PhD Confirmation Paper

Exploring Converged Joint Media Engagement modes evident between caregiver and 0-3-year-old children in four family home settings in Nairobi County, Kenya

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1.0 Introduction

This study is concerned with the potential of Joint Media Engagement (JME) in helping children learn from digital technologies (Tekauchi & Stevens, 2011). Joint Media Engagement refers to people using either digital or traditional media, together. This concept of JME is elaborated further in the literature section. In thinking about the increasing proliferation of digital technologies in family homes, particularly in developed countries (Livingstone, 2009), it is important to develop nuanced understanding of how families are shaping these technologies in their daily routines. As education policies place an increasing responsibility on the families to take an active role in children's learning, the penetration of digital technologies creates certain expectations from the families and especially parental role in children's digital play activities (Livingstone, 2002).

The home has been recognized as a fundamental learning environment particularly during the formative years (Livingstone, 2002; Siraj-Blatchford et al., 2002) because early home literacy experiences have strongly been linked to academic achievement later in school (Siraj-Blatchford et al., 2002). This recognition of the importance of the home learning environment becomes even more important considering the increasing proliferation of new digital technologies in the home environments (Livingstone, 2002; 2009). Noting the centrality of digital media and popular culture in young children's learning (Marsh, 2005), it makes a lot of sense to closely examine how digital technologies are restructuring the family structure and interactions (Livingstone, 2002) and how Joint Media Engagement practices (Takeuchi & Stevens, 2011) are enacted and understood within family home context.

Joint Media Engagement researchers have been motivated by co-viewing research as their point of departure (Tekauchi & Stevens, 2011). Four decades of research on co-viewing has consistently pointed to the importance of the presence of parents and siblings and their engagement in facilitating children's learning from television viewing (Tekauchi & Stevens, 2011; Robb & Lauricella, 2016). Co-viewing has been an important research topic among media and educational researchers since the airing of the first episode of *Sesame Street in 1969* (Takeuchi & Stevens, 2011; Kearney & Levine, 2015). Drawing on co-viewing studies, researchers at the Joan Ganz Cooney Center in the United States have been keen to expand the

research focus and go beyond children's viewing experiences of television so as to consider new digital media (Takeuchi & Stevens, 2011). In so doing, they have coined a new concept known as "Joint Media Engagement" which implies "spontaneous and designed experiences of" individuals using digital media collaboratively (p. 9). This concept is discussed further in the literature section. This study draws on this new concept of "Joint Media Engagement" and goes further to utilize the elements of the setting (Bronfenbrenner, 1977) in order to investigate the modes of converged Joint Media Engagement practices that occur between caregivers and 0-3-year-old children in the home setting. As I will demonstrate in the literature section, the definition of Joint Media Engagement (JME) involves traditional and digital media hence the use of converged JME.

Young children's engagement with digital technologies and popular culture in homes is increasing (Marsh, 2005; 2010; Plowman, 2010) because digital devices have become affordable and many families, particularly in advanced economies, can afford to acquire them with ease (Robb & Lauricella, 2016). As such the home, as Livingstone (2002) describes, is becoming transformed into a multimedia cultural environment. The home digital media landscape has evolved and is no longer about television, radio and desktop computers. Indeed, television, radios and desktop computers are now regarded as old technologies (Robb & Lauricella, 2016; Wartella et al., 2013). More recently, a range of newer digital media such as touch-screen tablets, iPod, game consoles, and the like that are internet-enabled and highly mobile have been integrated in the home and family routines (Robb & Lauricella, 2016, Katz, 2015). Despite the increasing penetration of digital technologies into family spaces and routines, we know very little about the social interactions that occur when children and their families are engaged with the digital technologies and popular culture (Danby et al., 2013). The effect of digital technologies on young children's lives is largely unknown (Robb & Lauricella, 2016). In an environment where young children are exposed to, and engaged with, a range of digital media, we need to be mindful of the potential implications this has on learning and well-being of young children (Barnaby & Burghardt, 2016).

The twenty first century has been characterized by structural transformations characterized by the emergence of a new technological advancements based in information and communication

technologies that have suffused in people's lives (Castells, 2005). Castells (2005) states that social and cultural advancement that the world has witnessed in the recent past has given rise to technological development. This technological advancement has made it possible for a variety of new digital technologies to emerge. These societal change dynamics have great implications for the healthy growth, development and learning of young children. Scholarly work is gradually focusing on digital technologies vis-a-vis young children in varied settings, with a particular interest on how these technologies contribute to children's learning.

The radio was a new form of technology that penetrated into homes in the twentieth century, and then came the television, videos and computers. Homes are now being filled with newer technologies that are highly mobile. Today, children who have been referred to as 'digital natives' (Prensky, 2001) are growing up in a rapidly changing media environment that is different from that of their parents and earlier generations (Hobbs, 2011). Digital tools have become part of children's culture in schools, communities and homes (Marsh, 2005). Although Prensky (2001) described children born from 1980's as "digital natives" the metaphor has attracted debate and criticism (see Selwyn, 2009). The notion of digital natives is founded on the assumption by its proponents that young children are innate, talented users of technology (Prensky, 2001). While Presnky describes young people who were born in the era of digital evolution as being capable of learning to use technology in the same way we learn our native languages, Selwyn (2009) contests this, arguing it is not entirely true of the actual use of technology among young children. In his comprehensive review of literature about young people and digital technologies, Selwyn (2009) concluded that, "young people's engagements with digital technologies are varied and often unspectacular – in stark contrast to popular portrayals of the digital native." (p. 364). He argues that:

> The idea of young people being notably different from previous generations in their technical aptitudes and abilities may well have a strong intuitive appeal, the ease with which these commonsensical "stories" of the digital native generation are being repeated and "re-told" should be cause for some alarm…common-sense thinking is uncritical, episodic, and disjointed, but it is also powerful because it is taken for granted. (p. 364)

Edwards et al (2016, p. 1) contend that the use of digital media by children is characterized by diverse "imperatives in each setting", including the home setting and the educational setting. Such debates around "digital natives" are important in that they seek to explicitly show the real experiences of young people so that they can be provided with the support they need to gain the maximum benefits from technology and related tools.

The iPhone was launched in 2007 followed by the iPad in 2010. Since then, numerous 'apps' "tagged as educational" for young children have been developed (Zack & Barr, 2016). All these developments necessitate closer attention to how children engage with technologies and the kind of learning that accrue from those engagements. This is particularly important in informing digital media designers and producers to have children's needs and interests' in mind when coming up with devices, apps and programs for young children (Tekauchi & Stevens, 2011).

The productiveness of digital technologies largely depends on how the society responds to them. Castells (2005) argues that "technology does not determine the society…society shapes technology according to the needs, values, and interests of people who use the technology" (p. 3). Here, Castells (2005) does not view digital technology as a driver of social and cultural change (technological determinism); technologies arise as a result of social and cultural advancements, changes that make it necessary for technology to be adopted. Castells' understanding is significant in that families are dynamic systems with competing needs, values and interests that are shaped by socioeconomic and geopolitical conditions, which, in turn, potentially determine how digital technologies are accessed and incorporated into family routines. Suchman et al. (1999) argue that technologies are social practices that can be assessed and understood within the context where they are produced and consumed.

Understanding home digital technologies practices may be important because early childhood education teachers are being encouraged to incorporate digital technologies and popular culture in preschool learning activities (Hedges, 2011). Hedges (2011) has lamented that children's home experiences with media and popular culture are not recognized and incorporated into preschool learning activities planned by teachers. Some commentators (e.g. Arafeh & Levin,

2003) have claimed that there is a 'digital disconnect' between homes and schools because the digital technology experiences that occur in the two settings are qualitatively different. The digital difference proponents argue that schools have failed to connect children's "frequent, creative and generative" technology practices that they experience at home (Edwards et al., 2016, p. 1). These digital disconnect assumptions have recently been contested. Edwards et al. (2016, p. 1) have argued for a digital difference discourse rather than a disconnect, because the later "divert[s] our attention from understanding the nature of the setting and thereby from an understanding of the role of technologies in education and at home."

A situated understanding of how digital technologies are used in family home settings could contribute significantly to designing curricular practices that build on children's early experiences prior to entering into school (Schwartz & Gutierez, 2014). This can only be possible if teachers understand the nature and quality of home digital technologies practices and popular culture environments. Marsh (2010) argues that, if educational establishments have to build upon the richness of children's digital technologies and popular culture, then it is important to examine home practices around these technologies and children's popular culture.

Research on early childhood education especially about technology use in most Sub-Saharan African countries is at the infancy stage. Digital technology is not widely used in early childhood education centres due to infrastructural and economic challenges faced by parents and educational establishments. There is very little research about digital technologies and popular culture and even less (none that I am aware of at this point in time) on Joint Media Engagement that has been done in Kenya. My study on Joint Media Engagement in family home is going to break a new ground, as far as research on digital technologies and popular culture, in relation to young children is concerned. This year, the Kenya government commenced the process of issuing tablet computers to children who are beginning primary school and the current debates in the research community is centred around the preparedness of teachers to use technology to deliver the curriculum.

