



Technology Enhanced Instruction: An Example of English Language Learning in the Context of Peace

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ABSTRACT

Early childhood quality education is a cornerstone in educational development. Many countries have started to develop their own preschool educational system in accordance with the European Union Standards, where learning English language and using technology are prerequisites. In this research, the peace context was used as a mediator for learning the English language. The study aimed to reveal the impact of learning through technology in the English language. It was conducted on five-year-old children ($n = 18$) in one class where the English language was the core subject. The acquisition of knowledge depended on in-class gamification activities and home activities. Each participant received an educational DVD to use at home that included all the materials for learning, such as words, songs, videos, and short films about peace in English. All materials were selected in accordance with the "fair use policy" for educational purposes. The research process included an initial interview (checklist) in which content analyses were made. In addition, assessment software was developed based on the required analysis to explain statistical findings.

Keywords: authentic learning, digital learning environment, peace context, technology in education

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State of the literature

- Digital learning environment fosters learning of the students.
- Game-based learning increases attention and curiosity for the construction of knowledge.
- Preschool education can support all stages of learning with diversity and dignity.

Contribution of this paper to the literature

- Authentic learning environment provides knowledge creation and skill development.
- Learning a foreign language through technology supports student motivation in preschool education.
- In foreign language learning, the concept of peace can be internalized based on authentic learning and technology.

INTRODUCTION

Preschool education can be defined as the period that contributes to the physical, mental, and emotional development of children in order to help them acquire good habits. Many countries have made efforts to adapt their preschool education systems to European standards. In the pursuit of these efforts to adapt, English language learning and the use of technology has been considered to be essential with the aim of integrating learning socially and cognitively into school culture. This kind of a learning environment is enriched by the integration of technology and authentic classroom activities for English language learning for example in the context of in peace education (Altınay-Gazi & Aksal-Altınay, 2017).

Researchers have argued that learning a foreign language after the age of six is relatively more difficult. In Turkey, the language of instruction in state schools is entirely Turkish. There should be greater emphasis on learning the English language as a subject in schools in order to foster further ability in communication with second or languages. Many research efforts are underway to use technologies to support teaching and learning of English (Young & Bush, 2004). Research (Almekhlafi, 2006; Yang, Yu, Gong, & Chen, 2017) that has investigated English language education includes areas such as the impact of computer-assisted language learning on the development of elementary students' English Language skills and the effect of computer-assisted language-learning programs on EFL students' vocabulary development. Although these studies have proposed a framework for this type of study, they remain partially realized. Studies have shown that learning a second language can be significant in cultural interaction and common understanding within a global perspective. Preschools pay considerable attention to the adoption of European Union standards in education, and learning the English language plays a great role. Additionally, the proper use of technology can be an indication of the adaptation process of European Union standards.

Research studies have paid attention to how technology can be integrated into the preschool education learning process. Technology is essential for getting learners motivated and helping them become interested in learning knowledge and skills in a particular learning

domain (Bennett, Maton & Kervin, 2008). Socio-cultural theories put emphasis on the complementary roles of societal and individual processes in the construction of knowledge where mediation by language and other symbol systems are critical (John-Steiner & Mahn, 1996). It is important to consider that learner and activity context are not separate from each other. For the acquisition and construction of knowledge, internalizing and regulating what is learned in a particular socio-cultural context is important (John-Steiner & Mahn, 1996).

Cultural historical activity theory (CHAT) is a practical theory whose basic stance is the reorchestration of the multiple voices in learning (Foot, 2001). Dialogue and multiple perspectives enrich the learning. In this research, English language and technology became the mediation of instruction and facilitators of activities for learning. Both group and personal learning can be achieved with the support of technology-mediated instruction.

The social nature of learning was accomplished by providing authentic learning. Technology was both the facilitator of activity and the motivator of learning. The mediators of language and technology were used to shape the learning interaction (Astra, Nasbey & Nugraha, 2015; Kinshuk, Graf & Yang, 2009).

Gamification adds game elements to a non-game context. Game features, such as scores, rewards, badges, experience points, and levels, are the core elements of the gamification paradigm. It has been shown that motivation and engagement are the core factors of accomplishment. Boredom or lack of involvement is the main reason for drop-outs and low performance (Huang & Soman, 2013). It is very hard to increase the engagement of preschool children without using the attractive nature of gaming elements. Gamification has therefore been used as a primary source of motivation to enhance engagement.

Herrington and Kervin (2007) argued that authentic learning supported by technology fosters students to use of powerful cognitive tools in their learning. In this research, multi-voicedness was fostered by putting learners in an authentic learning and assessment process. Learning in the English language was a cultural factor, while the peace context was a mediation tool for students learning English. This research facilitated having the learning context outside the borders of class via learning instruments and supportive tools. The educational DVD (**Figure 1**) was used to enrich students' English language learning using the peace concept outside the classroom. This research aimed to examine the integration of technology and an assessment program into the curriculum and analyze learning English in the peace context through technology in a preschool education program. The content of activities relied on peace learning.

