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ENGAGING GIFTED AND TALENTED STUDENTS WITH iPAD: USING EDUCATIONAL APPS TO PROMOTE HIGHER ORDER THINKING SKILLS

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Abstract

Gifted and talented students require careful selection of activities and assignments to help them develop an interest in the task given to suit their mental ability. Gagne's Differentiated Model of Giftedness and Talent (DMGT) highlights the importance to identify student's learning ability to match the activities, assignments and exercises prepared for them. One of the enrichment strategies implemented in PERMATA Insan College, Islamic Science University of Malaysia is the 21st century learning education approach that equipped every student and lecturer with an iPad. Classroom activities and assignments were developed to meet various objectives and learning outcomes outlined in all subjects to meet the requirements guided by the knowledge on students' mental ability and academic performance. In 2015, as part of an enrichment programme, 19 students were selected to participate in a regional Islamic Education Summit and they were trained to prepare iBooks as a form of lesson interpretation. They utilised apps such as iBooks Author, Book Creator and Explain Everything to develop iBooks. Students documented the iBook production process and participated in a group interview to reflect on their experiences. This paper revealed how the iPad apps could be an effective form of enrichment for gifted and talented students of PERMATA Insan College.

Keywords: iPad apps, gifted and talented, experiential learning

Introduction

Educational technology has been used in the classroom as a tool in enhancing lessons. Not every teacher would love or fancy its use since the idea of using technology has always been associated with the complexity and technicality of the devices and applications. Even though the early history of its usage had been in the form of trial-and-error, the investments made by many technology companies have enabled many of the equipment and applications which are available today designed for the use in teaching and learning. The early form of technology was aimed to boost productivity and simplify processes in industry and offices. The end-users were mainly technical people and trained personnel as it was considered too complicated to be handled by non-technical staff or normal staff. Hence many of the technologies designed during those years had never made it to the classroom. Technology was also considered too expensive for investment in education. Many schools and institutions could not afford such luxury for their teachers and students. Those were the early days in the 20th century as inventions and creations in the form of technology started to pour in by the brightest brains available during those early days (Lakhana, 2014).

The pace of creation and invention of technology has accelerated so fast that we would be able to see new product launches almost every day. Mobile devices have been developed at a very fast rate and the survival of many technology companies have been depended on it if they were to survive in the competition. We are having advanced users of technology and they become the active contributors towards the development of the type of devices, technology and applications needed today.

ICT in Education

Personal Computer (PC) and the software developed for it had been the main tool in the world of education. Before the invention of PC, there were many other devices such as radio, television and video player that had been adopted in the classroom. Radio programmes were listened to during class and students were supposed to learn a thing or two based on the programmes aired during class. Again the issue was on the suitability of the contents on air during that time and many teachers did not find it useful as it was tough and inconvenient to get students to listen to a radio programme while expecting them to keep quiet and focus on the programme (Lakhana, 2014).

In addition, the same fate had befallen television as teachers were to spend a lot amount of time trying to find suitable contents for learning. While it was true that there were television channels made to cater to this need, the stations were finding the same tough challenge to create a wide array of learning programmes for different subjects ranging from language to science. Only government fund helped the stations to sustain the educational channels and programmes as revenue was almost non-existence as advertisers did not want to invest in such programmes. Teachers in urban schools might find television units available in their audio-visual room but too most teachers and students whose schools in rural areas could not afford such luxury, technology remained a distant dream.

There were many other technologies that were trying to make its presence felt in school and university classrooms but the adoption rate of those regarded as expensive investments were

too slow and most of the time, the equipment would be regarded as obsolete even before it was approved for purchase. The transition for blackboard to whiteboard and later digital whiteboard, for instance, never took place in many schools in developing countries. Bureaucracies, budget, training of staff, maintenance and many other factors have slowed down the transition of technologies in the educational landscape.

