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Teachers' Attitudes and Approaches: Their Role in Presenting ICT as a Beneficial Learning Tool to Children

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Abstract

This research investigates the impact of technology, particularly computers on children's social behaviour. There is considerable amount of literature that focuses on children's computer use and its impact on children's health. However, there is lack of research regarding the beneficial use of computers regarding children's social skills. This paper examines whether computers can be used as a beneficial tool for children's education. Furthermore it looks into the views of practitioners on ICT inside classrooms. This is done through observation, field experiment and interviews followed by analysis of the data. The findings have shown that computers can enhance children's social skills and improve communication among them if used in a beneficial way. Information contained in this document adds to contemporary research regarding computers in early years. Furthermore the findings provide practitioners with basic idea how to approach the ICT use in their lessons.

1.0 Introduction

Information and communications technology has become a part of people's everyday life in the recent years. Children are exposed to various digital tools and media from their early childhood and ICT has become a major part of the educational curriculum. In the present time where technology is implemented at schools and its use increases, it is necessary to evaluate the knowledge of teachers. Nowadays, it is absolutely necessary for teachers to be computer literate, as otherwise they will be unable to relate their knowledge to their students (Siraj-Blatchford and Whitebread, 2003). Indeed, teacher's role in digital science is vital. Children learn through the educator (Plowman and Stephen, 2003). Due to the fact that technology is widespread nowadays, the aim of this research is to assess the importance of teachers' attitude and their views in general regarding ICT.

At first, it is necessary to consider previous pieces of research conducted, which are related to this area in order to support this study. Wide literature will be summarised and key issues will be highlighted. Additionally, in the second section, a detailed research plan will follow, serving as the basis on which the study will be conducted. This plan will thoroughly specify a number of important steps taken during the research period. Data gathered during the study will be carefully analysed and recapitulated in section three. This section will provide numerical data drawing upon the correct procedures and research methods used during this study. Lastly, after the review of the data, a discussion will take place in the last section. During this

discussion, suggestions will be made regarding the claim of ICT being beneficial mainly through facilitation of practitioners. Conclusion on the results of the data will be presented there as well as proposals for further research.

2.0 Literature review

The use of Information and Communication Technology has been gradually increasing over the past years, especially ever since it became available to the general public. ICT is nowadays used by adults in daily activities, such as banking or online shopping (Valentine et al., 2002). Moreover ICT skills are required in most professions. Kroker and Weinstein (1994) suggest that individuals will require having certain computer literacy in order to work. While their suggestion was made seventeen years ago, it is still valid today more than ever. This is also suggested in a recent study by Law et al. (2008), who claim that in the contemporary world computer literacy is a crucial skill to posses. Digital literacy has been regarded as imperative over the course of the past years. Furthermore, Law et al. (2005) suggest that both curricula and teaching approaches need to change for ICT to be implemented into the classrooms in order to benefit children and enhance their digital skills. This implies that it is necessary to implement ICT learning as soon as early years in order to raise technologically competent persons. This is also suggested by Grover (2009) and Siraj-Blatchford (2010), who regard digital equipment as potent way to teach children.

2.1 Overview of opinions on ICT use

However, there are varying opinions on the use of ICT in children's lives and learning. There are beliefs of ICT being beneficial to children's development as well as concerns of it being harmful. The most controversial claim is the one expressed by Cordes and Miller (2000), who state that computers hasten the end of childhood. Moreover, children will spend more time using a computer and less time interacting with family and peers. Additionally according to Cordes and Miller (2000) and Maynard (2010), lack of social interaction due to computer use is bound to harm children's language development, which will further weaken the ability to interact. Additionally, Valentine et al. (2002) and Lebens et al. (2009) focus on the issue of social exclusion that computers may cause. Nonetheless, Plowman and Stephen (2003) claim that teachers should prepare children for a place in technological world and see ICT as a beneficial tool. Educators should choose software appropriate for the age, needs and abilities of pre-school children and similarly supervise their use of ICT (Plowman and Stephen, 2003).