A few studies I have come across have examined the factors influencing the integration technology in early childhood education settings (e.g., see Andiema, 2015; Kaindio & Wagithunu, 2014; Ogott & Odera, 2014). Other studies have looked at technology use in general

and not in relation to young children. For instance, Wyche et al (2010) studied the use of desktop computers and mobile phones in homes and workplaces among "professionals living and working in Nairobi who regularly use ICT". The study findings highlighted difficulties people face "when using the internet in infrastructure-poor settings." (2593). The difficulties were associated with limited bandwidtth, hight cost, physical and virtual security threats, among others. However, this study did not focus on children's expetriences and family engagement with digital technologies. Kenya presents endless opportunities for researching popular culture, digital technologies and JME.

Before presenting the research question, it is important to illuminate the concept of 'setting'. The home environment maybe understood as a setting in which children and family members use technologies individually or together. The concept of setting is drawn from socio-ecological theorist Bronfenbrenner's (1977) ecological systems theory. According to him, "a setting is defined as a place with particular physical features in which the participants engage in particular activities in particular roles for particular periods of time" (p. 514). Consequently, he perceived place, time, physical features, activity, participant and role as the basic elements that characterize a given setting.

1.1 Research question

This project will address the following research question:

> *According to the elements of the setting, where, how, when and which practices comprise the converged modes of Joint Media Engagement occurring between children aged 0-3 years old and their caregivers in the family home?*

The term 'home setting' is used in its broadest sense in such a way that depicts areas where members of a household interact outside educational establishments. Family members having lunch at a restaurant or playing in a park could be a home setting as long as those involved in the interaction or activity are members of a household. O'Hara (2011) studied children's reported digital media practices in the home. In this study, O'Hara used the term 'home' to "denote any context in children's lives beyond the school/nursery environs…" (p. 220).

2.0 Literature Review

In the introduction, we have seen research highlighting the importance of the home learning environment and especially with popular culture and digital technologies. We have also seen that children are starting to engage with technology from an early age. Studies also consistently show that we have limited understanding of 0-3-year-old children's digital media practices in homes (Nevski & Siibak, 2016; Plowman, 2010). However, research is responding by attending to what is happening for young children with regard to digital technologies and popular culture. One of the most important concepts attracting attention in research is Joint Media Engagement. Joint Media Engagement is a relatively new concept that has not been studied widely (Ballagas et al., 2013) in early childhood education. Joint Media Engagement therefore presents numerous opportunities and possibilities for those researchers who are interested in exploring digital technology-supported collaborative practices (Ballagas, et al., 2013) in homes, where access to and use of digital technologies continues to rise (Livingstone, 2009).

The concept of Joint Media Engagement was coined at the Joan Ganz Cooney Center in the United States (Takeuchi & Stevens, 2011). This centre is named after one of the founders of Sesame Workshop and the creator of the Sesame Street show for young children - Joan Ganz Cooney. Kearney and Levine (2015) explain that Sesame Street was an intervention project that incorporated new ideas in the early 1960s with the intention of improving learning outcomes for children from disadvantaged backgrounds. According to Kearney and Levine (2015), regardless of typical challenges such as network coverage, Sesame Street was a success. When the show was first aired in 1969, "researchers both within and external to the Children's Television Workshop (CTW) studied, among other things, the roles parents and others in the room can play in enhancing the viewing experiences of preschoolers" (Takeuchi & Stevens, 2011, p. 6). The findings were exciting as the authors showed children learned more when parents co-viewed the show with them, as compared to when they watched alone. The implication of this is that the presence of the parent enhanced learning, perhaps through increased concentration because the children saw the parents were also interested in the program.

During that time, the television was the newest electronic device to find its way into people's homes. It was therefore meaningful for researchers to investigate the co-viewing experiences within the family home. The concept of co-viewing was tied to individuals viewing television together (Takeuchi & Stevens, 2011). There was no need to consider a wide range of digital technologies since they were not available during that time. Joint Media Engagement takes television co-viewing experiences as a point of departure (Takeuchi & Stevens, 2011) and seeks to incorporate the ever increasing range of digital technology devices in people's homes. As demonstrated by Takeuchi and colleague, the research team's intention at the Joan Ganz Cooney Center is to go beyond the television, particularly now that the home is dominated by other digital technologies such as iPods, computers, tablets, game consoles and digital toys. Since research on co-viewing has predominantly focused on children's viewing experiences associated with television, the concept of co-viewing fails to consider other experiences associated with the wide range of new digital media. Indeed, Takeuchi and Stevens (2011, p. 10) argue that, "…the concept of co-viewing warrants revision in the contemporary media environment to encompass multiple modes of engagement with diverse digital media." Thus, JME was coined by Stevens & Penuel (2010) to extend social engagement experiences beyond the television and to consider other emerging newer digital media.

Takeuchi and Stevens (2011) drawing on Stevens and Penuel (2010) define Joint Media Engagement (JME) as:

> Spontaneous and designed experiences of people using media together. JME can happen anywhere and at any time when there are multiple people interacting together with media. Modes of JME include viewing, playing, searching, reading, contributing, and creating, with either digital or traditional media. (Takeuchi & Stevens, 2011, p. 9)

Ballagas et al. (2013) offer a similar definition of Joint Media Engagement. For them, JME "describes 'collaborative' consumption of media and has potential learning benefits" (p. 225). The two definitions are much broader than Valkenburg's (1999) conceptualization of co-viewing, where individuals who are watching television share the experience of viewing but do not engage in any discussion about what is being viewed. Robb and Lauricella's (2016) definition of co-viewing differs from that of Valkenburg (1999). Robb and Lauricella (2016)

categorize co-viewing in terms of level of parental interaction and of engagement. In this categorization, low-level involvement and engagement occurs when parents co-view with children without attempting to engage children in interaction with regard to what is being viewed. This first part of Robb and Lauricella's (2016) definition of co-viewing echoes Valkenburg's (1999) definition. There is also high-level involvement and engagement, where parents intentionally engage children in discussions by pointing at specific aspects on the screen and asking questions to help children concentrate on the show and learn. This second definition of co-viewing (Robb & Lauricella, 2016), resonates well with Stevens and Penuel's (2010) definition of Joint Media Engagement. JME's definition embodies collaborative engagements that are not visible in the digital technologies themselves (Takeuchi & Stevens, 2011). Elaborating on Stevens and Penuel's (2010) definition of JME, Alper (2013) suggests that parents with young children can collaboratively support learning through the modes of Joint Media Engagement. Alper (2013) views intergenerational experiences with media as fundamental resources in Joint Media Engagement practices that can stimulate curiosity, interest and passion for learning in young children.

It is important to consider from the outset why the concept of Joint Media Engagement has come into being as a useful concept in post-industrial early childhood education research, particularly with regard to digital technologies and popular culture. The concept of Joint Media Engagement came from researchers studying digital play (McPake & Plowman 2010), popular culture (Livingstone, 2005; Buckingham & Jensen, 2012; Jenkins, 2006), media convergence (Jenkins, 2006; Edwards, 2013), and active engagement with digital technologies and popular culture (Jenkins, 2006). Jenkins' (2006) concept of 'convergence culture' is especially important in the context of this project because I am focusing on old and new technologies. In children's play, there seems to be no boundaries between digital and traditional tools or virtual and offline practices (Plowman et al., 2015). Jenkins (2013) talks about 'spreadable media', a concept which he argues captures the fundamental changes occurring in the contemporary media landscape, with its emphasis on media consumers having a direct influence in the circulation of media content. I am aware of the development from convergence culture to spreadable media. However, I am sticking with the concept of convergence culture in my study because the

definition of JME refers to people using either traditional or digital media together. Convergence culture involves traditional media meeting new media (Jenkins, 2006).

Children's learning context is changing (Walsh, 2010) in response to the changing media landscape for young children (Hobbs, 2011; Marsh, 2002) and hence the need for curriculum and pedagogical practices that can respond to the potential of digital technologies (Welsh, 2010) and popular culture in varied contexts (Hedges, 2011). Young children are being born and raised in an ever changing digital media and popular culture landscape. New digital technologies and popular culture are important for children's learning (Hedge, 2011; Hobbs, 2011; Edwards; 2013) yet young children's digital technology habits at home are unknown to their teachers (Hobbs, 2011; Hedges, 2011). Hedges (2011) argues that children's experiences of digital media and popular culture need to be valued in learning. Hobbs (2011) explains that in everyday activities, children learn using digital technologies and popular culture as they manipulate a wide range of texts and symbols in both formal and informal settings. As a result of media convergence (Edwards, 2013), changing learning contexts (Welsh, 2010) and the increasing value placed on the home learning environment (Siraj-Blatchford et al., 2002), particularly the quality of interaction for young children (Zack & Barr, 2016), teachers and parents are being asked to harness the potential of digital technologies and popular culture to support children's learning (Hobbs, 2011). Concepts such as Joint Media Engagement are a response to the changing dynamics in the learning environment that have necessitated the adoption of technology. This technology needs to be carefully and meaningfully used to promote children's learning experiences both in formal and informal settings. Hobbs (2011) argues that children need opportunities to engage with parents in meaning making around their experiences as they engage with digital media and popular culture.

Research about Joint Media Engagement in homes, communities and schools have been carried out in the United States. For instance, Takeuchi and Stevens (2011) present interdisciplinary case studies on Joint Media Engagement in different settings. The authors observe that due to the increase in digital media devices in children's lives, researchers and educators need to understand how caregivers utilize digital media to promote children's learning. A snapshot of

case studies is presented in the following paragraphs to illustrate what is already known about Joint Media Engagement.

