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On Technology Awareness and Acceptance among Preschool English Language Teachers in Ukraine

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Abstract: Previous research has proved that ubiquitous learning environment supports language learning among preschoolers, but the children cannot access the technology if their parents and teachers do not use it in their daily life and learning process. The usage of the Applications for the English teaching in kindergartens still poses lots of questions. The current research aims to evaluate the current level of technology usage among preschool English teachers and analysis whether their attitude towards technologies can change after the technologies are included in the learning curriculum. The participants are five preschool teachers from the private kindergarten in Ukraine. The results showed that before the implementation of the experimental course, two out of five teachers have not been enough qualified for using modern technologies in the preschool classroom. After the implementation of the course, all teachers admit that their level of technology usage improves and they are willing to use modern technologies in their future work. The current research highlights the importance of modern technologies for preschool education and describes it from teachers prospective of view.

Keywords: preschool education, technology-enhanced language teaching, technology acceptance model, technology awareness.

1. Introduction

New technologies produce great influence on different aspects of modern life. The development of digital communication methods, information transfer and storage has had a significant influence on education, and technology development has made it possible for individuals with less computer skills to produce and disseminate information. As a result, learning now can occur almost at any time and in any place that has communication services. Nowadays, even the youngest learners can become the part of learning progress. According to Geng et al (2016), the toddlers start to use iPads even before they can speak. The previous research proves that usage of modern technologies can speed up the efficiency of learning process up to 3.8 times and can keep children attention 2.8 times more effective that the traditional paper-based materials (Dalte, Jing, Gu, 2017).

While the adult learners can get an access to modern technologies on their own, the usage of them among preschoolers depends directly on the technology awareness and acceptance among their teachers and parents.

According to the report of Ukrainian Ministry of Sports and Education (2012), more than 80% of 3-5 year old children are affiliated with different kindergartens and preschool educational centers. The majority of them start to learn there English as their second language. However, the educational system of Ukraine is quite conservative and modern technologies still have not widely penetrated in it, especially on the preschool level. That is why it is extremely important to get a better understanding on the technology awareness, acceptance and usage among preschool teachers. In addition, the current research aims to highlight the change in teachers attitude towards technologies after they have been implemented in the teaching plan and approved by the principle.

2. Literature Review

2.1. Technology Acceptance models

The first attempts to analyze technology acceptance among adult learners are made by Davis (1989) and Bagozzi et al (1992) in terms of the theory of reasoned actions (TRA). According to their model (TAM), while choosing, experiencing, evaluating and adapting new technologies, the user is influenced by a wide range of factors, especially the Perceived Usefulness – "the degree to which a person believes that using a particular system would enhance his or her performance" - and Perceived Ease-Of-Use – "the degree to which a person believes that using a particular system would be free from effort" (terms and explanations are given according to Fred Davis, 1989). At the beginning of the 21st century, the Technology Acceptance Model has been expended by Venkatesh et al. (2003) who has expended it for four key constructs: performance expectancy, effort expectancy, social influence and facilitating conditions. These concepts have been unified under the new model – Unified Theory of Acceptance and Use of Technology (UTAUT).
Based on these concepts, Leng et al (2015) develops new four-stage model that describes the level of technology usage among adults. Table 1 illustrates the levels mentioned above and provide their summarized description.

Table 1. Four level of technology usage among adults (according to Leng et al (2015)

Proficiency level	Distinguishing features
Basic level	1) Little awareness of new technologies; 2) Any, or little, experience of technology implementation to the learning process.
Intermediate level	1) Sufficient level of technology awareness; 2) Conscious implementation of few technology-based learning strategies or tools.
Upper-intermediate level	1) Acquaintance with many new technologies; 2) Constant usage of modern technologies; 3) Ability to evaluate the results and impacts of modern technologies; 4) Simple short-term learning goals.
Advanced level	1) Awareness of great number of modern technologies; 2) Long-term experience of technology adoption and usage; 3) Clear learning goals and plans for both short- and long-term activities; 4) Ability to evaluate the results and impacts of modern technologies; 5) Willingness to help others in their choice of technology.

As it can be seen from the level description above, the upper-intermediate and advanced adult users can be regarded like teachers as they are able to guide the learning process of theirs. The current research aims to understand what is the current level of technology usage among preschool teachers in order to understand which part of them can be regarded as an advanced technology users that can actively integrate technologies in classroom.

