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A GLOBAL *ZAKĀT* GAME: APPLICATION OF TECHNOLOGY IN TEACHING AND LEARNING FOR GLOBAL PEACE AGENDA

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Abstract

Technological development has been exponential and its growth is at par with current modernisation. Increasingly sophisticated technological systems are steering societies into a new era that makes technology a very important tool. Children's minds are highly susceptible to technology enabling them to become skilful in using gadgets and in surfing the internet. However, the teaching and learning in classrooms still adopt traditional or conventional methods. This paper aims to critically examine the development of the portable application named Global Zakāt Game (GZG) as one of the initiatives to help increase the level of education in Malaysia so that it will be in line with the development of information technology and communication today. The use of this application will also help teachers to disseminate universal values such as charity and raise awareness of issues such as the quest for peace both within the nation and globally, among people of different nations. A qualitative methodology was employed to analyse data using the inductive and deductive approach. The findings show that the GZG application could help students to understand the values of charity in zakat well, although it is only played online. This is because GZG encompasses almost the whole zakat syllabus including types of zakāt, the rate of zakāt, the calculation of zakāt, and questions related to zakāt. The education system should not lag behind in the use of technology and should upgrade its teaching-learning methodologies in line with the increasing sophistication of technology today. Through modern

education awareness of global peace and values such as charity can be instilled and inculcated in the young. This paper suggests that through the teaching and learning of zakāt using the portable applications GZG, global peace awareness and other relevant values could be successfully inculcated among students.

Keywords: Global *Zakāt* Game (GZG), Education technology, Global peace agenda, Gamification.

Introduction

The Global Peace Index (GPI) measures the relative peacefulness of nations and their regions. The GPI measures global peace using three themes: first the level of societal security and safety, second the extent of ongoing domestic and international conflict, and third the degree of militarization. In 2018, the GPI ranked Malaysia the 25th most peaceful country in the world out of 163 independent states and territories. Besides showing that Malaysia moved up four spots from its 29th placing in 2017,[1] the index showed that Malaysia fared better than most of its neighbours. In the Asia-Pacific region, Malaysia retained its position as the fifth most peaceful country.

Education considered fundamental as it supplies values and ethics through which students and society can develop mechanisms to learn, analyse and respond with more guided and motivated attitudes or actions. There are three out of eight main pillars of Positive Peace related to Global Peace in Education, which are Free Flow of Information, High Levels of Human Capital and Equitable Distribution of Resources.[2] For instance, there must be equity in access to resources of global public goods such as education in order for the citizens to gain access to information adequately. This will

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[1] Monica Wang, "The World's Most And Least Peaceful Countries In 2016", *Forbes* 2016,https://www.forbes.com/sites/monicawang/2016/06/17/the-worlds-most-and-least-peaceful-countries-in-2016/#64dfd67e644f. Accessed May 16, 2019.

[2] Institute for Economics and Peace, "Global Peace Index 2017: Measuring Peace in a Complex World", http://visionofhumanity.org/reports. Accessed May 16, 2019.

lead to better decision making and more rational responses in times of crisis, analyse and respond with knowledge and virtue.[3]

A new form of education that is education for love, peace and wisdom should be implemented urgently as it is our responsibility to sustain global peace.[4] Susan Fountain and Machel Graca have suggested that through peace education teachers could inculcate global peace values among students and it would eventually shape a peaceful future.[5] This is supported by Stephen and Anyu Liu who added that there is improved human understanding achieved through holistic education; intellectually, emotionally, and dispute resolution which is necessary for human growth.[6] Additionally, by teaching global peace values it could help students to understand better the violence and conflict that are happening around the world, this will would help them to avoid as they aware that these two elements would not bring any benefits but only harms and destructions to the society and the country.[7]

UNICEF has long supported the education of global peace to encourage students to be tolerant of religious beliefs and political stands which might be different from theirs worldviews. Tolerance could help minimize many problems especially challenges in global peace. This was stated in the World Declaration on Education for All 1990: "*Every person – child, youth and adult – shall be able to*

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[3] J. Christopher, C., et.al., "Contribution of Positive Psychology to Peace", *American Psychologist* 68, no. 7 (2013): 590-600; Inge, K., Isabelle, G., and Marc, A.S., *Global Public Goods: International Coorporation In The 21ˢᵗ Century* (New York: Oxford University Press, 1999), 308-325.

[4] Jing Lin, "Love, Peace and Wisdom in Education: Transforming Education for Peace", *Harward Educational Review* 77, no. 3 (2007): 362-365, doi.org/10.17763/haer.77.3.w55q14r013375675.

[5] Machel Graca, "The Impact of Armed Conflict 1996", www.un.org/children/conflict/english/themachelstudy.html. Accessed May 19, 2019.

