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Cultural Emotion Games as Trajectory Learning in Southeast Asia

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Abstract

Mobile and online games have become a popular delivery method of education. Creating fun, exciting, engaging, and motivating education games have been the main challenges for the online content providers, especially for education industry. Southeast Asia market has grown steadily over the years for online content providers, becoming one of the strategic areas of investment. In this paper, we identify that cultural barrier is the key obstacle to successfully enter this market. This study surveyed 342 teachers from four Southeast Asian countries to identify the problem of slow adoption of ICT, especially in teaching and learning: the Philippines, Brunei, Indonesia, and Malaysia. We identified independent and dependent variables related to the causal effects on learning experience and outcomes of interactive online learning contents. Using only the significant paths, we then constructed a new cultural online game and e-learning model for creating more exciting, engaging, fun, and motivating online learning contents. Partial least square structural equation modelling techniques were used to examine the path associated with dependent and independent constructs. The result show (a) significant presence of cultural emotion states to help speed up digitalization and e-learning adoption to achieve digital transformation; (b) there are significant factors that can achieve path association from being contented (classroom-based learning) to being Technoid (skilled in technology use); (c) overall, the models achieved an acceptable fit for a new online game and e-learning platform for teachers' and students in Southeast Asia. Based on the new cultural e-learning model, we created a science education game using festive themes for invoking pleasant emotions that are compatible for specific target groups. The cultural emotion game provided better learning experience and outcomes demonstrating how the new cultural e-learning model was able to make games more exciting, engaging and fun.

1 Introduction

The year 2020 has been an unprecedented year for the entire world. The Covid-19 pandemic has devastated the world economy. Are we prepared for such a pandemic? The answer is evident when such a pandemic surface and the world comes to a halt. What is clear is that industries were not prepared for such a pandemic. Schools worldwide have transited to online learning. Through sharing of teaching materials, activities can still take place online. The information and communication technology (ICT) preparedness is felt during this crucial time when we have no choice but to resort to online learning platforms to avoid widespread infections. However, the transition from classroom learning to online learning has not been smooth in Southeast Asia, even with online learning technology having been introduced to schools more than a decade ago. Earlier reports, indicate a low use of technology in Malaysian schools (Nghah and Masood 2006; Hong and Koh 2002). A decade later, reports on the use of VLE-Frog, the online learning platform used in Malaysian secondary schools, showed that most teachers were reluctant to use the platform, as they did not enjoy using it, and its implementation brings with it a certain amount of anxiety and threat; hence, it affects not only students' exposure to technology and e-learning but also their learning outcomes (Rashid 2014; Shazali and Hashim 2018).

Southeast Asian secondary schools and their ICT preparedness have faced several challenges during this crisis. At the forefront of the evolving educational challenges arising from technology advancement is the resistance met by teachers and students in accommodating the educational technology integration. The problems are more profound in some regions, with some schools being slow to adopt technology-assisted learning and showing resistance to change (Yap, Tan, Zhu, & Wettasinghe, 2008).

2 Background

2.1 Southeast Asia – Online Learning Outlook

The Frog Virtual Learning Environment (VLE) has been used to enhance teaching and learning in Malaysia's government schools since 2012. However, the findings of a study on teachers' readiness to utilize Frog VLE in a Malaysian secondary school classified as a 'champion school' shows that the teachers from the monitored school were still lacking in readiness and possessed inadequate skills in accessing Frog VLE (Termit & Hussein, 2015). Another study on teachers' perceptions of online learning in Malaysian secondary schools shows that besides limited ICT skills, low English proficiency is also a barrier to understanding the language used by Frog VLE, and this has caused confusion among teachers and students (Mei, Su, Fauzi & Rosnaini, 2017). A study of students' acceptance and readiness for e-learning in Northeastern Thailand shows that the participants liked the fact that online learning could be used anytime and anywhere and that it could reduce the cost of printed materials. However, despite the positive perceptions, teachers had no experience with online teaching methodology; hence they were unprepared to use an online learning system (Anchalee & Adams, 2016). A study done in Indonesia on online learning program adoption in 2016 shows that attitudes toward e-learning are closely tied to perceptions about the ease of use and utility of e-learning programs. Though an individual could perceive online learning programs as easy, it was unclear whether he or she would also understand the benefit of the program (Haryanto, Honest & Kaltsum, 2016).

