e-Nursery Project: Using Technology in Early Years

Lubna Bashir Malik
MirandaNet Senior Fellow
Chair of the MirandaNet Pakistani Chapter
Educational Technology Trainer: The City School, Lahore (http://thecityschool.edu.pk)

§

Background

The e-Nursery project that I am going to share with you in this article is a combined project of the Educational Technology Department (ETD)[1] and the Studies Department (SD)[2] from The City School (TCS)[3] Head Office.

I conducted this research project to compare learning in different scenarios in the context of my role as an Educational Technology Trainer. The project was explicitly divided into three phases; Planning, Execution, Evaluation, to assess effectiveness of each phase. There was a team of 5 members from TCS - Head Office, involved in the planning, execution and evaluation phase; the head teachers and the teachers from e-Nursery schools were also the part of the project. When the project was initiated, I was a member of the ETD. I continued with the project although I transferred to the SD team.

The Context of TCS

The City Schools (TCS) is a progressing organization that aims to provide quality education to its students with a meaningful learning environment, innovative teaching methods, and effective use of technology to enhance students' learning and development. TCS comprises of three regions with a number of schools in each.

In TCS, the use of technology is the part of education (from KG – Class 8) across the schools. Students from Class 3 – 8 learn through short/long term projects integrating across various disciplines. Multiple initiatives have been taken regarding the use of technology in TCS within past few years.

In accordance with the three phases, this article is outlined in three major parts for my readers; the first part is related to planning which discusses the philosophy and purpose of the project along with the need of infrastructure and involvement of support team. The second part highlights the methodology; including preparing e-content for teachers, teacher training sessions and their findings.

[1] *Educational Technology Department (ETD)*
[2] *Studies Department (SD)*
[3] *The City School (TCS)*

The last portion focuses on the evaluation of the project, recommendations for future and conclusion.

Planning

A comprehensive plan by the Educational Technology and the Studies Departments had been devised to ensure a smooth flow of the project. The planning phase took place in the summer break so the project might start in the first term of the academic session. The early year education coordinator worked collaboratively with the educational technology trainer to assess the situation, look into the ground realities, evaluate the use of technology in early years and review the infrastructure.

PURPOSE

The TCS aims to provide the quality education to the students based on its vision, with most effective use of technology in an early childhood setting also. It involves the application of tools and content to enhance children's learning and development, interactions, communication, and collaboration. TCS believes in creating the technology rich environment in early year education with active engagement rather than passive uses of technology. A balance between the uses of digital technologies must be weighed against the use of natural and three-dimensional resources.

The young children exhibit a diversity of learning styles, and the optimum way for many children to learn is through contextualized approach. And, today the strongest context for children is technology rich environment. The diverse learning needs of young children match up well with appropriate use of technology in the classroom.

The philosophy of the use of technology in primary and middle schools should be clearly linked with the vision of e-Nursery. The e-Nursery pilot project was aimed at highlighting the progression of previous concepts of technology integration with the future.

Considering the challenges of the future digital world, the ETD team along with the SD team decided to initiate an e-Nursery pilot project. This project aimed at using a variety of technologies in early years (From Play Group – Class 2) as teaching and learning tools. Therefore, five schools from each region were identified by the Regional Directors to establish technology based learning for early years for 2015-16 academic session.

The e- Nursery pilot project itself was a comparative study between the learning in the traditional classrooms and the technology based environment. Furthermore, this initiative would help to bridge the gap between early years and the lower primary schools in terms of using technology across various subjects. In TCS, students learn through technology integrated projects from Class 3 whereas for KG – Class 2; students learn only the use of technology. Therefore, the e-Nursery was considered as the progression of technology integration starting from Play Group. In addition to that, this pilot

project would lead to extension of e-Nursery schools based on its success, using a variety of success indicators.

Infrastructure

The foremost step was to identify infrastructural needs and fulfill the requirement to setup e-nursery schools. The resources were purchased by an internationally fame company to ensure the best resource in schools in terms of hardware and software.

