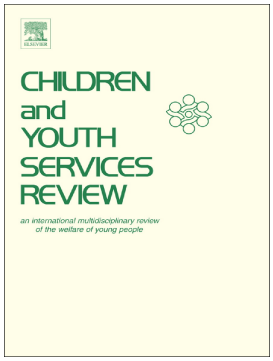

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Teachers' and parents' perceptions of the role of technology and digital media in developing child culture in the early years

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Abstract

The main purpose of this study was to examine the perceptions of preschool teachers and parents on the extent to which technology and digital media (TDM) contribute toward developing child culture in Jordanian early years education. A random sample of (170) preschool teachers and (310) parents of preschoolers participated in the study; 10 teachers and 15 parents were later interviewed. In order to achieve the aims of the study, the researchers developed a 26-item questionnaire covering seven aspects that measure the goals of child culture. Results revealed that teachers and parents considered the contribution of TDM to child culture as relatively high. However, there was a disagreement on the level of child culture aspects among study participants. Moreover, results of the independent *t*-test showed statistical differences between teachers' and parents' perceptions of the role that TDM play in developing child culture as parents responded more positively to the contributions of TDM than teachers. Within the context of the findings of the study, implications are outlined for expanding the use of TDM in early years education.

Key words: Technology, digital media, child culture, pre-school children, early years.

Introduction

Today's children live in a digital and media-saturated world overflowing with information and communication technology tools to the extent that they are now referred to as "digital natives" (Taylor & Keeter, 2010). Children at a very early age begin to notice the existence of technology tools and digital media in their environments such as personal computers, laptops, tablets, smartphones with Internet connection, televisions, handheld digital games, and other mobile devices. Children's curiosity is often aroused by the interaction their family members and those around them have with these technology tools. Thus, technology and digital media (TDM) have become a part of the children's world (Donohue, 2015).

Educators and children's media researchers understand the benefits of allowing children to use advanced technological devices and the latter's value in children's development and well-being (Hutchby & Moran-Ellis, 2001; NAEYC & Fred Rogers Center, 2012). TDM can reveal to the children new horizons that were previously inaccessible. This massive technological overflow, further aided by an abundance of digital devices and the diversity of application software, has led to digital culture becoming a reality, imposing itself on many societies and which may affect ways of raising and educating children (Garvis & Lemon, 2016; Marsh et al., 2005).

The process of culturing is a continuous one; it does not cease at a certain age. Developing a cultural understanding of a person begins from the early childhood stage (Ball, 2010). Naturally, childhood is a phase of development in which children acquire certain cultural characteristics, habits and traditional practices that are learned via interaction with the surrounding society, as well as other preferences, activities, and behavioral patterns that distinguish them from adults (Khalaf, 2006). They start from an early age to orientate themselves in accordance with the meaning sphere of the human life, which includes ways of doing things, beliefs, values, etc (Thyssen, 2003). Children in any given society are not identical templates; they differ according to various stages of development (Buckingham, 2000; Fisherkeller, 2002). Accordingly, childhood was divided into various consecutive phases, each with its own culture that corresponds to the characteristics and needs of children during that phase. What we present to a child in this early phase of development particularly, is much more important than what is presented during other phases because early childhood makes substantial and crucial

contributions to personality building from various social, psychological, intellectual, and moral aspects (Khalaf, 2006).

Culture is generally defined as the cumulative deposit of knowledge, experience, beliefs, values, attitudes, meanings, hierarchies, religion, etc., that are acquired by a relatively large group of people (Hofstede, 1997). It also encompasses immaterial products: language, conceptions, ideas, meanings, and skills that are created and form part of human life (Herder, 1957; Boas, 1965).

Accordingly, child culture is particularly defined as the knowledge shared by a large group of children in a specific society (Ibrahim, Younes, & Hafeth, 2007). Children are born into their society's culture and thus become participants in it (Thyssen, 2003). As a consequence of the scientific and technological advances, the concept of culture has expanded. Societies began to witness what is called "digital culture" that rapidly grew and evolved at the end of the 20th century and became much more sophisticated at the beginning of the 21st century (Garvis & Lemon, 2016; Mazen, 2004). According to the concepts of the digital culture, illiteracy is no longer defined as the state of not knowing how to read and write. The illiteracy of this digital era is defined as the state of not being able to use computers and other technologies.

Digital culture has recently seen a broad expansion generally around the world and particularly in Arab societies (Bedier, 2006). These societies have shown a great interest in TDM and have encouraged their use in all walks of life, which naturally gave rise to the phenomenon of "digital natives". Children's attachment to technology tools has become a distinctive characteristic of children's groups in modern societies as they are deeply embedded in technology tools and digital media (Richert, Robb, & Smith, 2011). Specifically, we see a child turning on a computer, another sliding his finger on a tablet to browse the Internet, a third taking a picture via a digital camera, a fourth printing a paper from a laptop, and a fifth communicating with friends on social networking websites. Child culture, therefore, is acquired from the prevalent social lifestyle through the socialization process, which engages the child's family, school, community, peers, and different social media. It results from the interaction between children and adults as well as the process of culture profiling of children (Ibrahim et al., 2007). Therefore, this study aims at determining the contributions of TDM in developing child culture from the viewpoints of teachers and parents, who are considered as the most influential

individuals in a child's life and, thus, the most capable of assessing child culture through observations and interactions.