[6] Stephen Pratt and Anyu Liu, "Does Tourism Really Lead to Peace? A Global View", *International Journal of Tourism Research* 18, no 1, (2015): 82-90, doi: 10.1002/jtr.2035.

[7] Fountain, S., "Peace Education in UNICEF", Education Section, Programme Division (New York: UNICEF, June 1999), 1-7; Leonisa Ardizzone, "Towards Global Undertanding: The Transformative Role of Peace Education", *Comparative Education* 4, no. 2 (2001): 16-23.

benefit from educational opportunities designed to meet their basic learning needs"[8].

This study suggests that through the *zakāt* teaching and learning process using applications for Android called Global Zakat Game, global peace awareness and values could be succesfully promoted among students. Global peace awareness and values can thus be instilled through education. This paper aims to critically examine the technology use in education through a portable application Global Zakat Game (GZG), its characteristics, and relationship between GZG in teaching and learning and global peace education.

Technology of Education

The reality of the technological growth has paved the way for great developments in various fields. The growth of the borderless, limitless technology has been persistent from day to day as it creates various up-to-date systems, tools and equipment to help facilitate humans in carrying out their daily activities, which undeniably includes those in the education system. The fast-paced technology offers a tremendous impact to almost all of the systems in the world.

Such drastic advancement does not only make easy the process of a system but it also increases the quality and quantity of production, and expedites the work flow. The existence of technological knowledge and information influences the creation of new systems and methods, and new ways of delivering knowledge to the public at large and to students specifically. Technology has become part and parcel of societal life and complements the modern world.

Among the fields that have been identified in the growth of technology is education, where the use of technology in the teaching and learning process is being emphasised at all levels of studies be it in the primary school, secondary school or higher learning institution. The word 'technology' is always understood by the public as

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[8] UNESCO, "World Declaration on Education for All and Framework for Action To Meet Basic Learning Needs", *World Conference on Education for All Meeting Basic Learning Needs* (Jomtien, Thailand, 5-9 March 1990), http://www.unesco.org/education/pdf/JOMTIE_E.PDF. Accessed May 19, 2019.

something that looks like a machine or anything related to machinery, but in actual fact the education technology has a greater meaning and interpretation as it results from the collaboration of humans, ideas, procedures, management and machines.[9]

As early as 1988 the term "education technology" was introduced under the supervision of Education Technology Department, Education Sector, Ministry of Education Malaysia which functions to ensure that the use of the technology in the teaching and learning process at school level is actively implemented.[10] Effective learning can be achieved when teachers are creative and innovative to plan their teaching methodology that can raise awareness and motivation among their students.[11] Various methods and techniques have been practised by teachers in school to ensure that the lessons delivered are effective and can be understood by students, consistent with the course learning outcome. Among the methods that are often used are lectures, tutorials, and group discussions.[12]

The generation of students today known as the Z-generation or Gen-Z are those born from the mid 1990s right up to 2010. They have these digital-native characteristics, which is they are always stimulated to try something new, to learn creatively, interactively in a fun way and to think outside the box – all of which are in tandem with the growth of the technology.[13] The use of technology in the teaching and learning process can influence students' learning style. In this digital and globalised era the learning approach to generate

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[9] Galbraith, I., *The New Industrial State* (Boston: Houghton Mifflin, 1967), 13-24.

[10] Kementerian Pendidikan Malaysia, "Sektor Pengajaran Bahagian Technology Pendidikan", http://www.moe.gov.my/v/profil-jabatan?div=4. Accessed March 18, 2019.

[11] Tomlinson *et. al*, "Differentiating Instruction in Response to Student Rediness, Interest, and Learning Profile in Academically Diverse Classrooms: A Review of Literature", *Journal for the Education of the Gifted* 27, no. 2 (2003): 119-145.

[12] Maizatul Hayati *et. al*., "Pendekatan Pembelajaran Melalui Reka Bentuk Permainan Digital Dalam Kanak-kanak: Isu Dan Cabaran", *5th International Conference on Education Technology* (Surabaya, Indonesia, 2014), 1-8.

