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The Adoption of Google Earth into Teaching and Learning for Tourism Geography Course

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ABSTRACT

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The Covid-19 pandemic has changed the spectrum of education where university students need to learn remotely from home. The open and distance learning posed a challenge for the Diploma in Tourism Management students that are learning tourism geography. This is due to the course requiring high visual learning and students need to grasp the knowledge of faraway destinations. This necessitated the lecturers to utilize Google Earth to help facilitate the students to learn tourism geography. Hence, the study aims to explore the adoption of Google Earth in teaching and learning tourism geography courses through the perspectives of the students. The study employed qualitative methods, where a preliminary study conducted involved five participants from semester four of Diploma in Tourism Management students from Universiti Teknologi MARA (UiTM) Pulau Pinang campus. For data analysis, the interview's content and thematic analysis are presented in the paper. The finding revealed that Google Earth did enhance students' learning experience through understanding and assisting them to remember the destination. It is also discovered that Google Earth software has the potential to be used in other courses in the program such as tour guiding and planning in tourism. The study contributes to the enhancement of teaching and learning tools whereby by using Google Earth, it can enhance student's learning and remember tourist attractions better.

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1. INTRODUCTION

Google Earth is a free software that presents a 3-D virtual map which can be accessed using a web browser. By using satellite images, aerial photography, and a GIS-generated 3D globe (D'Augostino & Santus, 2022; Lamb & Johnson, 2010), a user can search for an address or any place on Earth from the software which Google Earth will find and show the destination to the user. Google Earth's expansion into education was finally achieved with the Google Earth Education website that focuses on education for school children until university students. The website presents many stories of earth geography where students can explore the destination while understanding the history or stories. A user can also design a tour program of a destination in the software by place-marking between destinations in a country. Place-marking is where a place such as a building or natural area such as a park are marked in the software so that the user can revisit the place again. Through that tour, a user can explore the program by following the tour and exploring the places.

Since its inception in 2005, Google Earth has been used for teaching and learning geography subjects in primary school up to tertiary education (Mejía Avila et. al, 2021; Xiang & Liu, 2017; Osaci-Costache et. al, 2015; Patterson, 2007). Apart from that, the applications of Google Earth in various academic disciplines are extensive, providing ample opportunities to learn subjects such as social studies, science, and geography (Chau, 2023; D'Augustino & Santus, 2022; Rahayu et. al, 2019; Lamb and Johnson, 2010). For Diploma in Tourism Management program in Universiti Teknologi MARA (UiTM), tourism geography and culture are one of the courses that students must learn in their first year. However, for the purpose of the study, the course is addressed as tourism geography. The course exposes the students to geographical destinations around the world in terms of physical locations, countries, cities, and tourism attractions. At the end of the course, the students are expected to recognize destinations and attractions that are important for tourism, which would help them in their careers in travel and tour operations, airlines among others.

On the other hand, Google Earth offers substantial possibilities for students to understand destinations around the world. Students may theoretically know about the Eifel Tower and the Louvre Museum in Paris, but would they be able to visualize the locality of the buildings in the city, or imagine the physical outlook of the building from far away? The spatial thinking of geography is made possible with the technological features of Google Earth (Rahayu, 2019; Xiang, 2016). Google Earth's interface which allows users to see the aerial view of the city, Google Street view and 360 degrees immersive photographs can help users to visualize a destination without the need to travel.

1.1 Learning Tourism Geography During Open and Distance Learning

Despite the existence of Google Earth for several years, its application and impact on Malaysian education has not been extensively explored. The incorporation of Google Earth into geography courses reflects the growing trend of embracing e-learning or online learning approaches. However, e-learning faces several challenges including limited availability of e-content, inadequate infrastructure, and the digital divide, which contributes to low adoption rates (Anwar, 2008). The Covid-19 pandemic has significantly accelerated the transition to remote learning and distance education in higher learning institutions (Selvanathan et. al, 2020). Consequently, there is an urgent need to enhance the delivery of online teaching during such crises. In the domain of tourism geography courses, open and distance learning modalities require educators to explore alternative teaching methods that effectively address the unique

challenges faced by students when attempting to learn the course material independently from their homes (Bukhsh, 2013; Gurajena et al. (2021).