2.2 Teachers' attitudes

It is up to the teacher to integrate computers and ICT in general into his or her teaching routine and thus help children acquire computer skills while learning themes from other areas. In the same way, Christensen (2002) believes that teachers need to keep up with technology by educating themselves in order to assist children. Teachers' awareness of the newest software and technology in general will help children use

computers beneficially during their school time, which will develop their computer literacy necessary for their life (Christensen, 2002). The teacher's attitude towards computers can also influence the student's attitude (Grieshaber, 2010). Educators can foster positive attitude towards technology. For instance a research conducted by Tsitouridou and Vryzas (2004) showed that teachers were anxious when using ICT resources because of their lack of knowledge and they avoided computer use in their classroom. This can lead children who use computers at home to face difficulties in interaction because of their isolation, as stressed by Valentine et al. (2002). Surprisingly however, the majority of these teachers regarded ICT as an important tool for teaching, despite the fact that they lacked the skills to use it. Teachers' enthusiasm is a valuable asset in the implementation of technology into classrooms (Stancer, 2010). Hall and Higgins (2002) also explored the views of teachers on ICT. They suggest that majority of educators feel it is necessary to include computers and digital activities inside their classroom. Similarly, Couse and Chen (2010) state in their study, that children were exposed to technology by their teachers. Their research has shown children achieved good results through teacher's guidance, which improved their interaction and computer skills. Bolstad (2004) emphasises the fact that collaboration, teamwork and interaction amongst children during digital activities cannot occur without intervention. The impact technology will have on children's learning depends on the practitioners (Lau et al., 2005). This is in agreement with Klein et al. (2000), who claim that computers cannot replace teachers and thus guidance for students is necessary. They highlighted that by merely putting a computer in a classroom will not allow children to learn constructively. The danger of unassisted use of computers by children lies in the previously mentioned isolation factor; youngsters run the danger of being lost in their personal exploration of this ICT resource. Nonetheless, in Klein's et al. (2000) study, the findings showed that children who were assisted by a teacher exhibited a better achievement level in areas such as abstract thinking and vocabulary. Correspondingly, O'Hara's (2008) findings also noted improvement in children's social interaction in settings where ICT was implemented, especially during teacher-organised role-plays. In the examined settings, educators placed high emphasis on collaboration and discussion amongst children and noted that at certain instances more computer-competent children helped others. In addition, Lau's et al. (2005) study has shown increased peer and teacher interaction during assisted ICT activities. Accordingly, Siraj-Blatchford and Whitebread (2003) believe that the teacher's involvement in ICT has a positive impact on the child's interaction. When observing an adult working on a computer, children are compelled to try it themselves. This leads to engaging in conversation through asking questions and discussing about computers, which can increase children's social interaction.

However, Hall and Higgins (2002) reported that teachers usually use digital resources as a reward to children who finish their schoolwork. Such use of computers is hazardous as it can lead to the exclusion of less capable children who, in addition, are allocated less time on the computer, which can also lead to lesser computer literacy skills. Hall and Higgins (2002) therefore agree that computers are most beneficial if used in connection to learning activities led by teachers. Bolstad (2004) and Kumtepe (2006) similarly highlight the fact that ICT benefits largely depend on the