A study in the Philippines on college students using learning management systems (LMSs) shows that students did not appreciate the LMS system as they felt the features were like those of social networking sites (SNSs), e.g., sharing of files and socializing with other students. It could also be concluded from the studies that Filipino students will actively participate—or not—in the platform regardless of the interaction the system has to offer, and their motivation to participate is based on their own personal characteristics and cultural setup. When a system is easy to use, it is also perceived as

useful (Garcia, 2017). Another study on ICT integration and the challenges faced by teachers in Philippine schools shows that teachers were not interested in being trained in ICT utilization in classrooms because they found that some ICT skills were not applicable to their lessons and some older teachers were no longer interested in learning ICT as they had difficulty adapting to it. Schools cannot expect a higher academic performance of the ICT programs unless both educators and learners are digitally literate (Daling, 2018).

2.2 Cultural Emotional Outlook

Researchers have identified culture as one key factor affecting technology-based learning. Culture affects the teaching and learning domain as well as the achievement of results (Zhang 2006). Studies have documented that culture has a great influence on the way society functions (Hofstede, 1983). Culture impacts the way people teach and learn (Choudhury, 2014).

Asians' cultural identity and cohesiveness affect their emotional levels. In a recent study on the state of Southeast Asia 2019; the results shows that 72.6% of Southeast Asian feels that the tangible benefits of ASEAN are not felt and 44% of the respondents share their concern over ASEAN becoming increasingly disunited (Tang et al. 2019). Such a cohesive cultural identity is seen in the homes of South Asians living in the United Kingdom, where traditional Asian landscapes, decorations, and narratives show a connective cultural significance and are emotionally valued by the family (Tolia - Kelly 2004). Culture can shape how people express their emotions in certain cultural contexts, and emotions can be influenced by cultural factors (Turner & Stets 2005; Matsumoto & Ekman 1989).

The South Asian conception of the hierarchical structuring of consciousness is somewhat alien to emotion researchers in North America. South Asians have been influenced by local symbolic elaboration, and that translates into mental experiences that they regard as basic in their culturally constituted world. Embarrassment or shame among Americans could result in avoidance, silence, or withdrawal in the context of South Asian norms (Shweder, Haidt, Horton, & Joseph, 1993). Cultural differences exist for some aspects of emotions, and one such aspect is emotional arousal levels. In Western or individualistic cultures, high-arousal emotions are promoted, whereas in Eastern or collectivist cultures, low-arousal emotions are valued (Lim, 2016; & Scollon, Koh, & Au, 2011).

Many researchers who have studied the role of computer-related anxiety in e-learning acceptance or use have concluded that computer anxiety is associated with avoidance or less use of online learning systems or technologies (Purnomo & Lee, 2013; Venkatesh, Morris, Davis, & Davis, 2003). Individuals who are anxious about using computers are more likely to be reluctant to adopt e-learning systems (Alalakh & Alnawas, 2011; Fazil & Rupert, 2016). Unusual classroom activities such as debates and preparing group presentations can boost students' motivation; hence, when motivation increases it lowers students' anxiety levels (Dewaele, Witney, Saito, & Dewaele, 2018; Christensen, 2002). Motivation, excitement, engaged, and having fun emotions could arise when students are involved in childhood activities that are close to their hearts. The potential of stress-relieving engaged activities results from the increase in contentedness and excitement feelings generated during activities (Wood, 1993). Cultural emotions are a deep-rooted element among Southeast Asians. Hence, stimulating positive Southeast Asian cultural emotions could be used as a critical factor when designing technology-assisted learning and could potentially achieve great results.

3 Constructing Hypotheses

In this comparative study, we empirically investigated how teachers' perceptions of technology-assisted teaching impacts their use of mobile game and online learning and how it affects students' learning in secondary schools in Malaysia, Indonesia, the Philippines, and Brunei. We investigated the impact of cultural dimensions, (uncertainty avoidance [UA] of cultural emotions) based on teachers'

perception on the transformation from being content with classroom-based learning to reducing teachers' anxiety levels concerning mobile game and online learning to improve technology use (Technoid). The five constructs of the emotions tested were: Fun (H1), Motivating (H6), Excitement (H5), Contented (H4), and Engaged (H2), which improves technology use (Technoid) (H3).