Fast forward to the millennium, education, life and work experienced multiple changes in the way technologies are consumed in houses, offices, schools and universities. Thanks to the internet and digital economy, globalisation has shaped the way human communicate, interact, consume and utilise information, communication and technology (ICT), hence making the term ICT being popularly use in every aspect of life.

Teaching and Learning Style

The implementation of ICT initiative at this college follows what learning style experts have envisioned for 21st century learners (Huang et. al., 2012). Most of the students in Secondary level today are millennials who are not content with traditional learning materials such as books, magazines or newspapers. These students were introduced to the internet at a very young age, formally or informally, by school or parents. They are the consumer of ICT from young and they basically what the internet can or cannot offer as they embrace technology to be part of their life before learning to use it for study. Entertainment and social networking were part of their routine with the devices afforded to them.

Among the popular approach in learning style is the Visual, Audio, Read/Write & Kinaesthetic (VARK) sensory modalities (Fleming and Baume, 2006). It refers to the preferred method of how a person received the information he is trying to absorb. Some people would choose the visual method as he or she is attracted to information or learning materials in the form of picture or video. In short, they learn best from looking at the instructions compiled in illustrative form, picture or step-by-step explanation done in video form. The proof that so many people are into videos can be seen from the popularity of online video channels such as YouTube, Vimeo and many others. Even for professional learning video platform such as Lynda.com, there are so many paid subscribers who are willing to pay a minimal fee to enrol themselves in professional online courses offered by the company simply because the classes or the courses are available in videos. The same goes with auditory learners who would effectively learn through audio. Attentive learners who are also good listeners would regard this as their preferred learning style.

The Read/Write group learners, meanwhile, are known as traditional learners since teachers have always generalised that all students learn best in this way. The basic learning skills at primary level have emphasised the three main skills as reading, writing and calculating. While it could hold true for the generations of the last century, it could not be applied to everyone in the schools today as the knowledge on the individual learning styles widened. The final style mentioned by Fleming and Baume (2006) was Kinaesthetic that defines people who preferred learning through action. A person with this learning inclination would understand a new information or knowledge by actually performing an activity that might resonate the idea and concept being introduced. To sum up the philosophy behind VARK, one should remember that the learning style of a person could be a combination of these

qualities and skills in learning can always be improved even if a student does not have strong inclination towards one or two learning styles. In short, knowledge on students' learning style will allow them to work on improving any of the weak styles discussed above. Student's profiling based on VARK will assist teachers to individually identify and help students improve on their learning style.

PERMATA Insan College and 21st Century Learning Classroom

This is an educational institution developed to cater the needs of gifted and talented muslim students. The special education government programme was started back in 2010 and the College was in operation since 2015. The PERMATA Insan College adopts the 21st Century Learning by integrating the Apple Education Classroom concept. The philosophy behind the use of technology in this college has always been what Apple (2011) explained in their 21st century learning guide:

> *Challenge Based Learning is a collaborative learning experience in which teachers and students work together to learn about compelling issues, propose solutions to real problems, and take action. The approach asks students to reflect on their learning and the impact of their actions and publish their solutions to a worldwide audience*

At the college level, the idea of using Apple hardware and educational applications available in the App Store would be the strategy employed in implementing the learning contents that would engage students in and outside the classroom. The rationale was to use a stable platform with strong support from the community of app developers and Apple itself.
For the first phase of its implementation, the students and lecturers were introduced to the iPad and its available educational apps that would be useful for teaching and learning. Students and lecturers went through a few trainings and learned to apply educational apps such as iBooks Author, Book Creator, Explain Everything and many other free and paid apps were used in the training. For lecturers, the use of the educational apps matched the objective of using the enrichment model based on the differentiated model of giftedness and talent (DMGT) as proposed by Gagne (2002). With this approach, students are given the extended form of learning in the form of assignments and activities tailor towards different level of students.

