



HistoRace: Enhancing Distant Students' Collaboration and History Knowledge about Japanese Occupation in Sarawak through Technology and Gamified Learning

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ABSTRACT

This study aimed to incorporate computer-supporting and collaborative learning ideas in teaching and learning History of Sarawak. Past research reinforces the benefit of computer-supported collaborative learning in improving students' critical thinking and understanding. The study was conducted in hybrid mode, involving sixteen participants from two pre-university colleges selected by convenience sampling. Data was collected via observation and online questionnaires. Computer-supported collaborative learning to learn history by incorporating physical and virtual platforms, as well as real-time communication, was successfully implemented through this study. Future work could focus on expanding the digital collaboration tools and opportunities that may enhance the History learning experience.

Keywords: History learning, collaborative learning, computer-supported, Sarawak history

ARTICLE INFO

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<https://doi.org/10.33736/jcshd.5484.2023>

e-ISSN: 2550-1623

Manuscript received: 24 February 2023; Accepted: 23 March 2023; Date of publication: 31 March 2023

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1 INTRODUCTION

Learning history is essential to identify how the past has shaped an individual, community, and society to its current form. Knowing local history teaches one about the path crossed by the ancestors and teaches one to avoid or prevent mistakes made in the past, creating a better path for the next generation. Voss (1998) found that students learn and contextualize history better when presented as a narrative. All students would understand the temporal and linear order of events in learning history. However, the typical history teaching approaches in Malaysian secondary schools emphasize rote learning methods; consequently, these methods fail to exploit a person's thinking skills, making the subject too dry, static, and dull (Ahmad et al., 2015). Chong and Yeo (2015) remarked that learning history is a cognitive process. Therefore, making sense of the memorized historical information in effective history learning is essential. Field trips to historical sites or museums provide a more authentic touch than the common lecture-style teaching. Museum-based resources and museum staff offer students a better historical understanding and develop students' curiosity about history (Marcus et al., 2012). Clarke (2002) stated that engaging with museum collections increases knowledge and meaningful understanding among students.

At the pre-university level, the History subject is not part of the formal assessment for Malaysian students. Curriculum reforms have reduced subject content biases, rote learning, examination-oriented learning, and textbook dependency (Lee, 1999). However, at the Malaysian pre-university level, History is not an independent subject. Instead, elements of historical events are taught as a sub-topic of the General Studies subject. According to Sunardi et al. (2021), learning motivation directly influences students' academic achievement. In an experiment on learning the effect of study hours on academic achievement amongst the students of Universitas Negeri Yogyakarta and University and Universiti Putra Malaysia, Sunardi et al. (2021) reported that the lack of study hours negatively impacts motivation and hence, academic achievement. The emphasis given to History at the pre-university level is still remotely low, which can be observed from the lack of instructional hours allocated for the subject. Students tend to lose the motivation to learn History in school and later in life since its importance is not emphasized. Additionally, as time passes, many local historical facts are becoming unbeknownst to the locals, especially the younger generations. To mitigate the issue, the historical facts must be delivered to the students, and it is hoped that the inclusion of technology and gamification elements will enhance the learning experience.

Based on the students' feedback about the aims of this project, local history is rarely discussed in the community due to the lack of tactile evidence. So naturally, the local narratives and artefacts are often preserved in museums that act as a cultural, educational, and civic community. However, the geographical, economic, and bureaucratic hurdles make it harder for teachers to bring students to physical museums (Marcus et al., 2012). Additionally, in Sarawak, many museums are in the capital, making it difficult for students from other parts of the state to benefit from the resources in the museums. Consequently, students lacked insights into the accurate anecdote of history and were not entirely introduced to many aspects of local history. Instead, students tend only to know national historical elements added to the syllabus and local historical elements by word-of-mouth, jeopardizing factual accuracy. Studies by Bušljeta (2015) and DeWitt and Storksdieck (2008) have shown the implications of learning by visiting museums and museum-like settings. There is a gap

in utilizing museum resources amongst pre-university students in Sarawak, especially in gamified settings. Therefore, this study is vital to identify how the resources in museums can be utilized in a gamified setting to improve students' motivation to learn local history.