[13] Posnick-Goodwin, "Meet Generation Z", *CTA Magazine* 14, no. 5 (2010): 1-5.

creativity and boost skills can be expanded with various techniques and indicators that are at par with the vision for education.[14]

Technology functions as an aid for learning serving simultaneously as a facilitating tool to master computer-aided competency. The computer has been programmed in such a way as to facilitate student learning at different levels using complete learning principles to master the competency. The position of technology is therefore no different than a teacher who functions as a facilitator, motivator and evaluator in the teaching and learning process in the class or outside the class. If it is merged with the traditional teaching at school, technology can be very effective and have a great impact.[15]

In the paradigm of traditional learning, the teaching and learning process will usually take place in the presence of the teacher in class and the time-tabling will be fixed where the teaching and learning process will only occur in the time and place allocated. The teaching and learning process will occur effectively and efficiently if it is supported by the use of the technology and other teaching aids. This is because students will be better stimulated when teacher talk is aided by a number of media in the interaction process. Through the study of past literature, it is found that the main goal of the use of technology in the teaching and learning process is to engage students' interests, besides enhancing the effectiveness of the teaching and learning process.[16]

The most important thing about technology in teaching and learning is the method used in helping to improve students' thinking process. With the right approach, students are able to make full use of the technology to resolve problems that come with their

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[14] Maizatul Hayati *et. al.*, "Pendekatan Pembelajaran Melalui Reka Bentuk Permainan Digital", 8.

[15] Hanus, M. D. and Fox, J., "Computers & Education Assessing the Effects of Gamification in the Classroom: A Longitudinal Study on Instrinsic Motivation, Social Comparison, Satisfaction, Effort and Academic Performance", *Computers & Education 80* (2015): 152-161, doi: 10.1016/j.compedu.2014.08.019.

[16] Ahmad Zaki Amiruddin *et. al*, "Aplikasi e-Pembelajaran Untuk Proses Pembelajaran dan Pengajaran Bahasa: Fungsi dan Kelebihan", *Seminar Antarabangsa Pendidikan dan Keusahawanan Sosial Islam 2015* (Langkawi, Malaysia, 12-14 October 2015), 3-6

daily tasks.[17] The use of technology is an effective strategy in supporting student-oriented learning and at the same time, it can train the students to learn through methods and contexts that are different from their previous experience. The use of technology gives space and opportunity to students to explore the real world or simulations with designed applications, and additionally with Internet technology, students are able to interact in real time with their friends and making learning more interactive.[18]

The Use of Applications in the Teaching and Learning

The use of applications is also introduced by teachers and researchers in the field of education to support the existing system. This is in line with the borderless and limitless technology that is expanding from day to day, aided by continuous encouragement from the Ministry.[19] The use of online applications in learning has become more popular in the field of education and is an approach that can attract students' attention when learning difficult subjects.

Furthermore, the traditional teaching and learning method is no longer seen as efficient in helping students to understand difficult topics because it requires such a long time compared to the use of online applications in learning. This does not only serve as an entertainment but it also provides students with information related to the subject taught, and at the same time teachers can also use the facility as their teaching aid by connecting the teaching content with games.[20] Teachers play an important role in carrying out this activity to make sure that the learning objectives will be well and effectively delivered. Their role is also to make sure that there is a balance

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[17] Ertmer *et. al.*, "Computers and Education Teacher Beliefs and Technology Integration Practices: A Critical Relationship", *Computer & Education* 59, no. 2 (2012): 423-435, doi:10.1016/j. compedu.2012.02.001.

[18] Hsiao *et. al*., "Development of Children's Creativity and Manual Skills Within Digital Game-based Learning Environment", *Journal of Computer Assisted Learning* 30, no. 4 (2014): 377-395, doi: 10.1111/ jcal.12057.

[19] Ahmad Zaki Amiruddin *et. al.*, "Aplikasi e-Pembelajaran Untuk Proses Pembelajaran dan Pengajaran Bahasa", 6-7.

[20] Ash K. "Digital Gaming Goes Academic", *Education Week* (2011): 24-28, https://www.edweek.org/ew/articles/2011/03/17/25gaming.h30.html. Accessed May 19, 2019.

between the content, pedagogy, knowledge and technology used throughout the teaching and learning process.

The use of technology in the classroom is able to create an active learning environment involving new experiences that can encourage students to become more interested and ready to learn. Through this approach, teachers must guide their students in understanding the concept from multi perspectives so that they can broaden their minds. Various online applications have been created throughout the technological growth in education. Among the online applications that have been developed for the teaching and learning process is the Global Open Access Learning System (GOALS). In line with the exponential growth of technology e-learning is in great demand in Malaysia. In 2011, Vice Chancellor of USIM Profesor Dato' Dr Muhamad Muda founded USIM GOAL Centre seeing it as an opportunity to explore another platform that can bring benefits to the university's holistic development. [21] Universiti Sains Islam Malaysia (USIM) has developed GOALS to facilitate the teaching and learning process for lecturers and students. Students log in to use the application using their ID numbers, and every subject has its own page that enables students to access every subject learned by means of registering on the subject page and keying in the subject code.

