? Vygotsky (1994) argued that in any analysis, researchers should theorise what might be the essence, and in the context of this paper, what might be the essence of digital play? In line with Vygotsky's conception of the unit of analysis, where he gives the example of the molecular structure of

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water being H_2O, he argues that understanding the elements of hydrogen or oxygen, in or of themselves does not capture the essence of what water is. What is needed is a holistic understanding that captures the essence. A further example is given by Davydov (2008) when he has stated that the human cell, as a unit of the body, captures the basic genetic structure of not just what it means to be a human being, but it gives the smallest unit of genetic structure that describes the whole person. These examples of the human cell and characteristics of water seek to highlight the view that we cannot just study elements as building blocks piled upon each other, but we need to find the smallest unit that captures the dynamic whole (Davydov, 2008); that is, the essence or germ cell that constitutes the whole. For the purposes of this paper, this means that we need to determine what is the smallest unit that will capture the relational and dynamic whole of digital play.

Vygotsky's (this issue) conception of play offers some guidance for this theoretical analysis. The essence of play as determined by Vygotsky focuses on the relational dimensions of creating an imaginary situation, where objects and actions are given a different meaning to what is visually shown, and a new sense of the situation is created. Vygotsky argues that the child sees one thing but acts differently in relation to what is seen. For young children, he argues it is difficult to separate the field of meaning from the visible field. Development in play is evident when children change the meaning of action and objects. For example, we see this when a child picks up a plastic bottle and begins to cuddle it and nurse it as though it were a baby. Whilst the bottle is clearly a plastic bottle (visual field), the meaning of the object has changed (now a baby), and a new meaning (caring) is given to the situation. Development in play is also noted when children go beyond what the object represents, to using an object (e.g., plastic bottle) as a placeholder of meaning (baby) or as a pivot to take meaning forward in play.

Play is a cultural practice that Elkonin (2005) argued arose historically (not biologically) through the needs of society, whereby children were given time and resources to imagine and practice participation in valued community activities, such as playing string games to learn how to create fishing nets. But in a contemporary context, how might the essence of play also be realized in digital play? Sutton-Smith (1997) suggested that new personal needs, such as when using computer games, or new societal needs, such as the introduction of academic school practices, create new conditions and children respond to these differently when interacting and playing. As technologies changed, as we see with the introduction of touch screen devices, new play affordances have become possible for younger children.

We now turn to a cultural-historical analysis of the literature to find out what are the emerging characteristics of play afforded through access to digital technologies. The unit of analysis drawn upon is Vygotsky's (this issue) conception of play. His conception acts as the guiding analytical framework for determining what might constitute the essence of digital play.

Key characteristics of digital play represented in the literature

What can be learned from an analysis of the body of research that reports on children's engagement with digital devices and apps from the birth to 5-year period? How has the term "digital play" been theorised, and what can we collectively understand about this body of knowledge so as to find the smallest unit of the relational whole? In this section, we examine what is meant by digital play by those researchers who have used this term to discuss their research or who reference play explicitly when discussing digital contexts in the early childhood period (e.g., Björk-Willén & Aronsson, 2014). Through this, we seek to initially identify those

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characteristics that are unique to digital play found in the literature and which, when collectively analysed, can support a theoretical discussion on the essence of digital play.

The cultural-historical analysis of digital play research undertaken resulted in the identification of key areas that uniquely describe the special play characteristics of children engaged in digital play. These are shown in Table 1 below.