A Hi-Tech room had been prepared in the total of 15 schools in each region with the resources which include COW (Computer on Wheel) 30 tablets with a charging trolley, Eyeris smart board, Content Server, Visualizer, Multimedia, Laptop, UPS. It was decided that the teachers would use the Hi-Tech room at least for 3 periods per week.

Support team

A support team from the Head Office had been created that includes people knowledgeable of educational technology, and people who understand developmentally appropriate practice of early years.

Methodology

A systematic way of project implementation had been ensured to assess its effectiveness in terms of pedagogical achievements. Providing support to the teachers and heads was another element to make the project effective.

Development of e-content

The team selected developmentally appropriate content for the teachers from Play Group – Class 2; including monthly schemes of work (SOW), sharing of online resources (videos, educational games, simulations, songs, web links etc) and curriculum related apps. They designed lesson plans for the teachers along with related resources. They developed assessment tools to facilitate teachers to gauge students' progress.

Teacher Training (Stage 1)

First spell of training took place before teachers go to the classes; in the summer break. The support team provided adequate and periodic teachers training, both on the use of technology, and on the ways of integrating technology to enhance students' learning as intentional, appropriate, and integrated use of technology is explicitly dependent on the ability, knowledge, and skills of the teachers. Early year teachers were given training and professional development opportunities to experience new setting with technology tools, learn about appropriate use of technology, and gain the knowledge and skills to implement them effectively in their pedagogy. The training had been

given to the regional ICT coordinators, early year's teachers, computer teachers and ICT lab assistants.

Two types of training sessions for teachers were conducted in every e-Nursery school;

- Technology based training
- Integration of technology in pedagogy

Both types of training sessions assisted all individuals to be familiar with the required setting of gadgets, use of technology and how to integrate technology effectively in their pedagogical practices.

The training was aimed at focusing the philosophy of using technology, Jonassen model (1999) of creating meaningful learning environment, rationale, pedagogical practices, e-safety and the structure of implementation of the project along with hands-on activities.

FINDINGS

Although all the required tools were deployed; suggested software were installed as it was the need of the training session, however, only a few apps were downloaded in the tablets. For teachers, this caused a limited exposure of the apps being used effectively to learn a variety of topics.

For an activity, during the training sessions; teachers created detailed and effective lesson plans. They integrated an app along with two features of the installed software with their chosen set of learning objectives and fit effectively in the activities.

The training sessions helped teachers and head teacher to get the basic concept of meaningful use of technology in early years' teaching. They agreed with the need of the technology initiative in early years and valued it as an early year classroom practitioner. However, the duration of the training was insufficient; for a comprehensive understanding and the practice of the learnt skills, more time was required.

Teacher training (Stage 2)

The schools opened after the summer break and teachers entered into the e-Nurseries with all the strengths and motivation. The heads were excited too as they considered this initiative as a marketing tool. The team members paid the follow-up and support visits to all the schools when the project was in its execution phase.

STRUCTURE OF THE VISITS

After completing the first spell of training; the support visits were paid in the e-Nursery branches across the regions. These support visits were planned to further train teachers by facilitating them while practicing teaching. The purpose of these visits was to provide support to the teachers during the 2nd phase i.e. implementation phase of e-Nursery project. The support was provided through

observing teachers and resolving the issues and problems faced by the teachers while using technology for teaching and learning.

In this phase, teaching and learning in the Non-ICT classrooms was also observed for the same objectives. The same observation form was used for this purpose.

All EY levels were observed during the support visits. Most of the observation sessions were conducted in the e-Nursery lab. However a few were conducted in the classrooms where teachers used tablets to achieve the learning objectives. The observation form had been shared with the heads and teachers earlier so they are familiar with the tool to measure teachers' performance.

FINDINGS

Teachers were quite motivated throughout the session and understood the concept of the philosophy of meaningful learning environment through technology. Their active participation demonstrated their interest and understanding. Also, the hands-on activities helped teachers to develop their confidence in using multiple technologies. The majority of the teachers were between the age of 20-30 so handling technology was easy for them. Whereas the understanding of how to use it meaningfully to enhance students learning should be the priority during the classroom practice.

