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“Optimizing Innovation in Knowledge, Education and Design”

EXTENDED ABSTRACT



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Assalamualaikum warahmatullahi wabarakatuh,



First and foremost, I would like to express my gratitude to the organizing committee of i-Spike 2023 for their tremendous efforts in bringing this online competition a reality. I must extend my congratulations to the committee for successfully delivering on their promise to make i-Spike 2023 a meaningful event for academics worldwide.

The theme for this event, 'Optimizing Innovation in Knowledge, Education, and Design,' is both timely and highly relevant in today's world, especially at the tertiary level. Innovation plays a central role in our daily lives, offering new solutions for products, processes, and services. By adopting a strategic approach to 'Optimizing Innovation in Knowledge, Education, and Design,' we have the potential to enhance support for learners and educators, while also expanding opportunities for learner engagement, interactivity, and access to education.

I am awed by the magnitude and multitude of participants in this competition. I am also confident that all the innovations presented have provided valuable insights into the significance of innovative and advanced teaching materials in promoting sustainable development for the betterment of teaching and learning. Hopefully, this will mark the beginning of a long series of i-Spike events in the future.

It is also my hope that you find i-Spike 2023 to be an excellent platform for learning, sharing, and collaboration. Once again, I want to thank all the committee members of i-Spike 2023 for their hard work in making this event a reality. I would also like to extend my congratulations to all the winners, and I hope that each of you will successfully achieve your intended goals through your participation in this competition.

Professor Dr. Roshima Haji Said
RECTOR
UiTM KEDAH BRANCH



WELCOME MESSAGE (i-SPIKE 2023 CHAIR)



We are looking forward to welcoming you to the 3rd International Exhibition & Symposium on Productivity, Innovation, Knowledge, and Education 2023 (i-SPIKE 2023). Your presence here is a clear, crystal-clear testimony to the importance you place on the research and innovation arena. The theme of this year's Innovation is "*Optimizing Innovation in Knowledge, Education, & Design*". We believe that the presentations by the distinguished innovators will contribute immensely to a deeper understanding of the current issues in relation to the theme.

i-SPIKE 2023 offers a platform for nurturing the next generation of innovators and fostering cutting-edge innovations at the crossroads of collaboration, creativity, and enthusiasm. We enthusiastically welcome junior and young inventors from schools and universities, as well as local and foreign academicians and industry professionals, to showcase their innovative products and engage in knowledge sharing. All submissions have been rigorously evaluated by expert juries comprising professionals from both industry and academia.

On behalf of the conference organisers, I would like to extend our sincere thanks for your participation, and we hope you enjoy the event. A special note of appreciation goes out to all the committee members of i-SPIKE 2023; your dedication and hard work are greatly appreciated.

Dr. Junaida Ismail

Chair

3rd International Exhibition & Symposium Productivity, Innovation, Knowledge, and Education 2023 (i-SPIKE 2023)

UTILIZING BLOOKET THE GAME-BASED LEARNING PLATFORM FOR INTRODUCTION TO COMPUTER SECURITY

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ABSTRACT

Introduction to Computer Security is one of the subjects offered to Diploma in Computer Science students at Universiti Teknologi MARA (UiTM). This subject comprises of 12 topics that cover theoretical principles as well as hands-on lab activities that are often conducted in a physical learning environment. Although we have resumed with physical instruction, online technologies are still being used as a teaching assistance. Various online platforms are employed to attain learning objectives that are convenient for both students and lecturers. Blooket is a game-based learning platform to facilitate educational content distribution, promote interaction between students and lecturers, and provide a variety of learning activities. It allows lecturers to design and customize interactive quizzes, flashcards, and other educational activities for their students. It provides students with a pleasant and engaging way to learn and review various courses in a virtual or blended learning environment. Blooket has been identified and utilized as a teaching aid by lecturers who teach the Introduction to Computer Security course at UiTM Cawangan Sarawak. Therefore, this paper will discourse on the usage of Blooket to assist in teaching and learning.

Keywords: Blooket, game-based learning platform, computer security

INTRODUCTION

Following the global COVID-19 outbreak, there were major changes in the ways that students were taught and learned in higher education institutions. In response, lecturers adopted a variety of strategies to maintain the continuity of their lessons. Many online platforms have evolved as virtual gathering places for lecturers and students. Lecturers are delivering course content through various online educational platforms such as videoconferencing software, and social media to teach their courses (Patricia, 2020). These platforms provided easy-to-use technologies that helped lecturers effectively engage students during online classes. Online lectures and discussion forums can be organised with the aid of videoconferencing platform like Google Meet, Zoom, and Microsoft Teams. Slideshows and a chatbox are frequently supported by such platform. Additionally, several universities are distributing course materials via their websites (Chatterjee & Chakraborty, 2020) and in-house learning management systems (Mishra et al., 2020). In addition, popular game-based platforms including Blooket, Kahoot!, Quizlet, and Prodigy were prominent examples of such online platforms used throughout the pandemic.