choices made and resources selected by the teachers, who can evaluate any given digital resources mostly through their practice (Boldstad, 2004). On the other hand, it is difficult to evaluate materials and assess software for children if teachers do not use them for education but rather as a mere reward to well-performing children. It is suggested that practitioners should evaluate computer material (Kirmani et al., 2009) and they can do it by following developmental theories (Verenika et al., 2003 and Schmid et al., 2008). It is highly dependent on the willingness of individual practitioners to implement technology into their practice (Hall and Higgins, 2002). As mentioned earlier, teachers did express such willingness to acquire knowledge of ICT despite their anxiety (Tsitouridou and Vryzas, 2004; Hall and Higgins, 2002). In addition to this, teachers in Crawley's et al. (2004) study expressed conflicting opinions, according to which ICT is a way to keep the interest of their students while at the same time it can prove distracting for them. It was also noted that teachers are encouraged to use technology a great deal more in their lessons, even though the management does not often provide the technological resources to the classrooms (Crawley et al., 2004). With a large variety at their disposal, practitioners may experience difficulties in choosing the appropriate programme (Willoughby et al., 2009). This is why it is necessary, alongside introducing technology into classrooms, to also provide help with the choice of developmentally appropriate software. Developmentally Appropriate Technology for Early Childhood (DATEC, 2009) project similarly agrees that it is difficult to make a decision of which software is appropriate for teachers' practice. While Frazel (2007) offers insight on useful software focused on education, which is beneficial. Many times ICT programmes that were not originally intended for educational purposes are not necessarily a wrong choice. Creative practitioners are able to explore them and use them appropriately (DATEC, 2009).

In the light of these findings and facts based on past research conducted on digital equipment inside schools, particularly computers, there is general agreement of the importance of the practitioner's role in the use of Information and Communication Technology. As Christensen (2002) and Schmid et al. (2008) pointed out, practitioners who are computer savvy have a different teaching approach with ICT from practitioners who do not know how to use computers. This is an important detail to keep in mind during any given research. While the following study focuses on social interaction amongst children, the teachers' views should also be taken into consideration as they contain crucial information according to the above findings.

3.0 Research Plan

3.1 Participants

The present research involved five teachers who voluntarily agreed to provide an interview in order to share their views on digital activities. These teachers were from nursery, reception, year one, year two and year three. The participants for this study were selected by using Stratified Sampling technique, which combines random sampling and categorisation.

3.2 Methodology

The purpose of this study is to examine the views of practitioners nowadays with regards to ICT. An important question derives from this:

1. Do teachers' attitudes towards ICT influence children's approach to technology?

Data collection consisted of semi-structured interviews with five teachers, which were conducted inside the school in order to examine their views on digital activities. This interview consisted of thirteen questions, which were both open-ended and closed. A recorder was used in order to receive accurate data through interview transcripts. The questions were aimed at how teachers perceive computers in a classroom, whether they believe computer-use is beneficial and if it is a useful tool for teaching. This was done with the purpose of assessing the teacher's knowledge in order to assist children in digital activities.

3.3 Ethics

During any study it is necessary to consider the ethics involved (Bryman, 2008). In the present study, many steps were taken in order to ensure the safety of the participants and the protection of their privacy. These steps were in agreement with ethical guidelines in social sciences. Additionally, ethics were considered in every step of this research in agreement with Bryman (2008). Ethics were taken into consideration while designing the interviews for teachers. The interviews were anonymous and contained questions that would not disclose any private data. Furthermore, at the beginning of each interview the teachers were asked to provide their consent for the data to be used in this study.

4.0 Data Analysis

4.2 Interview Data

The teachers and practitioners provided answers to thirteen questions during the interview. The QSR NVivo and SPSS Statistic 17 software were used in order to sort and analyse the data gathered from interviews. In the data analysis focus will be placed on four distinct categories – experience, use of ICT, training and general opinion on the use of ICT.

Interviews were compared and a chart was created using the Microsoft Excel software according to the similar answers provided. Every interview will be presented on its own in this data analysis and links amongst them will be made. The interviewees will be referred to only by a letter in order to respect their privacy.

Before presenting the interview excerpts and analysing them, it is necessary to present information about the interviewed sample. The teachers were asked about their teaching experience. We can see from the table available below, that the majority of interviewees have ten to fifteen years of experience (Figure 2)

Years in practice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	10-15	3	60,0	60,0	60,0
	15-20	1	20,0	20,0	80,0
	20 and more	1	20,0	20,0	100,0
	Total	5	100,0	100,0	

Figure 21 – Teachers' years of experience

The first interview with practitioner M., who has twelve years of teaching experience has shown that he favours ICT in his lessons. During the interview he described his experience of ICT seminars and training.

