

Students' Response towards Synchronous Game-based Learning

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Abstract—Game-based learning has emerged as an active learning technique over the years from traditional to digital. In the light of coronavirus disease (COVID-19), Hospitality and Tourism to You (Ht2U) games which started as a book, followed by traditional board games which then went online through a website, have recently been incorporated through the Jamboard, a Google feature attached to Google Meet. This paper aims to study the students' feedback on the latest form of the games in meeting the needs arising from the pandemic. The results highlight the characteristics of a good game extended by the online teaching and learning approach. It is hoped that future studies will lead to the expansion of online synchronous features that are predominantly suitable for vocabulary games.

Keywords—game-based learning, game theory, COVID-19, ODL

I. INTRODUCTION

It has been common for educators to carry out face-to-face classes in teaching at the various levels throughout the world for centuries. Since the COVID-19 outbreak, teaching and learning has changed significantly with the apparent rise of online learning. Open and Distance Learning (ODL) is a way of learning virtually without meeting face-to-face in a classroom. In the face of growing modernity and the COVID-19 pandemic, ODL is considered to play an important role in increasing access to education worldwide (Isangula et al., 2021). Even though ODL has been implemented as part of a course in certain institutions in Malaysia, the education system was not ready to go full swing when the pandemic started. The five factors which influenced the preparedness of ODL among the educators are teaching experience, number of family members, number of devices, the Internet data, and convenience of ODL (Noor Izyan et al., 2021). Educators began to explore the various platforms and features available online to equip their teaching skills. Lectures, exercises, activities, and assessments are fully conducted online. The challenge is to ensure students' understanding of the lessons.

Game-based learning is one of the ways that can be carried out online. In game-based learning, the games which consist of crossword puzzles and word search are used as a tool in

the teaching and learning process. The main objectives of the games are to enrich students' vocabulary and to assist students in understanding the course better. Hence, the purpose of this paper is to investigate students' response towards the use of Jamboard, an online feature, in conducting activities for the HTH500 course which is offered at the Faculty of Hotel and Tourism Management, Universiti Teknologi MARA (UiTM), Cawangan Pulau Pinang. Although there are many studies on game-based learning, studies to explore responses towards synchronous game-based learning are comparatively scarce.

II. LITERATURE REVIEW

Over the years, many have questioned the effectiveness of the traditional teaching and learning methods in higher education which has resulted in the search for more effective methods. In the late 1990s, eLearning was established and has since been progressively incorporated into higher education as an alternative to the traditional teaching and learning methods (Al-Asmari & Khan, 2014). At the same time, games began to play a vital part in promoting active learning since they involve interactive and distinctive elements (Selby et al., 2007). Games not only make learning more enjoyable but also motivate students' in-class involvement and cultivate their attitudes towards learning (Jones et al., 2015). In short, game theory is a theoretical framework for creating social situations among competing players. According to Raadt (2017), motivation is the main factor in using the game theory to understand classroom interactions.

Huyen and Nga (2003) said games are effective in helping students improve their vocabulary building skills. In addition, games indirectly lead students to engage in interaction with each other to learn by themselves and from others which indirectly lessens the fear of committing mistakes (Bavi, 2018). Thus, digital game-based vocabulary learning has considerable potential for language learners, educators and researchers (Di et al., 2019). Unexpectedly, 2020 marked a change in the education climate. COVID-19 has shaken the world and provided a whole new experience to educators and students in their teaching and learning environment (Adnan

& Anwar, 2020). Instead of combining traditional teaching and learning methods and eLearning, they have no choice except to embark on ODL.

III. HT2U GAMES

Hospitality and Tourism to You (Ht2U) games have evolved to cater for the medium of communication between educators and students for three different degree courses: HTH500 (Hospitality Service Management), HTH545 (Hospitality Consumer Behaviour) and HTH568 (Club and Theme Park Management). Ht2U games consist of two components namely crossword puzzle and word search. Both games are well-known for their contribution in improving vocabulary mastery. In the meantime, games are fun because they provide a source of enjoyment and pleasure (Prensky, 2001).



Fig. 2. The HT2U games book.

