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Affiliation:
Shahnaz Pirani
Beaconhouse School System. Email: pirani.shahnaz@gmail.com
Nasreen Hussain
Institute of Business Management. Email: nasreen.hussain@iobm.edu.pk

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Technology is a tool for Learning: Voices of Teachers and Parents of Young Children

Shahnaz Pirani * Nasreen Hussain †

Abstract: *Education in early years is becoming challenging to inculcate the best practices with specific support and demand to meet the global initiatives (Beckley, 2011). In this regard, teaching through technology plays a significant role if it is connected with relevant learning experiences (Willis, Weiser, & Kirkwood, 2014). The students are exposed to a technologically rich environment through positive and consistent patterns in their learning experiences, it helps them in their cognitive development. Within the context of Pakistan, one thing commonly observed is the misuse of technology and lack of guidance provided by their parents to the young children. This study helps to understand the perspectives of parents and teachers regarding the application of technology- based teaching and their observation to this approach. Interviews and observations through qualitative research method helped to understand how people comprehend their experiences in relation to the use of technology with early year children and what meanings they derive from their personal experiences (Merriam, 1998). The outcomes of this research informed that parents and teachers highly recommended technology use in classrooms as the source to develop 21st century skills; technology allows children to get the accessibility of multiple resources; become multi tasked, develop the level of communication skills through which they can connect themselves to the world; readiness to learn new concepts; motivates in reading through visual learning; helps in understanding complex concepts and retain information for a longer time. Role of schools in promoting technology-based teaching in early year classroom highlighted as minimizing the gap of resource allocation through providing sufficient technology-based resources to the students through which many learning opportunities will be given to the students to become effective learner and developing ways of assessment for effective learning. Some of the challenges informed by the participants with the use of technology are eye sight issue due to access use and students' lack of interest towards book reading.*

Keywords: Early childhood development (ECD), Early childhood education (ECE), technology-based teaching.

Introduction

Beckley (2011) defines that education at each level has its own importance; however, education in the early years is becoming a global responsibility for the stakeholders to maintain best practices and also to meet the global influences in the contemporary world. Lauder, Lowe, and Chawla-Duggan (2008) second this idea and assert that improving early childhood education is well-connected to the lifelong learning and many international policies rationalize the effect of streaming the best practices into early years programs, help a country to develop themselves economically. Quality in early year educa-

*Beaconhouse School System. Email: pirani.shahnaz@gmail.com
†Institute of Business Management. Email: nasreen.hussain@iobm.edu.pk

tion helps nations reduce drop-out rates and bring positive outcomes to prepare children for the primary level education.

Pakistan, as one of the developing countries, is facing challenges in terms of providing quality education to its student population. The outcome of many local research studies identified reasons of this failure, just as, not initiating reforms, which can help countries strengthen their education systems; converting teaching and learning process into effective pedagogy; readiness of institutions; competency of teachers; organizational dynamics and policy implementation (Government of Pakistan Ministry of Federal Education and Professional Training Islamabad , 2017; Syed, Asif, & Yousaf, 2011) . With reference to the Goverment of Pakistan (2009), one of the most significant initiatives taken by Pakistani education system is to enhance the quality of early year education for the children to overcome problems which relate to the quality and accessibility of education. This agenda is set to meet the global demand of the society and to motivate people for providing better learning opportunities during early year education.

A non- profit organization in United States, (National Association for the Education of Young Children, 2008) informs that the best way to support student learning could be helpful if it, "emphasizes knowledge construction; invites open-ended learning; entrench authenticity; includes student cooperation and collaboration and also integrates mixed ability levels and uses different means of instructions where it is required ." Hence, to encourage the meaningful learning opportunities and keeping the contemporary part of education with the demand of 21st century, International Society for Technology in Education (ISTE) a non-profit organization in United States in 2007, launched the National Educational Technology Standards for Students (NETS-S), which were further revised in 2009. The purpose of NETS-S was to profound the substantial standards for the students, to enhance technology-based teaching with security, ethics and individual skills (Grant & Mims, 2010).

The advancement of technology enables learners to explore different occasions and ways to get the information through different sources and provides an opportunity to the students to study through student-centered instruction, cooperative learning and also increases the interaction between teacher and student (Willis et al., 2014). In order to facilitate effective teaching and learning process, technology integration in early years setting becomes an evocative means for significant stakeholders (curriculum advisors, principals, teachers, students and parents), to support learning with the global standard of education (Tinio, 2003). Hence, technology integration in teaching and learning process found as providing supportive learning environment for the young learners.