Questions from teachers' survey used to construct hypotheses.

H1_T: Uncertainty avoidance impacts the state of having Fun. Questions and variables used:

- Students demonstrate higher level of learning when Tech is used (Fun_1)
- There is more student collaboration when Tech is used (Fun_2)
- There is more teamwork among students when Tech is used (Fun_3)
- It is easier to make students understand topic during Tech use (Fun_4)
- It is easier to get quiet students to participate during Tech use (Fun_5)

H6_T: Uncertainty avoidance impacts the state of being Motivated. Questions and variables used:

- Students are more motivated during Tech activity (Motivating_1)
- Students are constantly motivated during technology-assisted learning (Motivating_2)

H2_T: Uncertainty avoidance impacts the state of being Engaged. Questions and variables used:

- Students wait for instructions before exploring mobile-assisted learning (Engaged_1)
- Students use collaboration tools to post questions without being instructed (Engaged_2)
- Students wait for teachers' instructions before proceeding with tech. activities (Engaged_3)
- Students are very dependent on teachers during tech. activities (Engaged_4)

H4_T: Uncertainty avoidance impacts the state of being contented. Question and variable used:

- Students prefer traditional classroom over technology-assisted learning (Contented_1)

H3_T: Uncertainty avoidance impacts the use of technology. Questions and variables used:

- Internet for developing lessons (Technoid_1)
- Mobile devices (e.g., smartphones) (Technoid_2)
- Learning management systems (e.g., online blackboard) (Technoid_3)
- Online videos (e.g., YouTube) (Technoid_4)

H5_T: Uncertainty avoidance impacts the state of being excited. Questions and variables used:

- Using different tech. for different activities students understand the topic better (Excited_1)
- Using different technology eases management of different types of learners (Excited_2)

Figure 1 depicts the proposed model with cultural emotions. Hypotheses and their possibilities of causal effects on cultural emotions are suggested. The causal effects and their significance will be tested.

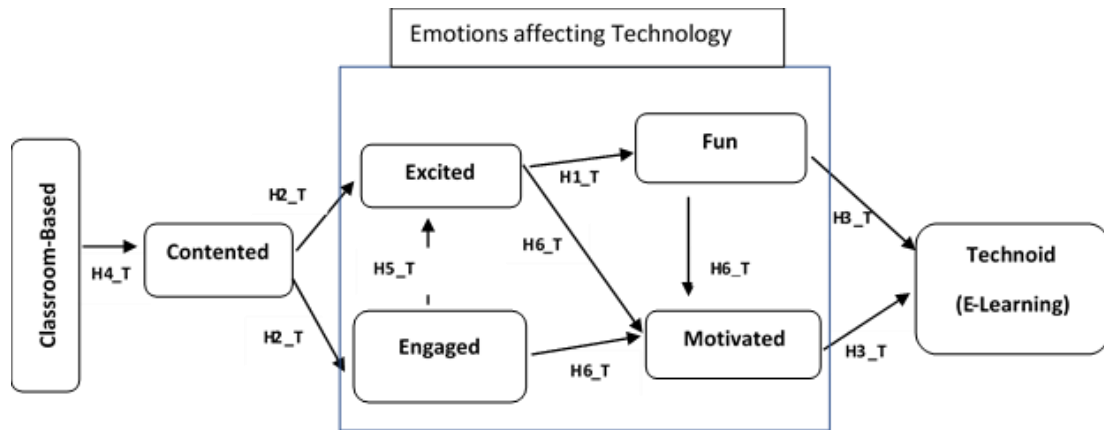


Figure 1: Relationship between cultural emotion constructs leading to Technoid

4 Methodology and Data Analysis

Data collected from 20 secondary schools across Malaysia, Indonesia, the Philippines, and Brunei on demographics (age and gender), technology perceptions, and technology use. Questions covered the frequency of technology use, teachers' competency level in the use of technology for activities, and their perceptions of technology use in terms of motivation, collaboration, with cultural dimensions.