Table 1
Key characteristics of digital play found in the literature

Digital-play characteristics noted in the literature	Cultural-historical analysis	References
1) Technical behaviours	Children are focused on clicking, swiping, and other technical dimensions of using the app. This would not constitute digital play because the child's thinking is operational and not focused on an imaginary situation.	Fleer (2014b); Moore (2014); Plowman and Stephen (2005)
2) Imaginary digital situations	Digitally stimulated roleplay interactions where digital devices and apps model roleplay, give a context for reproducing play into a digital form, and act as the context for imaginary play itself.	Björk-Willén and Aronsson (2014); Fleer (2014b); Moore (2014); Murdock, Ganz and Crittendon (2013)
3) Digital talk in imaginary digital situations	Children engage in a form of digital metacommunicative language during pretense in order to socially recruit and engage other play partners, especially when apps are designed for individuals rather than multiplayers.	Björk-Willén and Aronsson (2014); Johnson and Christie (2009); Linderoth et al. (2002); O'Mara and Laidlaw (2011)
4) Giving a new sense to digital objects and actions in imaginary digital situations	Children make, name, and/or modify icons/text symbols to create imaginary situations, giving a new sense to the digital situation.	Linderoth et al. (2002); O'Mara and Laidlaw (2011)
5) Porous boundaries between digital play and social pretend play situations	A digital imaginary situation with rules of engagement and the roles of avatars/characters taken from the child's real lived world (including various media story themes and plots). Children also draw upon their digital play experiences, rules, roles, objects, and actions to enhance their play in the physical social-material context. Here digital play captures the simultaneous nature of the real world and imaginary situation through iWorld/virtual worlds. Children infuse digital devices, apps, and digital toys into the imaginary situations they create physically in everyday imaginary play situations where virtual placeholders and digital pivots enrich and support the imaginary situation	Björk-Willén and Aronsson (2014); Linderoth et al. (2002); O'Mara and Laidlaw (2011); Verenikina and Kervin, 2011

Children's digitally oriented behaviours, as identified in the literature, are theorised here from a cultural-historical perspective, even though the original studies do not always name the theoretical perspective used when presenting findings. Each characteristic of children's digital interaction identified (column 1) and described (column 2) are shown in Table 1. These features are discussed in turn.

Technical behaviours

According to Plowman and Stephen (2005), children's interactions when using digital devices usually focus on negotiating access and turn taking, technical and operational activities, and

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obvious pleasure by children in relation to on-screen content. In line with Plowman and Stephen (2005), Moore (2014) also noted that the children in her study mostly engaged in operational issues, and in only 5% of the time were the children found to engage in pretense:

Over the total 374 incidents, children played to experiment, twice as often (67%) as they played to sample (32%), with overt examples of pretense-related play emerging in very limited amounts (5%) (p. 241).

Moore named the types of interactions children engaged in as sampling (32%) (i.e., clicked/tapped on a particular option to "see what will happen"; p. 244), experimenting (67%) (i.e., extended interactions where children's actions suggest experimentation with single or multiple gestures, tools, and, at times, the creation of designs), and pretense-related play (5%) (children engage in "as if" situation). Relatively more sampling and experimentation was noted, rather than pretense in digital play.

Technical behaviours have been noted in other studies (e.g., Fleer, 2014b) suggesting that the use of digital devices is important for understanding digital engagement, but this characteristic alone would not constitute a cultural-historical conception of play because the focus is operational rather than imaginary. As noted earlier, a key characteristic of a cultural-historical conception of play is the creation of an imaginary situation (Vygotsky, this issue).

Imaginary digital situations

Important for the problem posed in this paper is the relation between digital gaming and creating an imaginary situation. Linderoth et al. (2002) argue that gaming constitutes cultural simulations where reality is lost. In referencing Turkle (1995), they discuss the "crocodile effect" and the "Disneyland effect". The former suggests that the on-screen play with its dramaturgy may become more attractive than real life, and the latter captures the idea of the artificial on-screen phenomenon appearing more real than reality. Further, they draw attention to the idea of simulacra in which virtual contexts are created that have no reference to reality. This is consistent with research by Björk-Willén and Aronsson (2014) who show how preschool children, when playing computer games, interact and respond to the characters on screen as though they are real, using game character talk as part of their engagement. For instance, they found "children sometimes responded to the game characters as if they were human beings, rather than virtual play creatures" (p. 331).