Rideout (2014) investigated the amount of time children spend on educational media, parental perceptions of the content of what their children engaged with, and Joint Media Engagement patterns in the family home. Rideout found out that younger children engaged with educational media more than older children. This could suggest that, as children mature, they expand their social networks and interests that are not necessarily educational in nature. Rideout (2014) established that Joint Media Engagement occurred frequently. However, the nature of this JME was not established.

In another study, Wartella et al. (2013) studied old (television, video games, computers) and new (iPads, smartphones etc.) media technologies and the effects the technologies have on family practices in homes. The study involved 2,300 parents with 0-8-year-old children. The findings indicated parents' own digital technology use shapes the media environment of the home and that parents value the educational benefits afforded by the technologies, rather than restricting children's access to technology based on potential negative effects.

Linn et al. (2012) report early childhood educators' informed choices with respect to why, how, and when they need to use digital technologies with children, in order to help teachers incorporate technologies in their curriculum and pedagogical practices effectively. Linn and colleagues report that there is no empirical evidence to support the claim that screen time (time spend by children in front of a screen such as watching television, playing computer games, etc.) is educational for infants and toddlers. They indicate however that there is some substantial evidence that points to the harmful effects of screen time. Screen time appears to have positive educational benefits to children aged 3 and over when it is carefully monitored.

There is no one-way process in Joint Media Engagement interactions as both parents and young children contribute their skills to the interactions (Katz, 2014). Katz (2014) studied Hispanic immigrant families in the United States. In this study, she found out that, while on the one hand parents contributed their adult understanding of how the world functions and what was desirable for their families, children on the other hand brought into the interactions their English

proficiency skills, the US culture, media forms, and media content. She notes that the families engaged in different learning activities, which enabled them to learn from one another, bringing together their collective skills and knowledge to enhance family discussions around media. This finding resonates well with Jenkins' (2006, p. 4) assertion that, "None of us knows everything; each of us know something; and we can put pieces together if we pool our resources and combine our skills." Digital technologies provide a good opportunity for collective meaning making within popular cultural themes (Jenkins, 2006).

Takeuchi and Stevens (2011) provide a comprehensive review of challenges, successes and unexplored opportunities in using media together in families. They show in their review that co-viewing is often initiated by children and not parents, and those children respond to stimuli in the shows more when they co-view with others than when they view alone. The authors suggest that designers need to consider developing media content that enhances Joint Media Engagement experiences of young children and other groups in different contexts. Plowman et al. (2010) identified several factors that determine the patterns of interaction around media in home such as parent's attitudes and experience of technology. More often, parents have been found to be anxious about children's use of technologies (Buckingham & Jensen, 2012; Drotner, 1999; Livingstone, 2005; Marsh, 2005), which is a clear manifestation of what Cohen (1972) refers to as 'moral panic'. The concept of moral panic stems from Cohen's (1972) seminal work *The Folk Devils and Moral Panic*. The moral panic discourse embodies public anxieties in response to widespread children's and youth culture that is seen to be in conflict with social norms/order. In his work, Cohen described moral panics as symptoms of widespread public anxieties that arise in response to the emerging youth culture.

Children's access to and engagement with digital technologies is determined by many factors: social, economic, cultural and political circumstances (Buckingham & Jensen, 2012). The increasing circulation of digital technologies in children's lives has provoked public concerns about the potential effects these technologies have on young children's development and learning. Drotner (1992, 1999) has discussed 'media panic' in relation to young children's engagement with digital media. She adopted Cohen's moral panic rhetoric in studying the public anxieties with regard to children's engagement with media and described the behavior as 'media

panic.' In this study, I recognize the prevalence of parental anxieties related to the perceived harmful effects that technology might cause to their young children. I seek to provide evidence of how parents can utilize digital technologies to help children engage in creative learning activities rather than focus on the potential negative effects of technology. By providing nuanced understanding of the potential benefits of JME with young children, parents will be empowered to guide children to use digital tools in ways that promote learning.

In summary, I have come to the realization that there is a limited understanding of how the modes of JME are enacted in the family home setting and even less about the 0-3-year-old cohort. There is inadequate literature on what the modes of Joint Media Engagement look like in homes. Further, there is even less empirical work in this area where the elements of the setting have been used to illuminate Joint Media Engagement practices in the home. I will therefore seek to contribute to our international understanding on this topic by using the elements of the setting to explore where, how, when and which practices comprise converged modes of Joint Media Engagement occurring between children aged 0-3 years old and their caregivers in the family home.

3.0 Theoretical framework

3.1 Socio-contextual Perspective

It is widely argued that researchers need to gather more empirical evidence with regard to contextual factors that shape children's experiences with digital technologies (Arnott, 2016; Edwards et al. 2016; McLean et al., 2014). In response to such assertions, there is an increasing interest in children's digital media and play focusing on the realities and tensions and using a variety of theoretical frameworks that take contextual and social influences into consideration in diverse settings (see Edwards, et al., 2016; Plowman et al. 2015). One such frameworks is the socio-contextual perspective. Socio-contextual theoretical orientations as analytical frameworks for understanding children's life experiences in ways that take children's historical, social and cultural conditions into account are increasingly becoming common (Hedegaard, 2005; 2009; Hedegaard & Chaiklin, 2005; Edwards et al., 2016) not least in the study of digital technologies

and digital play in early childhood education (Edwards et al., 2016; Plowman, 2016; Plowman et al., 2011; McLean et al., 2014; Arnott, 2016).

Edwards et al. (2016) applied socio-contextual perspectives as a theoretical framework in their study of digital difference between home and preschool settings. Edwards et al. (2016) argued that socio-contextual frameworks derive from Vygotsky's seminal work about the role of tool mediation in transforming and shaping human mental processes and learning. Accordingly, the most common theories that help discuss socio-contextual perspectives include cultural-historical theory (Hedegaard, 2005; 2008; Vygotsky, 1978), socio-cultural theory (Rugoff, 2003), eco-cultural theory (Tudge, 2008; Weisner, 1997; 2002; 2009; 2011), and Bronfenbrenner's (1979) bioecological systems theory among other theories. The ease at which these theories can be coalesced to explain the socio-ecological enactment of Joint Media Engagement is due to their focus on context as a powerful determinant in individual development and how social interactions drive development through social and cultural activities (Edwards et al., 2016). The motivation for using these contextualized theoretical perspectives stems from my interest in the elements of the setting (Bronfebrenner, 1977).

Young children's experiences are deeply embedded in the historical and cultural conditions of their proximate environment (Bronfenbrenner, 1977, 1979, 2005) and particularly 0-3-year-old children. This age group has consistently been shown to spend most of their time in family home settings (see e.g., Nevski & Siibak, 2016) and as such the activities and the interactions that occur in these contexts potentially influence children's present and future functioning as citizens (Holloway, 2015; Nevski & Siibak, 2016). The activities and relationships that occur around digital technologies in domestic settings are fundamental for young children's learning and development (Marsh, 2005a; 2005b).

In this section I will start by elucidating the central concepts that characterize socio-contextual theoretical orientations. My main concepts are gleaned from two major theories: cultural-historical or sociocultural theory (Vygotsky, 1978) and ecological systems theory (Bronfenbrenner, 1977), although I will use other theories to explain the concepts, and give practical examples where necessary taken from studies that have applied socio-contextual theories or those that have at least expounded on the theories even though they haven't explicitly

brought out the contextual aspect. Later, in more detail, I develop a framework around Bronfenbrenner's understanding of the 'setting' and 'proximal processes' as this is the major focus in the study. The modes of Joint Media Engagement under investigation involve children engaging with digital technologies together with their parents in their day-to-day activities in the home setting.

3.2 Sociocultural perspective

Sociocultural theory has become an important analytic framework in educational practice and particularly in the area of learning. McLean and Edwards (2016) observe that sociocultural theory, commonly known as cultural-historical theory, is commonly used by researchers in understanding digital technologies in early childhood education. Developed in the 1920s and 1930s by the Russian psychologist Lev Vygotsky and his colleagues, the theory did not have a significant impact outside Russia until the 1960s (as a result of political situation in Russia before then), when his work was published and circulated in the Western world (John-Steiner & Mahn, 1996). Central to Vygotsky's ideas was the history of mankind (culture) and the history of the child (development) (Bodrova, 1997). Bodrova argues that, for Vygotsky, the history of mankind and the history of the child are closely connected in such a way that an individual's development cannot be understood in isolation from the cultural context. Bodrova (1997, p. 16) explains that, "The relationship between the child and the environment has a dynamic nature, different for different age periods and for different cultural contexts. The child plays an active role in this relationship, interacting with the environment and modifying it with the help of internalized mental tools." Vygotsky (1978) was interested in understanding how children make a transition from lower forms of behavior, which are biological in nature, to higher psychological functions that are specific to a particular culture. For him, child development is "a progression of qualitative changes marking the transition from one age to another" (Bodrova, 1997, p. 17).