Figure 2 above shows the Ht2U games in the book form. The logo and the book of Ht2U games are copyrighted. Subsequently, crossword puzzles and word search were turned into Sahibba-like games to suit the nature of board games. Figure 3 below shows the Ht2U games in the form of board games.

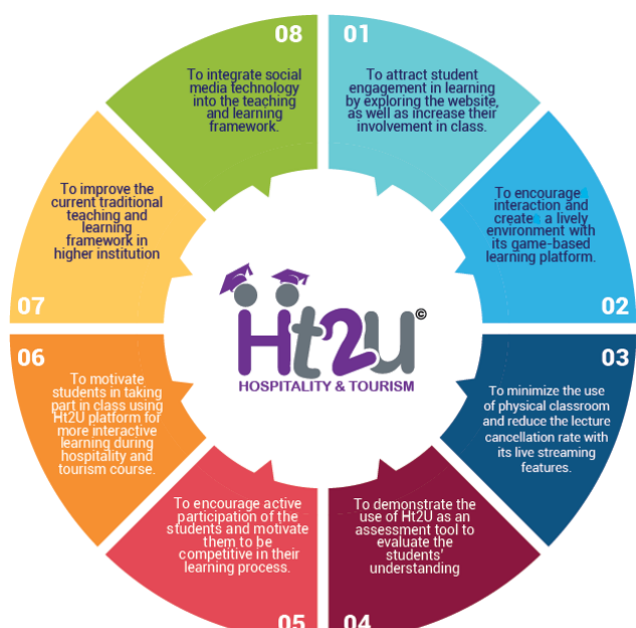


Fig. 1. The objectives of HT2U games.

Figure 1 above shows the objectives of Ht2U games. Among the objectives are to attract students' engagement in learning, to encourage interaction, to minimize the use of physical classroom, to demonstrate the use of Ht2U as an assessment tool, and to evaluate students' understanding. The games took form as a book for individual students before being transformed into board games to be played in groups during the physical class sessions.



Fig. 3. The HT2U board games.

Subsequently, Ht2U games were transformed into a website. Besides Ht2U games, there are other nine main menus which include live streaming, forum, and discussion on the website featuring interactive learning. Figure 4 below shows the Ht2U games website.

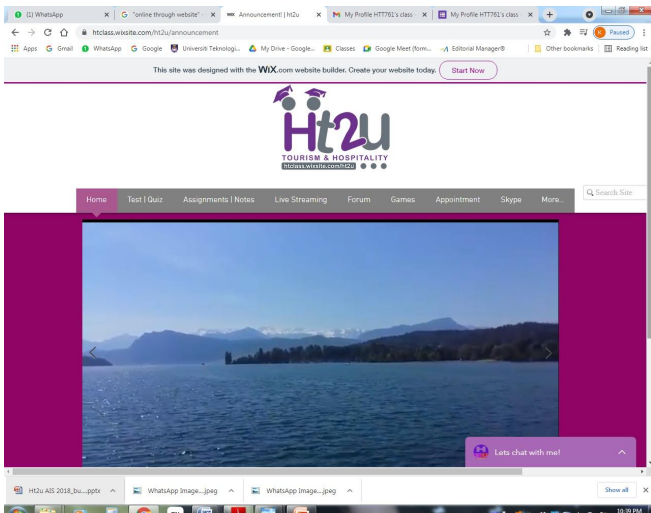


Fig. 4. The HT2U games website.

HT2U games have won several awards since the games were first introduced. In 2017, the Interactive Teaching and Learning Website for Tourism and Hospitality Students won Silver award in the International Conference and Competition on Teaching and Learning. In the same year, a Gold award was bagged in the International Food and Tourism Innovation, Invention and Creativity. The following year HT2U Games took part in the Asia Innovation Show and won two awards, a Gold, and a Special award from the World Invention Intellectual Property Associations (WIIPA). Figure 5 below shows the two awards won in 2018.



Fig. 5. The Gold and Special awards won by HT2U games.

Recently, due to the pandemic outbreak, the educator had to explore the suitable method to meet not only the learning outcomes of the course, but also students' readiness and the available options of online features. The educator decided to utilize the most easily accessible feature, Jamboard, which is attached to Google Meet. Jamboard is a digital whiteboard that allows educators and students to have a rich collaborative experience during Google Meet classroom sessions. Before

starting the Google Meet session for lecture and activities, the students were required to study the respective chapter that will be covered for that lesson.

