

# ICT Skills among Indigenous Students

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## Abstract

Malaysia is home to a diverse range of indigenous communities, often referred to “Orang Asli”, which means “original people”. These communities have inhabited in the Malaysian Peninsula and the island of Borneo and have their own distinct languages, cultures, and traditions. The difference in residence contributes to the diversity of education level, lifestyle, and ICT skill. Therefore, this situation resulting them not able to undergo life-long learning. Thus, the study aims to identify the level of ICT skills among Orang Asli children. Qualitative research was conducted, which involved five (5) Orang Asli students. Data were organized using the ATLAS.ti 7 software. Research findings show that basic ICT skills which focuses on the skills of turning on the computer, the skills of using the keyboard, and the skills of using the mouse among the indigenous students still low. Therefore, this finding contributes by providing a research direction to enhance ICT skills among Indigenous students' by developing ICT literacy module.

**Keywords:** ICT skills, Technology Literation, ICT Adoption, ICT Training, Indigenous Students.

## Introduction

Information and Communication Technology (ICT) has profoundly influence education by expanding access to information and learning resources through the Internet, enabling online education and blended learning models that cater to diverse student's needs, facilitating collaborative learning experience, personalizing education through adaptive technologies, streamlining administrative tasks with learning management systems, and offering opportunities for global connections and cultural exchange. ICT has also played a pivotal role in ensuring educational continuity during emergencies, such as the COVID 19 pandemic, and has empowered educators with data-driven insights to enhance teaching methods and curriculum development (Ali, 2020). While providing cost-efficiency and fostering innovation in teaching, ICT has transformed education into a more flexible, accessible, and inclusive endeavor, preparing students for the digital challenges of the 21<sup>st</sup> century.

This is because, the integration of ICT especially in the field of education has given a new shift to pedagogic techniques and the learning process experienced by students. Previous studies have also reported that with the use of technology, has been able to implement a revolution in T&L techniques in the classroom that involves teachers and students (Mansor et al., 2021; Kamsin et al., 2023). When the country is focusing on the process of achieving vision 2020,

the government still not forgetting the importance of ICT for the Orang Asli community. Referring to Malaysia Plan 8th, 9th, and 10th, the government has worked hard to reduce the digital divide in various levels of society. ICT is an effective technology in the process of changing the quality of life of the community including marginalized groups which for the context of this study the marginalized refers to the Indigenous students.

The impact of ICT on indigenous students is a complex interplay of opportunities and challenges. ICT can provide valuable access to educational resources and opportunities, especially for those in remote areas, potentially bridging gaps in learning. It can also be a tool for preserving and sharing indigenous languages and cultures. However, the digital divide remains a significance concern, as many indigenous communities lack access to modern technology and face challenges related to cultural sensitivity, language relevance, and privacy. This situation causes an increase in the digital divide when compared to community from other communities (Anthony & Keating, 2013; Nadzri et al., 2015; Kamsin et al., 2023). Therefore, the effective integration of ICT in indigenous education must be carefully considered, addressing both technological disparities and cultural preservation. To ensure that it empower rather than marginalizes indigenous students, respecting their unique identities and educational needs. This is because ICT knowledge and skills are one of the main criteria in the 21st century education system, which contributes to produce an individual who could think critically, creatively, and able to face future challenges. However, there is still a lack of study conducted on identifying level of ICT skills among indigenous children (Jia et al., 2021). With that, this research aims to identify the level of ICT skills among indigenous children. This could contribute to the development of a comprehensive T&L processes specifically in ICT as well as another subject generally. Thereby, meaningful learning environment among indigenous students could be develop and enables indigenous students to engage in T&L process.

## **Literature Review**

### ***Indigenous Community***

Indigenous communities have a rich cultural heritage and have lived in Malaysian Peninsula for thousands of years, long before the arrival of other ethnic groups. The Indigenous communities are characterized by their unique languages, traditions, and ways of life, making them an integral part of Malaysia's cultural diversity (Erlane et al., 2020). They have historically played a vital role in the ecological balance of the region, relying on the traditional hunting, gathering, and farming practices. Their cultural practices often reflect a close connection to nature and the environment. Despite their significance, the Orang Asli have faced various challenges, including issues related to land rights, socio-economic, disparities, and efforts by both the government and civil society organizations to address these challenges and protect rights and cultural heritage of the Indigenous. The Indigenous remain an important and distinct segment of Malaysia's population, contributing to the country's culture richness and offering valuable insights into sustainable living practices and traditional knowledge. Understanding and respecting the rights and cultural heritage of the Indigenous of the Indigenous is a crucial aspect of Malaysia's commitment to diversity and inclusivity.