Even prior to the Covid-19 pandemic, learning tourism geography presents a challenge to certain UiTM Pulau Pinang students particularly those that lack travel experience. Tourism geography requires students to understand the destinations and attractions so that they can promote the places once they enter the tourism industry. However, this knowledge requires spatial thinking in which the students must use their imagination. Observations indicate that students encounter difficulties in grasping geographical concepts due to the highly visual nature of the subject (Graham et. al., 2017). The nature of tourism geography courses demands that students develop a comprehensive understanding of destinations located in faraway and unfamiliar locations, which often remain foreign to them. Furthermore, the remote learning from student's home posed more challenges as they need to be independent in finding the information and understand the traditional map without the presence of the educator.

This has entailed educators to use Google Earth software into the curriculum during the pandemic (D'Agostino & Santus, 2022; Sadikin et. al, 2022). The integration of Google Earth has emerged as a potential solution to enhance students' learning experiences by providing them with a platform to explore and visualize these distant destinations (Chau, 2023; Graham et. al., 2017). By leveraging the capabilities of Google Earth, students can virtually visit these locations, examine them from different perspectives, and gain a deeper understanding of their physical characteristics and cultural significance. However, to fully understand the implications and efficacy of Google Earth in teaching and learning tourism geography courses, further investigation of student's experience with the software is necessary.

Therefore, this study aims to explore how integrating Google Earth into tourism geography courses contributes towards student's learning experience and at the same time, addresses the challenges. Specifically, the study examined Google Earth on students' engagement, comprehension, and spatial thinking skills on tourism geography concepts and destinations. The significance of the study would assist educators in understanding the extent of Google Earth in benefiting university students' capabilities to comprehend geography. For this, two research questions were developed for the preliminary study including:

1. How does the student receive learning about the tourism destinations using Google Earth software?
2. What are the challenges or opportunities the students faced when using Google Earth for tourism geography courses?

2. LITERATURE REVIEW

In general, the study of geography involves visual learning. Geography is a social science discipline that requires some form of visual images to create knowledge (Rose, 2003). Visual representation is important in teaching and learning geography. On the other hand, learning tourism entails students knowing about international destinations that highly require visual knowledge among the students. Hence, the class content will be more engaging when the teaching uses visuals (Wise, 2007). Rickey and Bein (1996) denote that in teaching geography, incorporating visual models such as tactile maps improve students' understanding of the geographical concept. Google Earth's feature that consists of visual images of maps, street view, and 360 degrees of virtual photography of destination is a great platform for students to gain tourism geography knowledge. The layers of landforms presented in Google Earth can foster spatial thinking and thinking skills among the students.

Moreover, spatial thinking is a skill to analyze the spatial relationships on earth (Oktavianto, 2017). It is a trait that students need to practice when learning tourism geography in making sense of the world through analysis. Hence, Google Earth is a good platform for students to develop their conceptual spatial-temporal skills (Xiang & Liut, 2016; Bodzin & Fu, 2014). This is by allowing the students to explore the earth through interactive media and thus, helping them to understand the spatial context of the location in an entertaining and meaningful manner (Patterson, 2007). Although Google Earth is not considered a true GIS since it has fewer spatial analytical tools than standard GIS (Patterson 2007), it is a strong tool for developing and serving GIS information and learning resources (Hennessy et. al. 2012). Students can use Google Earth to study both large-and small-scale topographic characteristics from various angles (Lisle 2006; Palmer 2013). With Google Earth, one can also develop a strong sense of location in terms of how landforms influence human activity (Ratinen & Keinonen 2011; Hsu, et.al).