The following research questions are explored in this study:

1. How does technology enhance children's learning in pre-school education?
2. To what extent do peace education activities enrich learning English?
3. Does learning in authentic environment foster learning both English and peace education?



Figure 1. GUI of learning activities DVD

RESEARCH DESIGN AND APPROACH

The research used a case-study approach where a preschool was the context of the research. The participants in this research were five-year-old preschool children in one class (n = 18; nine male and nine female).

Mixed qualitative and quantitative methods were applied to collect and analyze data in this study. The qualitative aspect consisted of interviews with the English language teachers and the headmaster in order to evaluate the technology infrastructure and the peace study curriculum as well as preschoolers' perceptions about peace, which was done by means of drawings (Denzin & Lincoln, 2003). The quantitative aspect consisted of the use of assessment software to gather data on the learning progress of the children participating in the study. The research had an action learning aspect as well (Johnson, 2002).

The evaluation software was developed by the researchers in Microsoft Visual Studio in Visual Basic. The software works as a standalone application on client computers. The underlying architecture of the software enables both online and offline usage. Statistics are gathered at the end of an assessment and sent to a remote server for further data processing and analysis. If the client has an internet connection, evaluation results are immediately sent

back to the central database server. Otherwise, the results are stored in a temporary location on the client computer and uploaded to the server when an internet connection is available.

A new session system was developed to store unique assessment results for every child. The session handling system created a unique session for each evaluation using a Windows logon ID (Windows session ID) as well as the machine's ID, IP address (when a network was available), and MAC address. If preschoolers played games multiple times, a trial number was also stored in the Windows registry of the client computer to ensure that every single game had its own unique ID. The generated unique session ID together with the session-related trial number was merged and hashed using the MD5 cryptographic algorithm. A private key was provided by the researchers in order to ensure that the assessment results were correct and were not interfered with by the third parties. Special decryption software was developed on the remote server for decrypting the incoming message and storing data into the database.

The idea of the assessment mainly depended on pictures. In each game, the assessment engine selected the words to ask the children. The moderator (tutor) of the game could arrange the order of questions or let it be decided by the evaluation engine. The generated audio was produced by the client application every 5 seconds until the child made a decision. When the child made an exact match, a happy face appeared and a positive score was credited for the child. If the child selected the wrong picture, a sad face appeared and the child did not get any points for it. Both correct and incorrect answers were kept for statistical purposes. The concept of the assessment was reviewed and evaluated by two experts in preschool and primary education and found suitable for assessment.

The stages of the research relied on in-class learning, outside class learning (i.e., at-home studying), and academic performance. English was taught in the peace context and an assessment was taken after learning. In the research process, learning inside and outside the classroom enriched the English-learning activities. The degree of learning was evaluated using the acquired assessment results. The assessment results reflect the outcomes of in-classroom and out of classroom learning separately.

Preschool English language teachers were directly involved in the preparation of game materials (words, pictures, songs, and videos) and guided researchers with their knowledge and experience so that they could prepare questions based on the syllabus, students' capabilities, and students' understanding.

RESULTS

The assessment of the participants included 10 questions for each of the five peace concepts: the peace concept, peace within oneself, peace with others, peace with the environment, and peace with animals.

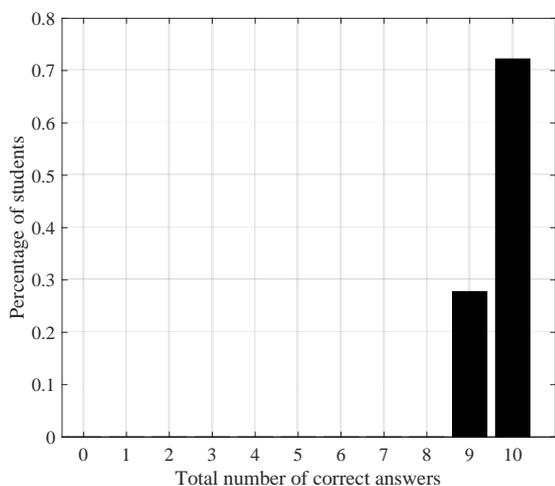


Figure 2. Peace concept

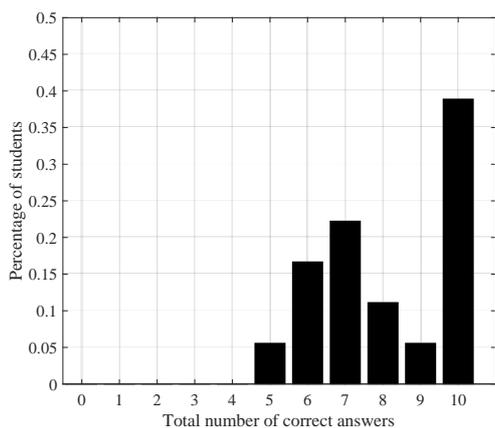


Figure 3. Peace within oneself

Figure 2 shows the percentage of students versus their total number of correct answers for the assessment of the peace concept. The figure indicates that 72% of the students scored full marks and the remaining 28% had 9 questions correct out of 10. From this we can conclude that the students had understood the peace concept well.