> *Practitioner M.: I have attended much training. Some very good and some very poor, but it was all useful. Always with training there is a mixture. With the good ones, they always give you practical advice how to use ICT in the classroom and the poor ones is just to show you a piece of software that costs a lot of money. This was not that useful for a teacher really.*

While this explanation aims at the quality of various training sessions and seminars available for teachers, it also underlines the concerns about the quality of ICT software. Considering the extensive training the interviewee had undergone, he could possibly distinguish between poor and good quality programmes for his lessons. This emphasises the fact presented by Siraj-Blatchford and Whitebread (2003), who suggest that practitioners face difficulties when choosing appropriate software for their teaching.

Furthermore, the interviewee elaborated on his use of ICT during his lesson.

> *Practitioner M.: All the resources that I make I generally use with ICT. So for instance I will never produce a workshop which is handwritten and everything is produced on Word or PP. ICT is then used in the sense that I use the interactive whiteboard where I present my work to the students. I use audiovisual routes to engage pupils. So it might be that I use pitch from the internet or YouTube clip or small audio clip, usually as a starter of the lesson, although sometimes it is part of the main activity as well.*

According to Cordes and Miller (2000), such use of technology in a classroom would be excessive and impairing to children. However, it is clear from his explanation that ICT is vital in his work, as he would not use handwriting at all. Moreover, he elaborated that children are also rewarded by computer-based software use for good participation in a lesson.

> *Practitioner M.: I divided the class in two groups and you could let them choose their own players and the idea is they have to answer questions about the topic they just learned and they get to shoot on the goal if they answer correctly.*

As Hall and Higgins (2002) reported, the approach of rewarding children in this way may cause issues for children who have problems participating in a lesson. It also raises a question of the benefits of ICT, which is the main issue this study is examining.

Nonetheless, according to the interviewed practitioner, children in his classroom are enthusiastic about computer-based learning, which enriches their education positively (Siraj-Blatchford and Whitebread, 2003).

The second interview with practitioner A. has shown considerable difference compared to the interview with teacher M. Teacher A., who has twenty-one years of experience, has voiced concern about her lack of computer literacy skills, which lead to minimal ICT use during her lessons.

> *Practitioner A.: Definitely a beginner. As I said my relationship with computer is not good.*

Furthermore, the interviewed teacher elaborated on the training and seminars regarding ICT.

> *Practitioner A.: Yes I attended one course for two consecutive days. It is short and I would be definitely happy to learn more. The problem here is, as I told you the other day during the lesson, it really is hard to learn at this point for me.*

The data provided in this section of the interview shows agreement with Tsitouridou and Vryzas (2004) and Hall and Higgins (2002) regarding the anxiety practitioners can face when trying to implement ICT in their lessons. The interviewee, however, shows willingness to receive further training in this area but questions her ability to do so.

Furthermore, the interviewed teacher elaborated on her daily ICT use during her lessons.

> *Practitioner A.: I use the interactive whiteboard mostly as a normal whiteboard. However it is very difficult to write on it. Sometimes I search for videos for children that are related to the lesson.*

The way of use of digital resources in the classroom described in the above excerpt is minimal. It also points at the aforementioned anxiety the practitioners may face, as lack of computer knowledge leads the teacher to such use (Bolstad, 2004; Hall and Higgins, 2002 and Tsitouridou and Vryzas, 2004). This anxiety is further shown in another response to the interview question.

> *Practitioner A.: I believe in moderation it can make lesson more visually interesting. Sound can be stimulating as well. For someone who is computer literate, ICT can definitely improve the presentation of topics both visually and auditory as various tools can be used quickly. I only agree with this in moderation however and personally as a beginner in ICT I believe at this moment it hinders my lessons*

The key statement in this response is that ICT should be used in moderation. In comparison to the first interview, where the practitioner used computer software for whole lessons on a daily basis, this shows a major difference between the two.