Despite the resumption of face-to-face teaching and learning sessions, lecturers continue to utilize online platforms as teaching aids. This ongoing approach has the added advantage of keeping students updated on the latest technical advancements relevant to their learning. Among the game-based learning platforms still in use by Diploma of Computer Science students at UiTM Sarawak Branch for the subject Introduction to Computer Security is Blooket. Blooket seamlessly blends gaming elements with education to deliver interactive and captivating learning experiences. By incorporating educational content with game mechanics like challenges, rewards, and competition, this platform aims to make learning enjoyable and effective. Blooket provides a diverse set of educational games and activities, making it suitable for a wide range of subjects and grade levels. Previous research found that online games have evolved as a novel form of interactive material, providing an engaging and collaborative learning environment that facilitates information exchange, simplifies problem-solving, and supports in task completion (Pivec & Pivec, 2011). Therefore, this paper explores the usage of Blooket from the lecturer perspectives as a valuable teaching and learning aid for the subject of Introduction to Computer Security.

BLOOKET: ONLINE GAME-BASED PLATFORMS

Blooket is a trivia and review tool that allows educators to “level up classroom engagement” (Blooket, 2023). It is an online game-based platform that allows lecturers to create and customize interactive quizzes, flashcards, and other educational activities for their students. It offers a fun and engaging way for students to review and learn various subjects while playing games. Figure 1 shows the Blooket home screen at <http://blooket.com>. To utilize Blooket, the lecturers can create a Blooket account and set up their own virtual classrooms as shown in Figure 1. They can then create different game modes using Blooket's templates and customize them with their own content.



Figure 1. Blooket screen and creating account screen

The available game modes include Tower Defense, Race Mode, Match Game and Quiz Show. Once the game mode is set up, lecturers can share a unique game code with their students, who can then join the game using their own devices, such as smartphones, tablets, or computers. Students compete against each other or work collaboratively, depending on the chosen game mode.

BLOOKET FOR INTRODUCTION TO COMPUTER SECURITY

Introduction to Computer Security subject incorporates information on network threats, the devices and technologies used to ensure security. It also covers the concepts on encryption, firewall, web application security, database security, and software security, policies, and ethical issues in cybersecurity. It offers a solid, all-encompassing approach to computer and network security. This subject focuses on developing a technical basis and novel ways in computer science to safeguard data and information systems.

The usage of Blooket for the Introduction to Computer Security subject will be covered in this section. After the lecturer signing in the Blooket platform, the Question Set Creator panel will appear as seen in Figure 2. The themes or topics to be taught can then be organised by lecturers in My Sets. Additionally, lecturers can get data on the dashboard regarding the quantity of plays and questions.

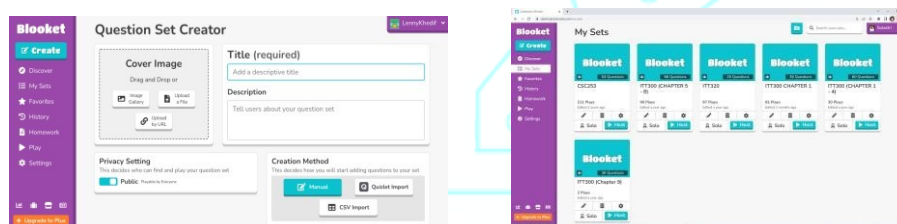


Figure 2. Dashboard (My Set) showing the subjects or topics taught using Blooket

Lecturers then can create quiz or test questions in My Set. Similar to other platforms for game-based learning, lecturers have access to view, modify, delete, save responses. (Figure 3).

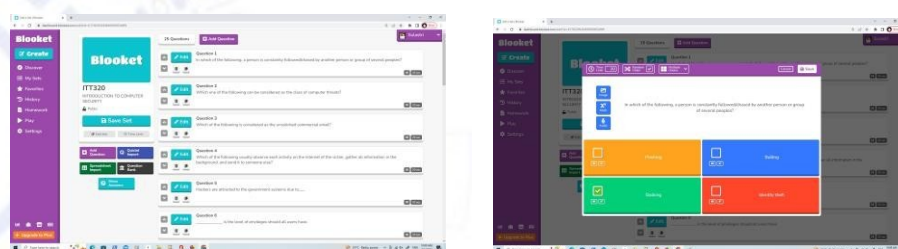


Figure 3. Screen to create quiz or test question and add question

As seen in Figure 4, Blooket enables lecturers to construct quizzes by adding their own questions or importing questions from Quizlet, Spreadsheet, or Question Bank. Quizlet known as the interactive resources and in its most basic form creates games using electronic flashcards. Quizlet is a free resource that allows students to create their own flashcards or browse what other students have already created (Vargas, 2011). In addition, you can import questions from a spreadsheet. It is a tool that is used to store, manipulate, and analyze data, according to Suny Broome (n.d).