In this study, history learning, precisely Japanese Occupation in Sarawak, has been supported via gamification and technology, where museum resources have been brought to students in physical and virtual formats. Ideally, including the gamification component in history learning improves students' involvement and engagement in learning, enabling educational innovation (Agus et al., 2021). The Japanese Occupation of Sarawak has been taught by dividing it into 4 phases, Invasion, Effects, Resistance, and Liberation & Aftermath, each with its narration. Through this project, the implementation of interactive learning via Genial.ly, an online collaboration between two educational institutions, the physical game, and virtual Gallery Walk via Spatial.io was expected to intrigue the students' motivation and strengthen students' memory.

The following objectives have been established for this study:

- 1) To motivate pre-university students in Sarawak to learn the critical, lesser-known history of Sarawak, which is the era of the Japanese Occupation of Sarawak
- 2) To introduce pre-university students to multiple technological tools that can promote collaborative learning between two geographically distant institutions
- 3) To utilize open-source applications, web pages, and existing institutional settings to achieve the aim of frugality to create interactive and collaborative games for education

2 BACKGROUND

2.1 Sarawak History in Malaysian Curriculum

During the first three years of the five-year-long secondary school, students are taught the subject of History, particularly early civilizations, sociocultural aspects of the Malay kingdom, Malacca Sultanate, the government of Malayan states, and Sabah and Sarawak, and the federated and unfederated Malay states. The students then continue to learn History for another two years before sitting for the Malaysian Certificate of Education Examination (SPM). In Form 4 and Form 5 levels, students learn about nationalism, Japanese colonization, British colonization, the Communist threat, the federal constitution, and independence. At the SPM level, students must compulsorily obtain a passing grade or 40% in the History subject to receive the SPM transcript. The condition was introduced in 2013 as history is crucial in cultivating patriotism in a culturally diverse country (Bernama, 2013). As the students move forward to pre-university education, students could either join a three-semester sixth form program in the secondary school or enrol in the Malaysian Matriculation Program, either a two-semester or four-semester program. Even so, students in the sixth form are formally taught the History subject, while students in the matriculation program are not. As discussed, while the subject of History widely covers national history, undeniably, Sarawak history is not extensively discussed in the syllabus. Chong and Yeo (2015) view that the younger Malaysian generation has often overlooked the importance of learning history and frequently finds the subject boring and tedious. The authors have also pointed

out that these perceptions often stem from the conventional chalk-and-talk way the subject is taught.

2.2 Collaborative Learning

In collaborative learning, students from various performance levels work together on a shared learning goal (van Leeuwen & Janssen, 2019). In a collaborative learning setting, students get together to solve a problem by engaging with other peers and analysing multiple, unique perspectives. According to Laal and Laal (2012), the collaborative learning environment creates students capable of defending and articulating their ideas, as the students in the environment are challenged socially, emotionally, and intellectually. Regarding group goals and individual accountability in CSCL (Computer Supported Collaborated Learning), Greiffenhagen (2012) stated that the role of teachers in a collaborative learning setting is first to lay out the instructions for the activity for the day's task. Then, during the task, teachers are expected to ratify the progress and remind the students of any requirements that students are missing. At any point, if students are stuck in progressing with the tasks, teachers could provide suggestions to help the students to move forward with the task. Teachers are also expected to maintain classroom control and link the classroom activities to the exam content. Collaborative learning promotes self-confidence and knowledge retention and improves a student's exposure and understanding of a topic due to the diverse perspectives that arise from a collaborative setting. Especially when compared with the individual student activities in the classroom, collaborative learning settings, including collaborative assessment, group projects, and group discussions, are proven to be more successful in improving students' critical thinking and understanding, which in turn positively affects academic performance as well as knowledge transfer (Loannou & Artino, 2010).

Howland et al. (2014) stated that technologies provide rich and flexible media that should be used as engagers and facilitators for learners to communicate their ideas with other learners in groups collaboratively. The authors urge learners to use technologies to inquire, design, experiment, communicate, build communities, compose, construct models, and visualize; thus, they will engage in higher levels of thinking and reasoning, including causal, analogical, experiential, and experiential expressive, and solving problems. Technology in education creates autonomous students who dwell in research, self-learning, and knowledge sharing. Technology in education should not be a forced component. Instead, it should support teachers to connect with other experts, resources, and learning experiences to inspire and empower them to design more effective lessons. Technology in education should warrant teachers to extend learning beyond the classroom by creating learning communities composed of students of multiple disciplines and institutions, museums, libraries, and co-curricular activities to improve the quality of education (Thomas, 2016). Gamification tools can encourage people to discover historical places and visit cultural landmarks by engaging in serious games (Khan et al., 2020). According to empirical and theoretical research, students' motivation, interests, the learning process, interactions in learning, and comprehension of the subject are all affected using gamification in history education (Agus et al., 2021). Gamification can inspire students to think about the present and the past, observe historical records, engage in historical simulations, and replicate material historical events through a novel style of engagement (Agus et al., 2021). According to the review of the development strategies and official reports by Cheah and Merican (2012), the Malaysian government's plan to