On a 5-point Likert scale, respondents were asked to rate their overall level of satisfaction with the use of technology/digital tools in the classroom, as well as their competency level. Scales ranged from 1 = strongly disagree to 5 = strongly agree, from 1 = never used to 5 = competent, and from 0 = NA to 4 = daily. The questionnaire was distributed to 400 randomly selected teachers and 1,000 randomly selected students. Since this study emphasizes teachers' perception, only teacher data will be analysed for this study. Overall, 342 teachers completed questionnaires across the four countries (n = 82 respondents in the Philippines, n = 92 respondents in Brunei, n = 69 respondents in Malaysia, and n = 99 respondents in Indonesia).

Both descriptive and inferential statistics were applied to compute the mean, standard deviation, frequency, Pearson's correlation coefficient, one-way ANOVA, and PLS-SEM bootstrapping using SmartPLS. The findings presented in this section are based on the probability set at ≤ 0.05 . First, we report the ANOVA test results for comparing the mean values of dependent and independent variables between countries. This analysis is required to compare the mean values between countries to identify the any significant differences before we can propose a model to support the data collected for all four countries. The same factors (dependent and independent variables) are used to build the best-fit model in PLS. Only significant values from ANOVA were used in the model, except for the variable Contented_1. This model is built based on the collected data from the four countries and specifically from teachers' perspectives. Our method and findings are limited by the self-reported nature of the survey questions and our assumptions.

5 Results

An analysis of variance (ANOVA) on these scores yielded significant variation among conditions, and a post hoc Tukey test for four of the dependent factors showed that there are no significant differences between Malaysia and Brunei, and there are no significant differences between Philippines and Indonesia in comparison, except for the last dependent factor (Fun_5), where Malaysia, Indonesia, and Brunei fell into the same category. An analysis of variance (ANOVA) on engaged scores yielded significant variation among conditions, and a post hoc Tukey test for the following dependent factors showed no significant differences between Malaysia, the Philippines, and Brunei (Engaged_1 and Engaged_3), as well as between the Philippines and Indonesia (Engaged_2 and Engaged_4). Refer to Table 1.

Table 1: **H1 Fun and H2 Engaged**

	<i>Malaysia (N=69)</i>	<i>Indonesia (N=96)</i>	<i>Philippines (N=81)</i>	<i>Brunei (N=92)</i>	ANOVA
Fun_1	<i>M=3.5, SD=0.74</i>	<i>M=4.2, SD=0.66</i>	<i>M=3.96, SD=0.77</i>	<i>M=3.23, SD=0.74</i>	<i>F (3,332) = 31.2, P = 0.000</i>
Fun_2	<i>M=3.7, SD=0.75</i>	<i>M=4.1, SD=0.66</i>	<i>M=4.04, SD=0.70</i>	<i>M=3.5, SD=0.84</i>	<i>F (3,331) = 13.5, P = 0.000</i>
Fun_3	<i>M=3.6, SD=0.78</i>	<i>M=4.05, SD=0.66</i>	<i>M=3.9, SD=0.71</i>	<i>M=3.5, SD=0.78</i>	<i>F (3,330) = 13.5, P = 0.000</i>
Fun_4	<i>M=3.8, SD=0.54</i>	<i>M=4.14, SD=0.63</i>	<i>M=3.9, SD=0.7</i>	<i>M=3.6, SD=0.78</i>	<i>F (3,334) = 6.1, P = 0.000</i>
Fun_5	<i>M=3.8, SD=0.59</i>	<i>M=3.7, SD=0.86</i>	<i>M=4.2, SD=0.75</i>	<i>M=3.6, SD=0.78</i>	<i>F (3,331) = 3.4, P = 0.02</i>
Engaged_1	<i>M=3.2, SD=0.92</i>	<i>M=3.6, SD=0.81</i>	<i>M=3.4, SD=0.88</i>	<i>M=3.2, SD=0.73</i>	<i>F (3,332) = 3.34, P = 0.019</i>
Engaged_2	<i>M=3.2, SD=0.84</i>	<i>M=3.3, SD=1.12</i>	<i>M=3.4, SD=0.78</i>	<i>M=2.9, SD=0.78</i>	<i>F (3,333) = 3.19, P = 0.024</i>
Engaged_3	<i>M=3.4, SD=0.74</i>	<i>M=3.8, SD=0.74</i>	<i>M=3.4, SD=0.83</i>	<i>M=3.4, SD= 0.69</i>	<i>F (3,332) = 3.22, P = 0.023</i>
Engaged_4	<i>M=2.9, SD=0.82</i>	<i>M=3.3, SD=0.98</i>	<i>M=3.2, SD=0.88</i>	<i>M=3.1, SD=0.75</i>	<i>F (3,332) = 3.22, P = 0.023</i>