Figure 3 shows the percentage of students versus their total number of correct answers for the assessment of peace within oneself. It indicates that 38% of the students obtained full marks, while the remaining varied from 5 to 9 right questions answered out of 10. Seven correct answers were considered a good result, so the percentage students who obtained a good result with 7 to 10 correct answers was 77.8%. Therefore, the results indicate that the students successfully learned about peace within themselves during implementation of this program.

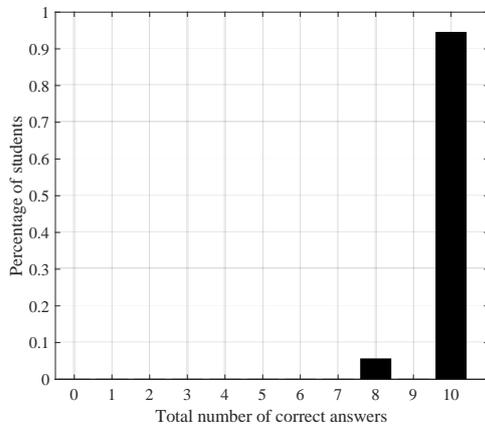


Figure 4. Peace with others

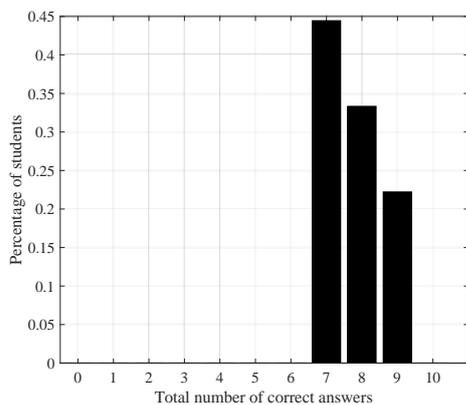


Figure 5. Peace with the environment

Figure 4 shows the percentage of students versus the total number of correct answers they scored for the assessment of peace with others. The results indicate that all of the participating students answered at least 8 of the 10 questions correctly. The percentage of students who obtained full marks was 94.4%, with only one student answering eight questions correctly. This shows that the students had become knowledgeable about the peace with others concept.

Figure 5 shows the percentage of students versus their total number of correct answers for the assessment of peace with the environment. The results indicate that all the participating students correctly answered 7 to 9 questions out of 10. Therefore, the students had become familiar the peace with the environment concept.

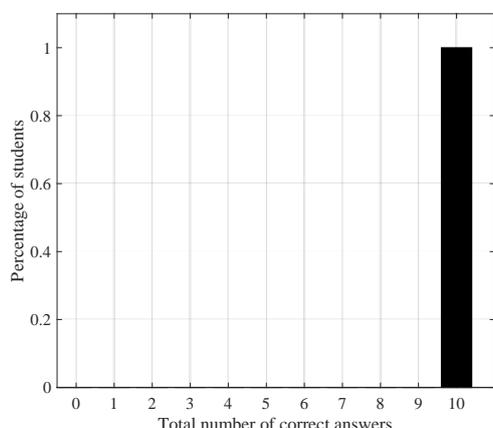


Figure 6. Peace with the animals

Figure 6 shows the percentage of students versus their total number of correct answers for the assessment of peace with animals. The results show that all the participating students received full marks. Therefore, the students learned the peace with animals concept well.

The results show that all the children achieved full marks and for the peace with animals concept (**Figure 6**) the majority of the students had full marks for the peace with animals concept (**Figure 5**). The scores for the peace with others concept (**Figure 4**) and peace concept in general (**Figure 1**) ranged from 50% to 100%; the reason for this could be that the pictures became confusing sometimes; for example, one involved the children distinguishing between angry, astonished, and afraid. Technology can give the opportunity to use animated emotional figures in order to solve this issue.

In general, we can say that technology has a significant effect on the comprehension of children at this stage. By using computers, the children were able to see the real pictures of the elements that they studied, which also encouraged their curiosity in learning. The results obtained show that the grades reflected the effect of the technology and the selected topic as a mediator for learning. When evaluating this study, we should also take into consideration the duration of implementation of this program (two months), the age of the children (five years old), and the language of learning (English as a second language). It is also important to note the use of the peace context for learning English, including forms of peace related to animals, the environment, others, and peace within oneself. Finally, the English teacher recorded that the distraction of children was minimum compared to learning in other topics.

DISCUSSION AND CONCLUSION

This research endeavored to examine the effect of using technology on learning the English language in a peace context for preschoolers. The outcomes obtained from this research reveal that learning the English language in an authentic learning environment (the peace context) with appropriate materials that interest children fosters the learning process and increases the comprehension of the content. The results also show that the children

learned the peace concept along with the English language (Lin, et al., 2013; Lu, Chang, Huang, & Chen, 2011). The peace concept was introduced to the preschoolers as a mediator for learning English; the children benefited from the use of English, the peace concept, and the peace categories related to themselves, others, animals, and the environment. As a recommendation, we conclude that using technology to learn English or any second language in an authentic environment such as the peace context fosters the language learning and minimizes the distraction of the children inside the classroom.

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