

Educational Video Games Enrich Underprivileged Children's Social Skills in Saudi Arabia

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Abstract

The current study attempts to explore the effect of the educational video games on enriching the social skills of underprivileged children in Saudi Arabia. It compares the social skills of underprivileged children who do and do not have access to educational video games through iPads. To accomplish the goals of the study; twenty underprivileged kindergarten's children who do not have iPads aged five years old were chosen randomly from one of the public schools in Riyadh city (school 56 for girls) to participate in the study. Ten of them were given access for the first time to educational video games through using Android iPads to enrich their social skills. The other ten children were in the control group without an access to educational video games. The researcher downloaded ten educational video games on to the iPads, which are suitable for the sample's age, culture, and study purpose. Ten iPads were given to the ten underprivileged families whom their child is an experimental group's member in this study. The sampled children were required to play these educational games for two hours daily for three months at home and for one hour at school under the supervision of their parents and teachers. The researcher used the Child's Social Scale CSS (Abdul Magsood & Al-Sarsee, 2007) as a pre-post measurement to assess the level of the underprivileged Children's Social Skills. Results showed that the underprivileged children become more sociable, saying goodbye, thank you, excuse me, sorry when apologising to others, following rules and appreciating each other. In light of the results of the research, the researcher recommended schools in Saudi Arabia to use videogames to improve children's social skills either rich or poor. In addition, she recommended the commercial companies of iPads to pay attention to the underprivileged children in the country through producing economical iPads with low prices to enable them to own their personal iPads which will enhance their social skills alongside rich children.

Keywords: Video games, iPads, underprivileged children, Social Skills, Saudi Arabia

1. Introduction and Background

The use of digital media has formed our lives and the mode we live and interact with others. Children are no exclusion to this rule. Today's children of all ages are living in a highly media influenced environment with access to a variety of digital electronic devices which are accessible both at home and elsewhere including school. They spend most of their leisure time interacting with computers and playing video games. With the rapid introduction of computer and web into life, the field of education also benefits from these technologies. The effects of these technologies on issues such as student success, attitude, motivation and social skills, have been investigated in different fields. When looked at the studies conducted to investigate the effects of computer and web in social skills, it is seen that all these studies highlight that using computers and web in education provides more effective learning compared to traditional methods, increases the motivation of the learner, develops positive attitudes in students, and improves their social skills (Chuang&Chen,2007)

The benefits of developmentally appropriate technology have been documented (Couse & Chen, 2010). Specifically, purposeful use of technology can encourage the cognitive and social growth of young children (Haugland, 1992; Clements & Sarama, 2002,AlShaiji,O,2015). Thus, the conversation has generally moved from whether or not technology should be used to how it should be used (Clements & Sarama, 2002). As a reality, children develop their social skills and learn through play. To promote learning there are different curricular options available for children including technology devices that they can use in partnership with adults, such as the iPads. However, this technology is not available to all children, especially those from low-income families. iPads have enabled learners to access knowledge in new ways, using techniques that are different from traditional methods but also complementary. This technology facilitates autonomous learning in any setting, La Greca & Mesibov (1979). Socio-cultural awareness can also be facilitated by iPads' applications that depend on the learners' interacting with their social environment, (Paivio,2006).

Findings from a number of research studies indicate that appropriately designed educational video games enhance students' learning performance in science, mathematics, social skills, and languages skills (Gee, 2003). Previous studies indicate that the educational video games have important factors that can motivate, challenge, increase curiosity and control, and promote imagination and socialization in children (Uzun, 2009). According to the published statistics, three quarters of children play

regularly, but it is not clear whether this is harmful or beneficial and whether children learn while they are playing (Kirriemuir & McFarlane, 2004). So it is not surprising to see that today, most teachers in the world are using video games for teaching children (Gee,2003). Recently, video games' presence and popularity have been ever-growing, and game developers and researchers have started to investigate video games' impact on kids' social skills (Bottino, Ferlino & Travella, 2006). For example, Agudo (2007) conducted a study investigating the influence of video games on children's subsequent performance on social tasks .The study found that video games enhance children's fine motor skills, alphabet recognition,concept learning, numerical recognition, social skills, and self-esteem or self- concept (Agudo ,2007).