Through this application, lecturers are able to upload and share study notes and articles with their students, hold quizzes and discussions with their students online and determine the time limit for students to access the quizzes and discussions. GOALS makes the teaching and learning process focused on the lecture which can be accessed from anywhere. For lecturers who do not have the opportunity to hold their lectures due to distance and time constraints, this application enables them to share notes and conduct the teaching and learning process without seeing their audience face to face and conducting the class directly. Lecturers can even check on students' attendance by detecting their names as they enter the subject page.

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[21] Universiti Sains Islam Malaysia, "USIM Perluas Sistem E-Pembelajaran Melalui Goal Centre",
https://www.usim.edu.my/ms/berita/usim-perluas-sistem-e-pembelajaran-melalui-goal-centre. Accessed March 8, 2019.

An example of another application used in the teaching and learning process is Quizlet.com which is a website that prepares an online platform to benefit both students and lecturers. This online centere in San Francisco, California was developed since 2005 by a young man aged 15 years old for his personal use to help him memorize French vocabulary. This website began to grow when he shared it with his friends before opening it to the public.[22]

However, for more complex functions such as adding photographs and images to personal collections are limited as the application is an advertisement-free online classes on specific subjects. Quizlet.com offers a yearly subscription of USD15-25 and can also be used by downloading the application into the tablet and smart phone that have the android (play store) operating system (OS) or IOS Apple (app store) for free. In general, Quizlet.Com functions as a medium or an aid in the teaching and learning process where students are free to choose their own lessons while lecturers get to organise their lessons according to the topics that they want to teach. Quizlet.Com prepares the space using various settings and themes that students and lecturers can choose from.

Other than GOALS and Quizlet.com, an application called Hot Potatoes is also used in the teaching and learning process. Hot Potatoes is an application used for the electronic evaluation process. Several kinds of questions and problem-solving formats can be prepared interactively including multiple-choice, short answers, jumbled sentences, crosswords, matching/ ordering and gap-fill exercises.The following are five types of questions prepared in the application Hot Potatoes:

1)   Jmix (*jumbled-sentence*) – arranging words to become complete sentences
2)   JCloze (*gap-fill exercises*) – fill in the blanks
3)   JMatch (*matching/ ordering*) – match or arrange by order
4)   JCross *(crossword)* – crosswords
5)   JQuiz (*multiple-choice, short-answer*) – multiple choice or short answers

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[22] The Quizlet website, "Company and Mission", http://quizlet.com/mission. Accessed March 8, 2019.

All these different forms of questions are collected and arranged to become an electronic question paper using the function of The Masher where it can come in the form of HTML, and accessed online (uploadable) or offline (non-uploadable).

Learning Based on Gamification

Today, there are various methods of teaching and learning used as teaching aid deemed suitable in the mainstream education, be it at primary, secondary and higher learning level. They are used as an alternative to instil knowledge in students using various methods and approaches. Gamification in education is used widely in Malaysia and abroad, where it helps to improve students' understanding of a topic. For instance, digital games are used in the education system of several countries such as the Czech Republic, the United Kingdom, United States of America, Taiwan and South Korea to teach facts (such as knowledge, memory, memorization), principles (for example cause and effect) and to solve complex issues.

Gamification is defined as the use of games that have elements of design in the non-game context.[23] In the education context, the gamification approach uses the elements of games that can stimulate and motivate the players so that the teaching can be integrated in the games.[24] The main aim of gamification is to provide motivation to students and draw their interest,[25] create interesting experiences among the players[26] which also encourage learning and resolving problems,[27] and to build relevant skills at every stage of the game.[28]

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[23] Deterding S. *et. al*, "Gamification, Using Game Design Elements in Non-Gaming Contexts", *In Extended Abstract on Human Factors in Computing Systems* (Vancouver, Canada, 7-12 May 2011), 2425-2428.

[24] Hussain, Tan and Idris. "Digital Game-based Learning For Remedial Mathematics Students: A New Teaching and Learning Approach in Malaysia", *International Journal of Multimedia Ubiquitous Engineering* 9, no. 11 (2014): 325-338, doi:10.3850/978-981-09-0463-0_011.

[25] Kiili K. *et. al*.,"Eye Tracking in Game-based Learning Research and Game Design", *International Journal of Serious Games* 1, no. 2 (2014): 51-65, doi: 10.17083/ijsg.v1i2.15.

[26] Schell J., *The Art of Game Design: A Book of Lenses* (United States of America: Morgan Kaufmann Publishers, 2012), 12-23.

