

# STUDENT ACCESS TO DIGITAL EDUCATION IN MALAYSIA

AL-KATHRI TURKI ABDULLAH

OMER

Faculty Of Computing  
University Malaysia Pahang  
Al-Sultan Abdullah26650,  
Pekan,Pahang,Malaysia  
[Alkathris300@gmail.com](mailto:Alkathris300@gmail.com)

**Abstract-***This report addresses the issue of limited digital education access in Malaysia, aligning with Sustainable Development Goal 4 (Quality Education). By overcoming barriers related to technology access and IT knowledge, the aim is to ensure inclusive and equitable education for all students, bridging the digital divide and promoting sustainable development. The report proposes future work in the form of a personalized learning recommendation system and the integration of real-time communication tools to enhance student engagement and the overall online learning experience.*

## I. INTRODUCTION

High-quality education is a fundamental right for everyone regardless of location or background. However, The COVID-19 pandemic has greatly impacted education systems around the world, with many universities/schools shifting to online learning to reduce the spread of the virus. While online learning provides a convenient alternative to traditional classroom instruction, it also presents new challenges, especially for students who lack access to technology and have low IT knowledge. Limited access to technology and digital skills in Malaysia can prevent students from fully participating in online learning environments, leading to a loss of educational opportunities and potential learning outcomes.[1], [2]

## II. EXPLAIN THE PROBLEM

The case study is motivated by the need to address the limited access to digital education among students in Malaysia, aligning with (SDG 4) - Quality Education. By tackling the barriers of limited technology access and low IT knowledge, we aim to ensure inclusive and equitable quality education for all students, regardless of their location or background. Through this initiative, we strive to mitigate the impact of the COVID-19 pandemic, foster lifelong learning, bridge the digital divide, and promote sustainable development, empowering individuals and creating a more inclusive and technologically proficient society.[3]

## III. RELATED CASE STUDY

- Selvanathan, M., Hussin, N. A. M., & Azazi, N. A. N. (2023). *Students learning experiences during COVID-19: Work from home period in Malaysian Higher Learning Institutions. Teaching Public Administration*

This study was specifically focusing on the experiences of students in Higher Learning Institutions. The document highlights the challenges faced by students and institutions during the transition from traditional teaching methods to

online learning. It emphasizes the importance of internet access for students, particularly those from the B40 group, and the need for universities to make their online courses interesting and innovative to attract international students. The file also mentions the recommendations for increasing e-learning use and the uneven internet access experienced by teachers and students during the Movement Control Order (MCO) period. Overall, the PDF provides valuable insights into the shift to online learning and the various issues and opportunities it presents in the Malaysian context.

Overall, this journal article explores the experiences of students in Malaysian Higher Learning Institutions during the COVID-19 pandemic. It provides valuable insights into the challenges and opportunities presented by the shift from traditional teaching methods to online learning. [4]

## IV. EXPLAIN THE PROCESS DESIGN

Data acquisition	The process of data acquisition involves gathering relevant data from various sources. In this project, the data is acquired from multiple sources, such as university/school records and IT department data. Specifically, the dashboard utilizes data from Google Sheets, which contains information about the total number of participants from each state in Malaysia, as well as the numbers of university and high school students.
Data filtering	After data acquisition, the next step is data filtering. This process involves refining the acquired data to focus on the specific variables and criteria needed for analysis and visualization. In the dashboard, data filtering may involve selecting and organizing the relevant data columns, such as student numbers, education levels, and IT knowledge levels. This filtering allows for a more targeted and meaningful analysis.
Data mapping	Data mapping involves assigning specific values or categories to the acquired and filtered data. In the dashboard, data mapping can be seen in the pie chart that visually represents the percentages of students from each state in Malaysia. This mapping connects the acquired data to the corresponding geographic regions, providing a clear representation of the distribution of students across the country.