All over the world Google Earth has been integrated into the school and universities curricular. Educators have used Google Earth to show images to increase student's understanding on the subject matter. Suharini et. Al (2020) studies the usage of Google Earth Pro in assisting school students to understand mitigation and landslide disasters. Google Earth was also used in the English language course in Indonesia where the software help students with their English language through the storytelling of the Google Earth (Sadikin et. al, 2022). The usage of Google Earth had also changed the preference of students from being tired of learning online to preferring blended learning (D'Agostino & Santus, 2022) as the students were able to understand the culture geography by using the software. In Vietnam, Google Earth integration in Socio-Economic Geography studies was found to make students to be more interested in learning geography with improvements on learning interests and score (Chau, 2023).

3. METHODOLOGY

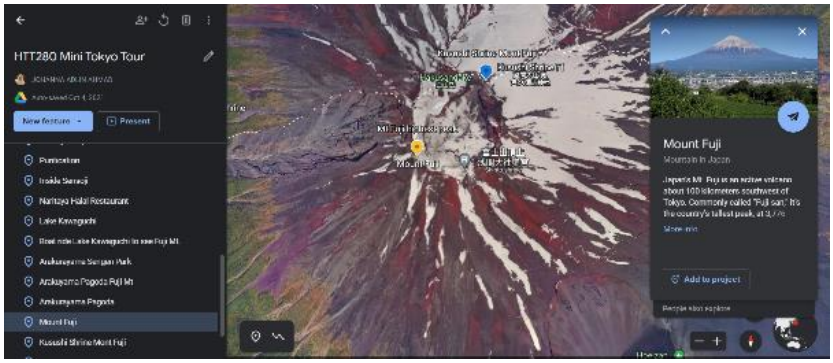
This study employed qualitative methods to gauge student's perception on their learning experience in using Google Earth software. The sampling frame was the semester four students who had taken the tourism geography course before. The rationale would be these students had already experience learning tourism geography lesson with and without the assistance of Google Earth. Thus, this group would be able to differentiate the lesson's experience. Based on researcher's observation, the older students were also able to express their thoughts and perspectives better than the younger students. The interview was conducted in June 2022 during a time when several students had already returned to campus for their studies.

Before the interview, the researchers created a readily set virtual tour of the city Tokyo using Google Earth software. Tokyo was chosen as the East Asian region is one of the subtopics the students must learn in the tourism geography course. To create the virtual tour, twenty-two attractions were 'placemark' on Google Earth, which was then saved as a kmz file. To facilitate students' understanding of the attractions in the virtual tour, written guideline notes on the places were created and posted on UiTM's learning platform called UFUTURE for the students to access. The students were then asked to view and face the virtual tour of Tokyo first before being interviewed by the researchers. For this, five students from Diploma in Tourism Management program from semester four were chosen to furnish the researchers with insights on using the Google Earth software for tourism geography. The interview session took two days to complete. The session stopped at five students due to the researcher identified saturation when the same pattern of answers gathered from the informants. As per Hennick et. al., (2017), saturation is used as a guide of efficient sample size in qualitative study. The content and thematic analysis were performed manually after the feedback was recorded and transcribed by the researcher.

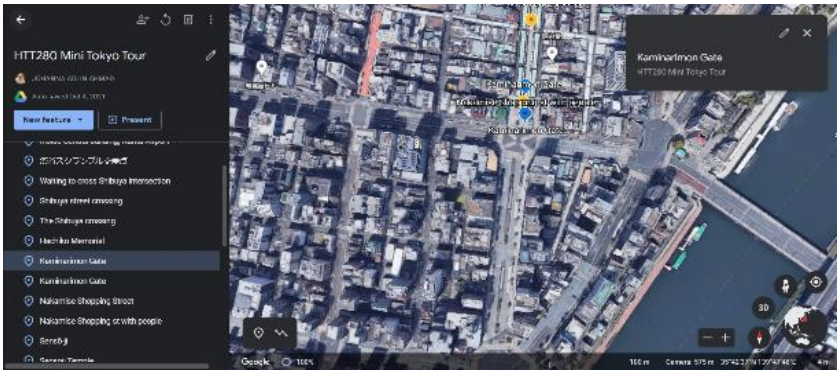
Table1: Informants for Interview Session

