Educational Technology in Classroom: A Cross Country Comparasion

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Introduction

The education landscape has changed drastically in the last 10 years. Schools and colleges are eager to implement strategies that incorporate technologies in the classroom (Power, 2014). More and more educational institutions and teachers are implementing technology in the classroom in a multitude of different ways in an effort to increase student engagement and retention of knowledge. In a recent survey, three-fourths of U.S. K12 teachers indicated that they use technology in their classroom to help motivate their students (Luckerson, 2014). This movement to implement technology in the classroom is driven by results. The use of instructional technology in the classroom enhances learning and actually makes learning fun for students, which in turn motivates them to want to learn more (Eyyam & Yaratan. 2014).

The use of iPads and Interactive Whiteboards enables students to relate what they learn in the classroom with the world in which they exists. Though some educators and institutions are reluctant in embracing these technologies, change is inevitable. Technology is significant in every aspect of life, and student learning is no exception. Technology in the classroom changes how teachers and students communicate with each other. Today's schools are privileged to have an opportunity to integrate technologies during the learning process. The iPad and Interactive Whiteboard technology opens up a classroom to the world enhancing personalized learning (Silton, 2015).

The iPad has the capability of downloading over 5000 educational applications and over 1000 can be downloaded for free to enhance learning (Donohue, 2015). Studies show that students who use iPads perform better than those who do not use iPads. Although massive adoption of the iPad has presented challenges in curriculum control in the United States, many schools prefer to use these devices since they are highly portable, convenient, less likely of being hacked, and cannot be reprogrammed (McConatha & Penny, 2014). In a more recent study, students chose the iPad as the most favored learning tool used in the classroom, helping to keep them focused and on task (Mango, 2015). Teachers who incorporate the iPad in classroom learning tend to practice Project Based Learning (PBL) which prepares students for problem solving and project building activities (Maich & Hall, 2016).

The main functions of these two technologies are to improve collaboration inside and outside the classroom, provide opportunities for learners to be able to work and succeed at their own pace, prepare for future careers, and enhance student / teacher engagement (Donohue, 2015). The United States and Turkey have been able to improve their performances, create instructional flexibility, and achieve resource efficiency through the use of Interactive WhiteBoard and iPad technology (Silton, 2015).

The aim of this study is to compare the educational technology used in the two countries and discuss people's point of view and use of technology. United States and Turkey have different technology infrastructure therefore people's attitude towards technology differs. This research highlights several discrepancy between the two countries and technologies. At the end of the study recommendations are summarized for education decision makers.

Literature Review

Educational Technology Implementation in US

The iPod Touch was first introduced in 2007, while the use of iPads in the United States emerged in 2008. The education sector has been slow in adapting to this technology. In addition to assisting in learning, the iPad has increased peer interaction by connecting students with other students, including students with disabilities (An, Alon, & Fuentes, 2015).

Ipad In Classroom

The iPad has vast benefits in the US in education because it enhances collaborative learning and makes the learning experience personal. It enables intellectual brainstorming via the Internet allowing access to a vast world of knowledge. The iPad contributes towards monitoring and assessment in a number of ways. The iPad provides a platform where learners can switch from formal to informal learning. Students can do further reading even when they are out of the classroom, therefore, enabling students to interact more on the topic. It makes learning interesting, and students can also make notes on the same subject at home (Keengwe, 2013).

The iPad keeps students active during the lecture and while at home. The technology helps students to communicate face-face with others contrary to the use of laptops, desktops, and netbooks while computing with a mouse driven screen. In addition, students, while traveling, can engage themselves freely with other things while they learn. Learning is not affected by the environment since ipads can take place in and out of the classroom (Pegrum, 2014).

The use of iPads in the United States allows students to contribute in intellectual debates thus enhancing learning. Students can participate in online groups to share knowledge. Such discussions aid students in solving problems. Students are able to voice opinions in discussion forums and support them with experimental evidence (Maddux, 2012).