Digitally stimulated roleplay has been noted in the literature where digital devices and apps that model roleplay (Murdock et al., 2013) give a context for reproducing play into a digital form (Fleer, 2014a) and act as the context of imaginary play itself (Moore, 2014). For instance, Murdock et al. (2013) in their study of four preschoolers with autism spectrum sought to increase pretend play skills by using a digital video of a pretend play scenario involving a roleplay of toy figures. They found that digital pretend roleplay does have a positive effect on children's social capacity with the children engaged in play dialogue following the intervention with "proportionately more symbolic play verbalizations". In fact, "61% of the play dialogue produced was novel rather than scripted" (p. 2187). Additionally, Murdock et al. (2013) noted that the children were "producing pretend play utterances while playing and interacting" (p. 2187). Children have also reproduced their play through capturing social pretend play in digital form whereby they use iPads to film their play during periods of free play (Fleer, 2014b), but also when documenting other kinds of experiences, such as using a digital microscope connected to an iPad to photograph microscopic creatures in the preschool compost bin. The latter, although

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requiring imagination, does not constitute an imaginary situation because what is being captured is not an imaginary situation where children are changing the meaning of the objects they are viewing (Vygotsky, this issue). Rather, what they are capturing in digital form is representative of what is visible and what they are discussing is what is seen rather than imagined. By contrast, the capturing in digital form of children's roleplay would constitute digital play. The children roleplaying and pretending whilst digitally reproducing the children's actions, shows they are using these images to continue their imaginary play.

In line with Murdock et al. (2013), examples of imaginary play are not always created by the children themselves, but can be stimulated by the particular app. For instance, Moore (2014) found in her study of preschool children's use of apps during free-play time, that the type of app used by the children had a huge impact on how children not only engaged with the device, but also interacted with others. She found that with some apps, the children made references to each other in relation to the games they were individually playing on the iPads during free-play time in the preschool. The children looked sideways at the other children for cues or as a form of social connectivity as they played, and in these contexts made comments about their activities on the device. The apps created the imaginary situation for the children, and the children socially connected with each other, despite using separate iPads with their own apps. Björk-Willén and Aronsson (2014) in their research into computer gaming noted how the children were frequently orienting themselves towards other children during gaming, "acting in ways that build toward joint performances" (p. 321). These actions noted by researchers suggest a level of collective imaginary play being performed side by side (Moore, 2014) and across devices (Björk-Willén & Aronsson, 2014) as a result of apps that create imaginary play situations.

Marsh (2010) provides the most comprehensive discussion of virtual imaginary situations, both through her review of the early childhood literature, and also in her own expansive research. She notes that "virtual worlds are immersive 2D or 3D simulations of persistent space in which users adopt an avatar in order to represent themselves and interact with others" (p. 24). Here, digitally stimulated roleplay interactions feature and digital devices and apps support and model roleplay, and give new contexts for imaginary play.

Digital talk in imaginary digital situations

As with metacommunicative language exhibited in social pretend play (Bretherton, 1984), researchers have also noted a form of digital language emerging that supports play partners in the imaginary situations being created. For instance, Björk-Willén and Aronsson (2014), in their comprehensive research, found that digitally derived words have crept their way into the general play activities of the preschool children they studied. In line with the literature of older children, who engage in response cries such as calling out words like "wow", "no", or "stop it", Björk-Willén and Aronsson (2014) found in their study that the preschool "children engaged in animated dialogues with the game characters when they disputed or challenged the game characters. In so doing, they 'animated' not only the game action (as when, e.g., honking the horn of a car), but also the game characters, treating them as real and 'live' dialogue partners impersonating them or talking back to them" (pp. 331–332). These response cries allowed children to simultaneously recruit and secure continued joint interest in the digital play being played. They also noted the affective stance of the children, such as marking an alert, delight, and revulsion.