Methodology

This preliminary study used qualitative approach, as suggested by Creswell (2014), in getting students who participated in the Islamic Education Leadership Summit 2015 to share their experience and views of preparing iBooks and materials using their iPads and the educational apps. In total, there were 19 PERMATA Insan Foundation 1 students who joined the Summit as participants in the Apple product and intelligent learning showcase. Prior to their participation in the Summit, they were trained to use the educational apps such as iBooks Author, Book Creator, Explain Everything and many others. The students had been working with their subject lecturers in interpreting the contents of the lesson they chose to develop in their iBook. Consultation with the lecturers helped them to review and improve the iBook

and much improved ideas were shared during the discussion. The students recorded the notes and suggestions in their project logbook which they shared later with the researcher.

After the Summit, six students were randomly chosen to join a group interview. Since each student had developed the contents based on their chosen subject and topic, the interview conducted did not focus on the quality of the contents produced. They had been asked more on their effort in applying, analysing, evaluating and creating the contents they developed in the iBook. They shared their experiences in designing the iBooks and using other educational apps to fulfil the task. Their views and opinions were recorded and analysed to find the theme on the issues they raised regarding the tasks given to them. The male and female respondents were in equal number but it would not have any bearing on the outcome as the interview was conducted to share their experiences rather than looking at differences in gender views on the matter.

The students were asked to refer to their logbook in trying to remember the steps and processes they went through and describe their feelings and thoughts. Since the process took them more than two weeks in the overall preparation, the logbook did contribute to many aspects of their learning of the apps used and the challenges and struggles that they had to face in producing the iBook content that they wished for. Their reflections had positive impact on the process and data had been collected from their journal entries input as well.

Result and Discussion/ Conceptual Overview (Can Be Another Sub Chapter)

Students expressed their excitement and joy in completing the tasks given to them. For most students, it was the first experience for them using iPad and the educational apps. The concept of deep learning (Biggs and Tang, 2011) was clearly proven by the students as they explained their commitment in completing their task using the iPad and apps. There were comments such as, “I didn’t know I can create an iBook based on what I understand.” One student even explained that the “experience was great, iPad is cool and the apps are even cooler.” They agreed it was a bit strange and tough for them at the beginning as a few of them said, “Everything looked different on iPad. I’ve used PC before, Windows, smartphones, and when I tried the iPad, I got confused.” They admitted the time given to get themselves familiar with the operating system and apps helped them to grow their liking towards iOS and the apps. They commented that, “Once I know how to get around the apps, I was able to do something in the iBook … I like that I could draw, sketch, take pictures and make videos and add them to my iBook.” The multimedia features were among their favourites as they thought, “I have designed my first ebook and I thought it was supposed to be a difficult thing to do … I never imagined that. Now I feel grateful that I know how to do it and next time I would be able to do it again. Learning is so much fun this way.”

The students were also able to perform three of the highest level of thinking skills (HOTS) in Bloom’s Taxonomy—Analyse, Evaluate and Create. Students were initially asked to understand any of the lessons they had in class. They later interpreted the lesson based on the topics covered in their chosen subject and then proceeded with the production process of their iBook. They had already been trained to go through the proper stages in iBook production and they showed the plan, ideation and creation of their iBook production in the form of sketches, mindmap and notes. They had also used information gathered from books and the

internet to ensure the contents were acceptable. Some students consulted the subject lecturers to get help and advice on their iBook project.

Another important aspect about the use of iPad in this project was the motivation factor as explained by Ciampa (2014) in his research. Students had strong motivation to complete the task because they value the effort they put into the task given. Their full commitment stressed on their motivation and determination to prove their worth. They put so much time in refining and improving their iBook. Some of them shared that, "We sacrificed our sleep time just to make a great iBook." One of them admitted of "spending hours just to make my drawing perfect and better than my friends." Most of them competed with their friends so that the Summit participants get impressed by their work. They did impress and one of them lamented, "I have invested so much time and effort, and they praised me for my work. Some even asked me to teach them how to create one." The satisfaction from their voice and excitement clearly showed the amount of motivation they had in completing the iBook task.