digitize education is still in the infancy stage. However, the vision of incorporating new technological applications into the classroom is slowly but surely materializing and becoming more intensive. In Malaysian classroom settings, despite teachers valuing the prospect of technology incorporation in education, time constraints and access to the equipment are gathered to be some of the main hurdles in implementing technology in lessons (Nikian et al., 2013). As such, better resources and training should be provided to teachers to utilize technology's benefits in education fully.

3 METHODOLOGY

In developing this gamified learning module for the History subject, the game design and design thinking approach created by Arnab et al. (2019) has been used. This game design has five steps - Empathize, Define, Ideate, Prototype, and Test. Learners' problems are discovered, understood, and analysed in the Empathize and Define steps. The solutions to the problems are created in the Ideate phase, and the ideas are created into working mock-ups in the Prototype phase. Finally, the prototype is tested before the actual game is conducted. Figure 1 below has been adopted from Arnab et al. (2019).



Figure 1. Game Design Thinking process (Arnab et al., 2019).

The game design process was used in this project to generate ideas for the study. An annotation of considerations that the team went through in the design thinking phases is listed below for each stage:

i. Empathize

- Students often find History as 'boring.'
- Local history is rarely discussed in the community due to the lack of tactile evidence
- Many local historical facts are becoming unbeknownst to the locals, especially to the younger generations, as time passes
- Most students in Sarawak do not get to visit museums where many important artefacts are located due to the distance factor, as many leading museums are in Kuching.

ii. Define

- Since local history is a broad scope, it has been narrowed down to local Sarawak history

iii. Ideate

- To utilize museum resources virtually amongst pre-university students in Sarawak, especially in gamified settings, to motivate them to learn History
- To motivate pre-university students in Sarawak to learn the critical, lesser-known history of Sarawak, which is the era of the Japanese Occupation of Sarawak
- To introduce pre-university students to multiple technological tools that can promote collaborative learning between two distant institutions
- To utilize open-source applications, web pages, and existing institutional settings to achieve the aim of frugality to create interactive and collaborative games for education

iv. Prototype

- Ice Breaking: Padlet
- Input: Genial.ly
- Activity: HistoRace
- Assessment: Canva and Spatial.io

v. Test

- The testing of the clues among the team members showed some confusion. Thus, improvements were made. Initially, the clues were too wordy to grasp. Because time is vital in the game, the clues were simplified. However, after editing, the clues became too short and did not solve the earlier problem. Finally, the team decided to use riddles as clues to find a location, which should lead to fun guessing, yet still indicate the location of the following hidden clues.
- The built prototype was tested among the team members from Kuching and Kapit as one team to ensure the game process and steps were doable and valuable. Upon testing, it was found that using Google Meet alone as a communication medium was not plausible due to the unstable Internet connection. Therefore, usage of WhatsApp groups was encouraged during the HistoRace.

3.1.1 Research Design

The project scope was divided into four segments: Input, Ice Breaking, Activity, and Assessment. Five technological tools, which are Genial.ly, Padlet, Canva, Spatial.io, and Google Forms, were utilized in these four segments. Once participants had been selected, a WhatsApp group dedicated to this HistoRace project was created. The task rules, question-and-answer sessions, photos, documents and links, and reminders were sent via this group chat.

