

The Adaptation of Attention-Interest-Desire-Action in SPHOTIA and GEOCA Innovative Apps for Effective Teaching and Learning

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Abstract

SpHoTiA (Supervision in Hospitality and Tourism Industry App) and GeoCA (Geography and Culture App) are newly innovated applications for two (2) courses taken by students of Faculty of Hotel and Tourism Management in UiTM. These Apps were developed as an inventive effort taken to transform previous conventional teaching and learning method due to continuous, unsolved problem related to concentration deficiency among university students, especially when studying theory-based subjects. Though both courses seemed less complex compared to other subjects, previous researchers argue that it is challenging to memorize theories, as it involves the uses of thick reference materials and confusing contents with abundance facts. It is a common situation seeing students struggling to achieve certain required level of understanding especially when reaching tertiary level in which students need to be more independent in the learning process. Thus, this research intends to enhance effective teaching process and learning materials for the two (2) selected subjects by integrating interactive tools that able to enhance students' experiential learning sessions whilst pursuing a convergence towards i4wrd future. Interactive tools such as info graphic slides, animation, video and games through online Apps are used to stimulate interest in both teaching and learning process. An innovative self-directed learning strategy that applies the concept of Attention-Interest-Desire-Action (AIDA) of SpHoTiA and GeoCA Apps were developed using free online Apps. Using random sampling method, respondents were required to evaluate the effectiveness of the Apps. Questionnaire using a 5- to 10- Likert Scale were applied to measure factors on perception, understanding, quality, satisfaction and recommendation. A descriptive analysis using mean and percentage were further analysed.

The result indicates the effectiveness of the digital Apps to students (overall satisfaction = 78.5%), and is parallel to the efficiency of other innovated Apps. The newly innovated Apps indicate a significant influence on teaching and learning process at university level that not only create interesting learning environment, but also aid students to master challenging topics appropriately.

Keywords: Teaching and Learning, Interactive Apps, Online, i4wrd

Introduction

Industry 4.0 was first introduced in Germany and has rapidly adopted worldwide since 2011, tracking the manufacturing sector from the Industrial Revolution (IR) to the digital optimization (Malaysia Productivity Corporation, 2019). IR4.0 is now foreseeing a growing trends in automation, the Internet of Things (IoT), Big Data and Cloud Computing technologies that creates future of smart industry. Malaysia is also heading toward this blooming trend, in which, in the recent mandate of the Ministry of Education, the second direction of the education system highlighted the importance of leveraging quality in intriguing excellence, relevance and efficiency in the education approach to make it readily available anywhere and at any time (Centre for Strategic Planning and Information, 2019). In support to this mandate, UiTM also continuously supports the educators to instil high-touch educative approach via e-learning to versatile the teaching and learning methods thus enabling more online classes with the aim to enhance potentials (Institution of Neo Education, 2019).

Since the introduction of I4R, recently the method of teaching and learning shows a dramatic change due to the rapid growth of digitalization media. The spreading of mobile devices and mobile internet using App can be seen with the exposure of potential mobile learning in universities (Witt & Gloefeld, 2018). Development of new Apps targeting Generation Y and Millennial students indicates a rising progression in all areas of information and knowledge since these groups are exposed to technology from their very young age (Cheong, Bruno & Cheong, 2012). As mentioned by Colis and Moonen (2001), changes in learning and teaching, the support and enterprise of education, and the role of technology in those changes should be integrated using flexible learning concept. This is hold true as the changes in customer behaviour are influenced by values, personalisation and customization (Ministry of International Trade and Industry (2018). Hence, emergence of new teaching methods is required to reassess the success of teaching and learning approaches in tertiary levels.

Due to this situation, educators are accepting the fact that it is undeniable that mobile Apps are able to aid in the learning process and facilitate intentions to close gap between traditional method of classroom learning and digitalized method of learning through mobile devices (Khaddage, Müller & Flintoff, 2016). Such devices are not only effective in attracting students due to its informal and random feature (Connal & Sauvageot, 2005), but also enables students to access learning contents and information at any time and ubiquitously at theirs' fingertips (Witt and Gloefeld, 2018). These benefits further led to a trend that significantly gain momentum use among teachers and education institutions.