The educational video games may be effective on every age group and in any place by shaping them appropriately during the developmental period (Donmus, 2010,AlShaiji,O.2015).In Saudi Arabia ,AlShaiji(2015) conducted a study to investigate the impact of video games and their role on promoting Saudi Kids' English vocabulary retention. The study attempted to answer whether there was a statistically significant difference ($\alpha=0.05$) between the Saudi children's subjects' mean score on the English vocabulary test due to using video games activities in Kindergarten or not. The researcher used a random sample of (60) female Saudi children from a kindergarten in Riyadh; (30) students to represent the experimental group, and (30) students to represent the control group. In the experimental group a selected group of video games was used from the official site of the British Council to teach vocabulary, whereas in the control group English vocabulary was taught through traditional methods. At the end of the teaching period, the participants' performances were compared. Those children sat for a pre and post-tests of vocabulary which was prepared to suite the sample's ages. The results indicated that the mean score of the children in the experimental group was significantly higher than those in the control group, indicating the positive effect of using Video Games in teaching English vocabulary to children.

On the other hand, previous research supports the developmentally appropriate use of other forms of technology with young children supporting both cognitive and social learning (Haugland, 1992; Haugland, 1999; Clements, 2002; Clements & Nastasi, 1988). VanderScoter, Ellis, & Railsback (2001) explained how the technology is used, especially with young children. They recommend selecting technology applications that allow children opportunities to improve their social skills. Programs should support the child's thoughts, emotions, and physical well-being (Hillman & Marshall, 2010). The development of newer, more interactive touchable interfaces may be more suitable for children, because they allow for physical

manipulation that encourages curiosity, creativity, self-expression, and discovery (Plowman & Stephen, 2003). The touchable interface is one feature of the iPad, and similar tablets, which makes the tool potentially suitable for young children to learn through playing purposeful educational video games.

The iPad is a tool that young children can navigate and use independently.

Many studies (Clements&Sarama,2002;Kubba,2004;Couse&Chen,2010,Bahatheg,2015) indicated that children can develop their social skills through using the iPad. Using the iPad frequently becomes a social activity for young children as they often talk and work together while using the tool (Labbo's,1996). It is possible that the mobility of the iPad contributes to the socialization that takes place, because children can see the screens of other children easily and can operate the touchscreen in groups. In light of these possibilities, the iPad could be a talented instructional tool for early childhood educators to improve their students' social skills (Clements & Sarama, 2002).

In Saudi Arabia, Bahatheg(2015) conducted a field study to find out how technology influences various developmental aspects of normal and special needs children at the preschool stage. She tried to find out the effect of iPad on school preparedness among schoolchildren with hearing impairment. The study sample was divided into control (7) and experimental (8) groups. Children in the experimental group used the iPad for 15 weeks. Results showed improvement of the experimental group in all measured areas. The control group improved in both their kinetic and social areas. In addition, differences were found between groups on post measurement favoring experimental group. The study recommended conducting more experimental and longitudinal studies to further delve into the effects of using iPads on preschools children.

In addition, Keskin & Metcalf (2011) proposed that children's social skills are affected by different variables, such as low socioeconomic status and poor family support. Providing a wide range of support to underprivileged children has been proven to lead them to overcome the disadvantages they experience, and leading to academic and life success. Nicholas & Geers (2007) proved that higher levels of support do correlate with personal satisfaction. To this end, the current study tries to investigate the effect of the educational video games among Android iPads on improving the underprivileged children's social skills; such as greeting, extending and responding to invitations to join peer activities, cooperating, assisting and conversing with peers, which are very crucial from the early age of the child. Kubba (2004) demonstrated a link between the extent of low social skills and the level of family income. It was found that the

underprivileged children of poor families tended to be unproductive later in life, due to a poorer education and reduced employment prospects.

1.2. Question of the Study

The current study tries to answer the following question:

Are there any statistically significant differences at ($\alpha=0.05$) between the social skills of the Saudi underprivileged children in the experimental and control groups due to the use of the educational games among Android iPads?

1.3. Significance of the Study

This study might provide an insight to change the negative image of using technology in social interaction among underprivileged children. It might also help teachers to adopt a more developmental attitude towards the smart electronic devices in classrooms, which could be used effectively through adopting educational video games to improve children's social skills.

In addition, this study might provide supervisors and teachers of children, including the underprivileged children, with teaching and communicative techniques of using new technology to improve the social skills of the children in Saudi Arabia. This study would hopefully show whether underprivileged children would benefit from the educational video games on iPads to improve their social skills, or not. The teachers who participated in the study might benefit in developing their own procedures and techniques in improving children's social skills.

Moreover, depending to the limited knowledge of the researcher, there is a lack of local studies in this field that led the researcher to investigate the effect of using video games on iPads to improve the social skills of the Saudi underprivileged children from low income families. Hopefully, findings of the present study would be useful in helping decision makers in determining the need for the continued development and expansion of the use of iPads' educational video games in all Saudi schools.