Björk-Willén and Aronsson (2014) also found that even when the apps were designed for individual use, the children in their study redesigned their use so that a number of children could

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play at the same time. For example, the "children made alignments and realignments, and coordinated play through playful hackings of the game rules" (p. 331). Björk-Willén and Aronsson (2014) found in their study that the preschool "children improvised their gaming with their peers by embellishing their activities through an array of animated moves that included singsong actions, response cries, and sound making that were often produced in synchrony with the tempo of the game" (p. 331). They argued:

> That children's animation is a social activity receives strongest support from their coordination of improvised responses to the computer characters with those of their co-players' in creating a shared focused and orientation to the game. These coordinations were necessary in that the participants made each other aware of what to look for in the game and how to advance it. (p. 331)

Collectively, these studies highlight the importance of children's use of specialized digital talk for building intersubjectivity, and as has also been found generally in the play literature, the needs of children to change the rules of the play so that a collective rather than individual form of play activity results. However, rather than metacommunicative language, Björk-Willén and Aronsson's (2014) work introduces a new idea, which could best be described as a special form of *digital talk*.

Giving a new sense to digital objects and actions in imaginary digital situations

In line with Vygotsky's (this issue) theory of play, where children can give new meaning to objects and actions in their play, Linderoth et al. (2002) state that in gaming "meaning is ascribed to an image, and not something within the image itself" (p. 233). Verenikina and Kervin (2011), in their study of apps and play affordances, noted how some software allowed for the manipulation of objects symbolized in digital form, where children were able to use images on the screen for social pretend play. Here, children changed the meaning of objects that related to their daily life, but the themes and objects were recognized and consciously used to give new meaning to a situation. It has also been noted by Linderoth et al. (2002) that when the images or symbols on the screen come from a fictitious world, such as when dragons are shown, or teleportation becomes possible, then the play features objects that do not have referents from children's everyday life. They found that how images, symbols and actions are understood, must be "socially constructed, negotiated in context and historically built into culture" (p. 233).

Björk-Willén and Aronsson (2014) show how digital objects or symbols, like tangible objects in social pretend play, support a shared focus in social play which holds players together, achieved through various play performances, such as offering or displaying objects (Kidwell & Zimmerman, 2007). Johnson and Christie (2009) argue that, "simple acts of make-believe to more elaborate forms of socio-dramatic play can be triggered by events unfolding on the computer monitor. On-screen activities serve as a medium for play, as children share their joint attention to what is presented and use computer content in off-screen play activity" (p. 286). Marsh (2010), in her research into children's perspectives, gives the example of Billy using Penguin™ when he used a heart emoticon to virtually express emotion in play: "I like reading messages and falling in love with girl penguins. I have got about five girlfriends. You have to win a loveheart and then you can send them to them. (Billy, aged seven)" (p. 24). These studies open up the idea of changing the meaning of objects and actions in play as digitally framed imaginary situations where emoticon symbols are used to give new emotional sense to a situation in digital play.

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Kjällander and Moinian (2014) suggest that "preschool children constantly transform the applications in their activities: they do not *use* digital media, they *make* it" (p. 10; original emphasis). What they found in their research of preschool children was that children change the meaning of the actions and even the rules that were designed into the software they examined in their research. They noted that children simply "amend the game´s design, actively manipulating and playfully exploiting authorative pre-existing designs of the applications. They position themselves as producers instead of consumers in order to make meaning in the digital interface – and the digital interface encourages them" (p. 28).

What these studies show is that children make, name and or modify icons/text symbols to create imaginary digital situations, giving a new digital sense to their digital play.

Porous boundaries between digital play and social pretend play situations

Play in the digital world and the social-material world now represents a rather relational fuzzy zone because the themes of children's digital play are drawn from the children's everyday lives (see Verenikina & Kervin, 2011) but, at the same time, children play in social and material situations where they draw upon their experiences of their digital worlds. For instance, O'Mara and Laidlaw (2011), in reflecting upon the nature of digital play, noted how children regularly change the meaning of objects and actions in their imaginary play based on their digital play. An example is reproduced here in the context of their analysis:

> Our children were playing at the dollhouses and the 3-year-old realised that a tiny pretend laptop was missing. After everyone looked around for a bit, he returned to play and sat the mother doll at the computer desk. "She's going to Google to find out where the little computer is." (p. 153)

O'Mara and Laidlaw (2011) in their reflections on how their children played with digital devices, noted that:

> While we recognise that pretend play-objects reflect what our children see in our own households – by including toy computer desks and laptops and so on in the collection of imaginative play materials, we have seen that where certain objects do not exist, our children tend to seek out or create alternatives. (p. 153)

These examples illustrate how children's play themes draw content from their digital world. However, the literature also shows examples of how digital play themes are drawn from children's everyday life. For example, Bergen (2004), in citing the work of Brooker and Siraj-Blatchford (2002), show how children grabbed virtual images of fruit, such as apples and pears, and integrated these into other play activities in the classroom. The play behaviours that were noted included pretending to eat food and sharing food with others. The complexity of playing virtually whilst engaged in real situations has also been noted by O'Mara and Laidlaw (2011), who give the following expansive example of virtual play between siblings:

> A 5-year-old girl and her 3-year-old brother are having in a 21st Century tea party. The children and their stuffed toys are playing a Tea Party game on the iPad – which has a radio playing for background music – and they are serving digital cakes and tea. The game only plays with three, so the remaining toys are set up with their physical tea-set. The transformation of objects inside the dramatic play seamlessly shifts from the virtual to the physical, the cups of tea being served, drunk and spilled in the virtual iPad space

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> extending over into the pouring of "cups of tea" served from the teapot into the plastic tea set on the other side of the picnic blanket. The boundaries between "physical" and "virtual" blur, with all play objects – the iPad, stuffed toys, plastic tea- set – crossing into the realm of imagination and the narrative structures of dramatic playing inside a virtual world (p. 150).

In this example by O'Mara and Laidlaw (2011), it is possible to notice how the "real world" and the "virtual world" are not alternatives to each other, but rather are enmeshed and seamless to the children. The distinctions or boundaries between these clearly do not exist for the children, although they could for adults or researchers who are not part of the collective imaginary play being realized across virtual and real world contexts "as one". As such, how is it possible then to distinguish what might be digital play? In considering this example of digital play as described by O'Mara and Laidlaw (2011), it becomes even more important to consider what might be the relations between how play has been theorised in the context of digital play.

Marsh (2010) makes the point that "the tensions surrounding the relationship between play and technology" are similar to "discourses concerning the concepts of 'real' and 'virtual' " (p. 23). Marsh seeks to explicitly "identify the nature of play in these environments. Findings indicate that virtual worlds offered these young children a wide range of opportunities for play and that the types of play in which they engaged relate closely to 'offline play' " (p. 23). Importantly, Marsh (2010) notes how children were simultaneously in, or moving between, the virtual world and the physical world "as if one", which is also in line with the example given by O'Mara and Laidlaw (2011):

> It can be argued, therefore, that the children in this study were engaged in a range of complex play behaviours whilst using virtual worlds. This was not, however, "virtual" play, but "real" play . . . At times, children reproduced narratives observed in their offline worlds and conformed to the rules of game playing and at other times children played with the rules themselves, reconfiguring the representations of external realities (p. 35).

The "as if one" or intermeshing of digital and real worlds is also shown in the work of O'Mara and Laidlaw (2011) when they give the following example:

> When Jo's five-year-old was 2, she was looking for a mouse on her grandmother's television as she expected to be able to interact with the screen. Linda's children automatically touch any backlit advertising display, expecting interactivity (p. 156).

O'Mara and Laidlaw (2011) illustrate how children's digital worlds, which they name as iWorlds, create digital conceptual expectations and digital ways of interacting that have become part of the children's social and material world.

Porousness in digital play, as described by Linderoth et al. (2002) and Björk-Willén and Aronsson (2014), links directly with Vygotsky's (this issue) conception of how play creates an imaginary situation; a situation that Elkonin (2005) has suggested is based on events and characters that can be found in everyday life. This cultural-historical conceptualization suggests that children's play is simultaneously imaginary and real. Schousboe and Winther-Lindqvist (2013) illustrate this from a cultural-historical perspective when they give the example of a child pretending to fly a plane by jumping off a table, but who is still connected enough to reality to fall onto a cushion rather than on the hard floor. The porous boundary between real and virtual situations is clearly evident in the literature in relation to digital play. Whether the context is

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described as conceptually porous or as a conceptual blurring between "physical" and "virtual" imaginary situations that enmesh or "act as if one", these unique elements of digital play are noteworthy.