Though there are a continuous growth related to studies on mobile learning, however, previous literature merely highlights on issues related to analysis of current situation, service mode, and technical implementation of mobile learning but is lacking on satisfaction of mobile learning Apps (Liu, Zhang, Ye & Liu, 2018). One prolong dilemma faced by educators' in UiTM Terengganu Branch Dungun Campus (UiTMCTKD) is the insufficiency of attentiveness among students when learning theory-based subjects such as Supervision in Hospitality and

Tourism Industry course (related to the human resources area) and Geography and Culture in Tourism (related to geographical tourism products). Although this subject is not as complicated as other subjects that requires calculation or scientific tests, majority of previous students who has taken this courses pinpoint the difficulty faced to understand confusing contents that emphasizes on case studies and the struggling of memorizing copiousness facts. Such situation can lead to mental exertion, in which a study by Bedrina (2018) reported that learning using text-based material is 60,000 times slower than learning with visual information. Shimamoto (2012) elucidate that a traditional class usually explains the concept of knowledge via lectures, in which students are expected to listen attentively and taking notes instantaneously. The notes written will later be used as a reference for students prior to complete homework or assignments after lecture classes. For students who are unable to focus in lecture classes, such conditions normally resulted in passive learners. They end up having to work harder and sometimes struggle much especially in situations of completing tasks without assistance from the lecturers or peers.

In order to overcome this problem, research conducted by Hetrick (2015) reported that the effectiveness of learning could actually be enhanced by personalizing learning tools such as the introduction of mobile learning Apps that has proved to successfully change the human behaviour. Thus, this study mainly aims to explore the use of newly innovated mobile Apps for two (2) selected courses thought in UiTMCTKD in enhancing effectiveness of teaching and learning, prior to the precipitous evolution application on web Apps and mobile Apps. An inclusive and enhanced teaching process with learning materials that provide an interactive and experiential learning for students via a virtual learning environment were invented. Combination of interactive tools such as info graphic slides, animation, video, and online Apps does not only simulate relevant case studies, but also provide interesting, light-weight reference materials as an innovative self-directed learning strategy that applies the concept of attention-interest-desire-action (A.I.D.A.) that is commonly used in marketing. By integrating the A.I.D.A. model in SpHoTiA and GeoCA mobile Apps, it aims to attract learners to study compulsory courses for Tourism Management, Hotel Management and Foodservice Management program in UiTMCTKD which are Supervision in the Hospitality and Tourism Industry, and Geography and Culture in Tourism.

Literature Review

Mobile learning Apps are applications on mobile intelligent terminal equipment that act as an important transferor of information and services through software and programs that runs on mobile device (Liu et al., 2018). Sharples, Milrad, Sanchez and Vaoula (2009), classify mobile learning as teaching mode that does not only engage mobile technologies in providing learning materials, but also provide beneficial guidance and support to learners. As claimed by Yunfei (2015), the existing functions of mobile Apps have significantly influence students to choose the Apps that includes five (5) aspects of content area knowledge, digital media, community influence, products and development environment (Crawford & Smith, 2014). Besides that, to enhance usability and students' satisfaction, Segaran, Ali and Hoe (2014) highlighted six (6) important principles in designing mobile learning Apps including text, graphic, audio, video, animation, and colour. Liu et al. (2018), added that in designing the Apps, developers should also consider the operation logic, interface interaction, content and user experience. In addition, the Apps should not only strengthen the design of learning experience but also need to be fun. This is to significantly ascertain continuous future

generation users, specifically students, to use mobile learning Apps as a preferred teaching and learning method (Bo & Ben-cheng, 2015).

In Malaysia context, the government is known to continuously provide initiatives for courseware and software development, with the recent introduction of 1BestariNet project in schools such as Frog virtual learning environment (Halili, Rahman & Razak, 2018). According to Cheok and Wong (2014), this project is an effort to measure the use of technology in teaching and learning, that gears towards transforming the learning process in schools throughout Malaysia. Web-based platforms such as virtual learning environment does not only permit students to obtain and utilize various learning tools at anytime and anywhere, but also allows them to continuously share learning resources and documents, access course contents and program information, along with getting further help from lecturers. Another study observed technology of this type as increasingly being integrated in teaching pedagogies that is rapidly becoming part of the tertiary education, transforming the system to the better (Trowler, 2010). Freeman, Eddy, McDonough, Smith, Okoroafor, Jordt and Wenderoth (2014) discovered that the applied method triggers active learners to learn more effectively compared to passive learners who learnt using a traditional lecture method. The implementation of video lectures (Merkt & Schwan, 2014), Native Apps (device-specific and operating system-specific), Web/Cloud Apps (server side Apps, independent devices and devices that run all platforms) and Hybrid Apps (cross-platform and combination of both characteristics of native and web/cloud Apps) encourages active participation, thus enhancing the students' learning outcomes (Khaddage et al., 2016).

As educators pursue to implement virtual learning environments, it is expected that elements of serious games, stories and simulations can be a positive vehicle to install knowledge, skills and competencies among students (Granic, Lobel & Engels, 2014). In agreement, Israel, Marino, Basham and Spivak (2013) pinpoint in their study that gamifying learnings benefitted learners through learning flexibility, personalized education exposure, increased students' engagement in the teaching and learning process. Hence, learning theory and concepts through digital media suggests that there is an opportunity for students to acquire tacit knowledge (Loh, Sheng & Ifenthaler, 2015), enhance their skills over time, and particularly with goal directed, will result in students becoming more competent in their tasks as they capture skills and dispositions beyond their cognitive ability. Though there may be educators who may still prefer "old teaching" methodologies rather than using the latest, interactive learning resources (Camilleri & Camilleri, 2017; Papastergiou, 2009), competencies that are acquired through digital technologies are reported to be fundamentally behavioural in nature, as they are susceptible to self-awareness, self-regulation and social skills.