Theoretical framework

It is well-recognized that children in every society have beliefs, values, emotions, and meanings. They have also vocabularies particular to their world: a verbal repertoire to use in communicating with others, notions of time, spatial relations, concepts of the universe, special manners for self-expression, as well as cultural characteristics that differentiate them and a lifestyle of their own; in other words, they have a distinctive culture—the child culture (Al-Sharouni, 1992). Child culture, as a way of life of a group of people, in a certain society, differs from that of other societies according to the context of the generally prevalent culture that guides individuals and groups (Ibrahim et al., 2003; Khalaf, 2006). The culture of any society is created by humans in connection with their life and includes all aspects of their life ((Thyssen, 2003). The culture of any society is its behavioral, moral and ethical values derived from its religious faith and the creativity of its elite in fields of thought, science, letters, and art. It is conveyed along by communication and imitation from one generation to the next (Hofstede, 1997).

The World Conference on Cultural Policies held in Mexico City, 1982 under the supervision of UNESCO defined culture as follows: "In its widest sense, culture may be said to be the whole complex of distinctive spiritual, material, intellectual and emotional features that characterize a society or social group. It includes not only the arts and letters, but also modes of life, the fundamental rights of the human being, value systems, traditions and beliefs." (UNESCO, 1982, p.41).

Child culture has multiple sources including: home, school, peer groups, and informal learning settings such as libraries, museums, sport institutions, zoos, and natural centers, and, more recently, via technology tools and digital media (Ball, 2010; Halloran, 1979; Ibrahim et al., 2007). During the 21st century, child culture has been affected by a number of variables and challenges as a result of introducing TDM into the world of children (Rideout, Vandewater, & Wartella, 2003). Hence, culture is no longer considered the heritage that a child acquires solely as a result of his social upbringing inside his/her home and school; it is rather the result of being

introduced to modern technologies and having lived in screen-saturated environments (Hutchby & Moran-Ellis, 2010).

All societies, now, realize the necessity of resorting to information technology in tackling the phenomenon of information explosion, which makes it essential for the child to acquire lifelong self-learning skills and to directly deal with sources of knowledge without a human mediator— whether in the form of a teacher or a textbook (Khalaf, 2006). This requires helping a child to acquire skills of researching and navigating the Web. Therefore, TDM effectively assist the child to acquire the ability to practically invest knowledge (NAEYC & Fred Rogers Center, 2012). As a cultural mediator, TDM can play a significant part in producing fundamental changes to child culture. The developmental cultural objectives of the Arab child encompasses all the aspects that contribute to integrally developing his/her personality, including all the physical, mental, emotional, social, moral, religious, and aesthetic dimensions (Ibrahim et al., 2007).

Researchers have found positive effects of TDM on the lives of children (Donohue, 2015; Espinosa, Laffey, Whittaker & Sheng, 2006; Kerawalla & Crook, 2010; NAEYC & Fred Rogers Center, 2012). Researchers have also identified that integrating information and communication technology in early years education can create positive changes in children's development in various fields—whether physical, language, cognitive, social, or emotional (Hutinger & Johanson, 2000; Kerawalla & Crook, 2010). TDM can promote social interaction among children (Lim, 2012), develop their literacy skills (Amendum, Vernon-Feagans, & Ginsberg, 2011), improve cognitive abilities (Nir-Gal & Klein, 2004), and help develop their knowledge (Fiorini, 2010). TDM can also change children’s learning approach (Downes, 2002).

Furthermore, a study on the impact of technology tools on children's academic achievement demonstrated that using technological tools can increase a child's academic achievement (Espinosa, 2006). In the same context, Baker, Rozendal, & Whitenack (2000) established that classrooms incorporating digital-rich environments have contributed to developing children's writing abilities. Additionally, Marsh et al., (2005) surveyed the perspectives of 524 employees in 104 early education institutions on the use of new media technology. The study demonstrated that a majority, 92%, of the participants agreed that children learn from television and that 67% of them did not agree that television delays the development of children's language, while 83% of them felt that children watch too much television.

Therefore, early childhood researchers asserted the need for technology use to be reflected in early learning environments (Rathbun, West, & Hausken, 2003).

In the Arab world, Bedier (2006) conducted a study to identify the impact of computer electronic software on developing the culture of Egyptian kindergarten children by surveying the perceptions of mothers as well as teachers. The results indicated that the participants agreed that electronic programs (apps) do have a positive impact on developing the culture of kindergarten children. This positive impact far exceeds the disadvantages of electronic programs. Participants also considered that children's use of electronic programs (apps) can lead to developing various aspects of their development and can increase their cultural repertoire.