[27] McGrath N. and Bayerlein L.,"Engaging Online Students Through the

Gamification is one of the approaches in the field of education that employs the gamification approach to be applied in the teaching and learning process as an alternative innovation based on the creativity of the designer in diversifying teaching and learning methods, and simultaneously making the whole process more interesting, effective and enjoyable.[29] One of the approaches deemed compatible with learning preferences in the 21st century is through gamification or game-oriented learning.[30]

Gamification is an effective method that helps increase students' learning motivation and performance.[31] Students will have the opportunity to learn in a less structured manner such as in gamification with some displaying higher motivation.[32] The gamification technique will give space to students and teachers to have a two-way interaction and create a more productive learning environment compared to the formal communication using more traditional classroom approaches.

The element of games can be divided into two components namely mechanic games and dynamic games.[33] The mechanic games can be defined as the framework on how a game is played,[34] with

Gamification of Learning Materials: The Present and the Future", *30th Ascilie Conference* (Macquarie University, Sydney, 2013), 573-577.

[28] Pappas C., "Gamify The Classroom." (2013): 1-12, http://elearningindustry.com/gamify-the-classroom. Accessed May 19 , 2019.

[29] Rohaila Mohamed Rosly and Fariza Khalid, "Gamifikasi: Konsep dan Implikasi dalam Pendidikan", In *Pembelajaran Abad Ke-21: Trend Integrasi Technology* edited by Rohaila Mohamed Rosly, Nabila Atika Razali and Nur Atikah Jamilluddin, (Bangi: Faculty of Education UKM, 2017), 144-154.

[30] Deterding S. *et. al*, "Gamification Using Game Design Elements in Non-Gaming Contexts.", 2428.

[31] Hussain, Tan and Idris, "Digital Game-based Learning For Remedial Mathematics Students", 338.

[32] McGrath N., and Bayerlein, L.,"Engaging Online Students Through The Gamification of Learning Materials", 573.

[33] Bunchball, "Gamification 101: An Introduction To The Use of Game Dynamics to Influence Behavior." (2010): 10-11, https://australiandirectmarketingassociation.files.wordpress.com/2011/10/gamificatio n101.pdf. Accessed May 19, 2019.

[34] Cheng Y. M., *et. al*., "Investigating Elementary School Students' Technology Acceptance by Applying Digital Game-Based Learning to Environment Education", *Australasian Journal of Educational Technology* 29, no. 1 (2013): 96-100,

various actions, behaviours, control mechanisms in the game using points-system, levels of difficulty, challenges, leaderBoards and gifts whereas dynamic games refer to the actions that influence players through games.[35] In brief mechanics is the agent, object, element, and the relationship between users in the game (basically the rules of the game) whereas dynamics is the behaviour that emerges from the game when they use the mechanics.[36] Referring to the elements of the game, gamification involves the elements of mechanic game design, where basically there are characteristics like points, badges of achievement, levels of difficulty, challenges, leaderBoards and quests. In dynamic games there are characteristics such as reward, status, achievement, self-expression and competition. Adopting the mechanic game, the education practitioner is able to transcend traditional learning modes such as lectures and use more interactive and interesting activities.[37] In sum, whatever content of learning that is used in integration with elements of games will be regarded as gamification that focuses on fun learning, rather than mere fun as a form of entertainment.[38]

Among the elements that are often used in the development of gamification are as follows:

1. Points System – used to collect points when players succeed in passing the game levels. Among the systems used is earn and burn; Earn enables students to collect their points when the task is submitted before the deadline, and Burn will reduce the points collected when students fail to submit the tasks or submit the tasks after the deadline

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doi.org/10.14742/ajet.65.

[35] Bunchball, "Gamification 101: An Introduction To The Use of Game Dynamics to Influence Behavior", 10.

[36] Rohaila Mohamed Rosly and Fariza Khalid, "Gamifikasi: Konsep dan Implikasi dalam Pendidikan", 144-154.

[37] Farber, M., *Gamify Your Classroom: A Field Guide To Game-based Learning* (New York, Peter Lang Publishing, 2015), 65-84.

[38] Hong G. Y. and Masood M., "Effects of Gamification on Lower Secondary School Students' Motivation and Engagement", *International Journal of Educational and Pedagogical Sciences* 8, no. 12 (2014): 3765-3772.

2. Badge of Achievement – a form of feedback and proof of players' achievements it has to be used wisely and meaningfully to make the students feel appreciated. The badge will be given to the player after he or she has completed the few challenges that have become the criteria in the badge

3. Level of Progression – a stage of skill and knowledge based on the player's scale of mastery for example, from the easy to the more difficult level. This progression level can be displayed in the form of the progress bar, icon or metaphor (bronze, silver, gold and platinum)

4. Quests or Challenges – a possibility for a player to pass the obstacle in the game within the time limit. It seeks to see whether or not the player is able to overcome the obstacles and the difficulties set for them

5. LeaderBoards – aim is to draw a comparison between the players who take part in the game. Normally a list of names of the players will be displayed together with their scores and arranged according to their ranks.