The layout of the e-Nursery room was effectively appropriate to address different teaching activities. The equipment was installed appropriately. The lab assistants had maintained the log for issuance of tablets and time tables. Teachers were following the timetables (at least 3 periods per week) and using the content shared by the TCS - Head Office. However, few teachers created their own lesson plans and used their own selected apps which were relevant.

The teachers generally were found highly motivated and well supported by the heads. The heads were keenly making the efforts to make this project a success. Teachers believed that technology made teaching and learning easy. Teachers and students were comfortable in using the provided technologies. The assessment was strategically and thoughtfully planned by the teachers and used to gain information that what children can do and what they are ready to learn next.

Teachers compiled assessment portfolios containing students' work samples, photographs, field notes, skills assessments sheets, teaching learning recordings and observations to effectively illustrate children's learning and development. Children were involved in the portfolio assessment process as they were engaged in conversations about their learning and achievements.

The students' engagement was at the high level. Students learnt at their own pace using various apps, focusing individualized learning. Students were informally interviewed during the lessons to know about their views for this kind of learning.

Their responses were as follows:

I like it because I use tablets at home (Class 2)
I can drag the object (Nursery)
Tablet is bigger than mobile, I play on mobile at home (KG)
It's automatic (Nursery)
I can see my score (Class 2)
Answer comes there (Class 1)
It's easy (Nursery)
I like to tap and touch (KG)
I can see time (Class 1)
My friend helps me (Class 1)
I can see my friend's work (KG)
I love it (Class 1)

It was noticed as well as identified by the teachers that the letter and number formation is not as per TCS suggested writing pattern which could confuse the Playgroup and Nursery students. It is due to the fact that 'Nelson writing pattern' is not allowed to be used as the script for commercial purposes.

The teachers in the non-ICT classrooms had a variety of teaching aids in the classes. They were using those resources according to the students' needs but they could not engage all the students as some children did not find the topic and the resource attractive enough to be involved and it was not possible for the teachers to monitor all of them at the same time with same strategy. The first thing I noticed was that the environment for little children matters a lot in terms of their learning. The children felt more comfortable and attached with the classroom environment because they spend more time in their classrooms and only go to the Hi Tech room thrice a week. Children's span of attention was very short for the activities and the resources teachers used.

I also observed that teachers had to put more efforts to teach the concept. However, teachers were also comfortable in their own classes so it affected the method of delivery of the lesson. Or perhaps it was a kind of mind set for the teachers and the students.

AREA FOR DEVELOPMENT

The e-learning software was particularly installed so it could be used effectively for children's monitoring and assessment. Teachers used its features to create the quiz and involved children to solve the quiz but did not use it for monitoring them (one-to-one). They were hesitant to use it as they found it taking time and pressure of using multiple features at the same time.

Teachers' Instructions to use the particular app were not clear. The teachers had not used the app by themselves prior to the lesson so they could not focus on the clarity of instructions which damaged the lesson integrity.

As the lessons were observed; a very important factor of time management had been missed out. Students were not timed to play the app. As children had already missed out the instructions how to play and for how long to play the app, therefore, their mind could not frame the activity with its learning essence. Furthermore, teachers should have made the link of the app with the topic of the lesson so the children could know the purpose of playing the app. Most of the time children were playing it for the sake of playing without making it a meaningful contribution to their learning.

Teachers could not give the effective wrap up at the end of the lesson. They might be in the pressure of using various features of the certain technologies. Because of their insufficient expertise in those particular technologies; their speed of handling technology was a bit slow and they were unable to manage the time so the last part of the lesson; the wrap up had been missing.

SUPPORT PROVIDED BY HO FACILITATOR

Teachers were supported through:

- Co-teaching
- Demonstration of the lesson
- Instant feedback after the lesson
- Collective feedback session at the end of the day

SUGGESTIONS BY THE REGIONS

- There should be a separate assistant for e-Nursery lab
- Teachers should co-teach inter-branches through Skype sessions
- Teaching videos created by the teachers should be available to all to learn from one another's teaching
- More support is required in terms of use of technology in teaching

SUGGESTIONS BY HO TEAM

The schools were advised to arrange wooden steps for children to use the features of Eyeris on the board conveniently as children found it difficult to use the features of Eyeris effectively which hindered their learning pattern.