### ***Information and Communication Technology (ICT)***

ICT is an umbrella term that encompasses all technologies used to manage and communicate information. It encompasses a vast array of devices, applications, networks, and systems designed to facilitate the flow of data and enable communication among individuals, organizations, and machines. The roots of ICT can be traced back to the early 20<sup>th</sup> century with inventions such as the telegraph and telephone. However, the field has rapidly evolved, especially in the late 20<sup>th</sup> and early 21<sup>st</sup> century. Key milestones include the development of the internet, the proliferation of personal computers, the advent of smartphones, and advancements in artificial intelligence. ICT comprises five core components which are hardware, software, networks, data and information, and people. ICT is pervasive and impacts nearly every aspect of modern life including communication, business and industry, government and governance, entertainment, science and research and education sector. This shows how ICT has transformed the way people live, work, and interact. It has facilitated globalization, improved access to information and education, and accelerated innovation and economic growth. However, it has also raised important ethical and privacy concerns, such as data security, digital divide issues, and ethical use of artificial intelligence. As a conclusion, ICT is a dynamic and multidisciplinary field that continues to shape the modern world. Its applications are diverse, and its evolution holds the potential to redefine how society functions in the future. Understanding ICT is crucial for individuals, businesses, and governments to navigate the digital age effectively.

### **Methodology**

#### ***Sampling***

Case study implemented holistically by the researcher for this study. Thus, five (5) Indigenous students range ages between of 10 to 13 years old were involved in the study, with the utilization of observation as a method to data collection. Purposive sampling being used as a method to choose the research sample. Due to this, the leader listed their children name which range between 10-13 years old. Data collection for this study was carried out by obtaining a letter of approval and permission from the department of Orang Asli Development (JAKOA) to conduct the study in an Indigenous village. This process is followed by obtaining permission from the parents of Indigenous students, based on the permission letter provided by the researcher.

#### ***Observation***

To ensure the observation can be carried out as planned, observation questions developed and evaluated by one Indigenous teacher, two experts in education, and one educational technology specialists. In a process of developing the observation questions and ensuring the quality of the observation questions developed three phases (Montoya, 2016) has been used as a baseline. The first phase is to ensure the question observations developed in line with the research questions being studied. This phase contributed to the process of developing the matrix of observation questions to be mapped with the research question being studied. The second phase refers to creating communication is based on questioning, which aims to develop quality observation questions from the aspect of feedback acquisition, and the last phase reflect on the process to get feedback regarding observation questions talk that has been developed.

## Findings

### *Evaluation*

Evaluation or more specifically refers to validity and reliability according to a qualitative approach is not the same as a quantitative approach. Thus, Tracy (2010) introduces some terms that have the same meaning as validity and reliability in the context of quantitative research, namely confirmability and dependability. Therefore, for this study, confirmability and dependability used to replace validity and reliability in the context of quantitative approach by running the process of triangulation.

Triangulation is defined as a credibility procedure which researchers identify convergence between the diversity of information sources to produce themes or categories in the research carried out. Therefore, in this study triangulation carried out throughout the process by using two (2) methods which are comparing observation feedback within the same participant and comparing observation feedback within different participants. Based on the evaluation, it shown data gather was trustworthiness and reflect what it supposes to measure which in this context is to define level of Indigenous students ICT skills.

### ICT Skills among Indigenous Students'

Through the observation feedback obtained through the first observation (TB1), found that majority participants don't have the three basic ICT skills studied in this study. This is because of the lack of exposure given to them on the basic ICT skills (skills of turning on the computer, the skills of using the keyboard, and the skills of using the mouse). The participants also stated that, although in their school they were given exposure to ICT in general and there was a computer laboratory provided, but due to the constraints of the number of ICT equipment provided and at the same time the large number of students, they did not have an opportunity to experience using ICT hardware provided such as computer, keyboard, and mouse (Ries; Fati; Faiz; Afie; TB1).