Within the context of Pakistan, one thing which is commonly observed is the misuse of technology and lack of guidance provided by their parents to the young children. Furthermore, it has been observed frequently that parents provide gadgets to their children without any purpose and they use it unconsciously, which results in a distracted attitude towards academic and social activities. The role of the teacher in this scenario remains passive as they are helpless and have no control over the decisions made by the parents in this regard. Parents on other hand are willing to give digital devices to their children aimlessly and according to their convenience.

Research highlights that in early years, teaching through technology plays a signifi-

cant role if it is connected with relevant learning experiences (Willis et al., 2014). Sivin-Kachala and Bialo (2011) observed that if the students are exposed to a technologically rich environment through positive and consistent patterns in their learning experiences, it helps them in their cognitive development. Zehra and Bilwani (2016) in their study found that teachers were not influenced by internal or external barriers, which facilitated integration of technology in the classrooms. This study helps to understand the perspectives of parents and teachers regarding the application of technology- based teaching and their observation to this approach. It also helps to explore the ways through which school promotes technology-based teaching in early years classrooms.

Literature Review

Early Childhood Development (ECD) refers to the comprehensive approach to the policies and programs for the children from birth to eight years of age, their parents and caregivers. The purpose of concentrating ECD is to offer the child his/her rights for the development of his/her cognitive, social, emotional and physical abilities. Early childhood development is the key to a successful and productive life, not only for the individual but also for the nation as a whole. It is the period, when a child is going through the developmental phase that helps to form the foundation of his/her well-being and learning. Failure to provide sufficient and optimal developmental experiences can become the cause of delay and disability in the child's behavior and performance. Research informs that early childhood interventions by the age of four can have a lasting effect on intelligence, personality and social behavior of the child. Therefore, those integrated programs which are introduced during this time are critically essential for their mental and psychosocial development (UNICEF, 2016).

Early Childhood Education in the Light of National Curriculum of Pakistan

The National curriculum of early childhood education informs about the paradigm shift of an education system at early years with meaningful approaches to teach joyful learning experiences and building social reforms to enhance capabilities of future generation (Syed et al., 2011). Early Childhood Education (ECE) is also termed as pre-primary education provided in schools. ECE is inclusive with health and nutrition provisions as well. The word Early Childhood Development (ECD) is used as a substitute term for ECE which concentrates on good health and education provision of a child from 0-8 years with emphasis on child and mother during post-natal care as well. Early childhood education provides the bedrock and strong foundation not only for effective primary education but also for later in life. This reality has been obvious for human beings from centuries ago when the Holy Prophet (SAW) said to seek Knowledge from the cradle to the grave (Ahmad, 2014).

Experts recommended that young children should be gradually motivated towards learning through activities which are interactive and interesting for them. In ECE classes,

children should be provided a safe, nurturing and stimulating environment. Unfortunately, due to various gaps in the implementation of policy, like provision of safe, nurturing and stimulating environment, opportunities for creativeness, provision of resources and particularly lack of understanding about importance of ECE, our preprimary education does not qualify to be considered as good quality early childhood education. Taking all substantial factors into consideration, UNESCO in Education 2030 agenda reinforces to ensure 100 percent access to early childhood education and care to make them lifelong learners and support their wellbeing (UNESCO, 2015). Schools are found responsible to provide best learning opportunities to early year children which is perceived to be a significant role to build strengths among young students to foresee the economic development of the country (Beckley, 2011).

Early Childhood Education in the Light of 21st Century Skills

It is very important to take measurable steps to improve national early childhood education, this alone is not sufficient to support the learning and development of young children. Providing high quality early childhood services are also essential and required; therefore, there is an urgent need to increase in the number of schools to reduce the issue of inaccessibility and a need to work on the quality of services provided in early years schools (Ivrendi & Isikoglu Erdogan, 2015). A substantial body of research stated that the quality of early childhood education programs improve the developmental levels of children (Burchinal, Vandergrift, Pianta, & Mashburn, 2010; Sylva et al., 2006). There was a rigorous and sophisticated longitudinal study mentioned that high quality early childhood education improves a child's overall development (Ishimine & Tayler, 2014). Specifically, (Barnett, 2008) stated that higher program quality is associated with larger gains in cognitive and language abilities. Several other studies indicate significant correlations between the quality of and children's cognitive, language, socio-emotional and psycho-motor development, early academic skills, and school readiness levels (Burchinal et al., 2010). A recent study has also documented that classroom quality is well associated with better academic performance (Rudasill, Hawley, LoCasale-Crouch, & Buhs, 2017). Similarly, a number of studies have revealed that high-quality early childhood education improved the academic success of children later in life. High quality early childhood education has especially long-term positive effects on the primary school years as it promotes children's social and academic skills (Broekhuizen, Van Aken, Dubas, Mulder, & Leseman, 2015).