No.	Informants	Code of Informants	Date of interview	Duration interview
1.	Male	S1	20 Jun 2022	20 minutes
2.	Female	S2	20 Jun 2022	30 minutes
3.	Female	S3	20 Jun 2022	15 minutes
4.	Female	S4	20 Jun 2022	20 minutes
5.	Female	S5	22 Jun 2022	30 minutes

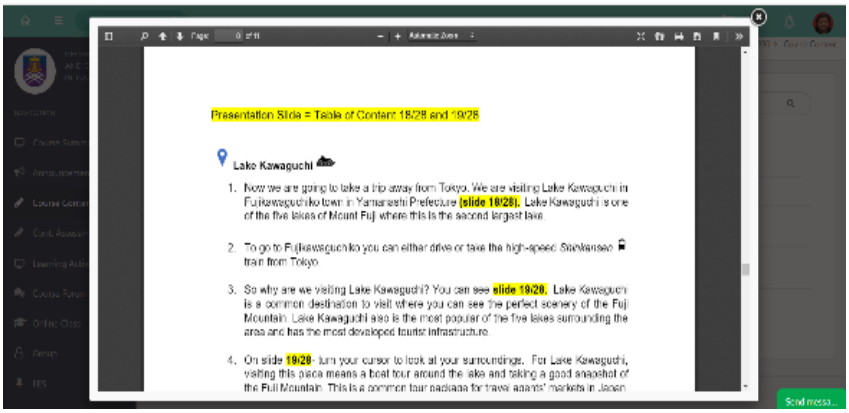
Picture 1: Virtual Tour of Tokyo Using Google Earth Created for Tourism Geography Course



Picture 2: Aerial View of Street on Google Earth



Picture 3: Written Guidelines Note on Attractions in the Virtual Tour Posted on Learning Platform



3.1 Result and Analysis

The findings from the interview session are presented in Table 2. Some of the discernment discovered is how the features of Google Earth interest the students and the potential of Google Earth to be used on tour guiding and planning course in the program. However, the feedback on student's concern on the internet connection to use Google Earth should also be taken note by the researcher. The overall feedback showed the students agreed that Google Earth should be used for teaching and learning the tourism geography course.

Table 2: Findings from the Interview Session

Question	Answers	Summary
Do you think lecturers should use Google Earth as part of teaching aids?	S1: *Yes…so that we can further understand the subject.* S5: *Yes…to enhance our knowledge on tourism geography.* S3: *Yes, it draws my attention to study in more detail on the subject of geography.* S4: *I'm able to know about the building and can see building (attractions) from above.*	Google Earth as teaching tools to enhance student's understanding.
How do you feel about learning tourism geography using Google Earth?	S1: *It feels like being there.* S2: *There is a sense of being there*. S3: *It aided my comprehension.* S4: *It is good, but I think some students with internet problems may have problem to access.* S5: *It aided me in providing a more detailed insight*	Students feels like being at destination when using Google Earth
Do you think Google Earth is helpful in learning about a destination?	S1: *Watching Google Earth makes me feel like I'm there.* S2: *Helped me in understanding a destination as I could see the building from above and inside.* S3: *It is a valuable resource for learning more about the area.* S5: *Yes, as a tourism student it helps me in finding more information about the destination.*	Helpful in learning about tourism geography
Do you think Google Earth can be used on other courses in your program?	S1: *Yes* S2: *Yes* S3: *Yes* S4: *Yes* S5: *Yes…I can use it on my tour guiding class*	Students agreed Google Earth can be used on other courses
What interests you most in Google Earth?	S1: *The features.* S3: *I can get an overview of the place.* S4: *I can see the place in a 360-degree view.* S5: *I like to study the direction, distance, and available transportation to go from one place to another place.*	Students are interested to study the elements in Google Earth