The third interview with practitioner P., who has thirteen years of experience, has shown similar content as interview one. The practitioner uses it on a daily basis as a beneficial tool for the children's development.

> *Practitioner P.: ICT is used by pupils in my lessons as a development tool. They love it. The use of it can further advance their skills and technique. Pupils can get ideas from it. Other than that I use ICT for research, internet access, especially to show online artwork or videos. It is very visual tool.*

His approach to digital materials and resources is positive, and from his response we can see that children are also attracted to ICT and see it as a way to learn by play. According to this data, the teacher's positive attitude to technology has a beneficial influence on the children's approach to learning by using digital material (Christensen, 2002).

With regard to the interviewee's training, he has attended only a single seminar about interactive whiteboards when they were installed inside the school. His positive approach to ICT comes from his personal interest.

Interview with practitioner E., who has nineteen years of experience, has also shown favour in the use of technological resources.

> *Practitioner E.: I use interactive programmes, videos, PowerPoint and educational games. You have seen the computers we have available in the classroom for our children*

According to the interviewee's response, she has attended a great number of seminars and continues to do so up to this day.

> *Practitioner E.: Way too many to remember. I still attend some if I find good ones even now*

The positive attitude displayed by this practitioner as well as her aim to stay informed regarding ICT can also positively influence children (Christensen, 2002).

Practitioner J., who has thirteen years of experience, elaborated more on the use of the Internet in her classroom. From her response, it can be understood that the Internet is the main digital tool for her teaching.

> *Practitioner J.: Mostly I use internet to prepare for my lessons. Internet is a great place to find resources and lesson related interactive games. Videos are also stored on the internet. I also use internet with children. ICT is important for my lessons. Actually, I have been using the interactive whiteboard since it was installed and once it just stopped working. I have been very upset by that, considering that I use it every day.*

This is surprising, as according to Plowman and Stephen (2003) young children rarely log on to the Internet due to the difficulty of its use and the possibility of harm (Valentine et al., 2002).

The training that the interviewee had with regard to ICT was not too extensive. She has only attended a few seminars. This would point at her personal interest in learning to utilise technology in the classroom, similar to that of her colleague.

Summarising, the general opinion on the rate of use of digital materials, resources and computers overall presented in the interview responses corresponds to the chart below (Figure 13). According to 80% of the interviewed teachers, the information and communication technology should be used frequently and on daily basis to enhance children's learning. To offer comparison regarding children's performance, the interviewee who uses ICT in moderation was the teacher of the classroom where observation took place.

Positive attitude towards technology in education was common among the teachers who were interviewed, as only one in five interviewed was anxious about its use. Additionally, the findings have shown that training and seminars do not correspond

with the use of ICT, as there are instances where a teacher possesses minimal training and still utilises technology to its full potential.

5.0 Discussion

The purpose of this study was to find out the impact of teacher's attitude and approach to ICT has on children's social interaction during computer activities. This study sought to shed light on was the opinions on the approach and attitude to technology of early-years practitioners. The following discussion will provide commentary on and evaluation of the results of this study regarding the research aims, as well as acknowledgment of limitations and potential for further exploration of this area of topic.