Despite the many advantages of TDM, some researchers have taken a critical view on technology tools and digital media (Ahmed, 2011; Cordes & Miller, 2000). For instance, Cordes and Miller (2000) suggested that early practice of exposing children to technology during the early ages stunts their imaginations and impoverishes their language skills. Furthermore, educators raised concerns about using TDM in the early years when 1) it exposes children to inappropriate content and commercial message targeting children, 2) it becomes less socializing and more isolating and thus has a negative impact on social-emotional development, and 3) it prevents children from outdoor time and physical activity, leading to more childhood obesity (Donohue, 2015).

Therein lies the need to control and to select the technological programs that are introduced to children to protect them from being lured towards contents that violates their values and fundamentals, and eventually their culture. During the past few years, the world of TDM has evolved and its forms have multiplied dramatically (Hutchby & Moran-Ellis, 2010). Children, who are also referred to as the “digital generation”, are capable of using any digital device no matter how sophisticated it might be. They can access games in any cell phone and skillfully master any of them, as well as navigate from one TV channel to another and choose whatever they prefer. This, however, could create significant challenges for parents (Soeters & Van Schaik, 2006).

It is the responsibility of parents to raise their children’s awareness of the importance of venturing into the world of TDM effectively and safely. Children’s media researchers (Ahmed, 2011; Ihmeideh & Shawareb, 2014) have highlighted the duties of parents towards children’s use of technology, including: 1) using safe Internet services by employing some programs that block

access to websites that display suspicious words like: sex, drugs, terrorism or similar key words; 2) monitoring their behaviors when using the Internet and preventing them from accessing pornographic or suspicious websites by placing the computer in an open and visible place; 3) warning them to never meet someone whom they had come to know over the Internet; and 4) monitoring what they watch and advising them on programs that present acceptable values.

Early childhood teachers are also responsible for helping children acquire their culture appropriately and acquire the ability to practically produce knowledge (Khalaf, 2006). Their role in developing child culture through utilizing TDM is critical and includes using TDM effectively, appropriately, and intentionally in developing children's growth. They can also use TDM to improve children's communication skills, and develop children's artistic talents in all the arts: literature, fine arts, and music. Moreover, they can expand the use of computers and information technology to hone a child's creative talents and encourage him/her to search, discover and keep experimenting and trying (Khalaf, 2006; NAEYC & Fred Rogers Center, 2012).

The study context

Children represent 33.8% of the total population of Jordan, the majority of whom use technology tools at home and school (Ihmeideh & Shawareb, 2014). For example, the number of Jordanians using the Internet continues to rise; according to official statistics, almost 4.3 million Jordanians have some sort of existence on the World Wide Web (Al-Omari, 2012). This number is expected to increase in the coming years (Arab IP Center, 2013).

Technology tools and interactive digital media help in effecting a significant change in all cultural aspects (Ibrahim et al, 2007; Marsh et al, 2005). Thus, it is now essential to study that change since the culture of this current generation differs from that of children in previous generations to a great extent because this generation derives its culture from TDM. In many cases, a child does not actually choose what program to watch, play, or be exposed to; he/she cannot willingly refuse to watch it or criticize its content because of his/her yet incomplete mental development. Scientific and technological advances have ensured that children now have easy access to TDM that are much closer to them at home to the degree that a parent can no longer prevent their child from using and benefiting from them. New technologies have pros and cons, and hence must be regulated; their effect on developing child culture must be identified

because the culture that is introduced to children is undoubtedly a social responsibility. Children's obsession with using these digital forms without controls may cause negative impacts on different educational aspects of their lives.

In the midst of this high technological tide and the diversity of its means and tools that have reached a great level of sophistication, it has become more difficult to measure its consequent factors, particularly on the development of child culture. To achieve this end, the current study aimed at exploring how teachers and parents perceive the role of TDM in developing child culture. This is important because TDM can provide children with a deeper understanding and a wider awareness of their surroundings, helped develop their scientific perceptions, widened the range of their culture, or contrarily, contributed to the deterioration of children's thinking, the underdevelopment of their physical, social, emotional, and moral development, or weakness of their comprehension of their surroundings.

Research questions

The primary purpose of this study was to examine the perceptions of preschool teachers and parents of children on the role of TDM on developing child culture in Jordanian early years education. In addition, differences in perceptions for the contribution of TDM to developing child culture between preschool teachers and parents were examined. More specifically, this study's research questions were as follows:

Research Question 1: How do preschool teachers perceive the effect of technology and digital media on the development of child culture?

Research Question 2: How do parents of children perceive the effect of technology and digital media on the development of child culture?

Research Question 3: Are there any statistically significant differences between teachers' and parents' perceptions regarding the effect of technology and digital media on the development of child culture?

Method

Population and sample

Kindergarten education in Jordan is noncompulsory and is largely run by the private sector, and exclusively administered by the Ministry of Education, which runs also limited number of public kindergarten settings. Kindergarten comprises two levels: Kindergarten 1 (KG1) serving children aged 4-5, and Kindergarten 2 (KG 2) serving children aged 5–6.