1.4. Terms

- **Underprivileged children:** MacIntosh (2015) defined the underprivileged children simply as children who descended from families that having less money, education, etc., than the other people in a society : having fewer advantages, privileges, and opportunities than most people :poor or disadvantaged. On the other hand, the researcher defined the unprivileged children in Saudi Arabia operationally as children related to families with low monthly income; between 300-500

\$.They have more than four children. The number of qualified males is very minimum; as a result, their job opportunities are very low.

- **IPad:** A smart portable tablet with a touch screen .It has the ability to operate the digital games. Also, it has an access to internet.
- **Educational Video Games:** According to Agudo (2007) a video game is a rule based formal system with a variable and quantifiable outcome, where different outcomes are assigned different values. Educational video games are activities that provide students the opportunity to reinforce the previous knowledge by repeating it in a more comfortable environment. They are software that helps students to learn the lesson subjects and to develop their problem solving skills and their social skills by using their desire and enthusiasm to play (Ang & Zaphiris, 2008).

1.5. Limitations of the Study

Although this study is helpful in illuminating the possibilities of the iPad as an instructional tool for early childhood teaching, it has a number of limitations. The participants in the study were a homogeneous group of kindergarten children. Thus, it would be beneficial to conduct a similar study in a setting with a more diverse group of children. In addition, the teachers in this study were willing, and even excited, to integrate the iPad into their instructions. Many teachers, particularly early childhood teachers, may not be as willing, or feel as able (Wood, Specht, Willoughby& Mueller, 2008), to integrate technology into their teaching. Also, this study was limited to low-income families in Riyadh–Saudi Arabia. Moreover, the study involved the underprivileged children in the kinder garten only at one of the public schools of Riyadh city in Saudi Arabia. It was also confined to social skills of underprivileged children. Finally, the study was limited to ten educational electronic games downloaded from <http://www.al3ab5l5l.com/learning-games.html>.

1.6. Validity and Reliability of the Instruments

A jury of Four Child Education Professors, and Four kinder garten teachers, and three Psychologists were asked to write their comments on the suitability of the Child's Social Skills CSS pre-post measurement in addition to validating the electronic educational games. Their comments were taken into consideration in preparing the instruments. In response to the jury's comments, some games were deleted from the iPads of the experimental group. CSS validity and reliability were improved by the researchers (Abdul Magsood &Al-Sarsee,2007) .CSS aims at determining the level of social skills among children. It measures 34 sub social skills. Each paragraph includes a component response of three-verbal (Sometimes-

always, rarely). Meeting these requirements of trustworthiness protected the dependability, reliability and authenticity of this research.

2. Method

2.1. Sample

As this study was a quasi-experimental one (Yin,2008), The study sample was chosen purposefully from a low-income society which had not previously an access to an iPad before this experiment. The researcher chose two groups; the experimental group which used the iPads to play ten electronic educational games, and the control group which had no iPad. Twenty underprivileged children aged five years, from low-income families participated in this project. There were ten children in the experimental group and ten other children in the control group. All the children were observed pre and post the experiment using the Child's Social Skills CSS measurement which was prepared by Abdul-Magsood&Al-Sarsee (2007). Data were collected and analyzed using the SPSS statistical program.

2.1. Procedures

After choosing the sample and divided it into two groups randomly, the researcher downloaded (10) educational games from one of the kids' official educational sites (<http://www.al3ab5151.com/learning-games.html>) on the iPads of the experimental group. Then the researcher gave each of the participants an iPad to use at home and school. The games were the following: (letters, numbers, greetings, apologizing, seasons, clock, visiting grandma, travelling, Write with me in Arabic 2,permission). Then, the researcher contacted the participants' families through visiting them at their homes to discuss the idea of the experiment in order to allow their children to use the iPad's educational video games for three hours a day for three months at home and for one hour at school. The children were observed at school only, and the communication with their teachers was at classroom.

2.2. Data Collection

The researcher used the Child's Social Skills' CSS observation checklist. This tool measured children's social skills (skills and behaviors in social interaction; friendship and communication; enjoying playing with others, isolation and mood when playing alone) before and after the experiment.

2.3. Data Analysis

Child's Social Skills measurement, CSS, was conducted two times, pre and post the experiment. Means and Standard Deviations were calculated for the four social skills (skills and behaviors in social interaction; friendship

and communication; enjoying playing with others, isolation and mood when playing alone) for the experimental and the control groups .To determine whether the differences are statistically significant an ANCOVA analysis was performed.