There are many benefits of gamification that can help improve the learning process for students at all academic levels. Gamification is carried out with the intention of enabling students to experience the gaming themselves and overcome the challenges of intellectual or academic education. [39] Gamification involves various emotions, starting from a sense of curiosity, confusion and dissappointment to happiness when they are able to complete the game. [40]

The learning approach through gamification also pushes students to constantly seek knowledge to feed their curious minds and also for self-satisfaction. [41] Students like to learn in a fun way,

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[39] Ong D. C. T., *et. al.*, "Motivation of Leaning: An Assessment of The Particality and Effectiveness of Gamification Within a Tertiary Education System in Malaysia.", *World Academy of Researchers, Educators, and Scholars in Business, Social Sciences, Humanities and Education Conference* (Cape Town, South Africa, 2013), 131-143.

[40] Pramana D., "Perancangan Aplikasi Knowledge Sharing Dengan Konsep Gamification", *Jurnal Sistem Dan Informatika* 10, no. 1 (2015): 202-211.

[41] Smith-Robbins S. "This Game Sucks: How To Improve The Gamification of Education". *Educause Review,* (2011): 58-59,

through games.[42] Playing gives them the opportunity to make errors repeatedly, in other words they will learn through experience from the mistakes they make without feeling the pressure. [43] From gamification, students will learn to see failure as a change to continuously succeed, not to make an excuse to withdraw and give up.[44]

Gamification automatically improves a student's learning attitude in developing his or her cognitive and motor skills and further increases these skills. Cognitively, gamification can offer an experience to students towards the process of mastery and involve them in tough situations,[45] and it also prepares several alternatives as the solution process.

This can create a new perspective on learning and help students to understand and realise their potential.[46] Gamification can also boost students' motivation and involve them in a more friendly, yet competitive environment with other students.[47] Gamification is not only a competition, but helps to build skills at every level of the game. Students' involvement in gamification exposes them to the solution of issues where information and problems get to be shared

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https://er.educause.edu/-/media/files/article-downloads/erm1117.pdf. Accessed May 19, 2019.

[42] Cankaya S. and Karamete A., "The Effects of Educational Computer Games on Students Attitudes Towards Mathematics Course and Educational Computer Games", *Procedia-Social and Behavioral Science* 1, no. 1 (2009): 145-149.

[43] Rohaila Mohamed Rosly and Fariza Khalid, "Gamifikasi: Konsep dan Implikasi dalam Pendidikan", 144-154.

[44] McGrath N., and Bayerlein L.,"Engaging Online Students Through The Gamification of Learning Materials", 575-577.

[45] Kiili K., *et. al.*, "Eye Tracking in Game-based Learning Research and Game Design.", 60-65.

[46] Rohaila Mohamed Rosly and Fariza Khalid, "Gamifikasi: Konsep dan Implikasi dalam Pendidikan", 150-154.

[47] Papastergion M., "Digital Game-based Learning in High School Computer Science Education: Impact on Educational Effectiveness And Student Motivation", *Computers & Education,* 52, no. 1 (2009): 1-12, doi.org/10.1016/j.compedu.2008.06.004.

other than just getting positive responses from other students. In this way lifelong learning is instilled among students.

Although a lot of educators and students aware the use of technology in the teaching and learning process as facilitating the national education system, some parents and teachers are cynical about this so much so the learning materials are not often used in the classroom.[48] This may be supported by the fact that the content of a lot of digital games in the market is not suitable for learning.[49] In Malaysia this the gamification approach is not easy to carry out due to the lack of materials that are relevant to the national education curriculum.[50]

Portable Application of Global *Zakāt* Game and Its Characteristics

The portable application of Global Zakat Game (GZG) is a new product produced for teachers as a teaching aid to help students to better understand the topic of *zakāt*. The method of gamification in Islamic Studies can facilitate the deliverance of Islamic knowledge which is laden with Qur'anic and Hadīth sources and evidence.[51] The portable application GZG can add to the joy and fun of teaching and learning.

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[48] Rice J. W., "New Media Resistance: Barriers to Implementation of Computer Video Games in The Classroom." *Journal of Educational Multimedia and Hypermedia* 16, no. 3(2007): 249-261.

[49] Ertzberger, J., "An Exploration of Factors Affecting Teachers' Use in Video Games As Instructional Tools", In *Proceedings of SITE 2009--Society for Information Technology & Teacher Education International Conference* edited by I. Gibson, R. Weber, K. McFerrin, R. Carlsen, and D. Willis, (Charleston, USA: Association for the Advancement of Computing in Education, 2008), 1825-1831.