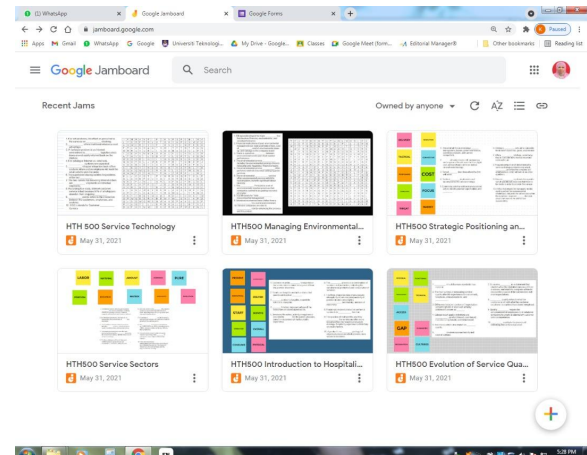


Fig. 6. The Jamboard interface for HTH500.

Figure 6 above shows the Jamboard interface for HTH500 course. Each activity or game covers a chapter. Due to the limitations of Jamboard whereby students are unable to type into the crossword puzzle vertically as a whole and creating a text box for each letter is time consuming, the crossword puzzle is turned into the act of dragging sticky notes to match the blanks. Students also have the choice to type in the answer in the blanks if they prefer to do so. Figure 7 below shows a fill in the blanks exercise on Jamboard for a chapter.

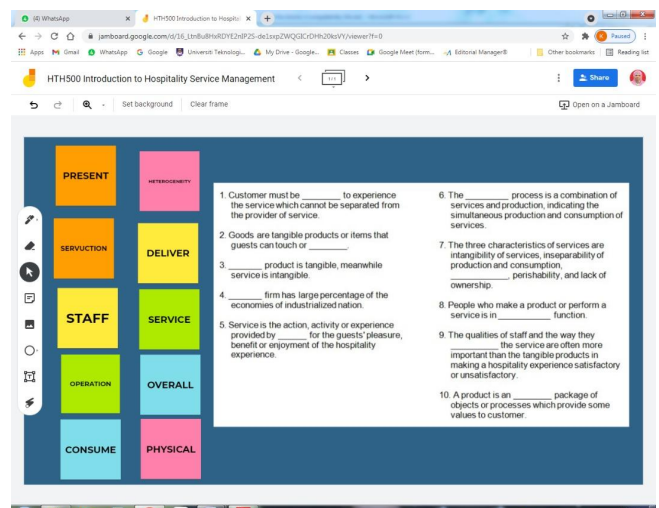


Fig. 7. A fill in the blanks exercise on Jamboard.

On the other hand, word search works well on Jamboard because of the availability of the pen function. There are many readily available applications on vocabulary games today. Games applications such as Quizizz and Nearpod allow students to answer on their own and share the results. However, they lack a criterion, educators' involvement. Live observation and synchronous movement are the key reasons

for choosing Jamboard over creating an application for the games.

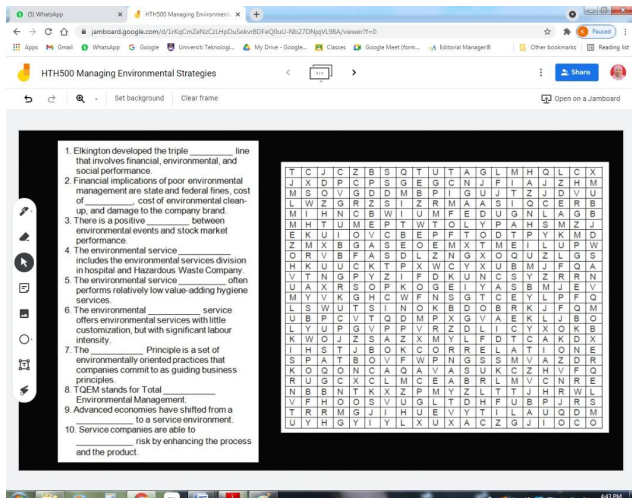


Fig. 8. Word search on Jamboard.