Although iPads may be perceived as being expensive its benefits are remarkable. The iPad's popularity is proven by the attitude of students towards the iPad and its use in the United States. The iPad can be used to teach most subjects especially those that do not require a lot of hands-on instruction, like a lab. Instructors use the iPad to teach and assign homework to learners. The teachers also provide solutions to these assignments, which may include brainstorming and presentations, so that students can ask questions on issues that are not clear during the lesson. The use of iPads also helps teachers to interact and share on the best strategies for improving students' performances. Teachers borrow information about education from other parts of the world, thus they are able to stay abreast with the current trends (Silton, 2015).

Students in the United States have expressed gratitude on the introduction of iPads that replace pens, papers, and books. The students show their preference for iPads in areas such as doing online research, sharing ideas with peers and teachers, and also playing educational games. The use of iPads has improved the quality of education in the United States by making learning a flexible process where learners can learn without face to face contact with the teacher. The use of iPads encourages a learner-centered approach to learning (Kim, 2010).

The understanding of content is essential in education. The goals of education are achieved once students understand and are able to apply what they have been taught. The iPad in the United States educational sector has created confidence among students. It has enabled learners to handle more challenging tasks thus simplifying the learning process. The device has helped learners to gain knowledge in thought-provoking subjects such as mathematics, sciences, foreign languages, astronomy, and history. The use of iPads has facilitated the interaction of various educational disciplines making it easy to freely exchange ideas. Networking of educational professionals has resulted in several reforms in the United States educational sector (Keengwe, 2013).

The use of iPads not only supports learning, but also provides storage for students' work. Students can use stored information as a source of reference for the future. The iPad is also used by students to store personal information such as registration numbers, timetables, course studies, and examination dates. Though the storage capacity of the iPad may be limited, compared to a laptop, the student is able to access the cloud-based storage data. Instructors are able to monitor the student's performance, provide feedback, as well as, share assessments and grades of the students. In addition, teachers

are able to communicate with parents concerning students' grades helping to eliminate incidences where some students may hide grades.

Instructors also alert students about assignments given and submission dates. Students in the United States can use iPads to take tests in science and mathematics and gain immediate feedback. The iPad offers teachers a platform for assessing students. Alternately, the students give feedback to instructors about the reasons for performing either poorly or fairly (Maddux, 2012). Learning institutions in the United States have embraced the use of iPads to monitor the progress of their students. Digital portfolios are put in place to keep a record of students' performances from one level of learning to another. Also teachers maintain a student roll to monitor class attendance (Pegrum, 2014).

The United States has managed to improve school management through the use of iPads. School principals are able to monitor the performance of teachers and non-teaching staff. For example, a school principal can keep track of those teachers who are currently in classes, and those who have not attended their respective lessons or left school (Silton, 2015).

The iPad makes studies more appealing to special needs students, by making learning more appealing. Some students lag behind during the lesson, but that does not mean that they are incapable of learning. The use of iPads can help students with special needs by applying applications that support individual learners. With the assistance of this technology, students can excel in studies despite being slow learners. Students can interact with materials provided by the teacher. The student can also ask the teacher questions regarding the topic using the same device. On the other hand, the teacher is able to monitor students and assess student progress. In a case of a student who has reading difficulties, free applications are available that support text- to- speech (An et al. 2015).

Even though the use of iPads has brought a revolution in the education sector in the United States, students can waste time using the iPad doing other things that are not related to studies: such as playing games during class time (Maddux, 2012). Also the iPad has competition from other forms of technology such as laptops. The iPad has a lower capability than that of the laptop, yet the iPad is preferred by students in the United States due to it size and portability (Silton, 2005). In the United States the iPad presents challenges three of which include distraction, too many applications, and easy access to different websites.

Educational Technology Implementation in Turkey

In Turkey technology was introduced in the early 21st century in universities and was

transmitted via optic cables. The technology provided auditory and visual communication to learners in remote places. Despite rapid development and commitment of funds in the educational system, the educational system could not meet all expectations (Ekici and Yılmaz, 2013).