Data rendering (visualization)	The final step is data rendering or visualization. This process involves presenting the filtered and mapped data in a visual format that is easy to understand and interpret. The chosen visualization techniques in the dashboard include pie charts, tables, column charts, and bar charts. These visualizations effectively convey information such as student distribution, student numbers, IT knowledge comparisons, and the struggles faced by university and high school students in online education. By utilizing diverse visualization techniques, the dashboard enhances the overall insights and decision-making capabilities of the viewers.
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## V. CHALLENGES AND SOLUTIONS

Challenge/Issue	Strategy to resolve issue
There was no knowledge about excel.	Start learning excel tutorial from YouTube.
There was no knowledge how to use google data studio.	Start learning Google data studio
I had a difficulties while searching for appropriate topic.	I solved this issue by watching videos on YouTube on how to search correctly.
There was a lack of resources to find the right dataset.	I start doing my own data set by conducting a survey.
It was challenging to make people to fill the survey from different states in M Malaysia.	I solved this issue by distributing the survey across different online platforms to cover the majority states in Malaysia.

## VI. IMPACT OF THE LEARNING EXPERIENCE ON THE FUTURE CAREER .

After I graduate, my possible profession will be greatly influenced by the skills and information I've obtained from this research, including understanding of Microsoft Excel, Google Data Studio, data filtering methods, and efficient search approaches. In positions using data across many sectors, these abilities are highly appreciated and necessary. I can efficiently organize and analyze data thanks to my proficiency in Microsoft Excel, do calculations, and provide insightful findings, making me a

useful asset for data-related work in any organization. I can now effectively communicate findings thanks to my knowledge of Google Data Studio, which enables me to make interactive dashboards and reports that are aesthetically appealing. Knowing data filtering procedures also guarantees the accuracy of the data used for analysis, increasing the validity of the conclusions drawn. Additionally, the skill of conducting effective searches allows me to quickly find reliable information, analyze it critically, and make informed decisions. By acquiring and honing these skills, I am equipping myself with essential tools for success in a data-driven career, enabling me to contribute to improving processes, making informed decisions, and driving innovation within organizations, thus enhancing my career prospects and potential for growth.[5]

## VII. INDUSTRIES

INDUSTRY	SALARY	COMPANY TYPE	PROFESSIONAL CERTIFICATE
SMART AS HUMAN SDN BHD	3000 – 4500RM	Local	Not required
PWM	4000 – 5500RM	Local	Not required
DataTech Solutions	5500 - 7000RM	Local	Not required
Insight Analytics (TDCX)	5000 - 6000RM	Local	Not required
MYTUKAR SDN. BHD	5000 – 8000RM	Local	Not required

## VIII. COMPARISON OF ADVANTAGES AND LIMITATIONS

TOOL	ADVANTAGES	LIMITATIONS
GOOGLE DATA STUDIO	1- Free tool. 2- Dashboard with customizable reports. 3- Easy to use	1- No API or automation. 2- Report creation can take too long. 3-Lack of support.
DASHTHIS	1- Integration with other platforms. 2- Scheduled reports. 3- Good support.	1- More expensive. 2- Limited chart types.
KIBANA	1- Easy to understand. 2-Easy to convert dashboard into reports.	1- More expensive. 2- Issues when upgrading to a new version.