At the beginning of the introduction to the tasks that need to be carried out using the computer, participants are given instructions on how to turn on the computer in detail. There were participants who simply pressed the button slowly to turn on the computer and then quickly withdrew their hand. In this situation, the computer cannot be turned on because the participant must press hard on the start button (PM1:3). Continuous guidance carried out from one session to another session with patient. The continuous effort conducted by the researchers has contributed to increasing the skill level of the participants from the aspect of turning on the computer. Based on the observation carried out for each teaching and learning session that was carried out, it was found that the skill level among the participants in turning on the computer has been at a level that can be proud of, because the participants no longer face any difficulties in the process of turning on the computer for the purpose of completing tasks given by the researcher (PM1:4; PM1 :5; PM2:1; PM2:5).

In addition, the researchers also found that there were a few participants who only observed the mouse that was in front of them even though they had been given instructions on how to hold the mouse properly (PM1:3). Therefore, this causes the researcher to approach the participant, hold his hand, and place the participant's hand on the mouse. The researcher's hand is on the participant's hand and the researcher moves the mouse that is being held by the participant to allow the cursor on the computer screen to move towards the desired part. Then the researcher released his hand to allow the participant to move the mouse by himself. However, not a few seconds after the researcher released his hand, the participant's hand returned to being static, not moving the mouse and let go the mouse that was holding.

Accordingly, the researcher will repeat this process until finds the participants have acquired the skills to use the mouse correctly. Repeating the use of the mouse continuously has been able to improve the skills among the participants in using the mouse (PM1:3; PM1:4; PM2:5). Based on data obtained from triangulation within different Orang Asli Student's observation feedback, it's represented majority Indigenous students involved has lower basic ICT skills which focuses on the skills of turning on the computer, the skills of using the keyboard, and the skills of using the mouse among the indigenous students still low. Fig. 1 shows students only look at the computer keyboard without doing any of the task Research findings show that basic ICT skills which focuses on the skills of turning on the computer, the skills of using the keyboard, and the skills of using the mouse among the indigenous students still low provided by the facilitator. This due to the students that has no experience on how to utilise computer keyboard. Based on this limitation, students unable to perform well during class session.



Fig. 1. Students just look at the computer keyboard

To improve ICT skill among the participants in using computer keyboard, the 'Animated Beginning Typing' software was introduced to the participants. This software works to provide exposure on a proper typing technique using the keyboard. This software provides guidance on the correct finger position when the typing process is carried out. Since this software is more of a gamification, participants are motivated to follow each step instructed by the software to improve their keyboarding skills. Having exposed to the use of keyboard through the 'Animated Beginning Typing' software and the implementation of tasks that use computers through each teaching and learning session has contributed to increase the level of basic ICT skill among the participants in using the keyboard. There are several participants who do not dare to hold the keyboard, and this requires the researcher to move the



participant's hand towards the keyboard and move the participant's finger to press on the keyboard based on the steps required by the 'Animated Beginning Typing' software. The researcher also arranged the participants' fingers on the keyboard based on the position of the fingers shown on the computer screen. Fig. 2 displays the 'Animated Beginning Typing' software that is used in this study to support the teaching and learning process of the participants who focus more on keyboard skills.