The population of the study consisted of all preschool teachers who teach Kindergarten 2 (KG 2) children enrolled in private kindergartens in Amman, the capital of Jordan. It included also parents of those preschool children. To determine the population frame of the study, a list of all private kindergartens in Amman was obtained from the Directorate of Private Education. A random sample of 170 preschool teachers and 310 parents of children was chosen for this study, representing 5% of the kindergarten population. Afterwards, a subsample of the selected teachers (n=10) and parents (n=15) who responded to the questionnaire was interviewed to gain a better understanding about the sample participants' viewpoints.

Instrumentation

To achieve the aims of the study, the researchers developed a questionnaire to examine the role of TDM in developing child culture as viewed by teachers and parents. The items of the questionnaire were prepared after a comprehensive review of the literature related to child culture, the role of TDM in child culture, and aims of child culture in the Arab world. Among the literature reviewed were studied by Ahmed (2011), Al-Sharouni (1992), Bedier (2004), and Ibrahim et al, (2007). All the questionnaire items were first written in the Arabic language (the responders' native language). The Arabic items were then translated into English by the authors who were fluent in both Arabic and English languages. The final draft of the questionnaire consisted of 26 items rated on a five-point Likert-type scale (5 = strongly agree to 1 = strongly disagree). The questionnaire items consisted of seven aspects: physical/health aspect (3 items); intellectual aspect (5 items); emotional aspect (3 items); social aspect (4 items), moral aspect (4 items); and religious aspect (3 items); and aesthetic aspect (4 items). These aspects represent the aims of child culture.

In addition, a follow up semi-structured interview was adopted to clarify issues identified in the questionnaires, as well as explore, in-depth, the teachers' and parents' perceptions, and clarify any concerns that emerged from the questionnaire's finding. The interview schedule was developed after analyzing the questionnaire and it included seven open-ended questions related

to the role of TDM in developing child culture. The face and content validity of the instrument was tested by a panel of judges who were experts in the field. The panels were asked to give their comments and suggestions concerning the appropriateness of the questionnaires. The questionnaire was also field-tested with 20 preschool teachers and 20 parents from the study population outside the original study sample. Based on the validation panel and field test, some items were added, other items were deleted, and still others were refined. For instance, the panel suggested adding two more items examining the role of TDM in developing children's creativity. Also, they suggested clarifying one item that is related to aesthetic aspects "understand and appreciate the Arts". These modifications were incorporated into the final version of the instrument. Moreover, internal consistency reliability for the questionnaire was performed using Cronbach's alpha and calculated for each scale. Reliability analysis revealed that the teachers' questionnaire was reliable at ∞ =0.70, while the parents' questionnaire was reliable at ∞ = 0.81.

Data Collection

Having obtained the official approvals from the Jordanian Ministry of Education, the researcher selected the kindergartens to participate in this study. All selected kindergartens use one or more technological tools in their educational environment. Two research assistants were recruited for data collection purposes. The research assistants visited the chosen kindergartens to explain the purpose of the study to the principals who allowed the research assistants to conduct a meeting with the teachers and guide them on how to answer the items of the questionnaire. Newsletters, clarifying the purpose of the study, were also sent to parents of the children. The children whose parents received those newsletters are children who use one or more technological tool/s in their home environment. Before conducting this study, consent was sought from teachers and parents of the children. Both teachers and parents were informed about the study aims, and ensured confidentiality and anonymity.

The research assistants distributed 210 questionnaires to the teachers and 435 to the parents. The questionnaires were collected for the purpose of analysis one week after distribution. From the respondents of the questionnaires, 10 teachers and 15 parents were randomly chosen for personal interviews. From the sample of the teachers' questionnaires returned, 170 were useable, resulting in a response rate of 81%, while 310 questionnaires from parents were useable, resulting in a response rate of 71%. With regard to the follow-up

interviews, the research assistants interviewed teachers and parents. In the interviews, the participants were given the right to withdraw at any time and were free to decline to answer a particular interview question. To protect their anonymity, their names, names of their children, and schools were not identified in this current study. The interviews were conducted with the participants in the preschool teachers' room and each took about 15-20 minutes.

Data Analysis

In order to address the first two research questions, descriptive statistics, including means and standard deviations were used to describe each aspect and the mean of all items for the scale. To address the third research question, independent *t*-tests were used to compare whether there were statistical significant differences between the perceptions of preschool teachers and parents toward the contributions of TDM in developing child culture. The interviews with the preschool teachers were analyzed separately from those with the parents using thematic analysis. All interviews were tape recorded and transcribed verbatim. Then, the data were coded and grouped into explicit categories. The number of participants who shared the same views under each category was calculated, and quotes from the original data were used to support the theme within the categories (Lichtman, 2012).

Results

The contributions of technology and digital media on developing child culture

Results of survey questionnaire

To answer the first two questions, the mean and standard deviation were calculated for each aspect of the questionnaire as well as for the total that measures the extent to which TDM contribute to developing child culture from both teachers' and parents' perceptions.

As shown in Table 1, the mean value of teachers' perceptions about the role of TDM in developing the culture of preschool children was 3.57, which demonstrates that the contribution of TDM was relatively high. The "intellectual aspect" had the highest mean value (4.21) with a high degree of agreement. It was followed by the "moral aspect" with a high degree of agreement (mean=4.04). The "religious" and "emotional aspects" also had high degrees of agreement, with mean values of 3.78 and 3.62, respectively. Next were, the "aesthetic" and "social aspects", which had a moderate degree of agreement with a mean value of 3.23 and 3.14. On the other

hand, the "physical/health aspect" had the lowest mean value (2.92) with a moderate degree of agreement.