3. Findings

This part of the study was devoted to present the pre-post observation findings of the Children's Social Skills CSS tool. Table1 presented means and standard deviations of CSS of underprivileged children.

Table1
Means and Standard Deviations of Children's Social Skills CSS of the Underprivileged Children Pre -Post Observations

Children's Social Skills CSS	Group	Obs.	Mean	Std. Deviation	Number	
Skills and Behaviors in Social Interaction	Cont.	Pre	15.5000	3.16228	10	
		Post	15.8750	4.05101	10	
	Exper.	Pre	15.2222	3.6	10	
		Post	18.2222	4.4	10	
	Friendship and Communication	Cont.	Pre	14.6250	4.06	10
			Post	15.4000	4.44	10
Exper.		Pre	14.4444	3.84	10	
		Post	21.1111	5.41	10	
Enjoying Playing with Others.	Cont.	Pre	21.145	2.26	10	
		Post	23.3750	2.50	10	
	Exper.	Pre	20.4444	3.28	10	
		Post	22.5556	2.45	10	
Isolation and Mood when Playing Alone	Cont.	Pre	17.1250	3.45	10	
		Post	18.0000	1.60	10	
	Exper.	Pre	18.0000	1.00	10	
		Post	17.4444	1.50	10	

As it is obvious from Table1, there was a difference in the average responses of the experimental group in the pre- and post observations in all four skills of CSS. The average responses for the experimental group in the post observation were higher than the average responses of pre-observation. However, there was no difference between the average responses of the control group in the pre- and post observations. To determine whether the differences are statistically significant, an ANCOVA analysis was performed, Table 2 presented ANCOVA results.

Table 2 ANCOVA Analysis of CSS of Underprivileged Children Pre and Post Observation

Source	Dependent Variable	Type II Sum of Squares	Mean Square	F	Sig.
Group	Skills and behaviors in social interaction	301.422	301.422	20.459	.000
	Friendship and communication	419.187	419.187	20.718	.000
	Enjoying playing with others	29.779	29.779	4.171	.050
	Isolation and mood when playing alone	.216	.216	.127	.724
Observation	Skills and behaviors in social interaction	24.121	24.121	1.637	.211
	Friendship and communication	105.004	105.004	5.190	.030
	Enjoying playing with others	9.438	9.438	1.322	.259
	Isolation and playing individually	.212	.216	.127	.724
Total	Skills and behaviors in social interaction	13752.000			
	Friendship and communication	17024.000			
	Enjoying playing with others	17297.000			
	Isolation and mood when playing alone.	2044.000			

Table 2 shows statistically significance differences at ($\alpha=0.05$) between the average responses of the experimental group members for skills and behaviors in CSS; friendship and communication; and, enjoying playing with others. However; there were no statistically significant differences at ($\alpha=0.05$) for isolation and mood when playing alone. The average difference between the two groups is presented in Table 3.

Table 3 Means and Standard Deviations of CSS Pre-Post Observations of the Underprivileged Children

Social Skills	Observation	Mean	Std. Deviation
Skills and behaviors in social interaction	Pre	16.21	3.56
	Post	20.10	4.40
Friendship and communication	Pre	16.00	3.84
	Post	21.35	5.41
Enjoying playing with others	Pre	20.34	3.28
	Post	22.40	2.45
Isolation and mood when playing alone	Pre	8.03	1.00
	Post	7.45	1.50

Table 3 presented the significant results of the pre-post observations of the CSS assessment tool among the underprivileged children in Saudi Arabia. The results show a relationship between the use of the educational games on iPads and the development of the social skills among them. The results showed no significant statistical differences at ($\alpha=0.05$) between the average responses of the experimental and control groups in the areas of enjoying playing with others and isolation and mood when playing alone.

Remarkably, the suggested educational video games did not impact on these criteria. To discover whether these differences were statistically significant a T-test analysis was performed. Results are presented in Table 4.

Table 4 T-test of CSS of Underprivileged Children

Social Skills	t.	D.f	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Skills and behaviors in social interaction	4.34	19	.000	5.86528	1.13495
Friendship and communication	4.102	19	.000	7.01472	1.47341
Enjoying playing with others	2.012	19	.052	1.77500	.82963
Isolation and mood when playing alone	-.323	19	.727	-.13972	.55269

Table 4 presented a significant statistical difference at ($\alpha=0.05$) between the control and experimental group for skills and desired behaviors in social interaction and friendship and communication. This result indicated the effectiveness of using the iPad to play educational games among the underprivileged children on improving their social skills. However, Table 4 showed no statistically significant differences between the experimental and control groups in the areas of the skills of enjoying playing with others and isolation and mood when playing alone. This result designated that the suggested educational iPad's games are not useful in this regard.