The Japanese Occupation of Sarawak was divided into 4 phases, Invasion, Effects, Resistance, and Liberation & Aftermath, and the content for each phase was presented in a narrative, interactive format. Given that the content discussed in the scope of the research is outside the syllabus, participants were first introduced to the Japanese Occupation of Sarawak via Genial.ly during the Input segment. This platform was selected given the range of interactive presentations, animated infographics, and the ease of embedding other e-learning materials. The link to the Genial.ly presentation was given to the participants 1 week before the Activity Day to ensure that the participants would have adequate time to digest the current information. No timeline was provided to let the participants explore at their own pace and convenience. Participants had the liberty to repeat the Genial.ly lessons at any time. Figure 2 shows some of the Genial.ly content used in the Input segment.



Figure 2. Snippet of the Genial.ly content used in the Input segment.

For the Ice Breaking segment, Padlet was selected for the participants from the two educational institutions to get introduced to each other and to initiate the collaboration process. Four teams were created, each with four members. The groups were named after the colonial countries that once invaded Malaysia, Portugal, England, Netherlands, and Japan. Each team consisted of 2 students from each institution; one male and one female. A link to Padlet was sent to the participants a week before Activity Day, the day HistoRace was conducted. In addition, participants and Research designers were required to upload a short video to introduce themselves. Figure 3 shows a section of the completed Padlet.

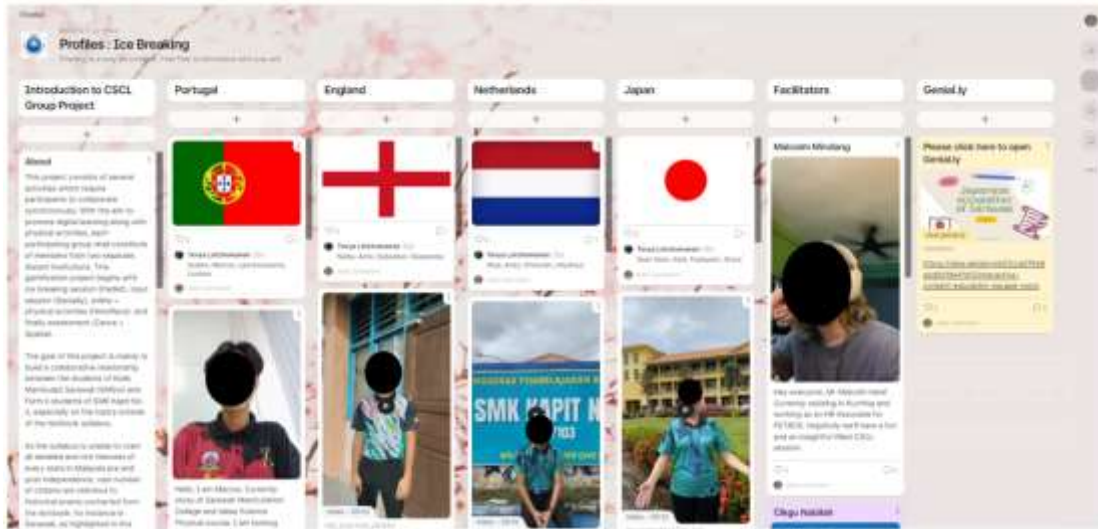


Figure 3. Padlet with participants' introductory videos.

The Activity segment started with the HistoRace. The HistoRace game requires the participants to consolidate their knowledge from the Genial.ly input. The participants gathered at the respective institutions, where online collaborative communication played a significant role. The main rooms for gathering the participants were the Computer Lab at Matriculation College of Sarawak, Kuching, and a classroom for the Form 6 students of SMK Kapit No. 2. Mobile phones were used for immediate and on-the-go communication with their members across institutions. LCD projectors were utilized for online meetings via Google Meet between the two parties for the briefing on the physical game and consequent tasks, which required the use of Spatial online space and the Canva platform to create digital posters as a group.

Each group was tasked to find four images and two keywords for each image. The clues were purposely composed as riddles whose answer would lead to the name of the location where the next clue was hidden. Each team had images and keywords related to one of the four phases of the Japanese Occupation in Sarawak. These images and facts were used during the Input and Activity segments of the project. Some images of artefacts were collected from the Borneo Cultures Museum to ensure the authenticity of resources and to bring museum content to the students.