National development plans in Turkey emphasized the need to introduce new learning resources. The Ministry of Education in Turkey aims training leaders in educational technology, production of education materials, providing instructional films, materials and equipment in mathematics and science laboratories. Similar to the United States, the administration was charged with the responsibility of providing personal computers, hardware, and software to schools, and establishing a unit for recording and copying instructional materials. Similar to the projects implemented in many developing countries, Turkey has also started piloting its government supported technology integration project-FATIH ("Movement of Enhancing Opportunities and Improving Technology", abbreviated as FATIH Project) in 2012 at 52 public schools (4 elementary, 48 high school) and planned to extend the project to all public schools in next few years (Pamuk et al., 2013). But some research pointed out that FATIH Project has not been designed within the Project Cycle Management framework and in its present form, the FATIH Project cannot be integrated into the education system (Ekici and Yılmaz, 2013).

The use of technology by teachers in Turkey mirrored the lack of training provided to the teachers in information technology. Currently, tablets are not used widely. Also teachers lack training in the use of technology, a fact that inhibits them from adopting it (Çoklar and Tercan, 2014). Türel (2012) stated that teachers avoided use of IWBs during their lectures. Results of the research also indicated that teachers experienced a lack of technical skills, pedagogical knowledge, and lack of materials regarding the effective use of IWB (Türel, 2012). Turkey lacks good policies to support the implementation of technology in schools. The policies are designed to support initiatives, and without appropriate policies sound implementation of technology cannot be achieved. Dağhan et al. stated that the most important problem related to the use of these technologies seems to be caused by lack of sufficient educational e-content (Dağhan et al., 2015). Students in Turkey are not encouraged to focus on design and evaluation of products (Pamuk, 2012).

In 2013, Pamuk et al. investigated whether or not Interactive White Boards and Tablet Computers distributed to teachers and students in the pilot schools were used and the effectiveness of those Technologies in teaching and learning, also the problems and issues emerged with regard to use of IB and Tablet computers. The results revealed that although there is a promising use of IWB, there is limited, in some cases no, use of Tablet computers. Both teachers and students were in favor of IWBs, but were also skeptical about Tablet computers (Pamuk et al., 2013).

Interactive Boards in Classroom

Interactive Whiteboards come with benefits. For example, once the work is done it can be retrieved back for future reference (Matthews, 2009). The ability to retrieve information affords a stress-free environment for students, by allowing students to refer to lessons even in and out of the classroom. Kopp (2013) maintains that Interactive Whiteboards assist students in understanding concepts and broadens the minds of the students.

Interactive Whiteboards have played a great role in transforming chalkboard into an electronic board. It has broadened the mind of students as they deliberate on subjects through demonstrations. Additionally, Interactive Whiteboards foster more understanding as the teachers bring the Internet experience into the classroom. A projector and a screen are used to display information (Betcher & Lee, 2009). The IWB enables teachers to present using different learning styles, making learning engaging and fun for the student (Idal & Casey, 2014).

The IWB enables teachers to use the resources from the Internet. Using the IWB, students are able to interact with a small class, thereby enhancing their understanding. With the Interactive Whiteboard, teachers can bring more examples to reality. To create more understanding, teachers derive more examples from the web thus making the class more interactive. This technology enables teachers to use multimedia materials that enables educators in Turkey to present and explain concepts (Idal & Casey, 2014).

According to Idal and Casey (2014) in the teaching profession, teachers are expected to enhance collaborative learning with their students. With the IWB, teachers track students step by step in their studies as knowledge is shared in the classroom. Teachers engage students with challenging questions and simultaneously providing answers to students. Teachers engage students in peer-to-peer discussions making it part of the classroom studies (Pegrum, 2014).

Teaching requires educators to repeat concepts and ideas that have been taught. In the educational field, teachers are required to teach using repetition reteaching the same concepts taught to previous students, as well as, those who will follow. With the Interactive Whiteboard, teachers can save the notes for future reference (Thomas & Schmid, 2010). They can also refer to the notes while making revisions for the students they will have in the future.

Schools that have adopted the technology of the Interactive Whiteboard help teachers to reconsider their approach to the lesson. This is because the flexibility and the scope for creative learning is enormous, thus, with the aid of the IWB teachers can be flexible, unlike the traditional approach where the chalkboard was the only technology in the

classroom. Currently, teachers have a variety of choices of approaches to present lessons, and this makes the class even more stimulating (Camberwell, 2009).