An analysis of variance (ANOVA) of technology use scores yielded significant variation among conditions, and a post hoc Tukey test for the following dependent factors showed no significant differences between Malaysia, Indonesia, and the Philippines (Technoid_2). The analysis also indicates that all countries scored a low mean value $m < 2.85$ for all factors, except for Malaysia's Learning Management System (LMS) use which shows $m = 3.19$. Brunei mean score was the lowest for all four factors ($M < 2.01$). Brunei scored a mean value $m = 0.91$ for Learning Management (LMS) which shows the use between never to not applicable. An analysis of variance (ANOVA) on contentedness scores yielded no significant differences among conditions between countries, with $F(3, 332) = 0.28$ and $P = 0.84$ (refer to Table 2). An analysis of variance (ANOVA) on excitement scores yielded significant variation among conditions, and a post hoc Tukey test for the following dependent factors showed no significant difference between Malaysia and Brunei (Excitement_1 and Excitement_2) and between the

Philippines and Indonesia (Excitement_1 and Excitement_2). An analysis of variance (ANOVA) on these scores yielded significant variation among conditions, and a post hoc Tukey test for the first dependent factor (Motivating_1) showed no significant differences between Malaysia and Brunei, and the Philippines and Indonesia (refer to Table 2).

Table 2: H3 Technoid, H4 Contented, H5 Excited and H6 Motivating

					ANOVA
	<i>Malaysia (N=69)</i>	<i>Indonesia (N=99)</i>	<i>Philippines (N=80)</i>	<i>Brunei (N=92)</i>	
Technoid_1	<i>M=2.3, SD=0.92</i>	<i>M=2.7, SD=1.06</i>	<i>M=2.8, SD=1.05</i>	<i>M=2.0, SD=1.1</i>	<i>F(3,337) = 11.19, P = 0.000</i>
Technoid_2	<i>M=2.6, SD=1.33</i>	<i>M=2.6, SD=1.36</i>	<i>M=2.6, SD=1.28</i>	<i>M=1.6, SD=1.24</i>	<i>F(3,331) = 12.04, P = 0.000</i>
Technoid_3	<i>M=3.2, SD=1.04</i>	<i>M=2.8, SD=1.27</i>	<i>M=1.4, SD=1.21</i>	<i>M=0.91, SD=0.78</i>	<i>F(3,326) = 81.2, P = 0.000</i>
Technoid_4	<i>M=2.4, SD=0.9</i>	<i>M=1.9, SD=1.14</i>	<i>M=2.1, SD=1.07</i>	<i>M=1.9, SD=0.97</i>	<i>F(3,333) = 5.5, P = 0.000</i>
Contented_1	<i>M=2.8, SD=0.85</i>	<i>M=2.8, SD=1.09</i>	<i>M=2.8, SD=0.94</i>	<i>M=2.9, SD=0.73</i>	<i>F(3,332) = 0.28, P = 0.84</i>
Excited_1	<i>M=3.9, SD=0.54</i>	<i>M=4.0, SD=0.63</i>	<i>M=4.1, SD=0.70</i>	<i>M=3.7, SD=0.70</i>	<i>F(3,334) = 6.1, P = 0.000</i>
Excited_2	<i>M=3.8, SD=0.65</i>	<i>M=4.0, SD=0.65</i>	<i>M=4.1, SD=0.75</i>	<i>M=3.6, SD=0.77</i>	<i>F(3,321) = 4.5, P = 0.004</i>
Motivating_1	<i>M=3.7, SD=0.78</i>	<i>M=4.2, SD=0.66</i>	<i>M=4.2, SD=0.75</i>	<i>M=3.8, SD=0.73</i>	<i>F(3,331) = 14.7, P = 0.000</i>
Motivating_2	<i>M=3.8, SD=0.56</i>	<i>M=4.0, SD=0.74</i>	<i>M=4.1, SD=0.70</i>	<i>M=3.7, SD=0.69</i>	<i>F(3,333) = 11.6, P = 0.000</i>