(*Insert Table 1*)

With regard to the perceptions held by parents about the role of TDM in developing child culture, Table 1 illustrates that their perceptions for the total scale was high with a mean value of 3.82, giving an indication that the contribution of technology in developing child culture was high. Similar to the perceptions of teachers, the “intellectual aspect” had the highest mean values (4.15) with a high degree of agreement, followed by the “religious aspect”, with a mean value of 4.09. Next were, the "emotional", "aesthetic", "moral", and "physical/health" aspects, which had high degrees of agreement with mean values of 4.04, 3.74, 3.69, and 3.59, respectively. On the other hand, the "social aspect" had the lowest average of 3.41 with a moderate degree of agreement.

(*Insert Table 2*)

Table 2 displays the items of the seven aspects in which teachers and parents were asked to report the extent to which they contributed to the development of child culture. The table shows that the degree of agreement of teachers on the contribution of TDM in developing child culture from the “physical/health aspect” was moderate; the mean values ranged from 2.89 to 3.04 with “raising children's health awareness" being the highest of this aspect. Regarding parents' degree of agreement on the “physical/health aspect”, the degree of agreement was high; the mean value ranged from 3.50 to 3.75, with “following general safety procedures" being the highest of this aspect.

With regard to the “intellectual aspect”, teachers and parents indicated that the contribution of TDM on this aspect was high with mean values ranging from 3.77 to 4.46 for teachers and from 4.05 to 4.29 for parents. The item of "improving children's reading and writing abilities" was the highest of this aspect according to both groups. Regarding the “emotional aspect”, the contributions of TDM on this aspect was high as viewed by both teachers and parents since the mean values for teachers’ perceptions ranged from 3.42 to 3.94, while values

ranged from 3.86 to 4.30 for parents. The item of "helping children in controlling their emotions" was the highest of this aspect according to teachers, while “protecting children from fear, shyness, and anxiety” had the highest mean value based on parents’ perceptions. Concerning the “social aspect”, teachers and parents indicated that the contribution of TDM on this aspect was moderate with mean values ranging from 2.86 to 3.33 for teachers and from 3.18 to 3.68 for parents. The item of "improving children’s communication and interaction with others" was the highest of this aspect according to both groups.

Regarding the “moral aspect” and “religious aspect”, the contributions of TDM on these aspects were high as viewed by both teachers and parents since the mean values for teachers’ perceptions on the “moral aspect” ranged from 3.51 to 4.34 and from 3.54 to 4.15 on the “religious aspect”. For parents, the mean values ranged from 3.52 to 3.94 on the “moral aspect” and from 4.01 to 4.14 on the “religious aspect”. The item of "helping children exercise the highest ethics" was the highest of the “moral aspect” according to teachers, while “helping children maintain good practices and traditions” had the highest mean value based on parents’ perceptions. In addition, the item of "improving children’s learning about worship" was the highest of the “religious aspect” according to both groups. Finally, the mean values for the “aesthetic aspect” ranged from 3.02 to 3.62 according to teachers, with “understanding and appreciating the Arts" being the highest of this aspect. For parents, the mean values ranged from 3.38 to 4.14, with “learning tidiness, order and consistency" being the highest of this aspect.

Results of Interviews

Results of the interviews with teachers and parents indicated a clear upholding of the role of TDM in the intellectual, religious and moral aspects due to the contributions of these aspects to children's learning and development; thus supporting the results of the questionnaires analysis as previously elaborated.

All the teachers interviewed (n=10) emphasized that TDM had helped the children improve their learning achievements especially literacy and numeracy skills, religious knowledge, and knowledge that is related to phenomena and events happening around them. One of the teachers commented thus:

> *"From what I observe, TDM have developed children's thinking and made them more capable of literacy, particularly since most programs that are available on the computer usually focus on literacy activities. Of course, children can be*

guided towards watching useful programs like religious or educational ones rather than spending too much time playing or watching cartoons on YouTube".

Another teacher, who seemed eager to talk about this topic, said:

"This generation that we teach is completely different from previous generations especially our generation when we were their age. We notice how this generation is far more knowledgeable, mature and aware of life compared to other generations; this is a result of their excessive use of TDM like televisions, tablets, computers, and Internet".

The majority of parents who were interviewed, (14 out of 15) parents said that TDM are responsible for improving the knowledge of their children. This was one of the reasons that motivated them to encourage their children to use these modern technologies. As one of the mothers explained:

"When I heard that personal computers and tablets can increase students' achievement in schools, I bought a tablet for my boy and soon began to see the positive results in his achievement levels."

Another mother attributed the development of her daughter's ability to memorize Quran verses to the opportunities provided to her by her tablet:

"There are religious applications that help children memorize the Quran. I downloaded one of those applications to my daughter's tablet and thanks to Allah, she has now memorized more than a dozen short chapters of the Quran."