From a sociocultural perspective, the developing child can only be understood in the context in which s/he thrives (Vygotsky, 1978; 1998). Children's activities do not occur in a social vacuum; they are located within a sociohistorical and cultural setting of meanings and relationships (Jaeger & Rosnow, 1988). In other words, the activities are embedded in a context of time, space, culture, and the norms and values that guide behavior. Understood this way, the

context/setting is an integral part of understanding Joint Media Engagement activities between parents and young children in family homes. Human learning is rooted in inter-personal contexts within which it occurs (Jaeger & Rosnow, 1988; Vygotsky, 1978; 2004, Bronfenbrenner & Morris, 2006) so learning is influenced by the social conditions of the contexts where children live (Hedegaard & Chaiklin, 2005). The contextual and social conditions of the family might be the determining elements of how digital play – in particular modes of Joint Media Engagement – are enacted in the home setting. These family conditions vary from one institution (family) to another (Bronfenbrenner 2005; Bronfenbrenner & Morris, 2006), so Joint Media Engagement activities and modes may vary from one family to another (see Edwards et al., 2016). Vygotsky put considerable emphasis on tool mediation and its role in transforming human mental functions within social and cultural practices (Vygotsky, 1978). Thinking and learning are mental processes that are socially and culturally embedded in family life.

John-Steiner and Mahn (1996) argue that central to sociocultural approaches to learning lies the dynamic interdependence of social as well as individual processes. Learning activities occur in cultural settings and are mediated by cultural tools such as language and other symbol and these can effectively be understood by studying how they have developed historically. According to Vygotsky's genetic law of cultural development (Eun, 2010), learning, which is seen as progression from lower to higher forms of behavior, occurs twice in the course of human development: initially as intersubjective (i.e. on the social plane) and later as intrasubjective (the individual plane), mediated by tools and signs (Vygotsky & Luria, 1993; John-Steiner & Mahn, 1996; Eun, 2010). For Vygotsky, learning could be almost impossible without tool mediation. Wertsch (1994) elaborates on mediation by arguing that tool mediation is central in Vygotsky's understanding of mental functioning because it is closely connected to cultural, institutional and historical contexts. These contexts, he continues to argue, provide cultural tools that, with time, are mastered by individuals that leads to learning. This implies that socially shared activities are transformed into internalized mental processes (John-Steiner & Mahn, 1996). John-Steiner and Mahn (1996) demonstrate that learning starts with dependence on the primary caregiver, who transmits experiences to the developing child. "The sociocultural theory of development,

founded on the works of Lev Vygotsky, espouses the view that social interaction among two or more people is the greatest motivating force in human development" (Eun, 2010, p. 403).

The various modes of Joint Media Engagement, that is, viewing, reading, creating, searching, collaborating, creating and contributing (Tekauchi & Stevens, 2011), require specific behaviors in order to be accomplished. Cole and Engeström (1993) argue that "Cultural mediation implies a special importance of the social world in human development since only other human beings can create the special conditions needed for that development to occur." (p.9). The modes represent different levels of difficulty and the youngest children might not be able to perform most of them. Linked to Vygotsky's (1997) thinking, particularly on concept formation, the modes of Joint Media Engagement reflect development that involves "a progression of qualitative changes making the transition from one age to another" (Bodrova, 1997, p. 16). Linking this to my research question implies that, if we have a better understanding of how JME works, then, we can mobilize it for educational purposes.

3.3 Ecological systems perspective

Ecological systems theory provides an important lens for understanding development with regard to environmental conditions within which the human being is developing. Ecological systems theory was developed by Urie Bronfenbrenner (1979) who was greatly influenced by cultural-historical thinking in Russia about developmental psychology. This encounter came in 1977 when he worked with Leontiev (a colleague of Vygotsky) in Moscow as a visiting researcher at the University of Moscow. Bronfenbrenner realized that the science of developmental psychology was much broader in scope in Russia than it was in the United States where he was working. Bronfenbrenner (1977) reveals:

> The aforementioned theoretical perspective was first brought to my attention by Professor A. N. Leontiev of the University of Moscow … We had been discussing differences in assumptions underlying research on human development in the Soviet Union and the United States. In summing up his views, Professor Leontiev offered the following judgement: "It seems to me that American researchers are constantly seeking to explain

> how the child came to be what he is; we in USSR are striving to discover not how the child came to be what he is, but how he can become what he not yet is. (p. 528).

Bronfenbrenner elaborates that the psychology of focusing on how "the child can become what he is not yet" requires a comprehensive contextualized understanding of the interplay between the developing person and the surrounding environment. This discovery was fundamental in Bronfenbrenner's thinking about developmental psychology that would later be reflected in his theory of the ecology of human development (1979). He incorporated environmental influences that potentially determine the trajectory of individual functioning by rigorously interacting with the innate biological blueprint of a developing human being.

Bronfenbrenner (1979) lamented that developmental scientists were not considering the bidirectional influences on development across the settings; instead, they focused on single contexts, a path he considered would lead to misleading findings. In this way, he states, they failed to recognize that relationships between settings can affect what happens within the specific settings. In examining children's engagement with digital media in home and preschool settings, in order to argue for digital differences instead of the widespread notion of digital disconnect, Edwards et al. (2016) have recognized the importance of looking at other contexts beyond the home and preschool settings to have a wholesome picture of children's use of technology in homes and preschools. However, their focus was on the home and preschool settings as places in the microsystem where learning and development occurs. This recognition and argumentation of the setting is brought into my study. I recognize the influence of remote systems on the developing child such as the work place of the parents, even though the child does a direct contact with the parents' work places. But, I am focusing on the home setting to understand the learning experiences that occur when caregivers and children use digital technologies together. In addition to the recognition of other contexts in the study of home Joint Media Engagement between parents and young children, I acknowledge that the family home as a place within the microsystem is not a simple setting for analysis (Shaffer et al., 2010). The home setting in itself is composed of dynamic subsystems that might exert significant influence on the social interactions that occur on day-to-day basis. Shaffer et al. (2010) states that:

> The systems approach recognizes that parents influence their children. But it also stresses that (1) children influence the behavior and child-rearing practices of their parents, and (2) that families are complex social systems – that is, networks of reciprocal relationships and alliances (the microsystem) that are constantly evolving (the chronosystem) and are greatly affected by the community (the exosystem) and cultural influences (the macrosystem). (p. 65)

As Shaffer et al. (2010) have argued, families consist of interrelated parts, each of which affect and are affected by every other part. This echoes Bronfenbrenner's (1979) understanding. Shaffer and colleagues made an explicit understanding that settings such as a classroom or a home, where proximal processes are enacted, are sociocultural contexts with their own distinct social systems, beliefs, hierarchies and values that potentially determine the nature and quality of proximal processes. By proximal processes, Bronfenbrenner referred to enduring forms of interaction. He defined proximal processes as "…progressively more complex, reciprocal interactions between a person, object, and symbols in the individual's immediate environment" (Bronfenbrenner, 1995, p. 620). Such complex dynamics in the family, as a social system, might include the economic status of the family, parental education levels, among other issues. While I acknowledge the significance of those factors in understanding the quality of family interactions in the home setting, I am interested in employing the elements of the setting (place, time, physical features, roles and participants) to understand the modes of converged Joint Media Engagement that occur in the home.

Ecological systems theory is a comprehensive analytic framework for studying environmental conditions of learning and development that locates a child within a nested system of relationships and contexts with bidirectional influences within and across the systems (Johnson & Puplampu, 2008). Bronfenbrenner (2005) believed that historical events also have a significant influence on development trajectories of individuals. This could imply that digital technologies, as important elements of the family, may have a significant impact on children's learning and development. Johnson and Puplampu (2008) demonstrate that digital technologies mediate bidirectional interactions between children and other proximal processes within the microsystem. Hence, the analysis of children's engagement with technologies in the home settings recognizes

the reciprocal influences that occur in such a setting. Cole and Engeström (1993) consider that, "cultural mediation has a recursive, bidirectional effect; mediated activity simultaneously modifies both the environment and the subject" (p. 9).

Ecological systems theory describes five nested systems with one inside another. The systems include: the microsystem, which is the most proximate environment/setting where the individuals function and carry out their daily activities' the mesosystem that comprises interrelations of two or more settings containing the individuals; the exosystem, which is "an extension of the mesosystem embracing other social structures, both formal and informal, that do not themselves impinge upon or encompass the immediate settings in which that person is found"; the macrosystem, which reflects the culture "that set[s] the pattern for the structures and activities occurring at the concrete level"; and the chronosystem that comprises the structural changes that take place across the systems over time (Bronfenbrenner, 1977, p. 514-515).
Since my focus is the family home setting, which is located within the microsystem, I have to elaborate on this proximate environment. Bronfenbrenner (1977) defines the microsystem as:

> The complex of relationships between the developing person and environment in an immediate setting containing that person (e.g., home, school, workplace etc.). A setting is defined as a place with particular physical features in which the participants engage in particular activities in particular roles (e.g., daughter, parent, teacher, employee, etc.) for particular periods of time. The factors of place, time, physical features, activity, participant, and role constitute the elements of a setting. (p. 514)

Edwards, et al. (2016) and McLean, et al. (2014) have demonstrated that Bronfenbrenner's definition of settings is a clever way of analyzing children's engagement with digital media in home contexts. In their study about distinguishing digital difference from digital disconnect using socioecological theory, Edwards et al. (2016) have interesting findings: with regard to activity, the findings indicate that activities using digital technologies varied across settings (home and preschool) even if the same digital device was used. This finding raises a fundamental question about whether similar (or other variations) might be evident from one home setting to another.