Proper demonstration should be made of how to use the app; ensuring that all the students are looking towards the teacher/ board attentively. Teachers must use the feature of connecting tablets with the board to demonstrate how the particular app works. Consequently, when children used the app; they played purposelessly. The teachers had to go to every child, instructing them how to play it.

It was suggested that number tags can also be placed on the tables according to the tablets numbers so students sit at their allocated number. That can help teachers to work smoothly avoiding the

waste of time during the lesson. As the children in PG, Nursery and KG took time to connect according to the number. It required a lot of practice.

It was also suggested that tablets should not be given before the activity as children start playing with them and missed the important segments of the lesson flow.

Children must sit in the groups to learn from one another. It was noticed that students sitting in groups were more engaged, interactive and inspired by the use of technology. Whereas children sitting as a whole class or individually seemed lost and not focused towards the targets of the lesson.

It is suggested to have customized apps that are in accordance with suggested TCS handwriting pattern for numbers and letters i.e. Nelson script; particularly for PG, Nursery and KG.

It was discovered during the observation that students must have individual headphones while using the apps which need to incorporate sequential instructions to complete the tasks. Certain apps had voice instructions which caused a chaos when 25 apps in the tabs were voicing at the same time. It caused a great hindrance in learning.

Parents should be involved with this new mode of e-learning of young children so the learning in the school and home should be of similar nature.

Teachers were advised to organize orientation sessions, open days and workshops for parents.

The school heads must allow parents to visit the e-learning classes to see the use of technology by their children

They must display students' work outside the school; including an e-Nursery bulletin board near the gate, arranging standees at different places, playing videos of teaching and learning (e-Nursery room) on LED in the visitor area, sharing a brief description/detail about this initiative (prepared by the Media Dept. for all branches) and arranging an online exhibition of technology based teaching and learning at the end of the year.

Teacher training (3rd Stage)

Evaluation and Progression

Another spell of teacher training had been conducted through providing them support by observing them, evaluating their performance in terms of project and giving them the feedback. This spell included a final series of observations in every e-Nursery school to compare the teaching and learning in both scenarios; teaching with technology and without technology. In addition to that, the success of the project needed to be evaluated too to plan for the next year.

FINDINGS

Teachers were much more comfortable in using the gadgets and teaching with technology. Teachers' understanding of using technology to create meaningful learning in the class had been developed. They managed technology as a tool and were aware of the progress students made. They easily and effectively used the given assessment tools within their teaching. They realized that the apps used were helpful to make the concepts clear. However, it was observed that teachers tried to use more technology in the 40 minutes period than it was needed. It might be the pressure of the initiative itself which claimed the use of technology for early years. The lessons seemed model lessons as teachers tried to show maximum use of technology during their teaching practice.

PROJECT EVALUATION TOOLS

The following evaluation tools had been used to evaluate the success of the project:

- Classroom observations
- Informal interviews with students, teachers and school heads
- Survey forms for parents
- Survey forms for heads

RESEARCH FINDINGS

It was appreciated that all e-Nursery heads and teachers were motivated to teach with technology integration and were convinced that it was an effective tool for teaching. Moreover, the parents had highly appreciated the e-Nursery project considering it to be a positive step towards latest trends of learning. Students enjoyed the opportunity to experience.

This table outlines the data from the comparative studies in which the same students and teachers were observed in e-lessons and during conventional teaching.