Digital play has also been researched in the context of digital toys where new forms of imaginary situations are created through the technologies. For instance, Johnson and Christie (2009) suggest that computer chips installed in toys afford new forms of play. They argue that digital toys "can influence the content of more traditional forms of play, particularly dramatic and constructive play" (p. 286). In discussing the concept of digital childhood, Gibbons (2015) puts forward the question, "Why, for instance, is a robotic baby doll considered more technological and less natural to the child's play than a rag doll?" (p. 123). Research which has examined the use of tangibles by Bergen (2004) has noted that the play of children is not stifled by "talking toys" and other special features afforded through digital means. Even though children initially explored and engaged in digital talk, over time the children were able to create original narratives in their play. Yet others have suggested that tangibles interfere with children's play. For example, Stephen, Stevenson, and Adey (2013) give the example of a talking puppy that was placed inside a cardboard box "train" where the adult switched off "the puppy's 'voice' when it became clear that Kelly [child] was uncomfortable with this and that it interfered with her play" (p. 160).

In keeping with Elkonin's (2005) psychological view of play, it is argued that as societal needs change and new technological innovations are introduced to meet these new demands, children's place in society also changes, thus creating the need for children to play, including the current digital play evident in society (Fleer, 2014a). For instance, in the process of societal needs changing over historical periods (increased population and food needs), it is possible to notice a dynamic movement from technologies contributing to physical production and gathering of food (e.g., fashioned digging sticks, fishing nets, bows), to practicing the skills of using the new technologies through miniature replicas (scaled sticks, nets, bows), and later, toy tools (toy ploughs, toy bows, string games to learn mending of nets), and now digital devices and apps. In the context of readily accessible digital devices and children's engagement with them, we can extend Elkonin's argument to include digital play. Play as a cultural phenomenon, rather than a biological construction (see Fleer, 2014b; van Oers, 2013) has been discussed in the literature and is not reproduced here. Edwards (2014) has added to these discussions by introducing the idea of digital consumerist context (DCC) to give a sociological and marketing spin to the current digital social context.

The digital play literature reviewed suggests that children are simultaneously inside and outside of the imaginary virtual situations demonstrating a unique characteristic of digital play. A digital imaginary situation with rules of engagement and the roles of avatars/characters taken from the child's real lived world (including various media story themes and plots) feature. These tangibles and icons/symbols act as digital pivots in children's play. Children also draw upon their digital play experiences, rules, roles, objects, and actions to enhance their play in the physical social-material context.

Here, digital play captures the simultaneous nature of the real world and imaginary situation through iWorld/virtual worlds. The literature collectively shows that children infuse digital devices, apps, and digital toys into the imaginary situations they physically create in everyday imaginary play situations where it has been previously argued that virtual placeholders and digital pivots (see Fleer, 2014b) enrich and support the imaginary situation. What has been found is that children can and do use digital devices to capture, store, and use images (depending upon the app) as placeholder in their digital play. Children can also use these digital placeholders to give a

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new sense to an imaginary play situation, and through this, children use the digital device and apps as a pivot. In digitally supported imaginary situations, virtual placeholders and digital pivots create new play conditions for young children.

Conclusion

What is pronounced in the empirical literature on digital play is how researchers have focused on the specific behaviours of digital play, where insights into the continuum of digital play and traditional play are frequently given (Marsh, 2010), or where a bridge between traditional and contemporary play is offered in the form of contextual (Nuttall, Edwards, Lee, Mantilla, & Wood, 2013) and new media consumerism (Edwards, 2013). Here an acknowledgment of a "new form of play" (Edwards, 2014) is offered.

These studies collectively give important insights into the elements of play, but tell us less about what might be the essence of digital play. Theoretically, a cultural-historical conception of *digital* play would strive to understand the essence, not the elements of a play continuum where a bridge between two elements is foregrounded. That is, a cultural-historical analysis would seek to determine the smallest unit that contains the characteristics of the whole (Vygotsky, 1994), where digital play and traditional play are conceptualized together.

