UNIVERSITI TEKNOLOGI MARA

ICT TRENDS THAT MATTER

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PREFACE

Praise be to Allah SWT, with His will, this eBook, ICT Trends that Matter, has been successfully compiled to capture some of the most relevant and transformative discussions in the world of Information and Communication Technology (ICT).

The work is a compilation of various views of the different practitioners, scholars, and professionals who have contributed their ideas and thoughts regarding the emerging technologies and their influence. The chapters provide just a few examples of how cybersecurity, big data harmonisation, artificial intelligence, novel learning tools, and social media analytics demonstrate the extent to which ICT has permeated our everyday worlds, our classrooms, workplaces, and communities.

ICT Trends that Matter offers readers a comprehensive exploration of 14 contemporary ICT themes that are shaping education, industry, and society. The eBook covers a wide spectrum of topics such as Big Data & AI, Digital Learning & Tools, Practical ICT Applications, Social Media & Communication and Smart Campus Initiatives highlighting UiTM Johor's experience in developing a data-driven digital ecosystem.

This eBook is informative and inspirational, with contributions that combine theory, research, and practical work. It makes the readers consider the existing ICT issues and opportunities and provides practical knowledge on personal, educational, and professional development. I would like to say that I am very grateful as the chief editor to all thecontributors whose commitment, professionalism, and innovativeness have added value to the contents of this eBook. I believe ICT Trends that Matter will be useful to academicians and students, as well as any industry professional, policymaker and those who are keen to learn more about the dynamic ICT environment.

Whether you are an academic, student, or industry professional, ICT Trends that Matter provides valuable insights into the technologies that are redefining our world today. May this work inspire further dialogue, innovation, and collaboration toward building a smarter and more sustainable digital future.

Dr. Shamsatun Nahar Ahmad
Chief Editor
Brain Hub: ICT Trends that Matter

SYNOPSIS

ICT Trends that Matter is a compilation of 14 thought-provoking chapters, which discuss the most significant trends in Information and Communication Technology (ICT) and their implications on education, industry, and society.

The elements cut across essential areas of the digital world. Discussions about the harmonisation of big data and artificial intelligence to fight cybersecurity and comparative studies concerning popular AI tools will be available to the readers.The eBook also highlights innovative approaches to teaching and learning, such as Easymath2U and V-CCMPedia, to improve conceptual learning in calculus, and AI-assisted tools to improve student engagement.

The useful experience is presented with the help of the following topics: computer tips and tricks, free e-learning applications used by children, and the successful utilisation of social media analytics tools. The role of contemporary communication mediums such as Telegram and the global presence of TikTok are also discussed in the chapters, as well as reflections on institutional work towards data-driven digital ecosystems, such as the UiTM Johor RSP16 experience.

This eBook contains the work of numerous scholars and researchers and offers both theoretical insights and practical solutions, which is why it can be of interest to academics, students, practitioners in the industry, or policymakers. ICT Trends that Matter is not merely an anthology of articles but rather is a convenient way to learn about the latest trends in ICT and predict what to expect and what to take advantage of in the digital age.

ACKNOWLEDGEMENT

The Editorial Board of ICT Trends that Matter would like to thank everyone whose assistance and commitment enabled us to make this publication possible.

We would like to thank the Department of Linkage Industry and Alumni, UiTM Johor, Segamat Campus, for enabling the acquisition of eISBN and subsequent guidance throughout the publication process.

A special mention of gratitude belongs to all contributors, whose skills, knowledge and dedication have been instrumental in the content of this eBook. Every chapter is an embodiment of how well, creatively, and committed our writers were to delivering substantial discussions on the current issues in ICT.

We also recognise the unwearying efforts on the part of the Editorial Board, which have been tireless from the very beginning of the conception to the final production of this eBook, which makes it and guarantees its success.

We are most thankful to all who have assisted this undertaking either directly or indirectly. May Allah SWT bless this endeavour and enable it to do good for the readers and the community at large.