4.0 Methodology

This section outlines the strategies and methods that have been used in designing the study, and collecting, analyzing and reporting data with regard to the research question. I will begin by discussing the philosophical assumptions (ontology, epistemology and axiology) that underpin the study's methodology, then turn to methodological dilemmas and challenges, and ethical issues, particularly with regard to research with families and young children. However, it is prudent to know from the outset who the researcher is, because as Adler and Adler (1987) describe, the researcher's membership role in the study context and the group of research participants potentially influences the choice of research methods and, more importantly, the direction of data analysis and interpretation.

4.1 Researcher's identity

I have an early childhood education background from Kenya. Located in East Africa, Kenya is one of the Sub-Saharan African countries that is thought to have a well-developed system of educating young children and has been lauded for its strong community involvement in the provision of early childhood education. Although this is a positive development, the scope of early childhood education studies in Kenya has a narrow focus and topics of significance such as media, popular culture, governance and professionalism are hardly examined in teacher education, yet they are increasingly important in the contemporary society. In the global knowledge society, technology is taking centre stage in the education systems around the world (Castells, 2005).

This realization came to me when I spent two years studying a Masters program in early childhood education and care in Europe. These two years were decisive. The interdisciplinary nature of the Masters program, which was taught by leading scholars in Europe and visiting scholars from Australia and New Zealand, opened new pathways for thinking about early childhood education and care and, most importantly, the taken-for-granted issues in developing countries that are hardly raised and discussed in the public domain. Early childhood education is a highly political sector that requires a keen focus if countries want to provide better early experiences for their most precious resource: young children.

I have worked in kindergarten, primary school and teacher training college in Kenya and recently at Oslo University as a colloquium group leader for higher education studies. With regard to language, I am a native Bukusu (one of the over 42 indigenous communities in Kenya) whose language is Lubukusu. I am a fluent speaker of Swahili and English, which are my second and third languages respectively. Contextually, in connection with the research setting, I am an insider who understands the culture, and share, the identity, language and experiences of the group being investigated (Asselin, 2003). I will also try to assume an outsider position so as to maintain an open eye during data collection by assuming that I know nothing about what is being investigated (Asselin, 2003). This will be made possible by disciplined bracketing (Dwyer & Buckle, 2009; Holliday, 2016) and detailed refection on my subjectivities (Dwyer & Buckle, 2009). Bracketing will help me recognize and be aware of my biases (Dwyer & Buckle, 2009). I speak the dominant language spoken in the country (Swahili) and assume that the research participants will be fluent Swahili speakers. The ontological, epistemological and axiological assumptions of the chosen research methodology are presented next.

4.2 Research site

This study targets urban families and will be conducted in Nairobi County in Kenya. Nairobi is Kenya's capital city and is fast growing in terms of infrastructure and population. There are several reasons why Nairobi has been selected as a research site. I am targeting media-rich homes. Because of infrastruactural development in the city and most people working, it will be easier to recruit families that own a variety of digital technologies for young children and for genaral family use. Internet and electricity connectivity in Kenya is very low and most families in rural areas do not have enough capacity to own a wide range of digital technologies. The rural families are deamed not suitable for my project which focuses on joint use of digital technologies in homes. There is less information about digital technology saturalion in Kenyan families that can be accessed online.

4.3 Philosophical assumptions of qualitative research

"We know that philosophical assumptions are typically the first ideas in developing a study…" (Creswell, 2013, p. 16). The decision to use qualitative research methods in the study is informed

by epistemological, ontological and axiological assumptions that underpin social science research. These philosophical assumptions provide a strong rationale for the choices made during the framing of the study in terms of the theoretical framework, methodology and methods. They illuminate on the 'directional relationship' between the core components of the study, that is, research methodology and methods of data collection (Grix, 2011). What follows is the description of my assumptions about the nature of social reality (ontology), knowledge in the social world (epistemology), and the role of values (axiology) that form the basis for qualitative inquiry. These philosophical foundations lead to a description of the research paradigm (interpretivist), the design (case study) and data gathering methods (video and interviews).

4.3.1 Ontological assumptions

Ontology is the point of departure for any form of inquiry "after which epistemological and methodological assumptions logically follow (Grix, 2010, p. 59). Ontological assumptions are concerned with the researcher's theoretical understanding of the nature of reality and the features that define it (Creswell, 2013; Bryman, 2012). Ontology examines the question, "What is out there to know?" In qualitative research, it is concerned with what the researcher believes constitutes social reality. Ontological questions are concerned with the object of investigation, that is, what the researcher is really studying. Bryman (2012) argues that:

> The central point of orientation here is the question of whether social entities can and should be considered objective entities that have a reality external to social actors, or whether they can and should be considered social constructions built up from the perceptions and actions of social actors. (p. 32).

Quantitative researchers who adopt an objectivist perspective have a conviction that social phenomena and their meanings exist independently of social actors (Grix, 2010). My position in the current study, and the position of qualitative researchers in general, is quite opposite.

As a qualitative social scientist, I believe that there is not a single, but a range realities that are constructed and interpreted by actors/individuals who are engaged in the research process (Denzin & Lincoln, 2008; Denscombe, 2002) because the real world, if there is one, emerges from interactions of people acting in their social and cultural settings. Understanding historical,

cultural and social phenomena is possible through establishing the perceptions and opinions human subjects have on their surrounding situations and circumstances.

In this study I take the position that reality is a social construction that is built around the perceptions and actions of the participants within specific circumstances (Bryman, 2012). Social phenomena and their meanings are continually enacted and re-enacted by individuals through interaction and acts of interpretation (Grix, 2010). Since social reality is constructed differently by different people resulting in multiple realities, the assumption made here is that the circumstances of a setting, that is, those circumstances found in the home, will make it possible for me to capture multiple meanings of converged Joint Media Engagement practices that are enacted in each home setting, and that these will be based on the prior experiences of the caregivers and young children. The ontological position I hold in this study is that people's knowledge, opinions, understandings, interpretations, experiences and perceptions are meaningful entities of, and are important determinants of, reality.

The individuals' subjective experiences of the social world are the foundation for factual knowledge (O'Leary, 2014) because subjective meanings are critical elements of reality. The main research question is designed to explore the modes of converged Joint Media Engagement practices that occur when 0-3-year-old children use converged digital technologies together with their caregivers. It is my intention to capture, interpret and report the multiple perspectives on the reality of Joint Media Engagement that will be observed, thereby achieving a richer understanding of the issue under investigation (Creswell, 2013). Research participants, including young children as is the case in this project, are meaningful actors; I am concerned with the meanings that motivate their actions as opposed to that 'external reality' that exist independent of them.

4.3.2 Epistemological assumptions

Epistemology addresses the question, "What and how can we know about what exists?"(Grix, 2010). It is concerned with what individuals regard as knowledge about social phenomena (Mason, 1996) and the means of obtaining that knowledge (Grix, 2010, Bryman, 2012; Denzin & Lincoln, 2011). My epistemological position in this project is that knowledge is in people's mind. According to this standpoint, knowledge is discursively constructed (Bryman, 2012)

through shared meanings (Grix, 2010: Hughes, 2011). If we accept this epistemological assumption about knowledge, then the legitimate way to access this knowledge from people's heads is to engage them in deep conversations, and listen to their concerns, worries and motivations in order to access their accounts about the issue being investigated.

The idea that knowledge is socially constructed is a core principle not only of cultural-historical theory, ecological systems theory and qualitative research but also underpins my research question where the parent and the child constructs knowledge through joint engagement with digital technologies - JME is a social process.

Creswell (2013) explains that knowledge in qualitative inquiry is encountered through the subjective experiences of research respondents. Knowledge is produced in the process of research between the researcher and the research participants/respondents (Creswell, 2012). Observing individuals in the settings where they live and work becomes a significant consideration for qualitative researchers (Creswell, 2012; Bryman, 2012). Viewed this way, the researcher needs to build a good relationship with the research participants so they can provide more information about the topic. To gather evidence of children's converged Joint Media Engagement practices in the home setting, I will observe and speak with children and their caregivers in their homes.

The socio-contextual perspective forms the theory underpinning this study. The socio-contextual perspective has been gleaned from cultural-historical theory (Vygotsky, 1978) and ecological systems theory (Bronfenbrenner, 1977). Both theories recognize the importance of the setting in the construction of knowledge in human learning and development. This knowledge is constructed within specific historical, social and cultural settings where individuals interact with one another and with the cultural materials therein. The interactions between young children and their caregivers around digital media produce context-based knowledge that the researcher will be seeking to interpret.

4.3.3 Axiological assumptions

Axiology is concerned with ethical values and beliefs in research (Denzin & Lincoln, 2011). Every research process is value laden because investigators bring their values into their studies

(Creswell, 2013; Bryman, 2012; Paton, 1990). High quality qualitative research makes explicit the values brought to the research when investigators declare these in their reports (Creswell, 2013, Guba & Linclon, 1985; Grix, 2011). In this study, I take the position that technology is a social practice and that digital technologies and practices can only be understood in relation to the settings in which they are accessed, acquired and consumed. I do not subscribe to the notion of technological determinism which supports the idea that technology drives social and cultural change (Smith, 1994). This is not to say that the notion of technology determinism is misleading. Instead, I am convinced that social and cultural change makes it necessary for technology to be adopted (Castells, 2005). This commitments about technology as a social practice may indicate I will analyze my data towards this direction.