Post-hoc Tukey's HSD tests indicated that Brunei had significantly lower mean scores for all dependent factors compared to Malaysia, the Philippines, and Indonesia. This finding contradicts UNESCO's statistics (UNESCO, 2010) on ICT infrastructure in secondary institutions with Internet-assisted instruction showing Brunei at 100%. The post hoc test reveals that there are no significant differences between countries for some factors (Engaged_1, Engaged_3, Contented_1, Motivating_1, Motivating_2, and Technoid_2); hence, cultural similarities within these Southeast Asian countries do exist and affect the perceived use of mobile game and online learning tools.

These constructs were used to tabulate the path coefficients and P-values for dependent variables and T-values for independent variables to obtain a best-fit mobile game and online learning model for Southeast Asia in PLS combining the data from all four countries. PLS-SEM was used to model the theoretical framework. PLS-SEM was selected as it provides many advantages because it can test theoretically supported linear and additive causal models (Haenlein & Kaplan, 2004). This technique is suitable for developing theories (Chin, 1998). The structural path significance in bootstrapping was used.

6 Analysis of Teachers' Model

Figure 2 illustrates the path associated with the proposed constructs after several moderation analysis for R^2 change to achieve the best result and only the most significant path were chosen to form the model. The valid construct for the transformation from (classroom-learning) Contented to (Technoid) Technology use. The PLS results indicated that that Contented ($\beta_{\text{Contented} \rightarrow \text{Engaged}} = 0.369$, $p < 0.001$) leads to Engaged ($\beta_{\text{Engaged} \rightarrow \text{Excitement}} = 0.572$, $p < 0.001$) and Excitement ($\beta_{\text{Excitement} \rightarrow \text{Fun}} = 0.535$, $p < 0.001$). Contented \rightarrow Engaged ($R^2 = 0.136$) \rightarrow Excitement ($R^2 = 0.327$).

The PLS equation revealed Excitement and Fun as predictors for Motivating ($R^2 = 0.780$), Excitement ($\beta_{\text{Excitement} \rightarrow \text{Motivating}} = 0.380$, $p < 0.001$), and Fun ($\beta_{\text{Fun} \rightarrow \text{Motivating}} = 0.620$, $p < 0.001$), and Motivating ($\beta_{\text{Motivating} \rightarrow \text{Technoid}} = 0.301$, $p < 0.001$) as the predictor for Technoid. Excitement ($R^2 = 0.327$) \rightarrow Fun ($R^2 = 0.286$) \rightarrow Motivating ($R^2 = 0.780$) shows a higher association compared to Excitement \rightarrow Motivating. To improve technology use (Technoid) the construct of motivation can be utilised. Engaged is not a predictor for motivation as was originally hypothesised. Fun is not a direct predictor for improving technology use (Technoid). The determinant to improve technology use (Technoid) is motivation, i.e., it shows the highest coefficient of determination ($R^2 = 0.780^{**}$). Therefore, manipulating motivation in game and e-learning design would trigger and stimulate teachers' technology use positively.