EASYMATH2U: LEARNING MATHEMATICS BEYOND THE CLASSROOM

**NOOR SYAZANA NGARISAN, SHAFARUNIZA MAHADI,
FARAH SURAYA MD. NASRUDIN,
NURUL 'AINI HARUN, MOHD LEZAM LEHAT**

Gaining proficiency in the Mathematics subject necessitates ongoing practice and is aimed at achieving a more profound comprehension of a concept or method. This implies that learners must consistently revisit their studies to enhance their mathematical abilities. Nevertheless, the majority of students struggle to achieve this, as they typically rely on their teachers, peers, and family members for inspiration, feedback, or clarification on answers. In addition, students frequently depend on various learning resources such as notes, textbooks, and tutorials, which can be daunting and complicate their ability to absorb and understand all the knowledge. In line with the passage of time and the current generation, teachers need to think of more flexible and appealing techniques or methods to attract students to try more questions and not just rely on pen and paper.

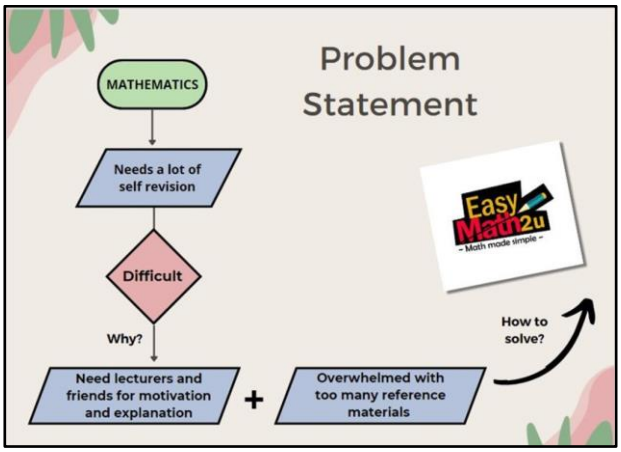


Figure 1: Problem statement of EASYMATH2U.

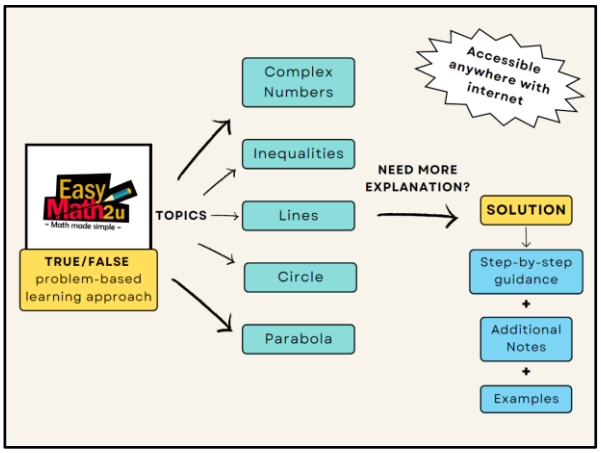


Figure 2: The summary of EASYMATH2U.

The inspiration for EASYMATH2U comes as a solution to cater to these common issues and problems. EASYMATH2U is a TRUE or FALSE game covering five essential topics from Pre-Calculus that adopts the concept of self-learning and applies student-centered mechanisms. The main objective is to make it easier for students to do mathematics exercises using mobile devices wherever they are with the availability of an internet connection, which makes it more convenient. This can motivate the students to learn on their own without needing immediate help from the teachers and also aid students in grasping an understanding of a topic without having to rely on multiple resources simultaneously. Each question includes a detailed breakdown of the solution, extra examples, and straightforward notes to help students understand the problems independently. The explanations are crafted to be clear, preventing any misunderstanding during the learning experiences. The layout of EASYMATH2U is simple and easy to navigate, allowing users to focus on the key aspects of a particular

subject of interest. The game concludes with an option to restart, encouraging repeated practice for mastery.