2.2. On the current state of available modern technologies for preschoolers

Many researchers believe that in the near future these smart technologies, as well as others, like Smart Interactive Television, Smart Apps (as Smart Tutor), Smart White Boards and Smart Houses will be primary personal devices and environments for various activities such as business, pleasure, work and entertainment (Bacow, Bowen, Guthrie, Lack, & Long, 2012; Nikou & Bouwman, 2014). In addition, the increasing use of ubiquitous technologies, especially smartphones, has led to the development of

various mobile applications (Apps) and services that provide new opportunities for end-users help them to perform different activities or to communicate and collaborate with others.

More and more parents nowadays encourage their children to use learning applications and Web 2.0 tools. According to the Common Sense Media Group report (2011), in the United States almost one third (29%) of all parents have downloaded language learning applications for their kids. The children start to use hand-held devices practically from their birth: 10% of 0-1-year-olds, 39% of 2-4-year-olds, and 53% of 5-8-year olds.

The latest researches has proved that as nowadays so called "on-screen activities" are dominating in children's daily lives (Rideout, 2011), the digitalization of learning resources can not be stopped. Digital storytelling applications for hand-held devices now offer an alternative to print books. According to report of the Association of American Publishers (Publishers Weekly, 2012), the market of digital storybooks for 3- to 6-year-old children devices nearly tripled from 7 million dollars in 2001 to 19.3 million in 2012. However, the implementation of such electronic storybooks has both positive and negative effects of the learning process of preschoolers (Bus et al., 2015). On one hand, lively and colorful animated pictures, that are enriched with music and sound, can help kids to integrate nonverbal information and language. On the other hand, the stories that are enhanced with hypermedia interactive features (e.g. game-based elements, "hotspots" etc.) may lead to poor performance on tests of vocabulary and story comprehension which can be explained in terms of the cognitive overload.

Furthermore, a huge number of special websites, such as Club Penguin or Webkinz, involve young children in playing games and encourage them to adopt different social roles (Gilbert, 2009). While using such websites, kids are able to create and manage an avatar in order to anonymously interact with others and communicate with them through instant messengers. While hiding behind the avatar, learners do not feel as shy as they usually do communicating with other (Barone, 2012). Reducing the level of communication anxiety is proved to level up the participation in learning activities (Dalte, Leng, Gu, 2016), and have a positive impact on the second language learning outcomes. According to Marsh (2011) such websites have the potential to increase children's literate abilities for they can read and respond to text or listen to text.

While the ubiquitous environment creates lots of opportunities for informal after-class learning process, the question how modern technologies can be used for in-class activities still is actual. The usage of modern technologies in class mainly depends on three factors: institution teaching policy, teacher's personal attitude towards technologies and financial issues. The current research aims to analyze how the first two issues influence the usage of modern technologies in preschool education.

2.3. The importance of modern technologies for ESL among preschoolers

The usage of multimedia mobile applications not only supports second language learning, but helps young learners to develop motor (Drigas, Kokkalia, 2016), critical thinking, and cognitive skills (Clements, 2002). National Institute for Early Education Research (2006) states that digital media have potential in teaching preschoolers as they encourage active learning and help to develop more than once skill at a time. Pierce (2004) remarked that when young children learned through computer-assisted story designed for developing their reading and writing skills, their pronunciation and speaking skills raised as well. These changes were noticed not only among average kids, but also among those with disabilities. Web 2.0 tools are proved to support the development of early literacy skills, for instance via voice-supported reading materials. In addition, remarkable progress was also noticed during the development of other literacy skills, such as phonics, phonemic awareness and fluency (Barone, 2012).

2.4. Research questions

In order to better understand how the using of modern technologies in classroom can influence teachers attitude towards them, I aimed to answer the following research questions:

1) What is teachers' level of modern technologies' usage?

2) Is there any change in the teachers' attitude towards technology usage for preschool education after the implementation of experimental course?

3. Methodology

3.1. Participants

The participants are 5 preschool teachers affiliated with the private kindergarten in Ukraine. The research was supported by the school principle, who actively participated and provided all necessary resources. The classes have been held twice a week, for 45 minutes each. The whole course has been three-weeks long and involved 33 preschoolers aged from 4 till 6 years old (divided into 5 groups).

3.2. Research design and process

To understand better how technology can provide more opportunities for traditional classroom environment, first we need to realize that the technology itself is not the target of learning – it is just the new tool for it. That is the reason why it is very important to choose it taking into account teacher's, intuition's and national learning plans. The current research tried not to change the course structure in order just to use more technological tools, but "to augment" and to extend the boundaries of traditional classroom in order to make learning process more engaging and productive. That is true that the teachers can still teach without the technology, and it is also true that students can still learn using a book and a pencil, but why would they do that, if there are new opportunities that can make their life easier? When Tomas Edison presented his first electric light bulb, nobody used the oil lamps ever after. The same can be said about Web 2.0 learning tools and applications: once they appeared, they would become more and more popular.