The Interactive Whiteboard motivates students to participate in the class by interacting with the materials on the IWB. As students participate, teachers can assess the level of understanding of students concerning the topic being discussed (Betcher & Lee, 2009). This enhances indepth reading where the student's mind becomes involved in critical thinking. Additional learning for students takes place through observation and discussion Therefore, students are encouraged to participate, allowed to comment, and invited to interact with the materials. This aids teachers to provide clarity and repeat challenging concepts being taught in the class while using this technology (Littleton, et, al., 2007).

Another benefit of the IWB comes during a learning activity where students can engage more in encoding and decoding. This process promotes critical thinking. When students engage in mind activities, they develop more intellectually. It is during enhanced brainstorming sessions where students participate fully in discussions. Further, the student's capacity for understanding is increased by this interactive session (Paris, 2011).

The IWB provides an avenue where students can observe what teachers are trying to say. As students interact with this technology, world phenomenon becomes efficiently depicted in their mind. When this process is repeated, students tend to develop a consistent pattern of identifying symbols and signs as they interact with them in day to day living (Baguley & Danaher, 2014).

The challenge with Interactive Whiteboards is due to students only have access to the technology in the classroom. Learners in the United States can go wherever they want with their iPads, a technology similar to the IWB. Students using iPads still need Interactive Whiteboards to share ideas with fellow learners in a classroom. Voogt and Knezek (2008) argues that the Interactive Whiteboard allows students to engage in discussions, sharing ideas like brainstorming. Consecutively, by engaging students in class work the results are a personalisation of information by online scholars. The learners are motivated, and thus the session becomes more engaging. Also, students can discuss among themselves, thereby enhancing coherence and harmony in the classroom (Rief & Heimburge, 2007).

Technical support is needed when using Interactive Whiteboard technology in Turkey. It facilitates learning by addressing problems that may occur during the learning process. Teachers are also involved in IWB training, receiving instruction that allows them to facilitate the lesson without problems. Technical difficulties with the IWB may occur in the class as a result of a stylus defect or overuse. A stylus is an essential tool for the IWB

to operate. They need to be checked regularly. Another technical difficulty may be a poor projector or Internet connection hindering the smooth use of the IWB (Matthews, 2009).

Conclusion

The iPad enables each student to share his or her work using the Interactive Whiteboard. It is cost efficient since no connection cables are required. The iPad enhances communication effectiveness. When homes and schools have iPads, it becomes possible for a smooth flow of information between parents, teachers, and students. This keeps students in touch with parents and similarly, teachers are connected to parents. Teachers and students also engage in regular interaction as they deal with the class studies. Students can also consult teachers concerning any difficulty with the assignments or the topics at hand. It is noteworthy to state that it is possible for parents, teachers, and students to communicate anytime, anyplace and under any circumstances. This is made possible by just a click of a button. Parents can also be informed about important programs in school such parent meetings. Further, research shows that both parents and students in the United States believe that iPads have contributed greatly by improving the quality of education in and out of the classroom. Although Interactive Whiteboards cannot be compared to iPads, they make the class more appealing and interactive, since teachers and students can use different styles during a presentation (Rau, 2011). Use of technology in the United States and in Turkey has brought significant improvements in the education sector in both countries (Macmillan, 2010).

The introduction of the iPad and the Interactive Whiteboard technology in the United States and in Turkish schools has contributed to the efficiency in the education sector. The use of the iPad and the IWB technology have some benefits to teachers and students. The use of this technology in the classroom motivates and boosts students' understanding. This technology facilitates collaboration in the classroom, improves performance, and encourages interaction among learners. On the other hand, educators can enhance teaching skills, evaluate the progress of students, and give and receive assignments. The primary functions of these technologies are to improve collaboration inside and outside the classroom, provide opportunities for learners to be able to work and succeed at an individual pace, prepare for future careers, and enhance the learning experience. Adoption of the Interactive Whiteboard technology in Turkey has faced several challenges, such as, lack of qualified teachers trained in the technology or internet infrasctructure problems in several areas. . Interactive Whiteboards cannot be compared to iPads because they are not portable and lack privacy. Turkey should continue to increase its technological infrastructure especially in rural areas, and train teachers to fully adopt the use of technology in learning.

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