There were six locations where the clues and pictures were hidden at each institution. Teamwork played a significant role because every clue and the picture were arranged in sequence but hidden alternately at each institution. For example, when a group started at Matriculation College B, the team member's first clue with a riddle was given to them to look for the first image. Once the first image was found, the riddle written underneath the image should be handed to their counterpart at School A for them to look for Keyword 1 related to Image 1. The participants were allowed to pose questions about the game but not about the answer to the riddles. The teams proceeded alternately until all images and keywords were found. The first team to reach the checkpoint with

all the clues and successfully guess the phase of Japanese Occupation in Sarawak related to their clues was announced as the winner. Figure 4 shows the Images and respective keywords for the four groups.

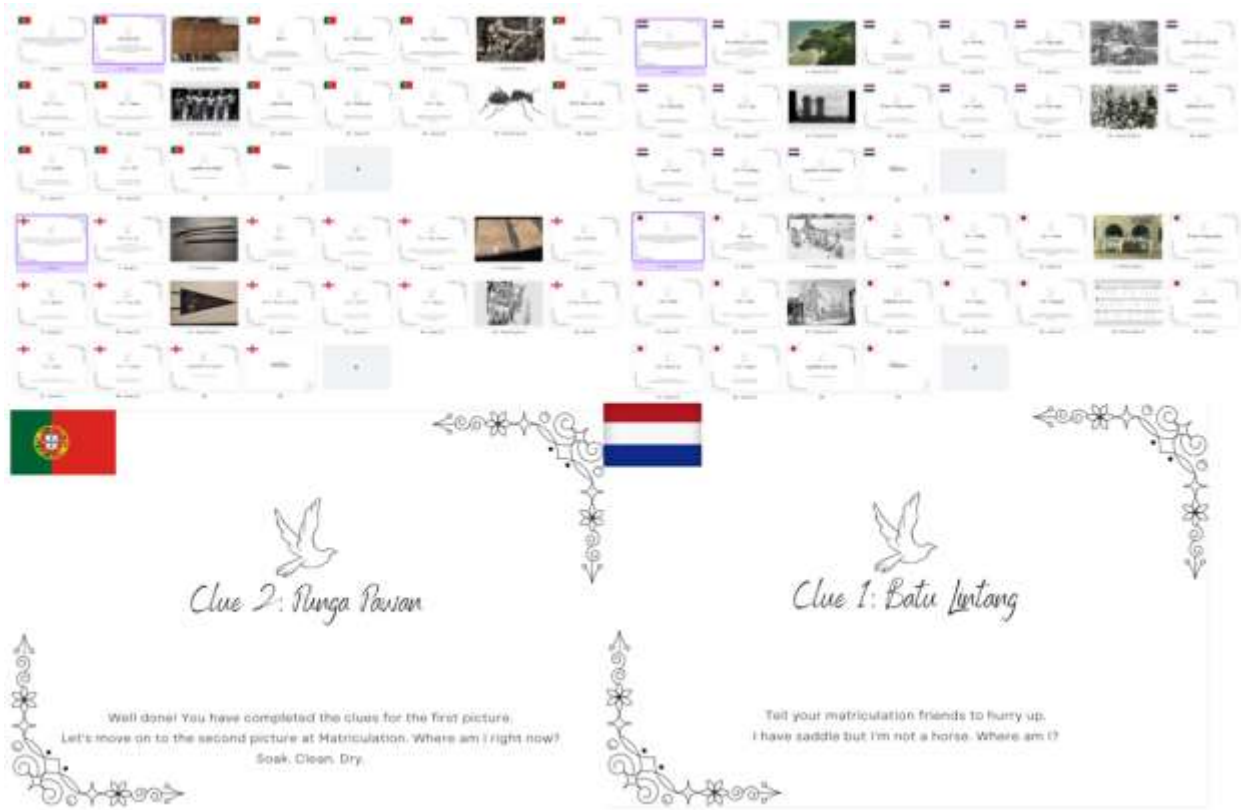


Figure 4. Clues and Keywords of each group.

At the end of the HistoRace, participants in their groups were tasked to create a digital poster regarding one of the four phases they experienced as a group. A web-based design platform was selected to allow live collaborative editing within a user-friendly interface. Therefore, group members across the two districts could collaboratively create digital posters, which were then uploaded to the Spatial.io platform. The Spatial.io space acted as a gallery where all participants could view other teams' posters virtually. Via the avatar created, participants could interact virtually with the other participants and provide constructive feedback. Each group was given two walls where they were tasked to upload their group poster and some photos of their activities. The Spatial.io platform, thus, not only functions as an assessment of the groups' collaboration and game tasks but also as a mini gallery to recall and strengthen their history knowledge of the Japanese Occupation of Sarawak and memorable school events. Furthermore, the participants can always revisit all these platforms as they are readily online and free to use anytime and anywhere. For the facilitators, due to the advantages of being online, interactive, and customizable, these platforms can be modified and improved to accommodate different institutions and subjects.