The research has been divided into two main prospective: (1) from learners' and (2) from teachers' point of view. The results and analysis concerning the influence of modern technologies on preschoolers' learning outcomes and their participation in the learning activities have been already published and presented (Dalte, Leng, Gu, 2017). The results of the second prospective have been analyzed later and are now presented in the current paper. The research process of the second prospective has been mainly divided into three parts: pre-course interview with teachers (to answer the first and the second research questions); experimental part (the teaching process itself with the involvement of new technologies); and, post-course interviews with teachers (to answer the second research question).

4. Results

4.1. On teachers' level of modern technology usage

As it has been mentioned above, in order to understand how the technologies are used in the preschool education, it is very important to understand what is the teachers' level of technology usage. According to the results of the pre-course interviews and the classification of the levels developed by Leng et al. (2015), it can be seen that not all the teachers are enough qualified to use modern technologies on daily basis (two out of five teachers never used technologies at their classrooms). The mentioned classification is focused on the adult learners, so it has been changed a little bit according to the teaching prospective of view. The changes are Remarque in the notes. The results are presented in table 2 below.

Table 2. Four level of technology usage among adults (according to Leng et al (2015)

Proficiency level	Respondents	Distinguishing features	Notes

Basic level	C	1) Little awareness of new technologies; 2) Any, or little, experience of technology implementation to the learning process.	These levels are defined by the authors as passive, as the teachers are aware of modern technologies but do not use them for teaching activities
Interme-diate level	B	1) Sufficient level of technology awareness; 2) Conscious implementation of few technology-based learning strategies or tools.	
Upper-Interme-diate level	E	1) Acquaintance with many new technologies; 2) Constant usage of modern technologies; 3) Ability to evaluate the results and impacts of modern technologies; 4) Simple short-term learning goals.	These levels are defined as active, because the adult learners of these levels clearly realize the impact and possible usage of modern technologies. Any good teacher should be an advanced level learner of modern technologies.
Advanced level	A, D	1) Awareness of great number of modern technologies; 2) Long-term experience of technology adoption and usage; 3) Clear learning goals and plans for both short- and long-term activities; 4) Ability to evaluate the results and impacts of modern technologies; 5) Willingness to help others in their choice of technology.	

4.2. On teachers' attitude towards new technologies for preschool education

The results of pre-course survey show that all five teachers are aware of possible technology usage for learning purposes, but online three of them (Respondents A, D, and E) tried to use it during their teaching. They also stated that it was in occasional and not-structured way. After the implementation of the tree-week course, all the five teachers reported to use the technologies for in-class activities, and they emphasized that it became the part of their routine. They also intend to use mobile Applications in future. For instance, the answers given during pre-course and post-course surveys by respondent B are presented in the Table 3 below.

Table 3. The comparison of the answers to the chosen interview questions for teachers during pre-course and post-course interviews

Pre-course interview:	Post-course interview:
Interviewer: "Have you ever used any Applications or online learning tools during your teaching and would you like to use them in future?"	
Respondent B: "To tell the truth, I have never used any Applications during the lesson. But while I am choosing the learning materials before the class, I use materials presented online in different websites, download songs from YouTube and look for some worksheets"	**Respondent B:** "Yes, I did. We were advices to use learning Applications for iPad (Jolly Phonics) by the director. As for me, I, as a teacher, think that it is a great tool to teach the basic phonics. In addition, I , on my own, downloaded few Apps, such as "English for kids: Vocabulary", for example. It can help kids to learn new words in more fun and exciting ways. Well, [laughing] to be honest, I also enjoyed the teaching with Apps. I think that was a good experience. I will certainly use Applications in future."

Interviewer: "How often do you use any Applications or online learning tools?"	
Respondent B: "Well… As we got printed learning materials in class, I prefer to use them. As for online resources, I look for them only when I need some extra materials. 2-3 times per month, I think."	**Respondent B:** "As I have already said, the director asked us to use the textbook and Application (Jolly Phonics). We did that during each class, and I think, I'll continue to teach using these materials. Furthermore, each class we used an App "English for kids: Vocabulary". And once a week at the end of the class, I encouraged kids to listen to interactive stories in "British Council" Application. That was really fun!"

Furthermore, the Respondent A mentioned that she was so interested in using the proposed materials Jolly Phonics (Textbook and App), that in post-course survey she stated she involved these materials while teaching other groups (not involved in the current research).