In contrast, teachers did not attribute child culture at the social and physical levels to TDM. Most of the teachers mentioned that children who use tablets, watch televisions, or use modern technologies are usually reluctant to participate in some important social activities. One of them mentioned that several of the children she teaches refuse to play with their peers outside; instead, they prefer to use their personal computers or tablets. The teacher added:

"The problem with this generation of children is that they are less interactive with their colleagues and others in general because they spend so much time using computers at home and most of the programs they use don't promote their cultural development at the social and physical levels. If you give a child a choice between playing with a tablet and playing outside with friends, they will choose the former."

Confirming the findings of the questionnaires, parents also did not think that TDM have a role on the physical level. Most of them agree that although their children perform movements through their fine motor skills when playing movement activities on smartphones or tablets, this has not been reflected on the physical aspect of their growth. One of the fathers said:

> *"Software companies release many applications and games for children on Google Play Store or Apple Store. Games are originally intended for developing children's physical skills but children in this information era play games mentally with no dynamic development. How come we always say that a sound mind is in a sound body?"*

One of the mothers added:

> *"When you asked me this question, I remembered a photo that I received on one of the social media websites not too long ago; it showed a comparison between two parallel images representing two different generations of children. The first showed children running, playing, and interacting around a big tree in their school. The second showed the same group of children sitting together around the same tree but each playing alone with his/her tablet with clicking sounds demonstrated all over their heads (as a reference to the sound of clicking on their tablets)."*

Contrary to the findings of the questionnaire, half of the parents mentioned that although TDM can develop child culture intellectually and religiously, its use pushes them far away from the positive morals that they should uphold, which refers to the aesthetic aspect. One teacher said in her interview:

> *"Children who use technological devices have less commitment to the prevailing values, customs, and traditions in society. They grow up with devices glued to their hands with western applications that are completely far from our practices, values or traditions."*

Differences between teachers' and parents' responses

As shown in Table 3, there are statistically significant differences for most of the aspects of the questionnaire and for all of them combined—except for the intellectual aspect which did not show statistically significant differences at an alpha level of ($\alpha = 0.05$). That is, parents responded more positively to the contributions of TDM in developing child culture in all aspects except for the moral aspect where parents viewed the role of TDM on developing this aspect more positively.

(*Insert Table 3*)

Discussion

Promoting children's development from all aspects is crucial in the digital age (NAEYC & Fred Rogers Center, 2012). TDM have utmost importance as regards the cultural and intellectual education of children. Thus, educators need to ensure that children's engagement with technology tools and screen media develop their culture. Exploring the role of TDM as perceived by teachers and parents was the major aim of the present study. One hundred seventy preschool teachers and 310 parents completed the self-reported questionnaire. After analyzing the questionnaires, 10 teachers and 15 parents were later interviewed.

The results indicated that both preschool teachers and parents of children expressed a high degree of agreement concerning the role of TDM in developing child culture; their level of agreement on the overall aspects of the questionnaire was high. This could be connected to the widespread presence of technological devices in children's hands, and the diversity of application contents to which they are exposed. The cultural level of today's children is incomparable to that of earlier generations of children because of introducing them to the technology tools and interactive digital media as cultural mediators that have their significant effects on children (Khalaf, 2006). Teachers can note the cultural level of children through their interaction with them and the evaluation of learning experiences that children undergo and by monitoring their behaviour, lifestyles, thinking skills and levels of interaction with others. Parents, on the other side, can monitor their children's cultural levels through their daily interaction with them in all walks of life. These results are consistent with the findings of Bedier's (2004) study which indicated that teachers and parents emphasized the positive role that electronic programs play in developing child culture.

Teachers commented that TDM do have a substantial role in developing child culture intellectually, morally, religiously, and emotionally, while their level of agreement was moderate on the contributions of TDM to the social, aesthetic and physical aspects of child culture. Perhaps this result can be connected to the nature of the application and the media content that is introduced to children. That is, there are many educational software and digital media used on different types of children's technological devices that focus on developing the cognitive and

linguistic abilities of children plus other desirable manners related to moral, religious and social practices and traditions. The changes in curricula also resulted in introducing technological tools into early years classrooms. Numerous experiences are shown to children via personal computers, laptops, and tablets, which may explain the effects that TDM have on these aspects. In this context, many research studies asserted the positive role of technology in developing the cognitive abilities of children as well as their literacy skills (Amendum et al, 2011; Espinosa et al., 2006; Fiorini, 2010; Nir-Gal, & Klein, 2004).

The degree of agreement was not high on the contributions of TDM in developing child culture socially and physically, which may be the result of the weak effect that TDM generally have on those sides. When technology was first introduced into the fields of education, some educators questioned its role in developing personal and social aspects of children's personalities and its ability to positively affect their physical and motor development (Barnes & Hill, 1983; Cuffaro, 1984). It is known that children spend much time using these modern technologies which drain the time they could be spending in developing different requirements of physical growth—through moving, running, or jumping. They also spend long hours using these technologies alone which can hinder their social development (Donohue, 2015).