Technology is viewed as a tool for learning in early year classroom, then it is considered as a potential strategy to enhance students' social and cognitive development. A concrete example of social development is when children involved in activities during technology-based teaching, share leadership roles and initiate interaction more frequently. They keep asking questions and trying out different activities with greater enthusiasm (Kleiman, 2000). Use of technology in early years classroom refers to different dimensions of learning which are also supported by various empirical use of photo books in science activities motivates students' involvement as active participants (Katz, 2011); use of computers in classrooms for learning purpose effects on academic performance

of the students (Judge, Puckett, & Bell, 2006); rapid development of technological tools are building learners as new millennium digital natives (Gu, Zhu, & Guo, 2013) digital story telling found as a powerful tool for teachers and students to engage them into critical thinking and dialogues (Robin, 2008). Moreover, Pellerin (2013) found that the use of technology supports the idea of inclusion into instructional strategies by allowing learners to represent the idea through different ways, modify the actions and expressions as per the level of understanding and design activities which can engage students effectively.

Thus, global demand for early year children is to meet the 21st century skills through exploration, problem solving, meeting the individual needs and working on the digital literacy through collaboration and coordination with international learning community. This requires a shift of our mind sets and practices from traditional- based instructional techniques to the student-centered classrooms.

Research Design

The data for this study assembled with the help of qualitative research technique. Qualitative research embraces a variety of methodological approaches with "different disciplinary origins and tools" (Lingard, Albert, & Levinson, 2008). In this study, qualitative data was interpreted based on how people comprehend their experiences in relation to the use of technology with early year children and what meanings they derive from their personal experiences (Merriam, 1998). That is the foremost reason that qualitative research method plays a role to provide opportunity to the researcher to gather the research data through participatory approach and maintained the role of researcher as reflexive in the whole process.

Data Collection Procedure

In this study semi-structured interviews and observations helped the researcher to gather in-depth data which was compiled with the help of responses of the participants (Merriam, 1998). In the light of the research questions, thirty-five probing questions were developed for the parents and teachers. Those questions mainly focused on the perspectives of parents and teachers regarding integrating technology and role of a school in promoting technology in early years classroom. Therefore, four ECD teachers and four parents of the respective classes were invited through purposive sampling technique. The purpose of using semi-structured interviews in this research context was to explore the experiences with open-ended questions which would not be discovered through structured interviews or surveys (Harrison, 2009). Semi-structured interviews in this research study were considered a bridge to understand the subjective responses from parents and teachers' perspective which allowed the researcher to get together the experiences and relate them with the literature.

To ensure the triangulation of the data, relevant information was also collected through anecdotal records. Anecdotal records or anecdotal notes are used to determine the observations related to the attitudes of research participants (McNamee & Chen, 2005). Such

notes inform regarding the learning patterns of the students for future recommendations. Anecdotal records are the running notes which are written usually at the time of ongoing observation which later depicts the performance of students through qualitative inquiry.

In the qualitative data, process of analysis includes "Transcription, coding the data and developing categories and themes" (Remler & Van Ryzin, 2014) inform that analysis of qualitative research data is an essential part of the data collection procedure. This process enabled the researcher to understand and record the incidents being witnessed and interviewed . This also helped the researcher to make meanings out of the gathered information to get to the conclusion (Silverman, 2013). In this study, an organised analysis process was applied to get a clear understanding of the data. Firstly, after each interview, data was transcribed and shared with the participant in the next meeting. Next, data was coded and categorised with the understanding of research questions. Later, themes were generated to present the findings and create a discussion forum with reference to the generated themes.

Research Analysis and Findings

To understand the indebt analysis of the research, this part of the paper discusses research analysis and its findings into two major themes: Perspective of parents and teachers towards integrating technology in early year classrooms and the role of the school in promoting technology-based teaching in early year classrooms.

Perspectives of Parents and Teachers towards Integrating Technology in Early Years Classroom

Parents' and teachers' perspectives regarding technology use in early year classrooms were found to have many positive and some restricted aspects. Both the participants shared their perceptions, relating with their contextual examples. Teachers discussed the status of technology as from head to toe our life is filled with technology. Starting our day from newspaper and taking it to the level of using phone and obtaining different information related to everyday work technology plays a major role. With the further discussion they also shared, early years children do not like to study through traditional style, they are the children of today's world. They need to be educated with well-designed lessons in which technology is also used. Following are the themes which were extracted through the data. It presents the clear idea how parents and teachers further referred technology as a tool for learning.