Respondent A: Sure. As a teacher here, in total I teach 8 groups: 3 [groups] of children (one of them are involved in the experiment), 2 groups of school students, and 3 evening groups for adults. I used the Jolly Phonics textbook with an Application to teach the kids in the group that is not involved in your project. They seems to like it as well […] I also used some Apps with schoolers, and now I decided to give them a home assignment through online learning platform LinguaLeo. I tried it with adults, as well.

The analysis of the observations also reviled that teachers adapted technologies for the exact learning goals. For example, Respondent D used to teach rhyming but writing the simple examples on the blackboard. For example, before the implementation of the experimental course she wrote on the blackboard the word "CAT", then erased letter "C" and wrote down "B", so that to get the new word "BAT" that rhymes with the first one. After the teacher was proposed to involve more technologies in the teaching process, she chose the Application developed for IPad – Endless Wordplay, designed and developed by Originator Inc. Each lesson reinforces a spelling and phonetic pattern using a sequence of rhyming word puzzles with letters that come alive. The rhyming words then lead to entertaining and illustrative animations that are as fun as they are educational. First 3 spelling lessons (9 words) are free of charge.

Moreover, at the end of the class, so that "not to frustrate the kids during the lesson", said Respondent A, she enriched the learning activities with 5 minutes of cartoons or Interactive story books. As for cartoons, she did not install any special App, but showed them directly from YouTube. Later during the interview she mentioned that the mainly used these three YouTube channels: KidsCamp – Nursery Rhymes, KiddoStories, and T-Series Kids Hut.

Moreover, the Table 3 below highlights the complete list of Applications and Web 2.0 tools used in experimental groups of different clusters during the tree-week course. It is important to remark that all the Applications were chosen personally by the teachers, except for the Preschool English Learning Phonics Kids, which was suggested along with the textbook by the researcher and approved by the principle.

The fact that all the teachers used more learning applications and Web 2.0 tools than it was suggested by the researcher proves that they were really interested in using technologies to facilitate their teaching.

Table 4. A complete list of Application used by different teachers

Respon-dent	Apps for Phonics Teaching	Apps for Vocabulary Teaching	Extra Apps that develop overall ESL proficiency
A	Preschool English Learning Phonics Kids;	IXL series; Happy Cambridge	Online cartoons and songs from YouTube;

	Learning A-Z; Endless Reading; Endless Wordplay	English; ABC English Kids Shapes & Colors TIM kids	Cbeebies Storytime; Twinkle for story telling; British council: Learn & Play; Starfall English
B	Preschool English Learning Phonics Kids	IXL series; English for Kids Vocabulary	British council: Learn & Play
C	Preschool English Learning Phonics Kids; Endless Reading.	Happy Cambridge English; English for Kids Vocabulary; IXL series; Toddler Kids Puzzles Kids Preschool Learning	Online cartoons and songs from YouTube; One more story; Starfall English.
D	Preschool English Learning Phonics Kids Endless Wordplay	IXL series; Kids Preschool Learning	Did not use any extra Apps or Web 2.0 tools
E	Preschool English Learning Phonics Kids	Kids Preschool Learning	Online songs from YouTube; British council: Learn & Play

The teachers reported to use a variety of different applications, that were further analyzed, summarized and presented in Table 4. The average number of different applications used by the teachers for in class activities during the three-week course is around 7.

5. Discussion

The level of preschoolers' interaction with modern technologies depends on their teachers' technology acceptance and usage. In general, 60% of the preschool teachers have tried to use modern technologies to facilitate their teaching. However, they did it occasionally and without deep understanding of its possible influence on the learning process. After the implementation of the three-week course, all the teachers admitted that they appreciated this experience, found many new resources and will continue to use technologies in future.

Having conducted the current research and analyzed its data, the authors of the paper came with a few suggestions how to improve the English teaching and learning in the preschool education. Firstly, the teachers do not exactly realize how to use the technologies correctly. The previous research shows that even if the teachers in kindergartens may have some advanced teaching ideas how to use different mobile applications, they still have no idea how to apply them to teaching practice.

After the clear instructions were given to the teachers by the principle and the researchers, the teachers admitted that their understanding improved. Secondly, the researcher noticed that teachers should pay more attention to the choice of teaching methods taking into account children's psychological and physical development. Thirdly, more attention should be paid to the ways of keeping children active during the lesson. According to the results of the current research, modern technologies can help children to focus better on the materials, however, some of them still are not involved in the learning process. In the kindergarten, preschoolers acquires the firth impression about the foreign language and the emotions which accompanies this process can significantly influence their future success. That is why it is important to cultivate positive attitude towards learning at the very first steps.

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