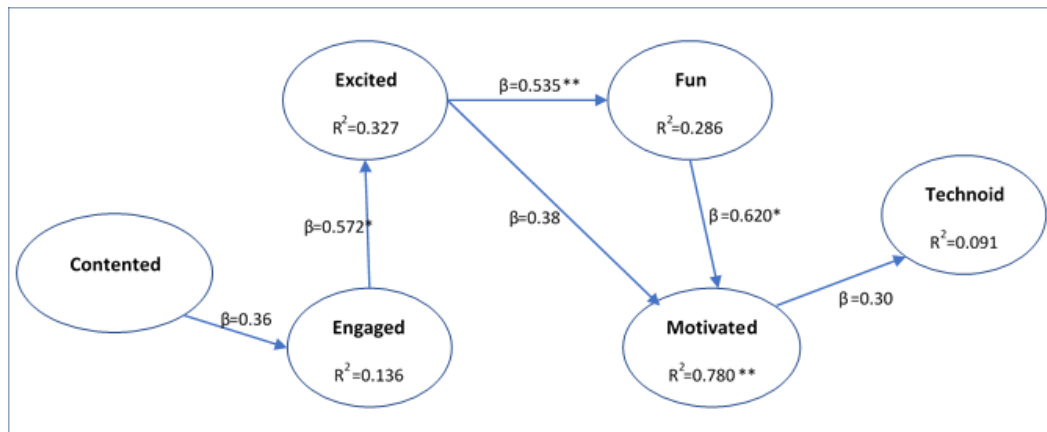


Figure 2: Cultural Mobile Games and E-learning model for Southeast Asia Teachers

7 Discussion on Teachers' Model

Mobile Games and E-Learning adoption requires an extensive designing transformation for a successful infusion in the Southeast Asian region. Based on literature, researchers have suggested the need for learning behaviors to be integrated into Cultural Mobile Game and E-Learning models; however, there is a lack of cultural emotion studies related to mobile game and E-learning platforms. There are strong ties between cultural norms and cultural emotions in Southeast Asians' daily activities. Their beliefs and traditions strengthen their emotions, and this can positively manifest in their daily activities (Murata, Moser, & Kitayama, 2013). The results of this study suggest that the connection of cultural emotions and cultural dimensions are necessary constructs of the cultural mobile games and E-learning platform. The causal effects of cultural emotions aimed towards reducing anxiety levels among teachers and students for the purpose of promoting technological use (Technoid) positions a new

paradigm in the design of cultural mobile game and E-learning platforms. In the proposed model in Figure 1, we suggested a relationship between cultural emotions and our hypotheses, stating that there is possible causal effect of the state of being contented leading to being Engaged. Being Engaged leads to being excited and being excited leads to having Fun and Motivated. Therefore, being Engaged could lead to being Excited, Motivating, and having Fun. A non-stressful situation, that is, being Engaged, could work wonders for anyone, as being excited during an activity could lead to successful completion of the activity, having fun for oneself, and eventual transformation to Motivated mood. Both having fun and motivation can reduce anxiety resulting in improving technology use (Technoid). However, no positive correlation was suggested in PLS for Engaged leading to having Fun and Motivated, or having Fun in technology use (Technoid).

The researched cultural mobile game and e-learning model suggests a strong causal effect for Engaged ($\beta = 0.572^{**}$) \rightarrow Excited ($\beta = 0.535^{**}$) \rightarrow Fun ($\beta = 0.620^{**}$) \rightarrow Motivated ($R^2 = 0.780^{**}$). These factors as strong contributors to the transformation from being contented (classroom-learning) to having a reduced anxiety level improving technology use (Technoid) in cultural mobile game and e-learning design. The technology adoption techniques in Southeast Asia must take a different infusion approach as the previous approaches have instilled laxity in adopting them. Previous researchers have argued the inclusion factors of perceived ease of use and usefulness which highlights successful utilization. However, it lacks the important pillar that is required for Southeast Asian technology pessimist towards successful technology use and sustainability. Southeast Asians value their cultural norms and tradition, hence positioning this cultural value is crucial for ICT design. Cultural emotions stimulate teachers' and students' sentiments towards their cultural presents in a way that postulates ease of acceptance. Teachers and students will be prepared to explore the uncertainties without much hesitation as willingness intensifies with emotional stimulants. The infusion of technology preparedness can also be further enhanced through the acceleration of technology acceptance with emotional stimulants for Southeast Asia.