The experience they shared was a new form of activity and it had generated strong interest among students who participated in the iBook project. Students produced their own ideas and made their own interpretation of meaning based on the lessons they learned. It has helped in building their own creative thinking (Mango, 2015). For once they had the multiple-angle of understanding of what they obtained from their class. In short, their experiences were the reflection of a successful implementation of DMGT level of multiple students' intelligence. It had functioned well as the extended form of activity and a fruitful enrichment task for the gifted and talented students.

Conclusion

The findings discussed in this paper were initial data from the interview conducted with six of the Summit iPad showcase participants. There would be more discussion on other aspects of students' experience with the device and its educational apps. The assignment was so engaging for most students and the question remained whether it is sustainable in a normal class assignment. While it proved to be a successful form of enrichment as prescribed in the concept of DMGT, the one-off project could be the determining factor that helped students to perform well in this showcase. Project-based activity would give students ample time to plan, review and revise their iBook since the lecturers gave their input on the content of the iBook. The deep learning concept is an interesting idea that should be further studied in this research. It has been proven that deep learning could materialise given the right stimulation to the students. The issue would be on creating future stimulants to these gifted and talented students. The same thing can be said about the drive and motivation among the interview participants. It will be a mystery to discover on how best to use iPad and its apps in helping students to get motivated in every assignment and task they perform using the device. There are also HOTS in Bloom's Taxonomy in the effort shown by the students. Based on the responses they received from the Summit participants, the students' work had been acknowledged to achieve certain level of quality and their creativity was there for all to see.

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References

Althoff, J. (2014). Teaching with the iPad. *Optometric Education*, *39*(2), 52.

Apple Inc. (2011). *Challenge Based Learning: A Classroom Guide*. Cupertino, CA: Author. "Bit by bit putting it all together" How a holistic view of assessment changed our perception of the TPACK framework. (2008). (c), 3932–3939.

Attard, C. (2013). Teaching with Technology: iPads and primary mathematics. *Australian Primary Mathematics Classroom*, *18*(4), 38-40.

Biggs, J. B., & Tang, C. (2011). *Teaching for Quality Learning at University*. *Teaching for Quality Learning at University*. Open University Press.

Blissenden, M. (2015). The Lecture Method is Dead: Legal Learning in the 21st Century and Teaching with Technology. *Ubiquitous Learning: An International Journal*, *8*(1), 15.

Carr, J. M. (2012). Does Math Achievement h'APP'en when iPads and Game-Based Learning are Incorporated into Fifth-Grade Mathematics Instruction? *Journal of Information Technology Education*, *11*269-286.

Charles, T. (2014). Real-Time Collaborative Writing in iPad-enabled Classrooms. *Perspectives (TESOL Arabia)*, *22*(3), 24.

Ciampa, K. (2014). Learning in a mobile age: an investigation of student motivation. *Journal of Computer Assisted Learning*, *30*(1), 82-96. doi:10.1111/jcal.12036

Cober, R. r., Tan, E., Slotta, J., So, H., & Könings, K. (2015). Teachers as participatory designers: two case studies with technology-enhanced learning environments. *Instructional Science*, *43*(2), 203-228.

Creswell, J. W. (2014). *Research design: Qualitative, quantitative and mixed methods approaches*. Sage Publications.

Falloon, G. f. (2014). What's going on behind the screens? *Journal of Computer Assisted Learning*, *30*(4), 318-336. doi:10.1111/jcal.12044

Fleming, N., and Baume, D. (2006) *Learning Styles Again: VARKing up the right tree!*, Educational Developments, SEDA Ltd, Issue 7.4, Nov. 2006, p4-7.

Ltd, Issue 7.4, Nov. 2006, p4-7.