Since digital games help to promote collaboration, problem-solving and communication, experimentation, and the exploration of identities (Loh et al., 2015; Fleming & Wood, 2001), the use of digital games in education necessitates standardized curricula that promotes competition, achievement and reward structures (Kapp, 2012). Students' who desire to win or complete games would be more motivated to study course-related materials and their efforts are rewarded when they win rounds in the game. Hence, due to the foreseeable benefits gained from the application of mobile learning, therefore, a newly developed Hybrid Mobile Apps that combines interactive lecture videos published on YouTube, links to cloud storage in Google Drive, users' feedback through SurveyMonkey, along with interactive online games and quizzes is selected in preparing an interactive, holistic approach of teaching and learning process through the invention of SpHoTiA and GeoCA Apps.

Methods

SpHoTiA and GeoCA Apps are both developed by transforming the traditional lecture notes into an interactive form that is compatible with mobile Apps. The core idea of these Apps is to segment the content into several sub-contents that are in line with the syllabus for easy readings and increase greater understanding. As mentioned by Osman, Yahaya, Wahab, Ramle and Ibrahim (2018), based on empirical evidence, learners learn better when learning materials are divided into bite-size chunks as it allows learners to ingest the contents at their own pace. Using contents from topics covered in the syllabus, interactive tools such as infographic slideshows, text speech and animation are combined together and converted into interactive videos. All completed videos are later published on YouTube to affiliate the interactive notes with Appy Pie, the chosen online App software maker. This method is a new invention for teaching and learning approach used in UiTMCTKD as an added method to the current existing e-learning method such as blended learning in iLearn V3 and econtent including Massive Open Online Course (MOOC), SME, Open Educational Resources and Courseware (Institution of Neo Education, 2019). Both the newly econtent inventing using readily available online mobile Apps are among the first to be developed as a teaching and learning medium for the subjects Supervision in the Hospitality and Tourism Industry, and Geography and Culture in Tourism.

Besides interactive videos, the newly invented Apps are also linked to Google Drive cloud file to ease students and lecturers to send and update related documents pertaining to class assignments, assessment rubrics and grading. Within the App, other features were also made available including the course outline, bonus quizzes and tutorials, role play video samples, and feedback medium via SurveyMonkey. The data were collected using SurveyMonkey Audience due to its reliability as a fast survey platform compared to other larger market research studies for technology behaviour research. Besides that, the results showed can be obtained within hours at a much smaller costs with accuracy within 10% of traditional larger surveys (SurveyMonkey, 2018). As debated by Bentley, Daskalova and White (2017), researches can rely more heavily on this platform especially in the product design process while providing much faster planning iterations that are informed by actual usage data.

The feedbacks were used as the piloted medium to obtain responses from 30 randomly distributed respondents from Faculty of Hotel and Tourism Management (FPHP), UiTMCTKD prior to test the effectiveness of the App. The questionnaires distributed were originally adapted from the commonly list of questions used to measure customers' satisfaction via websites especially by companies that are doing business marketing. A total of five (5) questions that represents five (5) main attributes were adapted among the significant questions that are previously asked in customers' feedback survey. Bentley et al. (2017) found that questionnaires with 40 questions have approximately 10% lower response rate than questionnaires with 10 questions only. This is due to the fact that regardless of its length, most people tend to spend only about 10 minutes in filling out a questionnaire. Hence, this indicates that fewer questions will likely to receive higher number of respondents who are likely to spend more time on each question asked. The questionnaire was distributed via link and QR code for different type of processor in the smartphone either android or apple mobile devices. Respondents are required to answer five (5) questions created via SurveyMonkey in the feedback session after successfully install and browse the App. The response was later analysed using IBM SPSS Software and a descriptive statistic via mean and

percentage was produced prior to show the effectiveness of both SpHoTiA and GeoCA mobile Apps.

Results and Discussion

Based on the questions developed, students were able to assess the effectiveness of SpHoTiA and GeoCA mobile Apps in their learning process and compare them with the conventional learning through the five dimensions set; necessity, easy to understand, quality, overall satisfaction and willingness to recommend the Apps to other students. Reliability of the dimensions tested were first analysed to measure the consistency between dimensions listed. Result score of .926 Cronbach Alpha Coefficient value ($\alpha > .7$) indicates an excellent internal consistency between the dimensions.