Nowadays, technology is playing a more significant role in learning and teaching. This innovation is an exceptional initiative and applies to other subjects or other suitable matters. The earlier development phase of this game used simple Microsoft PowerPoint. Later, to make it available online, the materials were transferred to Google Slides for easier access. Anyone with little technology literacy can take on the same idea, make some improvements, and develop an even better online learning resource. Additionally, it is projected that students will spend less on using this game compared to the costs involved in purchasing a reference book.

EASYMATH2U offers various benefits and contributions to the students' learning experiences. This digital game can improve students' study revision by delivering a more effective and engaging educational encounter. Furthermore, it promotes a sense of independence and self-sufficiency among learners. Students can participate in EASYMATH2U activities on their own or collaboratively, enhancing their interest in the learning process. This game also aids in developing critical thinking and problem-solving abilities in students.

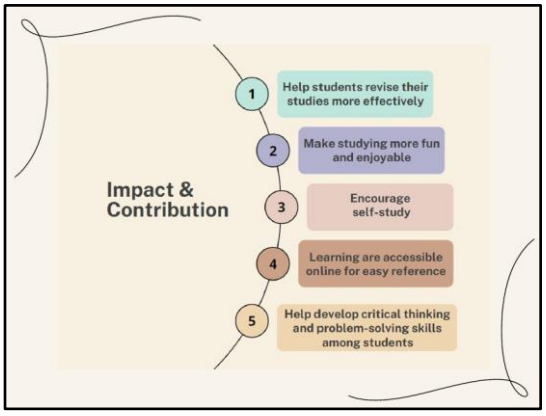


Figure 3: Impact and contribution of EASYMATH2U.

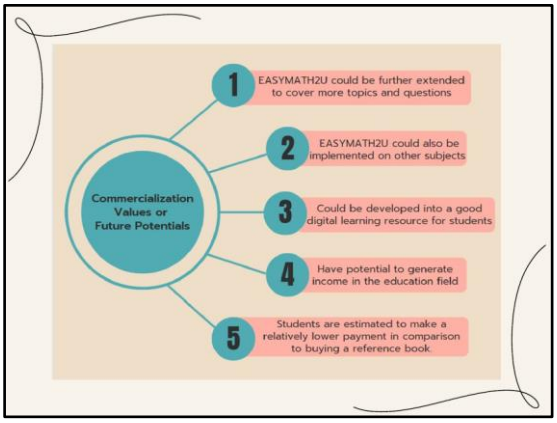
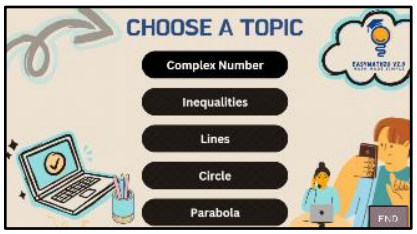


Figure 4: Commercialization values or future potential of EASYMATH2U.

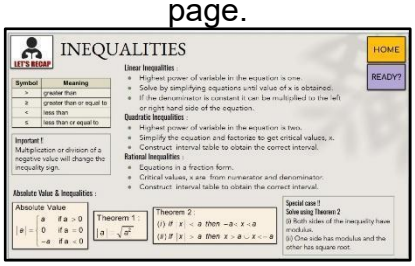
Currently, there are 40 mathematics practice questions from 5 topics in EASYMATH2U. Each topic has two sets of questions, starting from lower difficulty to advanced. In the future, this game can be expanded to include a wider range of subjects and questions. It is also estimated that with some improvement, EASYMATH2U can evolve into a high-quality digital educational tool for students. In modern times, where technology is assuming a more prominent and influential position in education, educational games such as EASYMATH2U can be beneficial for students and an attractive source of revenue in education. The responses from students following their experiences with the game are favorable, which is promising for the ongoing development and integration of this educational game into their lessons.

Table 1: Flowchart of EASYMATH2U demonstration.

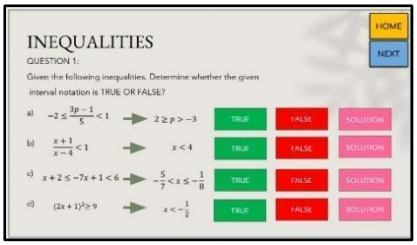
The front cover of EASYMATH2U includes the introduction. Users may start the game by clicking the "CLICK HERE" button, which leads to the topic selection page.