21st Century Skills and Demand

Use of technology by many participants was referred to as the demand of this era of 21st century skills. According to them, technology is very important to deal with all possible solutions because this generation is not for the present, but for the future. Teachers also shared their perspectives regarding students' learning through technology as, it helps a

child groom himself and learn more about the world. However, frequent use may affect mental and physical health of a child. By using technology for teaching concepts, giving an opportunity to use and explore individually.

Parents also believed that technology is now replacing books because of the accessibility of resources which people can get through internet surfing and research. They also inferred it as a multi-tasking technique through which a child can learn by having different options. Keeping students limited to the books will hinder multitasking, which can be done through technology. The use of technology gives multiple options to the children to search the right information.

Many parents supported the same idea and expressed that the use of multimedia in exploring the visual part of the illustrations and words can make students interested and motivated for reading. They believe that if the students go with the book as well as the multimedia, both will give different impact of the same concept. Books are also essential; therefore to build their motivation and interest, the book can be viewed on the screen to give the students a sense of security.

Teachers are also considering technology as a source of interest for the students thereby motivating them to make learning fun. By referring to the advantages of the use of technology in teaching and learning process from the perspective of students' development, parents have positive recommendations to use technology for visual learning. They believe that technology provides a communication forum through visualization to learn differently. When children watch videos in virtual setting, they can remember the information because it will retain in their mind instead of reading from books. At one time they are listening, watching and getting multiple things to learn from it. So, it is a fast communication process through which the child is learning.

Nevertheless, there were parents who partially supported the use of technology in early year classrooms as they believed that children could learn technology in their later life. They further stated that both strategies could be used simultaneously, but within limited time. Another parent with some reservations shared that it was not necessary to use technology in classrooms, because in the past we studied by traditional methods. Because of technology, children get distant from books and with time kills their reading habits.

Supporting the idea of technology was found to be quite confusing for some parents. They do not want their children to be left behind and at the same time they also want the use of technology with some restrictions and conditions. This supports the findings of a study carried out by Zehra and Bilwani (2016). Nevertheless, parents take it as a source of communication too which could connect their children to virtual friends across the borders as well as for research purposes.

Supporting Child's Cognitive Development

Parents have been found supporting technology based on the outcomes they observe in their children's mental development. They mentioned some observations when their children face difficulty in terms of solving mathematics questions at the start of school; however, improvement is noticed gradually with the use of mobile phone applications and

games. This improves their learning outcomes. Observations made during the use of technology in classrooms were also validated that with the passage of time and practice, integrating technology in everyday lesson improved the overall productivity. It was also recorded through observations that students developed skills like sight reading and predicting events to complete challenging tasks independently. This development perceived technology integration as an effective tool for early year children's to experience. Students who were not given opportunity to learn through technology were also responsive most of the time during discussion, but they were unable to complete complex tasks due to monotonous tasks, use of resources and teaching style. Overall, this affected their concentration span.

Role of a School in Promoting Technology-Based Teaching in Early Year Classrooms

Schools have been found to play a major role in promoting technology from the data received from teachers and parents, since schools can give multiple opportunities to students to get themselves acquainted with learning exercises using technology.

Bridging Gap Through Bringing Innovation

Parents highlighted the role of schools in promoting technology as bridging the gap for brining innovation in teaching and learning process. Appreciating the school steps towards technology use in classrooms, parents shared their observations by highlighting the example of storytelling. They assert that using multimedia during library time in which you go for the book presentations can be used in different subjects because it has more impact when we take them to the auditorium and students get different environment with more information. Parents were found to be feeling positive about using multimedia for teaching. They recommend it as effective for students to study in an environment where they get exposure like an auditorium and children are also able to see things on a large screen. School is a place where children come from diverse background, where they may get the opportunity to access technology or may not get opportunity to have it even at home. One parent mentioned this point clearly and suggested that, some children might not have the opportunity to use technology at home, so you can strategize things which can be done through paper also. For example, my child uses notes in mobile and writes his name and his friends name while typing. This can also be done on paper so other students can also perform the task at home. May be some parent would say that we do not have an access to technology. Parent have shown a positive attitude towards the use of technology in classrooms and how schools could further promote technology through different software applications to encourage effective learning. They also want school to be supportive in terms of bringing in new ideas for a children's learning. To elaborate further, parents shared that if schools can start sending homework related to searching and doing a project using technology, we can also help our children how to use technology in a proper manner.