5.2 Teachers' influence

It is worth noting that the teacher's attitude towards the digital activities can have an impact on the children's experience with computers. Different approaches to technology use in classroom according to varying experience of the teachers were illustrated by Christensen (2002) and Schmid et al. (2008). The interviewed practitioners regarded ICT mostly as a necessary tool for teaching, which also corresponded to the claim of Hall and Higgins (2002). Several of the interviewed teachers also claimed that they could not teach efficiently without it in their current career, as they regarded it too valuable of an asset in teaching. Moreover, most of them noted the enthusiasm and enjoyment children experience when such digital resources are present during their lesson as well. These findings support the claims of Christensen (2002), Lau et al. (2005) and Siraj-Blatchford and Whitebread (2003), who believe that the teacher's participation in ICT is vital. The participants observed during this study were engaged in little digital activities during their stay at school. This is possibly because of the teacher, who has shown reservation towards the use of ICT in the interview due to having little to no experience with digital equipment. However, while the practitioner used technology on a minimal basis, she was still positive about its use, which seems to have reflected on the children as they welcomed the digital activities provided by the researcher. It can be argued, based on the research evidence presented in the literature (Bolstad, 2004 and Stancer, 2010), that the interest in ICT shown by the other interviewees hint at their students being more experienced in computer use in comparison with the observed participants. Such enthusiasm is essential for building up a positive relationship with technology that surrounds children from their early years (Bolstad, 2004). The findings of this study then correspond to Bolstad (2004), Siraj-Blatchford and Whitebread (2003) and Stancer (2010), who all claim that enthusiasm and encouragement by the teachers towards digital activities will help communicate this attitude to the children. These claims further reinforce the fact that the scaffolding approach (Bruner cited in Berk, 2008) towards ICT inside the classroom positively influences the children. It was apparent that the researcher's attitude during the activity had an impact on the participants, as according to the data results they benefited from ICT and highly enjoyed it.

5.2 Limitations

While this study has validated claims of benefits that teacher's attitude toward ICT can have on children's development and social skills which are in agreement with Couse and Chen (2010), Christensen (2002), Grieshaber (2010), O'Hara (2008) and Stancer (2010), and illustrated how teachers' approach to ICT can resolve the issues of social exclusion and anti-social behaviour ICT, presented by Lebens et al. (2009) and Valentine et al. (2002), it is necessary to also acknowledge that there are certain limitations to this study, which allow for further research. The first of these limitations lies in the sample size used during this research. According to Bryman (2006), due to the limited amount of participants and specific sample group, the data cannot be generalised. Wide area research regarding this topic, placed in different setting can produce other insightful results. In order to fully understand whether teacher's attitude to ICT makes it a beneficial tool for children's social interaction, it is necessary to carry out an extensive study that would cover a wider area of educational institutions. This limitation also show that there is a potential of further lines of enquiry, as for example it would be interesting to compare larger amount of approaches by teachers, based on their computer literacy, regarding ICT and its beneficial or harmful effects on children's social behaviour.

5.3 Conclusion

Hopefully, the research appertaining to this topic can render educators aware of the possible impact their attitude towards ICT may have on students and offer an informative overview concerning technology in education. In addition, it can also seek to encourage practitioners who do not posses considerable experience with ICT to explore their possibilities by using digital resources. Furthermore, this study acknowledges that it is of the utmost importance for practitioners to become aware not only of the hindrances of technology in the classroom but also of the benefits, as this study suggests that ICT can be used in a beneficial way. The results presented here, encourage practitioners to make one step further and keep an open mind regarding interactive games, which, even though not initially designed for educational purposes, as suggested by DATEC (2009), can still be transformed into beneficial learning tools with creativity and imagination.

This study has illustrated that teachers' attitudes during digital activities can enhance children's skills and promote social behaviour. While the dangers of exclusion and negative effect of ICT on children's social skills can lurk during the non-assisted play in this study (Cordes and Miller, 2000; Lebens et al., 2009; Plowman and Stephen, 2003 and Valentine et al., 2002), they can be effectively removed through the teacher's encouragement, assistance and engagement. Such engagement is also based on approved theoretical approaches (Vygotski cited in Berk, 2008 and Bruner cited in Berk, 2008), which only strengthen its validity. The fears of the negative impacts of technology are well placed by practitioners and researchers and they should definitely not be disregarded. However, rather than trying to avoid the use of technology in today's fast-paced world, it is essential to acknowledge the fact that it exists and seek positive solutions, such as the ones presented in this piece of research. Truly, it is admirable to see that as world progresses; let us not forget that childhood and

education seem to have more opportunities to evolve due to technology. Implementing digital activities with a positive attitude can be a great experience both for the children and early- year practitioners.

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