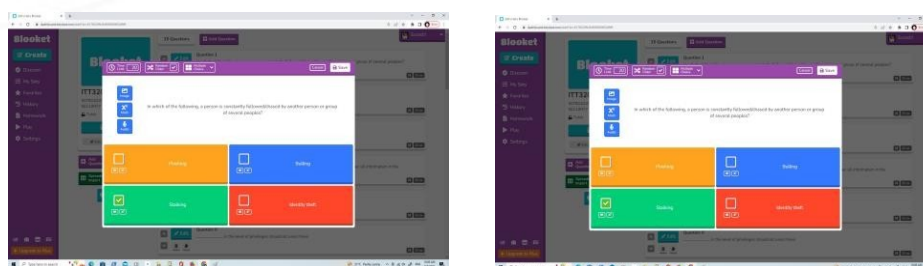


Figure 4. Screen to add question from Quizlet or import from Spreadsheet

After creating questions, game mode will be chosen by the lecturer as shown in Figure 5. Variety of unique game modes to choose from Blooket that are sure to engage students in learning activity. Different skill levels are required for completing the test or quiz in the game modes offered by Blooket.

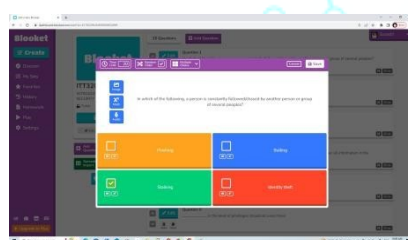


Figure 5. Select game mode screen

The following step is to assign homework or tasks to students. Lecturers need to schedule the date, time and instructions for students to complete the tasks assigned as shown in Figure 6. In order for the students to finish the tasks or homework given, lecturers must also set the game according to time or score in Host Blooket screen.

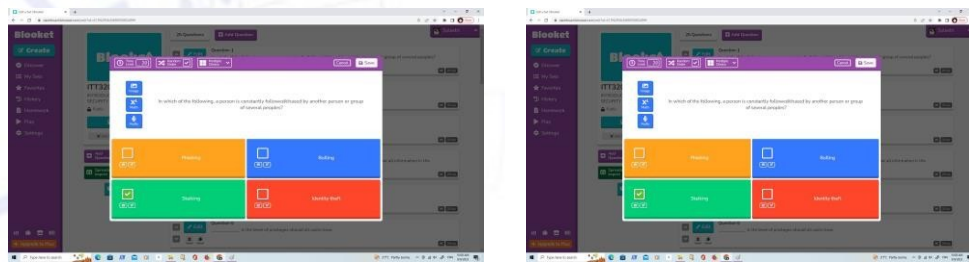


Figure 6. Assigning homework or task and Host Blooket screen

Following the deployment of the game by the students, lecturers are able to view the list of players participating in the session, as shown in Figure 7. After completing the tasks, lecturers are able to view the results displayed on the screen.

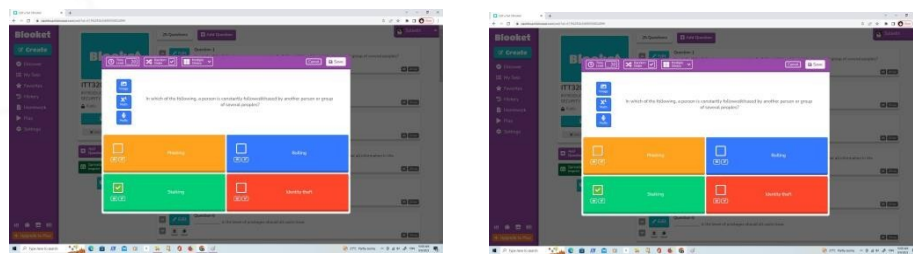


Figure 7. Screen displaying list of players and screen displaying scores

CONCLUSION

By incorporating Blooket into the Introduction to Computer Security curriculum, lecturers can enhance student engagement, promote active learning, and reinforce key concepts through interactive gameplay. Blooket's features also provide opportunities for formative assessment, collaborative discussions, and individualized review, making it a versatile tool for teaching this subject.

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