[50] Kamisah O. and Nurul Aini, "Teachers and Students As Game Designers: Designing Games For Classroom Integration", In *New Pedagogical Approaches in Game Enhanced Learning: Curriculum Integration,* edited by S. de Freitas, M. Ott, M. Popescu, and I. Stanescu, (IGI Global, 2013), 102-113.

[51] Azman Ab Rahman, "Gamifikasi Global Zakat Game Dalam Pendidikan Islam", 15.

Picture 1: Display of Menu of the GZG Application

The academic-oriented application named GZG is a board game that carries the theme of *zakāt* that is interactive and informative and appropriate as a new medium of teaching and learning the subject of *zakāt*. The portable application GZG is designed specifically to increase the understanding of *zakāt fiqh* and strengthen the skill of calculating income *zakāt*.

The objective of the development of this application is to provide exposure to the citizen of Malaysia in general and students in particular on *fiqh zakāt* through an interactive and academic learning medium. It can also increase their understanding of the obligation of paying *zakāt* which will in turn encourage them to pay *zakāt*. GZG has also become an alternative of *da'wah* to Muslims in understanding the concept of *zakāt* and calculating *zakāt* in a comprehensive way.

This portable application is also a mechanics game because it comprises the control mechanism that uses the reward system, difficulty level, challenges, leaderBoard and prizes. GZG prepares rewards in the form of gold, goat, camel, cow, paddy, rice and treasures to players who have successfully given correct answers. The questions in the game are divided into three levels of difficulty-low, moderate, high. The higher the level of difficulty of the questions, the greater the reward obtained by the players if they answer the questions correctly.
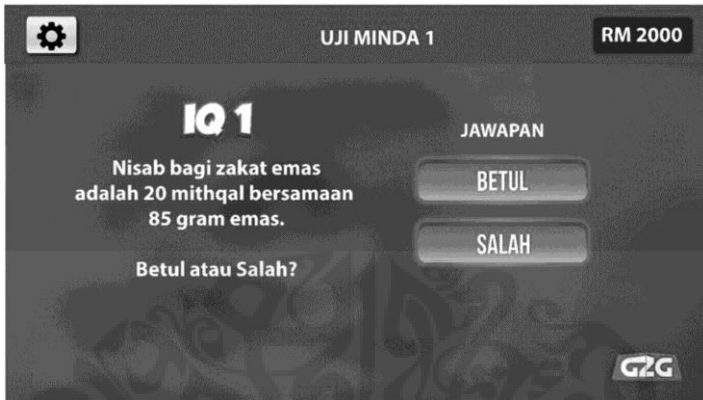
Picture 2: Display of Questions for IQ 1

Among the challenges that can be found in this game is the column labelled "Order" comprising instructions whether they are advantageous to the players or otherwise. One of the examples of "Order" in the game is that 'Player is required to move back 3 steps' without the player committing any offence. To ensure that the player knows the position of their income and assets, the total income and asset will be displayed on the leaderBoard. The aim of this leaderBoard is to make it convenient for players to identify the total and type of assets they need to use if they are required to calculate their *zakāt*.

Picture 3: GZG Application Boardgame

The use of GZG portable application is a method and exercise for Malaysian students to learn the concept of *zakāt* comprehensively via the smart phone. This game is also a translation of new transformations and innovations to improve society's or specifically students' understanding through this downloadable application at the playstore or appstore. The entertainment-education concept that comes with this application is appropriate as a teaching aid other than fulfilling the patterns of 21st century education that prioritises active and interactive learning between teachers and students. This is far more effective in teaching and learning compared to a one-way process.

Picture 4: The Display of *Zakāt* Calculation Table Integrated in the GZG Application

Furthermore, GZG game application can also increase students' interest and ensure effective learning about *zakāt*. Other than gaining knowledge, students and teachers can create a happy learning environment and global peace awareness throughout the teaching and learning sessions.

Global *Zakāt* Game (GZG) in Teaching and Learning and Global Peace Education

The aim of this study is in line with the principle of global peace with its first objective of investing in globally-minded peacebuilders.

Education and youth leadership developments are key ingredients to building sustainable peace. Investing in education globally creates a new generation of leaders that are innovative, entrepreneurial and who can give back to their communities. This is basis on which global peace education is built.

The second objective is to equip public primary and secondary school students' with 21st century workforce skills. Students experientially learn digital technology, explore entrepreneurial enterprises, grow teamwork and develop real-world problem-solving skills besides developing the core values of leadership and integrity.