The navigation page with the list of available topics. Users can click on any one of the topics of their preference. To terminate the game, users can click on the "END" button.

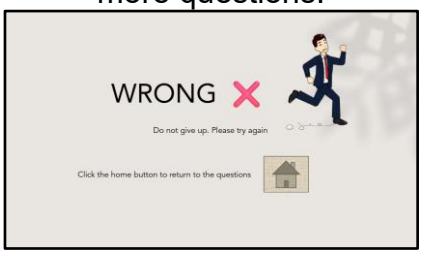


A sample of a note page from the topic “Inequalities.” Users can click on the “READY” button to start answering some questions after a quick revision here, or click the “HOME” button to return to the navigation page.

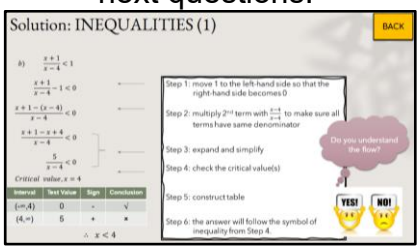


A sample of a question page. Users can select either "TRUE" or "FALSE" in response to each question. A "SOLUTION" button will show the answer to the question, while the "HOME" button will redirect users to the navigation page, and the "NEXT" button will take users to more questions.

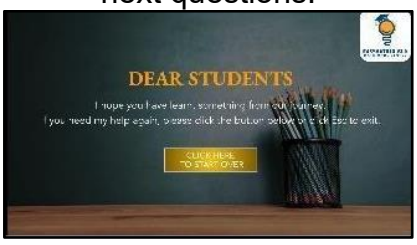
The page here displays the “CORRECT” notification when the question is answered correctly. Then the users can click the "HOME" button to answer the next questions.



The page here displays the “WRONG” notification when the question is answered incorrectly. Then the users can click the "HOME" button to answer the next questions.



A sample of a solution page is shown when users click on the “SOLUTION” button to review a detailed step-by-step answer to the question.



The game has reached its conclusion. Users can replay the game by clicking the "CLICK HERE TO START OVER" button. It will redirect them to the navigation page.

EASYMATH2U was registered with the reserved copyright certification at the Intellectual Property Corporation of Malaysia dated 18 August 2023. Since its introduction, EASYMATH2U has achieved remarkable recognition. It has participated in three innovation competitions by far. In November 2023, EASYMATH2U was awarded the Gold Award at the International Competition on Sustainable Education (SUSED 2023). The year 2024 shows EASYMATH2U again crowned the Gold Medal at the Virtual Innovation Competition (VIC 2024). In July of the same year, EASYMATH2U received a Silver Award in the International Teaching Competition (iTAC 2024) and published one e-proceeding entitled "EASYMATH2U: Interactive Learning for Mathematics Education". These accolades affirm the value and potential impact of this innovation in advancing digital education.

Figure 5: Certificate of SUSED 2023.

Figure 6: Certificate of VIC 2024.

Figure 7: Certificate of iTAC 2024.

Figure 8: Link to access EASYMATH2U.

EASYMATH2U is the beginning of something more amazing, especially if it can adopt AI technology. In the future, the game could be improved by including more topics and questions. Future enhancements could also include integrating artificial intelligence for personalized feedback and expanding the content to cover a broader range of subjects and difficulty levels. Furthermore, EASYMATH2U can also be enhanced by including a video demonstration or a simulation, which can further help students to understand a certain topic and be a digital teacher or tutor to facilitate the students. Looking ahead, EASYMATH2U can evolve further to meet the growing demand for advanced learning tools. With these improvements, EASYMATH2U could become a comprehensive digital platform that not only supports independent learning

but also serves as an effective teaching aid. Hopefully, this noble effort will benefit all involved and achieve the targeted objectives.

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