The convenience sampling method has been used in this study to select participants. Participants from School A and Matriculation College B were selected from two locations. Students in the Sixth form from School A and the first semester were selected. Additionally, being voluntary and currently studying History or General Studies were considered. By stratification, eight students of different races, with four male and four female students from each institution, participated in this project. 2 subject matter experts were also selected using the convenience sampling method, each from one of the educational institutions. In selecting the experts, qualities such as prior learning of History subjects in tertiary education and currently teaching either History or General Studies were considered.

3.2 Evaluation and Observation

3.2.1 Expert Interview

Before running the project, a meeting was held with the subject matter experts from both educational institutions. The meeting agenda covered a discussion on the project's purpose, determining the suitability of chosen topic, outlining content for input and assessment, and selecting the participants. The experts interviewed were General Studies subject experts from School A and Matriculation College B, who have also had formal tertiary education in History. The experts thoroughly checked the selection of technological tools to be used in the project to ensure the content met the purpose of the study.

3.2.2 Field Observation

As this project is among the first to be run, challenges and issues were expected during the implementation. Therefore, observing and documenting the participants' progress to improve the project was vital. Observation is one of the most critical research methods approaches where data collection involves using the researchers' senses, primarily through seeing and listening in a methodical and meaningful manner (Smit & Onwuegbuzie, 2018). Videos and photos were expected to be collected throughout all the project segments to be analysed later so that participants' movements were not disturbed. The participants' conversations and chats were also listened to, and questions were asked occasionally whenever participants misunderstood game mechanics. Any unprompted or spontaneous reactions from the participants were looked out for as this could signify frustration, excitement, or confusion. Observations were continued for the final task, which was to use Canva and Spatial platforms. The research team moved around the groups to discover the difficulties the participants faced, as these tools were relatively new to the participants.

3.2.3 Online Questionnaire

An online questionnaire was sent to the participants to evaluate the effectiveness of the project. Participants were asked about the best preferred technological tools, the knowledge gained, the effectiveness of collaboration via HistoRace, and the most and least enjoyed elements. Participants were also asked how the project could be further improved. Participants were required to choose all the interesting technological tools used in the project via the checkbox option and provide a

reason for their choice. On a Likert scale of 1-5 (1 denotes 'Strongly Disagree', and 5 denotes 'Strongly Agree'), the participants were asked to rate their enjoyment of participating in the project, the success of the collaborative aspect, and if they have learned about the Japanese Occupation in Sarawak via this project. As open-ended questions, participants were asked what they looked forward to about learning more about the Japanese Occupation in Sarawak and the feedback regarding the project.

4 FINDINGS AND DISCUSSION

The experts found that the technological tools proposed are novel and can intrigue the students' motivation and strengthen the students' memory. Suggestions were provided not to use multiple technological tools for any one segment and focus on using one tool per segment. Therefore, in this project, we used Padlet for introduction, Genial.ly for content input, and Canva with Spatial.io for knowledge reinforcement and sharing to avoid cognitive overload.

Before joining the whole game project, the students were quite reluctant to participate, but when we explained that it would involve virtual and physical games, they agreed to join. They were also agreeable since the ice breaking and input would be given to them via online links, which they could do anytime and anywhere at least two days before the physical game.

For this platform, the participants gathered to capture their photos and short introductory videos at their respective institutions. All participants managed to upload their casual photos, short introductory videos, and brief biodatas, as well as expectations of the game, three days before the game. As apparent in the HistoRace WhatsApp group, all participants were excited about the coming HistoRace game and chit-chatted about the content of the input and quiz given to them. The participants admitted that they had not known most of the historical details as in the input; they only anticipated the information learned in school under the umbrella of the Japanese Occupation of Borneo. Consequently, after exploring the Genially input, the participants searched the Internet and read further about the Japanese Occupation of Sarawak, primarily via graphic evidence.