The third and last objective is to train teachers in innovative approaches to transform education in the classroom. Through ongoing advocacy and collaborative learning, pilot programming is being leveraged to scale and drive change in the educational system at the national level. Transforming education develops a workforce that drives economic development, societal and political stability, and ethical societies that are free from abuse of power.

The implications of this study are manifold namely, building a professional character, creativity and smart workforce readiness. for character and creativity building, this study aims to provide a meaningful and productive school experience that cultivates the whole person, by offering a comprehensive framework of quality standards whereby students and staff cultivate competencies in integrity, compassion, ethical online and offline conduct, creativity, and problem-solving, teamwork and "hands on" peace-building skills.

For smart workforce readiness, career opportunities favour graduates with global competencies and digital literacy especially in the new frontiers of artificial intelligence, internet of things, big data and virtual reality. This is supported by Apple CEO Tim Cook stated: "*Learn to code, it's more important than English as a second language*".[52] The portable application of Global *Zakāt* Game (GZG)

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[52] CNBC, "Apple CEO Tim Cook: Learn to code, it's more important than English as a second language",
https://www.cnbc.com/2017/10/12/apple-ceo-tim-cook-learning-to-code-is-so-important.html. Accessed May 19, 2019.

empowers students to use science and technology to solve real-world problems. The gamification approach can equip teachers and students with technological skills, interdisciplinary learning and practical knowledge that prepare them to be part of the 21st century workforce.

Conclusion

The education in Malaysia requires more upgrading in the teaching and learning process. The factor of technology in education is not the only way to increase the quality of education as school children in poor and remote schools can still attain good quality education compared to those with Information and Communications Technology (ICT) in their schools if they are determined, patient and hardworking. However, to achieve the same level of education as to other advanced countries, education in Malaysia needs to be at par with global technological advancements. Schools must therefore help students to learn and practice global peace from young and inculcate in them the values of global peace. With the teaching of global peace through digital activities using appropriate applications this goal can materialize not only in the Malaysian schools but in schools all over the world. The creation of this application named Global Zakat Game (GZG) is seen as a very clever initiative in learning about the subject of *zakāt* online via the smart phone. Students and teachers can use the opportunities to learn about the use of the technology more profoundly, competently and ethically. Various knowledge and value can be shared and learned through the use of technology and the gaming application.

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TRANSLITERATION TABLE

CONSONANTS

Ar=Arabic, Pr=Persian, OT=Ottoman Turkish, Ur=Urdu

	Ar	Pr	OT	UR		Ar	Pr	OT	UR		Ar	Pr	OT	UR
ء	’	’	’	’	ز	z	z	z	z	گ	–	g	g	g
ب	b	b	b	b	ڑ	–	–	–	ṛ	ل	l	l	l	l
پ	–	p	p	p	ژ	–	zh	j	zh	م	m	m	m	m
ت	t	t	t	t	س	s	s	s	s	ن	n	n	n	n
ٹ	–	–	–	ṭ	ش	sh	sh	ş	sh	ه	h	h	h[1]	h[1]
ث	th	th	th	th	ص	ṣ	ṣ	ş	ṣ	و	w	v/u	v	v/u
ج	j	j	c	j	ض	ḍ	ẓ	ż	ż	ى	y	y	y	y
چ	–	ch	ç	ch	ط	ṭ	ṭ	ṭ	ṭ	ة	-ah			-a[2]
ح	ḥ	ḥ	ḥ	ḥ	ظ	ẓ	ẓ	ẓ	ẓ	ال	al[3]			
خ	kh	kh	kh	kh	ع	‘	‘	‘	‘					
د	d	d	d	d	غ	gh	gh	ğ	gh					
ڈ	–	–	–	d	ف	f	f	f	f					
ذ	dh	dh	dh	dh	ق	q	q	k	q					
ر	r	r	r	r	ك	k	k/g	k/ñ	k					

[1] – when not final
[2] – at in construct state
[3] – (article) al - or 1-

VOWELS

		Arabic and Persian	Urdu	Ottoman Turkish
Long	ا	ā	ā	ā
	آ	Ā	Ā	–
	و	ū	ū	ū
	ي	ī	ī	ī
Doubled	يّ	iyy (final form ī)	iy (final form ī)	iyy (final form ī)
	وّ	uww (final form ū) uvv (for Persian)	uv	uvv
Diphthongs	و	au or aw	au	ev
	ى	ai or ay	ay	ey
Short	ـَ	a	a	a or e
	ـُ	u	u	u or ü o or ö
	ـِ	i	i	i

URDU ASPIRATED SOUNDS

For aspirated sounds not used in Arabic, Persian, and Turkish add h after the letter and underline both the letters e.g. جﮪ jh   گﮪ gh

For Ottoman Turkish, modern Turkish orthography may be used.

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