		Conventional Teaching	e-Nursery
Teachers			
	Teaching	Are motivated	Are highly motivated
		Demonstrate more confidence while teaching	Demonstrate moderate level of confidence
		Demonstrate ownership	Demonstrate moderate ownership
		Demonstrate moderate resource management	Demonstrate moderate resources management
		Demonstrate moderate lesson preparation	Are well prepared for the lessons
		Are comparatively less interactive	Are more interactive lesson
		Use less audio visual aids	Use audio visual aids
		Spend time on preparing resources.	Get planned lessons with resources
		Have less opportunities for Assessment for Learning (AfL)	Have comparatively more opportunity for AfL
		Follow routines	Demonstrate readiness for innovation in teaching
Students			
	Learning	Have comparatively fewer opportunities for talking	Have more opportunities for talk
		Demonstrate comparatively low interest level	Demonstrate high interest level
		Demonstrate comparatively low motivation level	Demonstrate enhanced motivation level
		Demonstrate less engagement	Demonstrate higher level of engagement
		Demonstrate adequate grasp on taught concept	Demonstrate better grasp on the taught concept
		Demonstrate moderate students' participation	Demonstrate maximum students' participation

Challenges and Constraints

In two of the schools the e-resources were found to be underutilized due to very low students' strength (as they were newly opened.

While working with tablets at times it gets difficult to control noise level as some of the apps have musical background which is unavoidable.

As we select free apps available from Google app store which are not in accordance with TCS recommended font style (Nelson Handwriting script) for classes Playgroup and Nursery. Thus, it gets challenging to find suitable apps for literacy and number lessons.

It has been observed that teachers used various online materials (videos) but were unable to use the resources meaningfully and effectively. They did not know how to embed technology in the learning process. They showed the videos and moved to the next activity without generating a discussion or posing effective questions.

It has been observed that generally teachers did not use one to one software for monitoring students' work during e-lessons rather than they were comfortable taking round for monitoring.

School heads are not very technology savvy which hinders them to understand the issues, support required or handling the situation in a positive and effective manner.

Recommendations

The recommendations are as follows:

- Extend the project further by converting 5 more schools per region into e-Nurseries.
- Students must have personal headphones which must be used while working with the apps. These can be included in the study packs.
- The selection of an e-nursery should be done more effectively. It is recommended that already established schools would be favourable for the selection of this project as they hold trained teachers as well as a good number of students' strength.
- There should be a continuous support programme for teachers.
- Heads must develop a supportive and strategic plan to provide full support to the teachers in terms of effective utilization of the resource, learning achievements and improved pedagogical practices; involving ICT teachers.
- Design customized app (Letters and Number) following Nelson script for PG and Nursery with the help of outsource or HO IT experts.
- The regions should be given responsibility for this project in terms of support and monitoring along with HO (including regional coordinators, school heads and the teachers) for a smooth execution of the project.
- A manageable e-system should be in place to record and store the assessment information.
- Collaboration among teachers is required across the regions.

Implications

Passive use of technology for early years must not be inappropriately used as a replacement for active play, engagement with other children, and interactions with adults.

Conclusion

The research undertaken for technology integration in the early years indicated that the learning and teaching patterns in the conventional and technology based classrooms are entirely different; in

technology based classrooms, students' learning is smooth and well merged with the resource – technology and most of the happenings are at the students end.

In the conventional classroom, learning objectives are achieved, children develop the understanding; teachers put lots of efforts to aid learning, to enhance learning and to direct towards learning. The control seems in teachers' hands to bring learning as a major event of the teaching.

The concept of technology integration in early childhood years is centered on the relationship of technology usage to the cognitive, emotional and social development of young children and their developmental needs. Children learn from their environment; their developmental needs display a consistent use of technology in their learning environment to make learning deeper, contextualized and meaningful.

§

THE AUTHOR

Lubna Bashir Malik has been involved with education sector for over 19 years in different capacities. She has accomplished her Masters in Educational Leadership and Management, the Diploma in Teaching with ICT and has completed a PGCert in Professional Development. Currently she is enrolled for an MPhil in Education (Educational Technology). As a professional, she is working as an Educational Technology Trainer in The City School Head Office, Lahore.

She has been working with the MirandaNet Fellowship, UK for the past few years. MirandaNet is an international education community for researching and sharing innovation which provides a brilliant opportunity for researchers and scholars to share their ICT related educational solutions.

http://mirandanet.ac.uk/bp-members/lubna-malik