Parents stressed the importance of TDM in all aspects except the social aspect, which saw a moderate degree of agreement. It is possible that parents usually do not encourage their children to use TDM in groups or with siblings or peers which would in fact give them ample opportunities to interact with others. Recent studies have shown that technology tools have a fundamental role in increasing social interaction between children if they are encouraged and afforded enough opportunities to use these technologies in groups (Lim, 2010).

The results showed statistical differences in the degree of agreement between parents and teachers on the role TDM play in developing child culture on most of the aspects of the study and on the overall aspects except for the intellectual aspect. Parents viewed most of the roles of TDM more positively except for the moral aspect, to which teachers responded to this aspect more positively than did parents. This result could be because of the longer time that parents spend with their children, which affords them an improved chance to better observe the behaviors and actions of their children. There is also another possible explanation; children use TDM at home much more than they do at school which means that parents' observations on the cultural effect of technologies exceed those of the teachers who may not have as many

technology tools available at schools (TVs and/or computers). Indeed, in the Jordanian context, children are exposed to advanced technology tools at home more than at schools, such as tablets, mobile phones, smartphones, and digital camera. This explanation is supported by the work of Ihmeideh and Shawareb (2014) as parents reported that their children used the Internet at home for many purposes such as playing online games, visiting websites, and checking information. Perhaps this further asserts that the initial process of educating children occurs at home where children are affected by their home environment and by the interaction with parents and family members (Ibrahim, et al., 2003).

As teachers responded more positively to the contributions of TDM on the moral aspect, this may be explained by the fact that contents of the questionnaire items in the moral section manifest themselves more clearly in children's behaviors at school rather than at home (like practicing high moral standards, and maintaining the prevailing good practices and traditions, etc). This, however, may have caused the estimations of the teachers to exceed those of the parents. On this point, Schaps, Schaeffer, and McDonnell (2001) indicted that the role of teachers in observing students' behavior and supporting their moral development is crucial.

Conclusions and Implications

Building a foundation for appropriate choices about TDM in early childhood education can help children develop their own cultural aspects. Since teachers and parents had high perceptions regarding the contribution of TDM on the development of preschool child culture, there is an urgent need to expand the use of TDM in all preschool settings so as to benefit all enrolled children. TDM can indeed sharpen a child's creative talents and encourage him/her to search, discover, and keep experimenting and trying. To develop child culture in all aspects, educators must make effective, appropriate and intentional choices about the use of TDM with young children. Furthermore, they need to manage the quality and number of TDM tools used in children's lives.

It becomes apparent that the mission of education is no longer limited to basically teaching educational materials to children. The method of literally memorizing and reciting information fundamentally contrasts with the phenomenon of information explosion and the scientific and technological advances. The mission of education has now become developing skills for acquiring knowledge, using this knowledge practically, and further generating new

knowledge among children who become producers of culture. Thus, selecting, using, integrating, and evaluating TDM for use at home and school could help achieve this mission. It might be necessary to review curricula and develop a number of educational activities to ensure the achievement of the goals of child culture, especially in the social, physical, and aesthetic aspects. This could be beneficial when integrating technological methods and tools in the implementation process of these activities. However, this does not mean that TDM should displace active play, time outdoors, and hands-on activities with real materials; instead, we have to make sure that children are using TDM along with these activities. In this digital era, there is a need to produce rich electronic educational and cultural programs that include designing activities which aim at detecting children's abilities and presenting them multiple opportunities for fulfilling themselves and shaping their abilities. It could also be useful to implement developmentally appropriate TDM that relate to children's heritage, customs and traditions which can meet their needs, and contribute to vividly enriching their knowledge and enhancing their chances to contribute to society.

As indicated from the study results there were differences between parents' and teachers' perceptions about the role that TDM play in developing child culture. Intentional use of TDM requires teachers and parents to have information and resources about TDM and the effect of their use on children's development. This would aid in encouraging children to positively use TDM. In addition, parents and teachers must develop their technology skills and digital media literacy to be a media mentor to their children (Donohue, 2015). Inspiring educators and researchers to design programs and digital media closely relevant to child culture by launching websites that are exclusively specialized in children's literature and culture might also be available. In addition, educators should raise the awareness of children on the dangers of misusing TDM.

Limitations and directions for future research

Three limitations to the study need to be acknowledged. The first limitation is related to the selection of the sample; the study sample was limited to one city in Jordan (Amman). It is possible that the information obtained in other regions might have produced different findings. Future research should include bigger sample sizes from different regions in order to reveal more precisely features of child culture. Furthermore, comparison studies could be undertaken to

establish how teachers and parents regard the contributions of TDM to the development of child culture from many different cultural background at global level. The second limitation concerns the survey used to collect the data; the survey was limited to measure the participants' perceptions of the role of TDM in developing child culture based on only seven aspects of children's development. The role of TDM could go beyond these seven aspects and includes, but not be limited to, children's way of life, attitudes, values, knowledge, and skills. etc. Therefore, it would be worthwhile to explore these factors in further research. The third limitation concerns the study participants; no attempt was made to survey children's perceptions of the contribution of TDM to their culture. Thus, conducting more studies to measure the effects TDM have on child cultural levels by interviewing children and observing their behaviors directly at home and in school would be most formative.