## IX. STAKEHOLDER EVALUATION OF THE DASHBOARD

Figure 3 : Question 3 stakeholder response

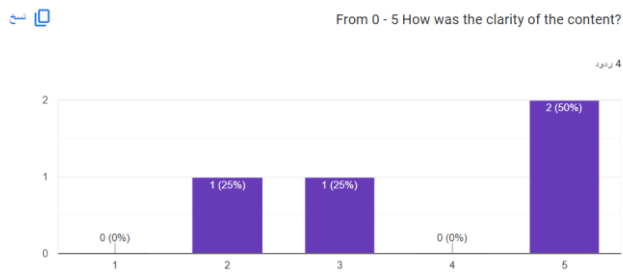


Figure 1: Question 1 stakeholder response

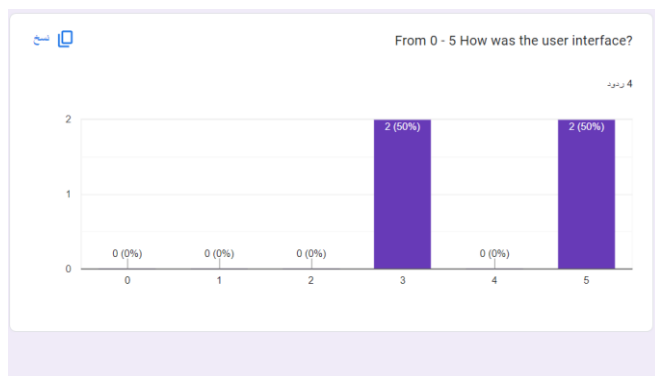
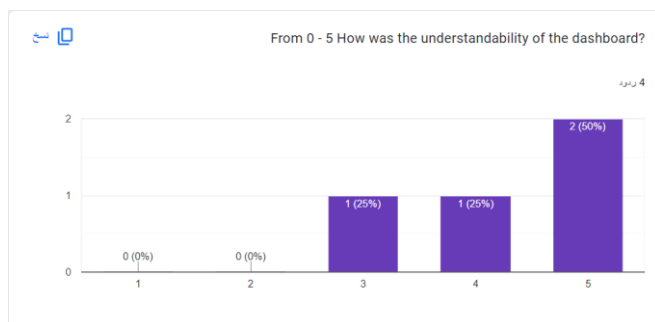


Figure 2 : Question 2 stakeholder response



## X. RESULT

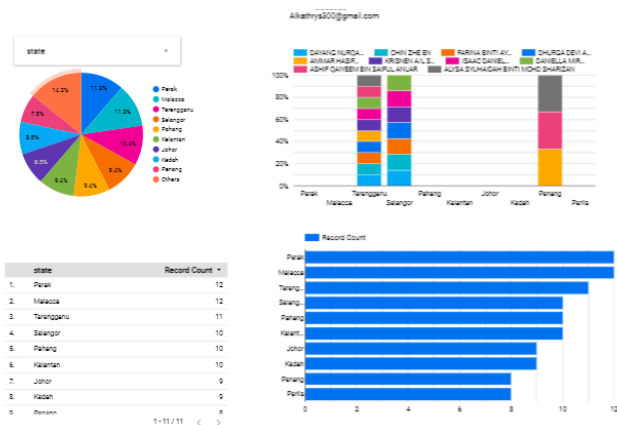


Figure 4 : Dashboard elements

The dashboard, consisting of 4 elements: the pie chart, table, column chart, and bar chart, serves different purposes in presenting and analyzing data. The pie chart effectively displays the percentages of students from each state, the table presents the numbers of students and their education level, the column chart facilitates comparisons of the IT knowledge among students in the states, and the bar chart enables easy visualization and comparison between how struggling while using online education either University or High-school student. By incorporating these diverse visualization techniques, the dashboard offers a comprehensive view of the data, allowing viewers to understand the distribution, analyze details, compare values, and identify trends, thereby enhancing their overall insights and decision-making capabilities.[6], [7]

## XI. FUTURE WORK

1. **Personalized Learning Recommendations:** One future work could involve implementing a personalized learning recommendation system within the dashboard. By leveraging data on students' learning preferences, past performance, and areas of improvement, the dashboard can provide tailored recommendations for online resources, courses, or learning materials that align with each student's individual needs. This personalized approach can enhance student engagement, motivation, and overall learning outcomes.[8]
2. **Integration of Real-Time Communication Tools:** Another future work could involve integrating real-time communication tools, such as chat or video conferencing, within the dashboard. This would allow students to

directly connect with their instructors, classmates, or support staff, fostering a collaborative and interactive online learning environment. Real-time communication can facilitate immediate feedback, clarification of doubts, and promote active engagement, thereby enhancing the overall learning experience for students.[9]

## XII. REFERENCES

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