Franklin, T. (2011). Mobile Learning: At the Tipping Point. *Turkish Online Journal of Educational Technology*, *10*(4), 261.

Howie, P. I., & Bagnall, R. (2013). A critique of the deep and surface approaches to learning model. *Teaching in Higher Education*, *18*(4), 389-400. doi:10.1080/13562517.2012.733689

Huang, Y. H., Liang, T. P., Su, Y. Y., & Chen, N. n. (2012). Empowering personalized learning with an interactive e-book learning system for elementary school students. *Educational Technology Research & Development*, *60*(4), 703-722. doi:10.1007/s11423-012-9237-6

Hye Jeong, K., Ji Hyeon, P., Sungae, Y., & Hyeoncheol, K. (2016). Fostering Creativity in Tablet-Based Interactive Classrooms. *Journal of Educational Technology & Society*, *19*(3), 207-220.

Kinash, S., Brand, J., & Mathew, T. (2012). Challenging mobile learning discourse through research: Student perceptions of Blackboard Mobile Learn and iPads. *Australasian Journal of Educational Technology*, *28*(4), 639.

Lakhana, A. A. (2014). What is Educational Technology? An Inquiry into the Meaning, Use, and Reciprocity of Technology. *Canadian Journal of Learning & Technology*, *40*(3), 1-41.

Marin, C., Hargis, J., & Cavanaugh, C. (2013). iPad Learning Ecosystem: Developing Challenge-Based Learning using Design Thinking. *Turkish Online Journal of Distance Education* (TOJDE), 14(2), 22.

Mango, O. (2015). iPad Use and Student Engagement in the Classroom. *Turkish Online Journal of Educational Technology*, *14*(1), 53.

Molnár Dr., G. (2013). New Learning Spaces? M-Learning's, in Particular the iPad's Potentials in Education. *International Journal of Interactive Mobile Technologies*, *7*(1), 56. doi:10.3991/ijim.v7i1.2398

Moorhouse, B. (2016). iPads. Learning tools or toys? *Modern English Teacher*, (2), 27.

Murray, O., & Olcese, N. (2011). Teaching and Learning with iPads, Ready or Not? *Techtrends: Linking Research & Practice to Improve Learning*,*55*(6), 42-48.

Pedra, A., Mayer, R. E., & Albertin, A. L. (2015). Role of Interactivity in Learning from Engineering Animations. *Applied Cognitive Psychology*,*29*(4), 614.

Pegrum, M., Howitt, C., & Striepe, M. (2013). Learning to take the tablet: How pre-service teachers use iPads to facilitate their learning. *Australasian Journal of Educational Technology*, *29*(4), 464.

Rossing, J. P., Miller, W. M., Cecil, A. K., & Stamper, S. E. (2012). iLearning: The future of higher education? Student perceptions on learning with mobile tablets. *Journal of the Scholarship of Teaching & Learning*, *12*(2), 1.

Simpson, A., Walsh, M., & Rowsell, J. (2013). The digital reading path: researching modes and multidirectionality with iPads. *Literacy*, *47*(3), 123-130. doi:10.1111/lit.12009

Steeg, S. M., Costley, K., Engelman, K., Gonzalez, D., Knutson, V., & Maroni, K. (2013). Changing Teachers, Changing Students: Exploring iPads in Inquiry-Based Learning. *Research in the Schools*, *20*(2), 57.

Thinley, P., Reye, J., & Geva, S. (2014). Tablets (iPad) for M-Learning in the Context of Social Constructivism to Institute an Effective Learning Environment. *International Journal of Interactive Mobile Technologies*, *8*(1), 16.

Tunnicliffe, C. (2010). *Teaching able, gifted & talented children*. SAGE Publications Ltd: London.

Yunus, M. M., Sulaiman, N. A., & Embi, M. A. (2013). Malaysian gifted students' use of English language learning strategies. *English Language Teaching*, *6*(4), 97–109. http://doi.org/10.5539/elt.v6n4p97