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Table 1. Means and standard deviations for the views of teachers and parents toward the role of technology and digital media in developing children's culture

		Teachers (n=170)		Parents (n= 310)	
No	Aspect	M	SD	M	SD
1	Physical/health Aspect	2.95	0.54	3.59	0.63
2	Intellectual Aspect	4.21	0.56	4.15	0.69
3	Emotional Aspect	3.62	0.99	4.04	0.63
4	Social Aspect	3.14	0.78	3.41	0.63
5	Moral Aspect	4.04	0.62	3.69	0.75
6	Religious Aspect	3.78	0.92	4.09	0.66
7	Aesthetic Aspect	3.23	0.42	3.74	0.63
	Total	3.57	0.31	3.82	0.41

Table 2. The distribution of participants' views toward the role of technology and digital media in developing children's culture in each item of the study's aspects.

No	Aspect / item	Teachers (n=170)		Parents (n=310)	
		Mean	S.D	Mean	S.D
Physical/health Aspect					
1	Enhancing children's movement skills and physical activity.	2.89	0.55	3.52	0.77
2	Raising children's health awareness (disease prevention, healthy food, etc.).	2.91	0.55	3.50	0.67
3	Increasing children's knowledge about safety procedures in their life.	2.04	0.66	3.75	0.92
Intellectual Aspect					
1	Developing children's thinking skills.	4.28	0.91	4.17	0.83
2	Helping children develop creativity.	4.13	0.79	4.03	0.77
3	Improving children's language and literacy .	4.46	0.82	4.29	0.82
4	Developing children's problem-solving skills.	3.77	1.00	4.18	0.83
5	Developing children's numeracy skills.	4.42	0.85	4.05	0.81
Emotional Aspect					
1	Helping children in controlling and managing their emotions.	3.94	1.32	3.96	0.78
2	Protecting children from fear, shyness, and anxiety.	3.42	1.06	4.30	0.80
3	Helping children sympathize with others and identify with community members.	3.51	1.17	3.86	0.95
Social Aspect					
1	Increasing children's awareness of their society and its problems.	3.29	1.20	3.32	0.82
2	Helping children cultivate feelings of belonging and citizenship.	2.86	1.09	3.45	0.68
3	Helping children communicate and interact with others.	3.33	1.29	3.68	0.91

4	Helping children know both, their social rights and duties.	3.08	1.16	3.18	0.74
Moral Aspect					
1	Helping children cultivate positive morals and values.	4.12	1.03	3.52	0.75
2	Helping children exercise the highest ethics.	4.34	0.98	3.63	0.96
3	Helping children distinguish between good and evil, right and wrong.	4.17	0.98	3.67	0.88
4	Helping children maintain the prevailing good practices and traditions.	3.51	1.09	3.94	1.05
Religious Aspect					
1	Developing children's positive attitudes towards their religious teachings.	4.15	1.13	4.01	0.79
2	Helping children learn about certain religious duties.	3.66	1.11	4.14	0.87
3	Helping children acquire religiously inspired social etiquette.	3.54	1.13	4.12	0.88
Aesthetic Aspect					
1	Increasing children's ability to understand and appreciate the Arts (acting, singing, theatre).	3.62	1.09	3.84	0.92
2	Helping children learn tidiness, order and consistency.	3.02	0.59	3.38	0.92
3	Helping children experience things and appreciate their beauty.	3.13	0.69	4.14	0.91
4	Helping discover and develop children's preferences, interests and skills.	3.12	0.63	3.62	0.99

Table 3. Differences between the responses of teachers and parents on the five aspects and the total of the role of technology and digital media on developing children's culture

Aspect	Respondent	N	M	SD	*t*	*p*
Physical/health Aspect	Teachers	170	2.95	0.54	-11.07	.00*
	Parents	310	3.59	0.63		
Intellectual Aspect	Teachers	170	4.21	0.56	1.06	.28
	Parents	310	4.15	0.69		
Emotional Aspect	Teachers	170	3.62	0.99	-5.60	.00*
	Parents	310	4.04	0.63		
Social Aspect	Teachers	170	3.14	0.78	-4.10	.00*
	Parents	310	3.41	0.61		
Moral Aspect	Teachers	170	4.04	0.62	5.08	.00*
	Parents	310	3.69	0.75		
Religious Aspect	Teachers	170	3.78	0.92	-4.16	.00*
	Parents	310	4.09	0.66		
Aesthetic Aspect	Teachers	170	3.23	0.42	-9.53	.00*
	Parents	310	3.74	0.63		
Total	Teachers	170	3.57	0.31	-6.81	.00*
	Parents	310	3.82	0.41		

*$p < .05$

Teachers' and parents' perceptions of the role of technology and digital media in developing child culture in the early years

Highlights

- Teachers and Parents acknowledged the role of TDM in developing child culture.
- Parents responded more positively to the contributions of TDM than teachers.
- Participants agreed that TDM contribute to developing child culture intellectually.
- The degree of participants' agreement was not high on social and physical aspects.