For example, I believe that the digital native metaphor masks the realities of young children's digital media practices. The argument advanced in this paper is that, together with the idea of technological determinism, the metaphor of digital natives tends to heighten moral anxieties around access to and use of digital technologies by young children. My position in this project is that children's media experiences can be shaped and nurtured by those around young children so that they learn from digital devices. This position is based on evidence that caregiver interaction with children, as has been shown in co-viewing studies (Tekauchi & Stevens, 2011), promotes learning. If we accept this position, then we will be able to lessen the anxieties surrounding children's access to and use of digital tools because parents will understand the educational potential of digital technologies in early years and adopt appropriate ways to guide children use the technologies in ways that promote learning and healthy development. In the changing media environment, parents need to understand the significant role that digital media and popular culture play in children's lives and learning. These are some of the values I will be unable to go against during this study.

The ontological, epistemological and axiological assumptions I hold in this project cohere with qualitative research that I describe next.

4.4 Qualitative research

Having established the ontological and epistemological principles of socio-contextual theories, I now go on to explain how qualitative research is consistent these principles. Not all socio-

contextual researchers use qualitative methods but qualitative methods are best suited to answer my research question because the methods consider the participant is the expert, in this case, children and parents. The study is about understanding the meaning of JME from their point of view; what does JME mean to them?

Researchers who assume qualitative research tradition seek to understand social events by deriving the meanings human research participants attribute to their behavior and actions in situations in which they find themselves (Patton, 1990). Denscombe (2014) argues that qualitative researchers understand that reality is not something that exists independently of themselves and of their research subjects waiting to be discovered; rather, it is subjectively constructed through thought, interactions and actions on the physical world. While positivists assume a detached approach in studying social situations, interpretivists are part and parcel of the social environments they are investigating (Bryman, 2012; Denscombe 2007: 2014). Qualitative researchers are themselves an important data collection instrument (Creswell, 2013; Guba & Lincoln, 1985). Three methodological characteristics of qualitative research are evident here. The first characteristic is that meanings are socially constructed. The second one is subjectivities of the researcher (researcher as an instrument) and third, subjectivities of the participant (participant as an expert).

Denzin & Lincoln (2011) states that qualitative research involves exploring social experiences and meaning making of those experiences in a particular cultural group. It is concerned with thick descriptions (Bryman, 2012; Denscombe 2007), plausible accounts (Creswell, 2013), cultural setting (Graue & Walsh, 1998), and the immersion of the researcher into the setting and group they are studying (Gray, 2014). Taking this qualitative perspective implies in epistemological terms that individuals create meaning as they interact and engage in interpretation of their actions and behaviors in the surrounding environment (Bryman, 2012; O'Leary, 2014). Consistent with my epistemological assumptions, qualitative research examines the way in which meanings are socially constructed. The fourth methodological feature of qualitative research is evident here. Qualitative investigators interpret both from the outside (pay attention to etic perspectives) as researchers and also attempt to make interpretations of the insider (pay attention to emic perspectives), in this case, the parents and the children. The fifth

and final feature of qualitative research is that it relies on iterative analysis (ongoing analysis) in theory building.

O'Leary (2014, p. 130) contends that qualitative researchers are concerned with "…delving into social complexities in order to truly explore and understand the interactions, processes, lived experiences, and belief systems that are part of individuals, institutions, cultural groups, and even the everyday". Therefore, a qualitative approach is highly appropriate to my question which is looking for the social processes that occur in the home setting Mayan (2009) argues that qualitative studies have made significant contributions to science by illuminating the taken-for-granted issues in "unique and sometimes jarring ways" (p. 9). Mayan (2009) continues to argue that, "researchers who have traditionally avoided qualitative inquiry are beginning to ask qualitative questions…" (p. 9).

Qualitative research projects are predominantly naturalistic, interpretive and inductive (Guba & Lincoln, 1985). By studying individuals or phenomena in their natural settings, qualitative researchers aim to interpret or make sense of the unique meanings people attach to their experiences in particular social situations. Tapping the subjective meanings while appreciating that there are multiple realities is the central role of the researcher as s/he attempts to understand and explain meanings from others' perspectives. Understanding individual actions entails making an effort to understand their cultural and historical conditions that shape their actions.

Understood this way, that is, that knowledge is socially distributed and is deeply embedded in the historical circumstances and culture of a particular group at a particular place and time, the methodology chosen for this study is appropriate to the theory because the methodology of social construction, participant expertise is key within sociocultural theory. The adults or parents are the experts in the culture and through tool mediation they induct children into the cultural norms and eventually the higher forms of behavior (concepts). The study is anchored in socio-contextual perspectives, primarily sociocultural theory (Vygotsky, 1978) and ecological systems theory (Bronfenbrenner, 1977). The socio-contextual perspective postulates that children cannot be understood in isolation from their setting where they live and do their daily activities. Children interact and learn in the local context and it is these local circumstances and events that give meaning to children's experiences - the accounts of children's activities need to depict the

context in which the activities are enacted (Hedegaard, 2009). Cultural-historical research findings can only be understood in relation to the context where the study took place (Gray, 2003: Marvasti, 2004).

4.5 Qualitative case study design

Case studies have been used in a variety of fields including economics, sociology, cultural studies and education (Yin, 2009). In early childhood education, case studies have been widely used by researchers to explore different issues such as home literacy experiences (Mooznah & Owodally, 2014), teachers' and parents' perspectives on children's individual plans in transition to pre-schools (Turunen, 2012), emergent literacy (Sinclair & Golan, 2002), interactive play behaviors (Lee et al., 2009), information technology in early years classrooms (Fields, 1991), and digital difference (Edwards et al., 2016).

Case study research design involves: a) the study of a contemporary issue in its real-life setting particularly when, b) the boundary between the issue being investigated and the setting is not visible (Yin, 2009), with the aim of developing a detailed and intensive analysis of a single case (Bryman, 2012) or multiple cases (Creswell, 2013; Yin, 2009). The exponents of case study design focus on the complexity of the case in question (Bryman, 2012), with the principal objective of deep understanding of the case (Woodside, 2010) "bounded by space and time" (Hancock & Algozzine, 2006, p. 11). Qualitative case studies allows for exploration of social phenomena in real-life situations through a variety of data sources such as observations, interviews, videoing, documents and so on (Baxter & Jack, 2008; Bryman, 2012; Creswell, 2013; Yin, 1981; 2009). Yin (2009) argues that case studies are not bound to specific kinds of data evidence and have been used both by qualitative and quantitative researchers.

Yin (2009) considers that qualitative case studies in most cases assume a constructivist perspective, the philosophical understanding of which is that reality is relative and it varies widely since it is based on the individual perspectives of those who are experiencing some social phenomena that the researcher seeks to examine. The ontological underpinning of qualitative case studies is that reality is socially constructed, giving rise to multiple perspectives about a single entity or object of study (Hancock, & Algozzine, 2006). These multiple perspectives of

people taken together are the true reflection of reality within that specific setting and during that point in time (Yin, 2009: Creswell, 2013 Baxter and Jack (2008) establish that there is need for the researcher to work together with the participants, while at the same time giving the participants enough opportunity to articulate their thoughts about the topic being studied.

I am using a single case in this study. Although I have proposed to observe four families, that is, four different "home settings", my aim is not to take the four homes as the units of analysis. My unit of analysis in this study is elements of the setting in those four homes. This means I have a single unit of analysis that cuts across all the four homes. Yin (2009) argues that it is the unit of analysis that determines whether a researcher is using a single or multiple case studies.

Just like any other research strategy, qualitative case studies have peculiar advantages and disadvantages. On the one hand, the most significant advantage is that of illuminating deeper insight into a complex problem, which cannot be achieved through quantitative strategies such as surveys (Yin, 2009; Creswell, 2013). On the other hand, scientific generalization of study results has been a significant concern of case studies (Yin, 2009). Because qualitative case studies employ non-probability sampling strategies and use small samples that are not representative, quantitative researchers continue to identify this as a limitation in the sense that case study inferences cannot be made to larger populations (Bryman, 2012; Creswell, 2013; Denscombe, 2007). However, Yin (2009) who is one of the most cited authors on case study research designs (Duff, 2012), argues that, just like in experimental research designs, case study findings can be generalized. He asserts that if quantitative researchers pose the question, "How can you generalize from a case?", the same question can be asked of a single experiment. He concludes that, "…case studies like experiments are generalizable to theoretical propositions and not to populations or universes" (p.15). This reasoning is exactly my objective in this study. I will seek to expand on the theoretical understanding of Joint Media Engagement from a socio-contextual perspective.

4.6 Sampling strategy

Non-probability sampling will be used to select participants that will form a sample for this study. Non-probability sampling strategies are commonly used in qualitative research because

qualitative investigators are not interested in representative samples (Bryman, 2012; Denscombe, 2014; Huberman & Miles, 2002; Creswell, 2013). Purposive sampling, one of many non-probability sampling strategies, is appropriate for this study because I am not seeking a sample through random selection that will represent some population. I aim to selecting cases strategically in a way that will provide adequate information that is relevant to the research question I have asked in section one (Bryman, 2012). Probability sampling is often used in quantitative studies where researchers randomly select individuals (to comprise a large enough sample that is representative of the population) because they are interested in drawing inferences to the general population. The case in this project is quite opposite. I have no intention of establishing statistical inferences to a larger population (Bryman, 2012; Creswell, 2013; Denscombe, 2014); rather, I seek to gain an in-depth understanding and provide a detailed account (Creswell, 2013) of how, when and which practices comprise the converged modes of Joint Media Engagement occurring between children aged 0-3 years old and their caregivers in the family home. Case studies have clear boundaries that define the cases (Bryman, 2012; Creswell, 2013). My focus is on the caregiver-child dyads in the home setting (institution – the building and on occasion as appropriate in other settings such as the parks, restaurants etc.) because place is an important element of the setting. Children to be included as research participants will be 0-3 years old. Caregiver in this content refer to the parent – father/mother and not the siblings.