Figure 8 above shows word search on Jamboard for a chapter. For both games, educators can see who is attempting to complete the game and award points or marks to the respective student. Educators can also divide the students into groups to ensure everyone participates in the games. Discussions can be carried out simultaneously. Hence, at the end of the lesson, students will comprehend better on the new vocabulary and chapter learnt. The developers hope to patent the various versions of Ht2U games in the near future.

IV. METHODOLOGY

A qualitative research approach was chosen for this study since qualitative methods are very useful to determine the responses students provide to the events they experience. This paper employs an action model of Kemmis and McTaggart (1988) which consists of four steps: (1) understanding a problem and identifying potential strategies (plan), (2) executing the strategies (action), (3) noticing outcomes of the strategies (observation), and (4) evaluating the outcomes of the strategies (reflection). An action study is a participatory study consisting of following a spiral self-reflective cycle that is planned to initiate change. The action model adopted in this study gives room for changes to be made in the next cycle. Figure 9 below illustrates the conceptual model used in this study.

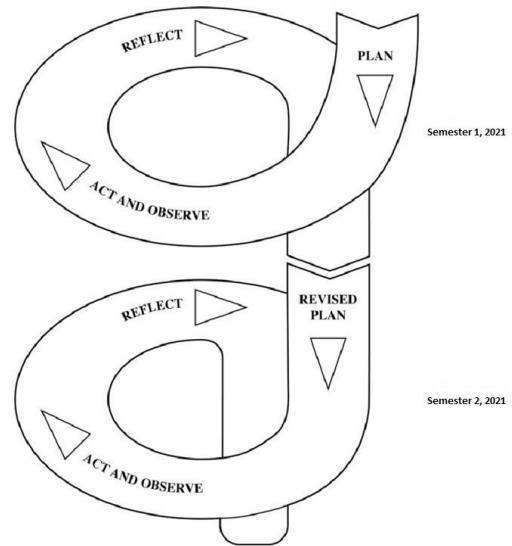


Fig. 9. A conceptual model of action research cycles (Kemmis and McTaggart, 1988).

The sampling in this study consists of 19-degree students from the Faculty of Hotel and Tourism Management, UiTM Cawangan Pulau Pinang who took the HTH500 course in Semester 1, 2021. The preliminary action research study involved a group of five students of a class who gave consent to be the respondent for the qualitative study.

Before the Ht2U website was designed, the researchers gathered information on participation problems in synchronous online learning settings. Firstly, a pre-test was conducted at the beginning of the semester to gauge the students' vocabulary knowledge and familiarity with Jamboard. Secondly, the students were divided into groups and required to study the respective chapter before the online lecture was conducted. The games were then handled by the educator teaching the course who is also one of the researchers of the present study. In the final step, the researcher was able to observe and record the events during the Google Meet session. Once the researcher covered half of the syllabus and conducted the prepared activities, a post survey was carried out to gather feedback from students for improvement. Open-ended questions were used in the pre- and post-test. This allowed flexibility to explore in-depth responses. Both tests were distributed using Google Form to ease the data collection process. The next cycle or the final action research study will be carried out in the coming semester, Semester 2, 2021.

V. RESULT AND DISCUSSION

The methods of teaching and learning of HTH500 course were determined and derived from the first step, under the plan phase, following the current situation of COVID-19 pandemic in the country. Figure 10 below shows the results of the pre-test in which the students were asked about their preferred methods of learning during ODL to gauge their readiness of the teaching approach. Based on the data analysis, respondents chose four main methods in their answers: listen to lecture, participate in discussion, play games-based learning, and a mix of the three methods.

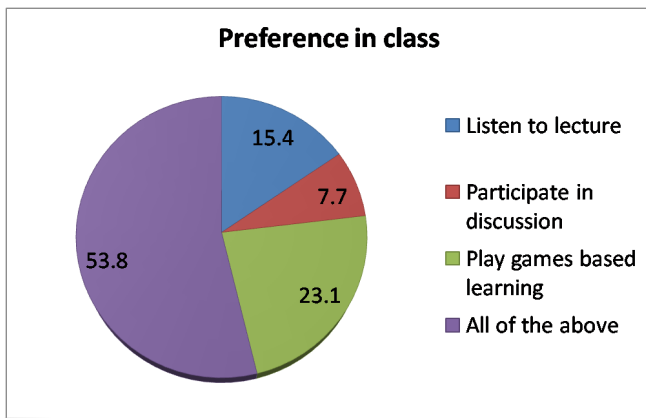


Fig. 10. Percentage of students' preference in class.