The studies reviewed make major inroads into examining the behaviours and contexts of digital play. This work is collectively an important first step in unlocking the theoretical essence of digital play. Whilst the identification of behaviours that are unique to digital play is important for better understanding what is happening during digital play, these behaviours in themselves do not necessarily characterize the essence of digital play.

Characteristics of digital play: What has emerged from using Vygotsky's (this issue) conception of play as the unit of analysis, were four key characteristics of digital play (see Table 1):

1) Imaginary digital situations,
2) Digital talk in imaginary digital situations,
3) Giving a new sense to digital objects and actions in imaginary digital situations, and
4) Porous boundaries between digital play and social pretend play situations.

The fourth characteristic is worthy of further elaboration because it begins to examine a dialectical relation, rather than a simple binary or continuum.

Dialectical relation between play-digital play themes: It is noted that a digital imaginary situation with rules of engagement and the roles of avatars/characters taken from the child's real lived world (including various media story themes and plots) constitute key dimensions of digital play. Similarly, children who draw upon their digital-play experiences, also play with rules, roles, objects, and actions to enhance their play in the physical world. As such, digital play captures the simultaneous nature of the real world and imaginary situation in iWorld/virtual worlds. However, according to Vygotsky, for development to occur, some form of tension is needed.

Development of digital play: A cultural-historical conception of play considers how play itself develops, and how play in turn develops the child. But how does *digital* play develop? Vygotsky (this issue) showed that play development can be seen when there is a change from the imaginary situation with hidden rules, to explicit rules in play where there is a hidden imaginary situation.

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Children make conscious in their play the rules of society and their communities, thus becoming closer to reality and coming to better understand the world in which they live. In line with this conception, it can be argued that digital play develops when children have the opportunity to create or engage in imaginary digital situations with some design autonomy, supporting them to think consciously about the rules and roles demonstrated through the apps or digital gaming contexts. As Vygotsky (this issue) suggested, in play the child is a head taller than him or herself. Here we can argue that, through digital play, the rules and roles for using apps and gaming software are amplified, because children must engage explicitly with the rules (and roles they assume) when using apps or gaming software, if they are to successfully engage in digital play. It is argued that when apps and gaming software support the creation of imaginary situations, it is possible for digital placeholders and virtual pivots to develop the imaginary play. For instance, in digital imaginary situations play development can be seen through the child moving from digital play where the rules are hidden and need to be made conscious, to digital play where the rules are explicit but the imaginary situation is hidden and needs be consciously considered. When this development in digital-play complexity occurs then, theoretically, it would be expected that the children themselves are also developing. However, digital play development was not featured in the literature reviewed, presumably because conceptualizing the development of play itself is specific to a cultural-historical conception of play, and as such may not have been examined by the researchers.

Psychological dimensions of digital play: In drawing upon the key ideas of Vygotsky's (this issue) conception of play and the theoretical analysis undertaken in this paper, it is determined that the essence of digital play can be theorised as *the creation of an imaginary digital situation, supported through a specialized form of digital talk where the themes of the play are drawn from children's everyday experience. In these imaginary digital situations, children give new meaning to the digital devices, apps and digital toys they use, acting as both virtual placeholders and digital pivots to enrich and support digital play.*

In line with previous work (Fleer, 2014b), digital placeholders and virtual pivots used in virtual, augmented, and/or real world imaginary situations, illustrate the theoretical essence of digital play. Digital placeholders, when acting as virtual pivots in virtual and/or augmented imaginary situations, can give a new sense of the situation, thus keeping with Vygotsky's (this issue) original conception of play, but showing these elaborations as a relation in the virtual and augmented context of digital play. Digital placeholders and virtual pivots sit theoretically well with Vygotsky's (this issue) broader cultural-historical conception of play. Finally, digital play amplifies the need for children to work more consciously with the rules and roles designed into apps, thus creating new conditions for more complex play when using some apps, thus affording new conditions for children's development.

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