8 Success Story: Model use with Festive Theme mobile learning

The proposed model was integrated and tested with a festive cultural themed mobile game-based learning and with 84 students and 17 teachers from 3 high schools in Jakarta, Indonesia on students learning experience and teachers experience. Thirty-four students ($n = 34$) participated in the festive cultural theme activity, 26 students ($n = 26$) participated in the standard theme activity, and 24 students ($n = 24$) participated in the classroom-based learning activity. Activities were on learning the topic on Photosynthesis. Students learned the topic using an interactive mobile-game based activity with festive cultural theme Eg. Ramadhan, Lunar New Year, Christmas, Vesak, and Diwali. The festive theme design included festive music, festive decorations, festive vibrant colors which invokes deeply rooted cultural emotions of engaged, excited, fun and motivated as shown in figure 3: Ramadhan festival. Students were motivated, engaged, and were having fun with Festive themed mobile interactive game ($m > 4.1$) compared to classroom-based learning and standard-theme. Students' achievement on pre-test and post-test also shows high achievement of 14.12% compared to standard theme of 6.54%. 17 teachers evaluated the festive themed activity. Teachers' evaluation shows high mean ratings for motivation ($m=4.65$), excitement ($m=4.59$), happiness ($m=4.47$), enjoyment ($m=4.59$), fun ($m=4.57$), and satisfaction ($m=4.35$) (Vadivel, Song, & Bhati, 2020).

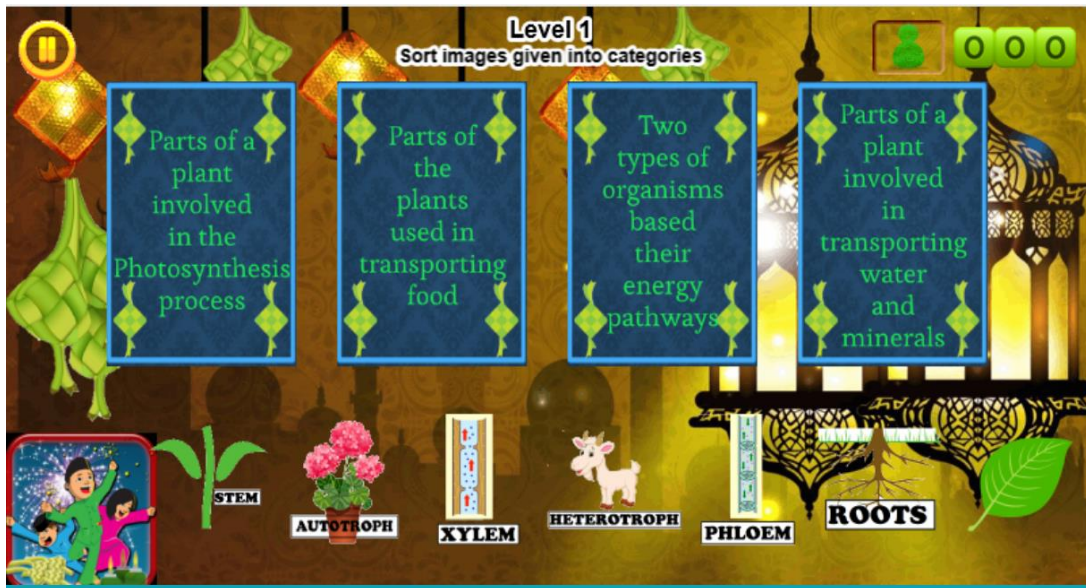


Figure 3: Ramadhan Festive Themed

9 Conclusion

In this study, we have proposed a new cultural mobile game and e-learning design researched model for Southeast Asia based on cultural emotions for Teachers. Suggesting the need for a paradigm shift for online content providers in designing online platforms for Southeast Asian secondary education. The proposed model could be used as a foundation for designing and building educational mobile and e-learning with cultural games that is more exciting, engaging, fun and motivating to stimulate teaching in Southeast Asian regions to overcome the adversity faced today. The implications of the proposed model (1) Redesigning future mobile game and e-learning platforms to stimulate learning to solve the problem of slow ICT adoption in Southeast Asia (2) To facilitate and improve activity with positive emotions and to reduce negative emotions thus influencing their learning outcome; (3) Creates a cultural emotional attachment towards online learning platforms thus breaks the barrier of uncertainty avoidance among Southeast Asian students using mobile game and online learning platforms.

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