From the pie chart most respondents, 53.8% preferred to have a mix of the three methods. 23.1% preferred playing game-based learning while 15.4% preferred listening to lectures. Participating in discussion was the least popular of the four main methods. In short, since a mix of three methods was the most popular choice, it is obvious that many students were happy with the methods used by the researcher.

Based on the observation by the researcher on Ht2U games using the Jamboard feature, it was found that the students enjoyed the learning session. This revealed that respondents gave clues to their fellow classmates. Instead of the educator providing hints, respondents assisted one another in understanding the terms. This proves that the respondents are independent learners. Like previous studies, this study received positive feedback on game-based learning because of the fun element.

Ht2U games are practical for the teaching and learning of the HTH500 course. The main objective of the games to make classes fun and engaging was achieved. The five respondents in this study gave positive feedback on the effectiveness of the games based on their experience with the Ht2U games. Respondent A said, *"a great change because students no longer stick to traditional lectures. The outcomes are the same"*, while Respondent B highlighted, *"new experiences, new norms and function of technologies rises."* Respondent C relayed, *"the way of study has changed due to the pandemic. However, I think we are starting to adapt to the new way."* According to Respondent D, *"for myself, I am comfortable with the lesson."* Respondent E added, *"this class brought me to another new perspective of ODL."* Hence, the positive feedback signal that it is vital to consider game-based learning with synchronous online education features in the teaching and learning process.

Regarding the effectiveness of Ht2U games, the respondents indicated that the games have aided them in enhancing their vocabulary and understanding of the lesson. Respondent A clearly stated, *"the games are manageable and helpful in understanding the lesson."* In the meantime, Respondent B clarified, *"now I know the English terms related to hospitality service management."* Respondent C mentioned, *"the games are fun, and we can explore new things, making us well-equipped not only for examinations, but also for knowledge."* Respondent D highlighted, *"I have a wide range of vocabulary applicable to the hotel and tourism management students."* Respondent E said, *"I learnt new words and*

practised my communication skills." Following these responses, it is safe to conclude that Ht2U games in the recent form are effective in teaching and learning.

Khuen et al. (2005) pointed out that using game theory in learning has a constraint for implementation. These are some of the concerns highlighted by the respondents: Respondent A mentioned, *"confused because everyone can touch and move at will"*, Respondent B said, *"It is quite difficult for me because it will move around when other students touch it"*, Respondent C added, *"Maybe some of our classmates cannot attend because their lines"*, Respondent D relayed, *"too easy to move. not stick"* and Respondent E, *"It's quite hard at first but it's fun"*. These are the challenges the researchers need to overcome in the next phase of the action research.

Researchers of this study believed that there is room for improvement in the final action research study. Based on the responses, the revised plan will focus on the educator's active role in handling the game play session to promote holistic involvement and reduce confusion. This would also promote teamwork and avoid the same student from the group taking part in completing the task. Besides that, turn-taking is the other way to avoid many trying to move the answer at the same time. It is undeniable that some students have Internet problems, so the educator may need to consider rescheduling the game play session to accommodate them.

VI. CONCLUSION

This study met its research objective in studying the students' responses towards synchronous game-based learning. The results are derived from the first cycle of this study. Based on the findings of the present study, the act of incorporating Ht2U games in Google Meet using Jamboard has been very rewarding for the students.

The recent form of Ht2U games provides opportunities for students to experience game-based learning in their synchronous online education. Students are gradually becoming more at ease with ODL. Consequently, Ht2U games are successful like any other games because they provide motivation, lower students' stress, and give them the opportunity for real communication (Mubaslat, 2012). Moreover, researchers will enhance the game-based learning in the final cycle of the action research based on the issues specified by the respondents.