Technology as Facilitating Learning

Teachers believe that learning through technology is useful for the students. Children love to learn through technology because the concepts can easily be delivered and they can also compete with their surroundings. By surroundings, the teacher meant the students who are considered digital natives and are already creating their identity in the society by using technology as 21st century skills. It creates an impression that parents themselves are also motivated and they really want the school to become supporting factor for promoting quality of education. Technology is not limited to teaching; however, teachers believe that, it makes assessments effective through fun loving activities. Technology integration can create possibility for the learners to reduce fear from assessments.

When teachers were inquired regarding the support the schools can provide to promote technology-based teaching in early year classrooms, they recommended that schools can provide individual gadgets to the classrooms for promoting technology-based teaching, workshops can be arranged for the teachers to understand the effective utilization of technology and many more such activities. On further investigation, teachers shared that major support is required from the head and administrative staff in terms of allocation of resources and allowing innovative teaching techniques to use them in the classroom. Teachers were found to be looking forward to getting support from school to apply new strategies in their classrooms; however, the role of a school head and administration is significant to promote an idea of technology integration in early year classrooms. Teachers also highlighted that due to not having separate ICT labs for early year children, they face teaching issues when the lessons integrate technology.

Nevertheless, observations made through anecdotal records inform that students who were given a chance to learn through technology application in teaching and learning process, were found to be more enthusiastic and attentive than the other group who were taught without using technology. The latter group was found to be facing difficulty in terms of understating teacher's instructions, which had to be repeated a couple of times. On the other hand, students learning through technology were found not only retaining information, but also repeating with their colleagues to share new things they had learnt. This intimates that if schools provide opportunities to the students to learn in different settings they become responsive and retain the information easily.

Discussion

The outcomes of this research inform that parents and teachers highly recommended technology use in classrooms to develop 21st century skills. It was further analyzed through interviews that technology allows children to get accessibility to multiple resources, thus encouraging them to become multi taskers. Further, the use of technology develops the level of communication skills through which children can connect themselves to the world; readiness to learn new concepts motivates them to read through visual learning and helps in understanding complex concepts to retain information for a longer time. The role of a school in promoting technology-based teaching in early year classrooms was also highlighted as significant by the research participants. They claimed that schools can min-

imize the gap of resource allocation by providing sufficient technology-based resources to the students through which many learning opportunities could be given to the students to become effective learners. Different ways of taking assessments through using technology was also appreciated by the research participants as an effective tool of learning. Some of the challenges informed by the participants with the use of technology were eye sight issues and lack of interest towards book reading.

Technology is considered as 21st century skill because of its demand and global competency level of students. Fadel and Trilling (2012) assure that digital literacy is an important phenomenon in the 21st century. Students need to learn the skills which can help them to survive and thrive within complex time. Jhurree (2005) argues that technology provides an enhanced learning environment for learners to be constructive and engaged with the given opportunities. It was further discussed that learners get an optimum chance to discover and get pedagogical benefits of technology in the classrooms by experiencing the constructive model of learning rather instructive models as discussed by Gohl, Gohl, and Wolf (2009) and technology enhanced complex thinking to understand the material in traditional times. Specific assessments which are designed to evaluate the performance of the learners are much dependent upon the multiple sources of information gathered from technology-based teaching style. The major strengths of using technology for young children are the multiple opportunities and motivation to learn through identification, communication, problem-solving and discovering to learn and make sense of the world (Katz, 2011). By using appropriate technology support provided by teachers or other responsible members for the child's learning can extend the developmental learning areas and open more chances for the children to gain exposure and learn with the demand of global society. However, it is also important to keep a healthy balance between the Elements of childhood with unique capabilities offered by technology. By looking at the short comings (Leidner & Jarvenpaa, 1993) found that people must not only be trained in using hardware and software, but they should be trained in meeting strategies in order to effectively use these resources (Hiltz & Johnson, 1990).

Hence, children become good at multitasking if they are allowed to explore different options at the same time. It creates a learning curiosity among them to do new and challenging things. Secondly, children tend to be visual learners and they need to be given the opportunity to observe and learn through it. Next, diversity and opportunities should be balanced in schools, thereby giving a fair chance to those who coming with different culture and socio-economic background. Moreover, challenges should not be neglected while using technology in classrooms or at home. It is the responsibility of the teachers and parents to monitor children's activities to give proper and relevant education.

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