4. Discussion

The purpose of this research was to demonstrate the effectiveness of iPad's educational video games on underprivileged children's social skills. Simms & Thumann (2007) noted that underprivileged children have not often been the target of general education research. As a result, this research tried to introduce those children for further study. Vincenta (2007) contended that the Social environmental factors include elements such as the support and attitudes of family and friends, whereas physical environmental factors refer to natural elements or technology. Through connecting the physical and social environment, this research found that iPad's video games assist in the development of underprivileged children's social skills. Nonetheless; they did not help to develop underprivileged children's skills in enjoying playing with others.

The importance of social skills is emphasized by Hay & DeLuzio (2004), and Kennedy (1989), who debated that children's engagement in

social interaction during their play with other children contributed to their social, emotional, and academic development. Furthermore, when underprivileged children integrated with rich children at school, they play together using iPads. ,Deluzio&Girolamet(2011).

The current study found that underprivileged children can make all behaviours that are essential to successful social interaction. For instance;they can make friends and communicate with them through asking them how to play games using the iPads. Also, these children become more sociable, saying thank you, apologising to others, following rules and waiting for a turn (Nicholas &Geers,2007;Preisler, Tvingstedt & Ahlstrom,2002).In this research ,it is found that playing educational games on iPads can facilitate communication between underprivileged children and rich children.

It was noticed that the underprivileged children's social skills and behaviors and friendship and communication were improved. However, these children still preferred to spend most of their time playing alone and did not report enjoying playing with others. Bat-Chava&Deignan (2001) agreed that socialization's abilities in children can progress at different rates. It is acknowledged that underprivileged children vary in their ability to accomplish social tasks (Preisler,2002;Antia & Kreimeyer,1996).In addition, Rieffe & Terwogt,2006;Drew &Temblay,1979; Bruner ,1966; Burton & Lybarger ,1998,Levy-shift&Hoffman,1985) have reported that forming friendships in the classroom setting is more difficult for underprivileged children, Antia (2010). This is a difficulty that does not only relate to friendships involving underprivileged children and their rich peers, it is also the case in friendships,(Arthur,1993; Antia, 1982;Munes, et.al.,2001;Kennedy,1979).It is thought that difficulties with friendships may stem from these children's more limited grasp of social rules and the goals of friendship, or from a tendency to feature negative intentions to their peers (Amy& Lederbreg ,1987).

To conclude; The educational video games have positive effects on improving the underprivileged children's social skills in kindergarten classes of Saudi Arabia. Using the educational video games among the iPad in the classroom results in facilitating social interaction among underprivileged kindergarten's children. Children's socialization becomes much more enjoyable.

The classroom was often energetic with low chatter amongst the children, including those working with iPads, during the experiment time. The communication between children when utilizing the iPad was the biggest difference. Even when children were working individually with the iPad, children would still engage in meaningful conversations with the children around them, often asking one another, "What are you doing?".

However, the teachers often had the students work together in pairs or small groups that helped the children to manipulate the screen to see what was happening and offered suggestions and ideas.

This kind of increased socialization of the children in taking turns and being involved without it officially being their turn is a good step in improving the underprivileged social skills and self-confidence.

Children were also able to solve problems together, a kid teaching other kids. It was witnessed that children would often want to watch how their peers were using the tool and offer suggestions and ideas, even if they were not the one using the iPad. Thus, children frequently worked together and spoke with one another for a variety of purposes, including inquiries regarding how to solve a problem or to provide ideas.

However; the underprivileged children in this study revealed a preference for playing alone and had a difficulty in interacting and taking turns during play, as shown in Tables 4 and 5. It was also observed that the children did not want to listen to one another, or participate in dancing or singing activities because of their low self-esteem. They also did not pay attention to rules and avoided following them, thus, in spite of the intervention, they found it easier to play alone.

5. Recommendations

Based on the findings of this study, the researcher recommended the commercial companies who produce iPads to pay attention to this group of underprivileged children and produce a cheap device to help them own their personal iPads to use them in playing educational games, which will develop their social skills alongside with rich children. Future research may focus on technology integration with a more diverse group of children, with more specific uses of iPads, or other forms of technology, for improving their social skills.

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