It is indisputable that the learning environment through games, such as Ht2U creates healthy competition among students and increases their participation in class. The only limitation of the study is on the sample size since only one class is offered in the respective semester. It is hoped that a study of this nature will go a long way to assist in improving online tools, game-based learning and ODL while further emphasizing the notion of synchronous online education as a constructive method. Since this study concentrates on students' feedback using Ht2U games, future research may investigate the educators' feedback to have an unbiased perspective.

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REFERENCES

- Adnan, M., & Anwar, K. (2020). Online learning amid the COVID-19 pandemic: Students' perspectives. *Online Submission*, 2(1), 45-51.
- Al-Asmari, A., & Khan, M. (2014). E-learning in Saudi Arabia: Past, Present and Future. *Near and Middle Eastern Journal of Research in Education*, 1(2).
- Bavi, F. (2018). The effect of using fun activities on learning vocabulary at the elementary level. *Journal of Language Teaching and Research*, 9(3), 629-639. doi:<http://dx.doi.org/10.17507/jltr.0903.24>
- Di, Z., Yan, H., & Haoran, X. (2019). Digital game-based vocabulary learning: where are we and where are we going? *Computer Assisted Language Learning*, 34(5-6), 751-777. Retrieved from <https://www.tandfonline.com/doi/abs/10.1080/09588221.2019.1640745>
- Huyen, N.T.T., & Nga, K.T.T. (2003). Learning vocabulary through games. *Asian EFL Journal*. Retrieved from https://asian-efl-journal.com/dec_03_vn.pdf
- Isangula, K., Edwards, G., Mwansisya, T., Mbekenga, C., Pallangyo, E., Sarki, A., & Ndirangu-Mugo, E. (2021). Open and Distance Learning Programs for Nursing and Midwifery Education in East Africa: Protocol for a Scoping Review. *JMIR Res Protoc*, 10(1).
- Jones, J. S., Tincher, L., Odeng-Otu, E., & Herdman, M. (2015). An educational board game to assist PharmD students in learning autonomic nervous system pharmacology. *American Journal of Pharmaceutical Education*, 79(8), 114.
- Kemmis, S., & McTaggart, R. (1988). *The action research planner*. Victoria Australia: Deakin University Press.
- Khuen, C.W., Yong, C.H., & Haron, F. (2005). A Machine Learning Method for Resource Allocation in Multi-Agent Negotiation System. *Proc. GridAsia*. Retrieved from https://www.researchgate.net/profile/Wai_Khuen_Cheng/publication/268400077_A_Machine_Learning_Method_for_Resource_Allocation_in_Multi-Agent_Negotiation_System/links/589350beaca27231daf6194f/A-Machine-Learning-Method-for-Resource-Allocation-in-Multi-Agent-Negotiation-System
- Mubaslat, M.M. (2012). *The effect of using educational games on the students' achievement in English Language for the primary stage*. Retrieved from <https://files.eric.ed.gov/fulltext/ED529467.pdf>
- Noor Izyan Mohamad Adnan, Sharifah Norhuda Syed Wahid, Suriyati Ujang, Nor Azizah Jacob, & Azniza Ahmad Zaini. 2021. Open and distance learning preparedness factors among academicians in UiTM (Pahang) using logistic regression. *AIP Conference Proceedings*. Retrieved from <https://aip.scitation.org/doi/abs/10.1063/5.0053194?journalCode=apc>
- Prensky, M. (2001). Digital natives, digital immigrants part 1. *On the Horizon*, 9(5), 1-6. Retrieved from <https://doi.org/10.1108/10748120110424816>
- Raadt, J.S. (2017). The Game of Learning: Using Game Theory for Educational Research. *The Southwest Educational Research Association*. Retrieved from https://www.researchgate.net/profile/Jay_Raadt/publication/325877084_The_Game_of_Learning_Using_Game_Theory_for_Educational_Research/links/5b2a57a24585150c6340e5a5/The-Game-of-Learning-Using-Game-Theory-for-Educational-Research
- Selby, G., Walker, V., & Diwakar, V. (2007). A comparison of teaching methods: Interactive lecture versus game playing. *Medical Teacher*, 29(9-10), 972-974.