As HistoRace requires the participants to communicate on the go, WhatsApp groups were created in the teams' effort to be used for video calls. The video call was vital, as for one group, the two members from the Matriculation college needed the clues found by their two members from SMK Kapit No. 2, while the two members would help suggest where to find the hidden clues by watching through the real-time video call. It demonstrated a keen sense of collaboration and cooperation among newly met participants. The physical HistoRace began at 2.50 pm. The race was competitive, as the partners of all four groups ran as fast as they could immediately after receiving the clues from their members at the other institution. As the clues were riddles, all participants needed time to decipher the following location. The times when the teams completed the race were as follows:

1. Team England: 4.11 pm
2. Team Portugal: 4.21 pm

3. Team Japan: 4.31 pm
4. Team Netherlands: 4.40 pm

The participants were observed throughout the HistoRace game to see what would excite them or what they would enjoy doing. A few minutes before the game started, via the Google Meet video call, the participants admitted they felt anxious as they did not know what to expect. We took photos and some short videos of them running around and searching under the bushes, rocks, tables, behind the dustbins, and others. Once they got the answers to the first clues, some giggled and immediately ran off to the locations of the hidden first clues. Some grunted when they found the clues not intended for their group. They ran exuberantly, holding their phones while video calling with the teammates from the other institution watching and suggesting where to look for the clues. There were also fun times when they could not instantly figure out who 'Mr. Therence' was, 'what has a saddle but not a horse', and the exact vending machine assigned. The participants had used Canva before, so they did not take much time. During this time, they conversed loudly but enthusiastically about the game they just had and the poster. While the group leaders uploaded the posters on the virtual walls, the other participants' avatars walked around making gestures with each other and posting comments on the posters. The participants enjoyed 'strolling around' and trying what gesture would each keyboard key make.

Based on the feedback via the questionnaire, 100% of the participants found Spatial.io to be an interesting technological tool. The reasons for participants' interest ranged from the tool being something the participants came across for the first time to the interactivity it allows amongst the participants. The participants particularly noted enjoying virtually walking around the Spatial.io Space while making multiple gestures through keyboard shortcuts. Following Spatial.io, participants found the gamification, interactivity, and animatic elements in Genial.ly captivating. 67% of the participants found the web-based tool interesting in learning History. 100% of the participants answered, 'Strongly Agree' with the statements "I enjoyed myself during the activities" and "Our team has collaborated well together," indicating the project's success in making learning history a fun and meaningful activity when collaboration element added to the learning. While 84% of the participants indicated 'Strongly Agree' that collaboration was possible despite geographical distance, 8% voted for 4, and another 8% voted for 3. The instability of the Internet connection caused frustration to a fraction of the participants. All participants answered four and above on the scale when asked if they understood more about the Japanese Occupation in Sarawak after participating in the project. When asked what the participants look forward to learning more about the Japanese Occupation in Sarawak, they responded that they would like to learn chronology in depth and know more about how multiple operations were carried out during the colonization. The participants also found meeting new friends the most exciting part of the project. Some informed me that looking for clues was an exciting part of the project, while others found it challenging. Participants also stated that solving the riddle was challenging. Suggestions had also been given to increase the number of clues. Overall, the participants found the project to be excellent.

Integrating the General Studies subject content with the widely familiar Explorace format allowed participants to enjoy the collaborative learning process, which was only possible due to the technical assistance. Witnessing how participants contacted each other and contributed even after

the games were completed was astonishing. These were evident from the WhatsApp chat group dedicated to the HistoRace, comments in Padlet, and seeing their avatars appearing and commenting on the Spatial walls. Blankman's (2022) suggestions are very much reflected in the game project, where at the end of the HistoRace, the participants created their avatars, uploaded their activities and posters, walked around in their museum gallery, and commented on each other on Spatial.io online space. The participants were also awarded the certificate of participation and appreciation.