4. DISCUSSION AND IMPLICATIONS

The findings showed that the software is helpful for students to recognize the attractions of the country they are studying. All the students interviewed have never visited the countries studied in the course. Hence Google Earth becomes effective as the students can explore the elements of the country's geography in the software by themselves after the lecture. Moreover, exploring the country through Google Earth provides visual learning (Hennessy et. al, 2012) for the

students through the presentation of 3 dimensional maps, Google Street views and 360 degrees virtual photos (Koc & Topu, 2022). One of the students interviewed sparked interest to try Google Earth in front of the researcher where she searched the street and rotated the 360 degrees virtual photos of places that she knew. She finds the potential of Google Earth to be used in her class as impressive where she feels it is good for research work. Other students showed excitement with the 3-dimensional buildings on Google Earth particularly when the virtual tour starts showing aerial view map of the city, zoomed to the street view and finally enter 3-dimensional buildings of places of attraction.

The feedback also identified three important findings. Firstly, Google Earth software has the potential to be used in another course in Diploma in Tourism Management's program which is Tour Planning and Guiding as mentioned by student 5 *"I can use it in my tour guiding class"*. This course involves students organizing tours and practice their tour guiding skills. Google Earth can assist students in planning their trips and oversee a place from aerial view prior to conducting their project assignment. Another important feedback from the students is the need to incorporate audio narratives in the virtual tour. This recommendation is based on students' feedback on written narration of the virtual tour that was posted on the university's learning platform. One of the comments says, *"to have speaker speak alongside the images so I become more focused on the experience"* reveals that audio narrative is preferable as the student will be able to focus on the virtual tour's experience.

Educators should also take into consideration the student's worries about using Google Earth during classes that require an internet connection. As one of the students interviewed mentioned, some of his classmates faced this dilemma especially those that are residing outside of the coverage areas. The internet data connection problem can limit the use of Google Earth in the classroom which can disengage the students' interest in learning if the tools become unresponsive (Patterson, 2007). This finding suggests that despite moving forward towards geographical technology, the lecturer teaching should still offer other learning options whence students are faced with internet access problems, especially during open and distance learning.

5. CONCLUSION

The preliminary study demonstrates the students were satisfied with using Google Earth to learn about Tokyo, Japan. The visual imagery of destinations displayed on Google Earth aids the students with their visual learning as they can imagine the tourism attractions from different points of view. However, the student's responses were solely based on their observation of the virtual tour on Google Earth which has already been developed by the lecturer. Despite one student testing Google Earth during the interview, the study did not entail the rest of the participants trying the features in Google Earth such as searching for street or using the Google Earth map's rotation when giving their responses. Therefore, future research can be extended where the students can work independently to explore Google Earth during lessons or for their assignments so they can give their personal responses in using the software for tourism geography class. For future improvement, educators on the curriculum review board can develop a standard module and case study assignment which can be used for the lesson. Ever since the preliminary study was conducted, the students no longer learn remotely from home and have returned to fully study on-campus. Thus, the curricular review board can consider inserting this tool into blended learning for the students. The contribution of this study is the finding on the perspectives of the students on using Google Earth as learning tools. Although the software has existed for a long time, its usage in the university's curricular is still infancy. The finding of the perspective should open opportunities for curriculum review board to incorporate the software as a formal supporting material for teaching and learning.

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AUTHORS' CONTRIBUTION

JAA leads the writing process and the projects on Google Earth with the students. ZIMF assisted in the ideation for the project, writing of research methodology and the findings. ZMR assisted in the ideation for the projects, writing of introduction and literature review of the paper. SAK assisted by testing the Google Earth in class and find volunteers during the preliminary testing of Google Earth in class. ZMZ did interviewed the interviewees after demonstrating Google Earth to the interviewees. She also reported the findings.

CONFLICT OF INTEREST

None declared.

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