4.7 Sample Size

Qualitative research projects visual methods require researchers to be in contact with the research participants, observe and talk to them to understand the meanings they attribute to their environment. This is part of the epistemological assumptions of qualitative research. Four families with children under the age of 3 will be selected to participate in the study. This small sample of four families will allow me to observe each family more intensively and over a longer period of time. Many social scientists argue that researchers who use case studies qualitatively use small sample sizes so that they can observe them closely and intensively (see Bryman, 2012; Guba & Lincoln, 1985; Machin, 2002).

Video research is time-intensive in terms of recording, reviewing, coding and analyzing (Jewitt, 2012). In this project, I intend to observe the families for a period of 8 weeks because it is an academic piece of work that must be completed within a specific timeframe. The eight week period (in total for all the four families) of data generation will ensure I allow enough time to transcribe, code, analyze and report my findings in form of a thesis for examination.

4.8 Participant recruitment approach

I will approach two prestigious kindergartens in the capital city (Nairobi) and have informal talks with the head teachers. The head teachers will be requested to ask children, the kinds of digital technologies they use at home. Once this is established, the parents of those children who use a variety of digital technologies will be contacted. In the cases where the under threes will not be at the identified kindergartens, I will develop a one page questionnaire listing the digital technologies. Older preschool children will be asked to take the questionnaire home to be completed by parents and return it the following day. In the questionnaire, parents will be asked to check the box (YES/NO) if they have under three-year-old children and tick against the digital technologies they have at home. Once we receive the completed questionnaire, I will identify the families that have 0-3-year-old children and with a wide range of digital technologies. I will ask the head teachers to write letters to the identified parents attaching my project description and consent forms. I will get in touch with the families once I receive the signed consent forms.

4.9 Data generation

Data generation implies a focus on the types of data and how one goes out to construct them. Creswell (2013) states that data collection is a more complex process and involves “gaining permission, conducting a good qualitative sampling strategy, developing means for recording information both digitally and on paper, storing the data, and anticipating the ethical issues that may arise.” (p. 145). I am interested in observing and describing how, when and which practices comprise the converged modes of Joint Media Engagement occurring between children aged 0-3 years old and their caregivers in the family home. Three forms of data collection will the used in this project: videoing, photographs and video-stimulated recall interviews. Prior to commencing the data collection in the homes, I will engage parents in unstructured conversations to determine the appropriate time I can come in and do the filming. The first home visits will not involve

filming. I will use them to familiarize myself with the families so that children know me. Once the family and children in particular are at ease with me, videoing will commence.

4.9.1 Videoing

Qualitative research methods have become common among researchers investigating historical (local) contexts, with the use of video cameras to record children's development in everyday activities (Hadegaard et al., 2008). Filming is now an important form of participant observation in family and early childhood education settings (Corsaro, 2015), not only as a data collecting instrument but also as a way of constructing knowledge (Pink, 2013). "Video is not simply a data collecting tool but a technology that participates in the negotiation of social relationships and a medium through which … knowledge is produced" (Pink, 2013, p. 183).

The video camera is an important tool for capturing children's everyday lives in diverse settings (Clark, et al. 2014) such as observing families in their homes (Aarsand & Forsberg, 2010). Although they come with significant challenges (Aarsand & Forsberg, 2010), videos can provide powerful microscopes that capture fine interactional details and can be permanently stored for use by different researchers over a long period of time (Derry et al., 2010). Flewitt (2006) observes that, "video data unveil how young children use the full range of material and bodily resources available to them to make and express meaning … producing grounded evidence for a pluralistic interpretation of the construction and negotiation of meaning."(p. 25).

The use of videos is becoming common in early childhood education research and they have been used by scholars to research with young children in schools and at home (e.g. see Fleer, 2008; Plowman, 2016). Video research has not been common in many fields because video cameras have been expensive, rendering them inaccessible to institutions and researchers (Jewitt, 2012). Fleer (2008) posits that videos have provided researchers with a useful tool for examining learning processes in different settings. Video recording can be challenging, particularly for beginning researchers (Fleer, 2008; Jewitt, 2012) because everything looks important (Fleer, 2008). Fleer (2008) argues that researchers who are researching with young children from a cultural-historical perspective, do not record everything they see; "…rather, they aim to record the dynamic and evolving nature of the social situations in which children are located across institutions (family, community groups, and preschool) with a special focus on the child's

perspective within those institutions" (p. 106). She continues by arguing that sociocultural researchers usually focus on the social context capturing interactions of all participants in a setting.

From Fleer's (2008) description of the use of videos and the focus on what to record, videoing best suits this project because I am using socio-contextual theories that draw on cultural historical and ecological theories. I will focus the video camera at the caregiver-parent dyad when they are using a digital device. I will be interested in capturing joint interactions around digital technologies from both a cultural-historical and a sociocultural perspective because socio-contextual perspectives consider all the circumstances described by Fleer (2008). Since I am using the elements of the setting to understand how, when and which practices comprise the converged modes of Joint Media Engagement occurring between children aged 0-3 years old and their caregivers in the family home, my recording will focus on both the context (setting) and the social interactions (sociocultural) and the dynamic and evolving nature of the social situations (cultural-historical).

I propose to use a digital video camera (Fleer, 2008). I will first have informal conversation with families so they can tell me where and when to come in and do the filming. I will use the first two weeks to familiarize myself with the families to make sure children are comfortable with me before I start filming. When I come in during a videoing day, I will start filming once either the child or the caregiver starts using the digital device. The other participant will be invited to join (child) or will intentionally join (caregiver). If the caregiver-child interaction with digital technologies does not happen spontaneously, I will ask the caregiver to initiate the interaction. I will keep on recording until I feel I have captured enough of the activity or until the child loses interest in the activity. To maintain the research ethics, I will stop videoing if the child displays any form of action that might indicate they do not want to be filmed.

4.9.2. Photographs (Selfies)

I propose to use disposable cameras I will also ask parents if they will be willing to \take photographs of situations where they will be using traditional or digital technologies together with their 0-3-year-old children. I will encourage the families that will agree to film and take

photos to use their own phones or tablets. For those who will not have good phones and/or tablets to use, I will provide them with disposable cameras (Fleer, 2008). I have to note here that I will not depend on this data because I will be recording what I want to use in my work using a video camera. However, if they do agree to take photos in my absence, these photographs will certainly enrich my findings.

4.9.3 Video-stimulated recall interviews

Jewitt (2012) considers videos as a good way to begin interviews because they provoke discussions, stimulate recall of situations and give participants opportunities to reflect on those situations and actions. These reflections provide deep insights into events, behaviors and actions that are immersed in the complex interactions which are sometimes invisible to the researcher (Cosaro, 2005).

I could only analyze the videos from my own perspective. However, my ontological position in this study is that reality is a social construction. Epistemologically, knowledge is gained by engaging participants in conversations. This is certainly true of what will be enacted between the children and caregivers. To enrich the findings with more insights, I will pick short video clips involving critical instances (Byrne-Armstrong, Higgs & Horsfall, 2001), show them to the research participants and talk with them about what was going on so as to elicit description of the meanings they give to those situations and activities. Researchers usually collect hours of videos and it can be time consuming to watch and analyze all the videos recorded (Creswell, 2013; Pink, 2013). Derry et al. (2010) establish that, in deductive analysis, researchers need to select short video clips which they think can provide adequate information to answer the research questions; that is, those that capture events the research question is exploring. Children and caregivers will be engaged in the interviews and will be asked to talk about the videos. Examples of questions that I might ask could be: could you talk me through what is happening between you and the child in this video clip? Where do you mostly use digital technologies together with child? Why? Where else? What sort of things do you do when using digital technologies together with the child? Does the interaction change when other children join in? Engaging the perspectives of young children can enrich the findings of any kind of research that involves them (Fraser, Flewitt & Hammersley, 2014).

4.10 Data analysis and reporting

Technological advancement has made it possible for qualitative researchers to use computer-supported software to organize and analyze their data (Bazeley, 2007; Bryman, 2012; Fleer, 2008). Nvivo will be used to manage and analyze data. Bazeley (2007) states that Nvivo is used to interpret unstructured and semi-structured data where researchers want to establish patterns, build theories, and explore and describe phenomena. Nvivo is advantageous over manual data analysis in that it ensures rigor in the process because "it ensures a more complete set of data for interpretation…" (Bazeley, 2007, p. 1).

I will transcribe interviews indicating the *timestamps*. I will then read through the transcripts, write an analytical memo for each interview transcript and generate categories. With the help of Nvivo, the videos and interview transcripts will be analyzed deductively and inductively. Deductively, I already have *apriori concepts* (Gibson & Brown, 2009): elements of the setting and the modes of Joint Media Engagement that are connected to the research question under investigation. *Activity* is an element of the setting that represents the converged modes of Joint Media Engagement. I will use the elements of the setting (place, time, resource, participants and role) to describe the activities which are the modes of converged Joint Media Engagement (viewing, reading, playing, searching, creating, and contributing). The table below shows how the elements of the setting will be used in data analysis.