Further descriptive analysis was carried out and the overall results showed positive results on all the dimensions tested as illustrated in Table 1: Descriptive results of the respondents' feedback on SpHoTiA and GeoCA mobile Apps usage. Evidence shows that the newly developed Apps are positively desired (71%) as a teaching technique for the subject. This is due to the fact that these Apps enables them to easily comprehend more on the subject matters, recorded with 50% claiming it is very easy and 42.87% declaring it as tremendously easy to understand the course via the Apps. Consequently, respondents also evaluated the eminence of the Apps as high quality (57.14%) and very high quality (35.71%) while 78.57% of the respondents were very contented with the Apps. With regards to that, the respondents are more likely to recommend the Apps to others in which, majority of the respondents chooses to act as promoters (71.43%) compared to detractors (7.14%).

Table 1: Descriptive results of the respondents' feedback on SpHoTiA and GeoCA mobile Apps usage

Perception of Respondents	Result	Percentage
Necessity	Definitely need	71%
	Probably need	22%
	Neutral	0%
	Probably do not need	7%
	Definitely do not need	0%
Easy to understand	Extremely easy	43%
	Very easy	50%
	Somewhat easy	7%
	Not so easy	0%
	Not at all easy	0%
Quality	Very high quality	36%
	High quality	57%
	Neither high nor low quality	7%
	Low quality	0%
	Very low quality	0%
Overall Satisfaction	Very satisfied	79%
	Somewhat satisfied	21%
	Neither satisfied nor dissatisfied	0%
	Somewhat dissatisfied	0%
	Very dissatisfied	0%

Perception of Respondents	Result	Percentage
Recommendation to others	Detractors	7%
	Passive	21%
	Promoters	72%

The above overall outcome revealed that the Apps developed for the two (2) selected courses were much preferable, friendlier method for teaching and learning of students from the FPHP, UiTMCTKD. On top of that, with the use of these Apps, students' knowledge and understanding were increasing since it offers freedom to recap and rewind learning contents via the use of videos, which are beneficial not only for the students but as well as the lecturers. However, the mobile Apps' ease of use is not a perfect indicator for its effectiveness in measuring the level of knowledge gained. As mentioned by Khaddage et al. (2016), mobile Apps are still unable to have an effective learning content measurement tool that can serve as key performance indicators of the learning output. Students may find it easy to use the Apps and understand its functionality, but more integration need to be done to ensure the new generation of students are able to totally shift from conventional classroom-styled to online Apps learning.

Nevertheless, the results indicated that students are accepting new approach in teaching and learning via incorporating technology that enhances participation along the process. Surprisingly, this finding is in parallel to Crompton (2014) who claimed that learning through mobile App is considered an advancement in the way learning is done. It enhances students' participation and interest in acquiring information and knowledge. In agreement, Khaddage et al. (2016) mentioned that in today's society, the preferred ways of sharing and dissemination of information and knowledge goes beyond ordinary classroom and are more exposed to social media and the use of mobile Apps.

Besides the above notion from previous researchers, the newly developed Apps also deem effective for teaching and learning purposes to UiTMCTKD since these Apps were developed taking into considerations details from Academic Information Management System (AIMS) in which the videos uploaded are according to case study relevant to the syllabus contents. Upcoming students can also use the Apps as references, a substitute to costly text books and use it for quick revision since the contents can be rewind unlimited times. The discussion tool, on the other hand, would allow live virtual interaction just like other online forums. Such condition would enable lecturers to save time from lengthy explanation in classes. Besides that, element of fun in learning is made possible due to interactive opportunity offered, and is likely to attract students interest particularly the kinaesthetic users. The quizzes and tutorials shared in a final exam format can also be an excellent exam exercise for students. Hence, the Apps is expected to increase students' performance in the final assessment. Furthermore, the Apps is also an alternative solution to the lacking of internet access accessibility in classes, since students can use own mobile devices to open the contents. Technical problem related to in class facilities such as virus attack to USB flash drive can also be reduced, henceforth allowing for a smoother teaching and learning process.

Conclusion

In summary, the use of these Apps among target users specifically among university students are expected to boost their interest in teaching and learning process. This is due to the current students are the millennial generation that were born between year 1977 until

2000. This generation are more interested to study through technology-aided references that can be accessed at anytime and anywhere at their ease. In addition, these Apps will also help the lecturers or course moderators to be more creative in their delivery styles. Having and using more interactive study materials that suit the current generation's ways of learning will improve learning atmosphere as compared to the conventional four-wall learning style. However, there are still room for improvement to make these Apps more useful and practical.

Future suggestion is to allow the users to interact with the moderators of the subject via online chat allowing for Question and Answer sessions to occur live. By having either private or personal virtual discussion, it can especially help introvert students to be more participative without worrying of the rightness or wrongness of their questions.

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