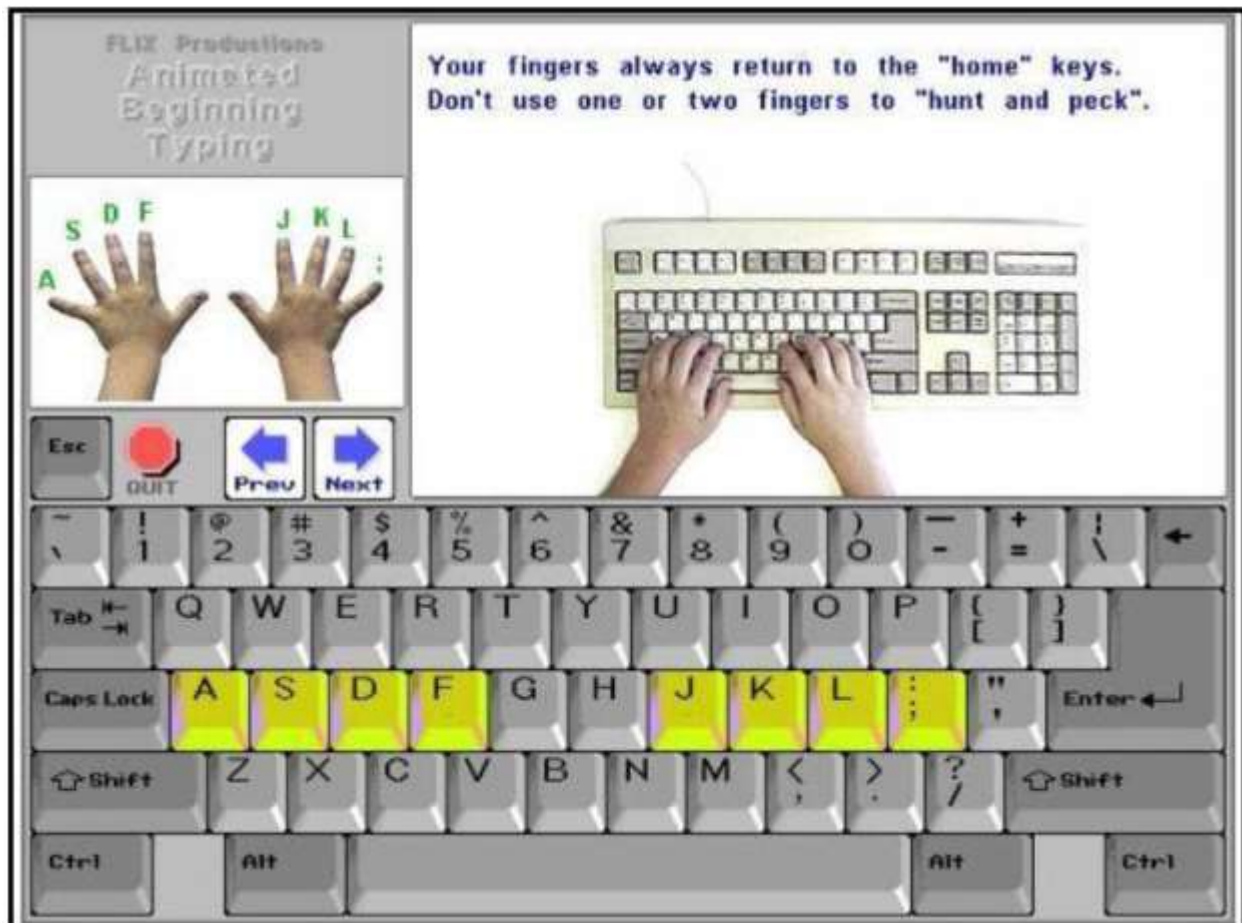


Fig. 2. Animated Beginning Typing software

Fig. 3 displays level of skill in using the keyboard among the participants has increased as compared before joining the class. Participants are becoming more confident to type using the keyboard even though there are few of participants who still need a long time to type because they are very careful in pressing the keyboard to ensure what is typed meets the desired criteria that needs to be meet.



Fig. 3. Respondent able to use computer keyboard

### Discussion

This study shows that, three main basic ICT skills has lacking among the participants which are skills of turning on the computer, skills of using the keyboard, and skills of using the mouse. Skill of turning on the computer is difficult for the respondents when the students are afraid to press the button to turn on the computer (Emma et al., 2016). They seem worried that something might happen if the button is pressed. Thus, they will immediately move their fingers or hands away from the button area. While for skills of using the keyboard shows that students are quite awkward to type using the keyboard, they don't know the correct posture to place their hands while typing (Janet et al., 2019). This causes students to take a longer time to type the task given by the researcher even though they only need to complete typing one paragraph of the information. Lastly, for skills of using the mouse, indicating that participant had no idea how to hold the mouse correctly. Some of the participants grip the mouse so it is difficult to move, some of them hold the bottom side of the mouse which causes the mouse to often slip out from the hand, and few of participants who only observe the mouse without holding it, till the researcher needs to hold student's hand and place it on the mouse so that they have an understanding of how the correct way to ensure the mouse can be hold and functions correctly. The limitations mentioned causes the computer unable to perform well, and student couldn't complete the assigned task based on the requirements (Fazyudi, 2020; Intan et al., 2022).

## Conclusion

Previous studies have shown that basic ICT skills among Orang Asli children are very low. This has resulted in dropping out in education, difficulty in applying the technology, and difficulty in completing assignments that require students to use technology. In relation to that, continuous training and support should be emphasized to ensure Indigenous children can compete healthily with other mainstream students. Other than training and support, learning styles should also be considered for Indigenous children to learn better and equip themselves with necessary skills, knowledge, and experience on ICT (Kamsin et al., 2023).

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