This project highlights the use of technology for collaborative learning. Some novel approaches brought by this project are:

1. Bringing the Borneo Museum content to the students because students, especially those in Kapit, cannot physically go to the museum
2. Inculcating collaboration in learning History by using technological devices
3. Refreshing the classic Explorace games with the Internet, mobile devices, and computers
4. Students create their virtual museum using the materials they gained from the game, which they can visit anytime and anywhere via Spatial.io
5. Interactive online input and assessment via Genial.ly

One major challenge in this project was initiating the collaboration between participants. The challenge was solved using Padlet. It was a suitable tool to introduce the participants to each other. They could upload photos, short videos, and brief biodata. Since the Japanese Occupation of Sarawak is not content that participants were already familiar with, an approach was needed to provide these facts interactively. Genial.ly was used to deliver these inputs, and mini quizzes were included for each of the four stages of the Japanese occupation to reinforce learning. Another challenge was to conduct the project with limited resources. Therefore, the frugality concept was implemented. Since the pre-university participants already owned laptops and mobile phones, the Input, Ice Breaking, and small parts of the Activity and Assessment were done via readily available applications or online platforms. As previously discussed, this project heavily relies on the Internet connection. In Kapit, the connection can often be unstable. Therefore, Input and Ice Breaking were consciously planned to be done prior to Activity Day, and applications that can survive with a limited Internet connection, such as WhatsApp and Google Meet, were chosen as communication media.

This experiment of gamifying History subjects is hoped to influence educators and researchers into practising collaborative learning across multiple institutions by incorporating physical activities with a virtual learning environment. From this study, it is deduced that collaboration opens broader ideas and more effective strategies, as well as solutions. The first step to creating collaborative learning games is never easy, but the ultimate goal of teamwork eases their hard work and simultaneously builds up each other's learning. Hopefully, more instructors and policymakers will understand the importance and effectiveness of collaborative learning via this paper to add more aspects of collaborative learning in classrooms. This project has also incorporated frugal education aspects by integrating the classic Explorace game with diverse existing e-tools. Thus, educators do not have to start from nothing. The aspects of Sustainable - Environmental and Economical,

Practical - Fit for Purpose, and Collaborative - Join Forces implemented in this project are hoped to influence more frugality in classroom activities designing.

This gamification project contributes to the teaching and learning of the History subject by introducing students to free online platforms and applications that can be used to teach and learn History, as well as create interactive content and quizzes. The content and outline created for this HistoRace are open for modification by anyone for educational purposes. The project also shows how physical and virtual platforms can be intertwined in teaching and learning History frugally by improving existing solutions and repurposing existing resources for innovation purposes.

The main limitation of the project was that despite significant efforts, there were still some delays during the online conversation between facilitators and the participants, most due to heavy graphic transmission over a distance of 529 kilometres between Kuching and Kapit via inconsistent Internet coverage. While the delay did not require any postponement or amendments to game rules, a more stable Internet connection would have made the other segments be completed via live-collaborative activities. This project is limited to pre-university students taking History or General Studies and has been set to Matriculation College B and School A. Therefore, modifications must be made if it were to be adapted. To successfully adapt this project, participants must be technologically savvy or be provided with enough guidance.

5 CONCLUSION

The incorporation of interactive elements and division of a substantial piece of information into chunks of meaningful, easily comprehensible details are effective measures accentuated in CSCL to reduce cognitive load or learning stress. Students will also be more enthusiastic and spontaneously help each other during learning games to think of an answer and solve problems. The distance was no longer a barrier as the groups gradually developed team spirit and motivated one another despite the participants coming from two different institutions under the Ministry of Education. Instructions should be clear and concise when such an activity that involves two separate institutions is conducted, apart from ensuring synchronized real-time communication and the possible risk of Internet deterrence. It is suggested that this kindness should be leveraged in designing classroom activities to enhance learning. At the end of this project, pure excitement was evident on the students' faces as they immersed themselves in the collaborative and competitive learning experience. This project has accomplished computer-supported collaborative learning to learn history by incorporating physical and virtual platforms and real-time communication. Therefore, similar projects adapted from this study could be beneficial to be implemented across multiple institutions and subject disciplines.

ACKNOWLEDGEMENTS

This study was partially supported by CreativeCulture 4.0 - Transforming 21st Century Teaching and Learning of STEM in Malaysia Through Creative Play and Gamification Towards Education 4.0 [Newton Fund Impact Scheme (NFIS)] [GL/I03/UKRI/01/2020] and A Community-Centred Educational Model for Developing Social Resilience (ACES): Playfulness Towards An Inclusive,

Safe and Resilient Society [RG/I03/UKRI/02/2020], two international grants received from Newton Fund Impact Scheme (NFIS) and Global Challenge Research Fund (GCRF) UK Research and Innovation.

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