	Elements of the setting					
Joint Media Engagement modes	***Activity***	Place	Time	Resource	Participants	Role
	Viewing					
	Reading					
	Playing					
	Searching					
	Creating					
	Contributing					

Figure 1: *Data analysis using elements of the setting*

My focus will be on the elements of the setting when deriving the deductive *free nodes* in Nvivo. These elements of the setting are place, time, physical features (resources), activities, roles and participants. Nodes are areas that store information for what is known about a particular concept (Bazeley, 2007). Besides deductive analysis, I do not intend to ignore important features just because they do not directly relate to a priori concepts. These details will be captured and analyzed inductively to enable me answer my research question with concepts that were not evident a priori. I will review the videos and write memos which will be imported as external data to Nvivo for analysis (Bazeley, 2007).

By analyzing data both deductively and inductively, I will be able to respond to my research question not only from specific a priori concepts, but also, using different concepts that I will generate from data so that multiple perspectives can be revealed (Baxter & Jack, 2008). Case study reports are unusually lengthy narratives that do not follow a definite structure (Yin, 1981). A clear theoretical framework (see section 3, above) will help me avoid this pitfall by giving the lengthy narrative a predictable structure (Yin, 1981).

4.11 Ethical considerations

> Our primary obligation is always to the people we study, not to our project or to a larger discipline. The lives and stories that we hear and study are given to us under a promise, that promise being that we protect those who have shared them with us. Denzin (1989, p.83)

Researching human beings is an intrusive process (Lindsay, 2000) that raises methodological issues and entails considerable effort on the researcher's part to ensure the research is conducted in an ethical manner (Clark et al., 2014). It gets even more sensitive when young children who have been described in research as being vulnerable are involved as research participants in a study (Corsaro, 2015). There is a robust literature on researching with children and young people (see Greig et al. (2007; 2013; Clark et al., 2014; Fraser et al., 2004; Lewis & Lindsay, 2002; Hedegaard & Fleer, 2008) that positions children as active social actors in their own right in research. The idea of children as 'beings' and 'becoming' developed from the sociology of childhood has had great implications regarding the positioning of young children in research as

active social actors (Clark, 2014; Cosaro, 2005). Instead of researching *on* children, researchers are increasingly researching *with* children because children are now considered full citizens who are strong, competent and capable of influencing the research process, as well as reflecting on critical actions that influence part of their lives in ever-changing social and cultural environments (Clark, 2014; Uprichard, 2008). I fully acknowledge this construction of children: strong and competent research participants who are able to meaningfully shape social practices around digital technologies. Children are capable of sharing their feelings and that can make valuable contribution to my research (Green, 2012). They can create things, search for information and contribute to the content displayed on the digital devices.

If as I have argued earlier in this paper that children actively construct their world, then what follows from that is certain rights children have within the research process (Clark, 2014; Fleer, 2008). Children have a right not to have those constructions captured if they don't want to, they have useful things to contribute and they are obviously key players in JME, that is, JME does not exist without them.

The first ethical step for this project is the approval by the panel. Then I will apply for ACU ethics review before recruiting families. To be able to carry out a study in Nairobi County in Kenya, I will apply for research permit from NACOSTI (National Commission for Science, Technology and Innovation) and report to the County commission and County Education office upon receipt of the research permit. The main purpose of carrying out a research endeavor is to produce benefits to the researcher as well as the participants. Because research is a 'best outcomes' endeavor (Alderson, 2014), I will be keen to produce positive effects in terms of gaining knowledge (Alderson, 2014). This knowledge will contribute to our international understanding of the enactment of Joint Media Engagement practices within particular settings, rather than harm the participants of my study. Further, the study is not an experiment and there is no group that will be exposed to an inferior programme or given a treatment that might produce harmful effects to the participants if researchers are not careful (Bryman, 2013).

Obtaining children's assent and consent to participate in research is an important ethical step in early childhood education research. Bryman (2012) contends that informed consent must be

sought if researchers intend to research on or with participants who may not have full capacity to understand the nature of their involvement and that of the study. It is important for the researcher to ask for children's assent every time the children are engaged in the research (Clark et al., 2014) in addition to their caregivers' consent because the caregivers' consent does not necessarily mean the child has agreed to participate (Baines, 2011). I will make sure I obtain the children's *affirmative agreement* before filming and recall interviews by talking to them (or asking their caregivers to talk to them) about the research. I will ask children if they are happy to be filmed by present them with a sheet of paper with two faces – happy and sad – to choose from. If they choose a happy face, I will do the filming that day but if a sad one is chosen, I will have to postpone and reschedule the filming to a later date.

 Happy to participate  Not interested today

Immersing into one's family for extended periods of time has practical challenges including intrusion into the private space of the family (Aarsand & Forsberg (2010). Aarsand and Forsberg (2010) argue that the fluidity of public and private spaces during qualitative studies poses significant ethical dilemmas for researchers to navigate through. Active, informed and voluntary consent is central to research ethics (Alderson, 2014) when researching with young children and other vulnerable segments of the population (Gray, 2014). Greig et al. (2007) state that sometimes children may be very young and therefore not able to understand the research to give their consent and researchers need to seek for their assent. This ensures that children know (if they are capable) they have a choice to participate in the research and also know they have a right to withdraw from the research without giving reasons for doing so and that there will be no negative consequences for their withdrawal (Greig, 2007). In this case the person who is the primary caregiver will be asked to explain all the features of the research to ensure children are not uncertain about what will happen, not only in the short-term during the research process but also in the long-term after the research (Lindsay, 2007).

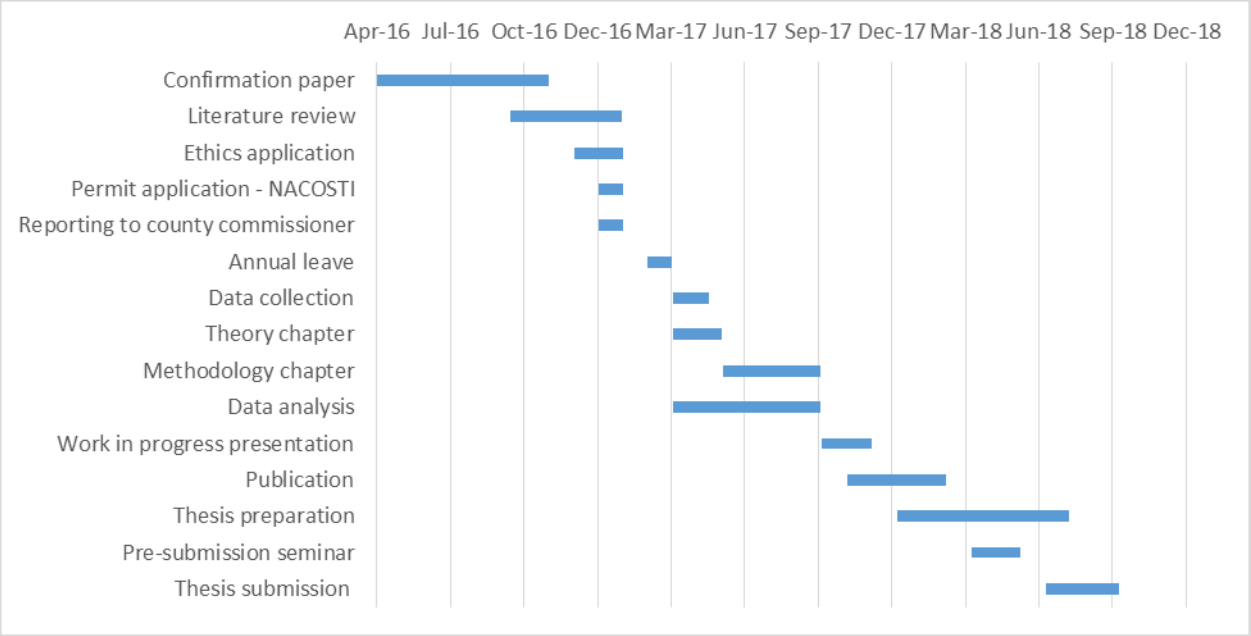
The consent-assent argument is an artifact of the dichotomy between the strong and the vulnerable child. Strong children give consent while vulnerable children give assent. Young

children are too small to actively give consent to research but when they do not want to do something, they make it quite clear. Having been a teacher, I will constantly pay attention to children's behaviors and actions such as when they become tired, distracted, lose interest in the activity.

It will also be made clear to the participants that their participation in the project is voluntary. They will be informed that they are at liberty, without any subsequent negative consequence, to withdraw from the project, at any point during and after fieldwork, if they feel uncomfortable and do not want to continue participating (Harcourt, Perry, & Waller, 2011). Participation in this context is not limited to the fieldwork phase. It extends until the end of my study and participants will be permitted to withdraw their data after the fieldwork has ended.

Ensuring privacy and confidentiality is an important ethical practice in research (Alderson, 2014; Flewitt, 2006). To ensure families and children are protected, the identity of the participants will be kept confidential in publications and in the final thesis. Pseudonyms will be used instead of real names and any identifying details withheld during the reporting of the findings. The videos will be stored in a password protected computer and will only be accessed by myself, supervisors and the research team (Alderson, 2014). I do not intend to make videos public or submit part of them for examination.

PhD Timeline



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