

Use of ICT in Indigenous Primary School classroom: A case study of teachers' expectations and experiences

NorShakirah Aziz
Computer & Information Science Department
Universiti Teknologi PETRONAS
32610 Seri Iskandar, Perak
norshakirah.aziz@utp.edu.my

NorIzzati Abdul Rahman
College of Information Technology
Universiti Tenaga Nasional
Jalan IKRAM-UNITEN, 43000 Kajang, Selangor

Abstract— Information and communication technology (ICT) is widely used in today's education to improve teaching and learning. Students that are well exposed to ICT in the early stage of their education can capitalize the knowledge to seek for more information over Internet and other interactive sources. This is not necessary the case for school in rural areas, with limited provision of ICT infrastructure and different cultural background such as indigenous schools. To understand the real situation, this study had conducted a study at indigenous primary school in Selangor, located in peninsular Malaysia. The teachers' expectation and experiences using ICT as a tool for ICT and science subject presented in this paper. At the same time this study looks into the adequacy of ICT infrastructure and the challenges in using the school facilities.

Keywords—Indigenous; ICT Teacher; Teaching and Learning; Primary School.

I. INTRODUCTION

Indigenous in Malaysia familiarly known as 'Orang Asli', literally means the original of peoples of the peninsular Malaysia. In other words, a person who is members of aboriginal ethnic group, who live at particular area, have their own language, way of life, custom and beliefs and remain as members of the community [1, 2].

According to [3], indigenous in Peninsular Malaysia is about 0.5% of the total national population. As reported in his study, there are 18 subgroups indigenous in Peninsular Malaysia [3], and their children should have right to have learning and teaching that appropriate to their cultural methods [4]. As reported by [2], the location of their community limited them to the ICT access and wider the digital gap which consequences not benefit from the growth of ICT in education.

ICT has become a main trust in developing nation's economy and its people via strong success in education, business and the life quality of its citizen. In education, ICT has simplified and helped to improve student performance by assisting students during formal learning in the classroom. The implementation of ICT in schools are important to achieve government's national agenda to improve and enhance the

quality, access and cost efficient education system by leveraging public networks and prepared ourselves for the challenges in global competition [5]. ICT assisted learning gaining recognition in Malaysia's mainstream schools including the indigenous schools. Ministry of education Malaysia (MOE) has formulated three ICT policies in education which are, (1) ICT for all students; (2) Priority function ICT in education and (3) The use of ICT to improve the efficiency and effectiveness of the system [6].

II. ICT IN INDIGENOUS PRIMARY SCHOOL

ICT assisted learning require infrastructure such as computers, projectors, chairs, tables, Internet and more due to the information transmitted through digital communication infrastructure and devices [7]. However, the effectiveness of ICT assisted learning is very much dependent on the ability of teachers to use the tools appropriately.

As claimed by Lau and Sim[8] teachers considered as the most important aspect in delivering knowledge to the students. However, according teachers also can become one of the hindrance factors for successful use of ICT in the classroom especially when teachers are not integrating teaching materials using ICT facilities[9]. A study by Dyson[6], found that language barrier is one of the reasons why the indigenous school decided not to use the ICT facilities in classroom. They had problems in understanding and using the educational software if it were developed in English and text intensive, because they widely known as people who live and work at specific place have their own culture and language [1, 10, 11]

Hence, children in indigenous schools need to be exposed to the knowledge and skills to use ICT in the early stage of education so that they will not be left out from the global modernization. Normally, indigenous primary schools are located in the rural areas and majority of the students are from similar cultural background and ethnicity.

A. *ICT facilities and infrastructures in Indigenous Primary School*

ICT is regarded as a strong pillar for educational change and reform. Previous studies have shown that the use of ICT can improve the quality of education. Learning is a lifelong journey in which students need to acquire knowledge and learn something new [12]. Effective use of ICT in schools is very much depending on the infrastructure and facilities provided.

The establishment of computer labs and classrooms which were equipped with digital technology has enabled the use of ICT in the classroom [13]. In addition to that, computing infrastructure including hardware, software, intranet and internet service are necessary for teaching, learning and school administration [14]. The school must also provide technical support services that are accessible to all. This will then create a good learning environment with advanced ICT applications, that will enhanced effective way of learning and teaching is conducted[15].

A research done by [16] and [2] conclude that, Malaysian indigenous students have positive attitudes towards computers, however, with limited skill or low ICT competency. [17] continues explain, they are not reject ICT however the level of ICT acceptance in the education still depending on their habitual and way of life[17].

B. *The use of ICT in Indigenous Primary School*

As innovative efforts towards ICT in education, Malaysian government allocated 1.2 million netbooks to rural residents, schools pupils and college and university students [18] on 24 March 2010. The allocation improves teaching and learning by making it fun using computers in classroom and indirectly enhances students ICT skills. Not limited to that, are a few common ICT facilities provided to rural areas schools for teaching-learning activities purposes such as the use of laptops, LCD projectors, and speakers. These facilities are purposely to help and assist teachers in their classroom teaching.

At the same time for the purpose preparing class materials, they have additional facilities such as computer labs, wireless internet connection and local area network. However, [19] stated in his study that, indigenous primary schools in United States rarely use the computers in their classroom, and rarely use Internet at school. Interestingly [20] reported, ICT dominated by male students in rural areas Africa, which shows have positive attitudes towards ICT technology compare to female students. The breakdown of the netbook distribution based on states, presented in Table 1 [18].

TABLE I. NETBOOK DISTRIBUTION BY STATE

STATE	UNITS OF NETBOOK
Sarawak	179,778 units
Sabah	172,632 units
Johor	102,585 units
Perak	85,524 units
Kedah	81,380 units
Pahang	78,627 units
Kelantan	73,902 units
Selangor	65,308 units
Terengganu	53,782 units
Negeri Sembilan	35,714 units
Melaka	32,527 units
Penang	18,270 units
Perlis	11,951 units
Federal Territory	8,020 units

III. METHODOLOGY

This study is based on the face to face interview session with teachers from identified indigenous primary school who are responsible to take care and use the school ICT facilities in classroom for teaching and learning. The interviewed purposely to investigate their expectation and experience using ICT as teaching and learning tools, adequacy of ICT infrastructure and lastly the challenges they have in using ICT facilities. The study also captured additional feedbacks and opinions from the teachers.

IV. RESULT AND ANALYSIS

Undeniable, all Malaysian teachers have good IT literacy on the ICT facilities such as computer, netbook, LCD projector and printers without much problem. The data analysis shows that, indigenous primary school students have limited/very basic knowledge of ICT and inadequate of ICT infrastructure in school.

Not limited to that, they also reported have limited ICT resources to use at home. Due to lack of expose of ICT, most of the time, during teaching and learning sessions, students need to be guided through such as simple process like switching-on the computer and using the computer application.

Despite having limited ICT resources to use at home, the netbook provided to the students by government at their school allows them to learn basic knowledge of ICT, such as how to use Microsoft Word and Microsoft Power Point. However, unexpectedly, result reveals about 20% of 140 students in the school, have some form of ICT facilities such as computers, smartphones and IT gadgets. Below in Table 2 shows the result of this study. From the context of effectiveness of using ICT in teaching and learning, feedbacks shows that not many teachers prefer to use ICT facilities. Those who were assigned to ICT subject only normally fully utilized the facilities. Through the government initiatives, the

school managed to attract students to utilize the benefit of ICT in classroom.

On the adequacy of ICT infrastructure, feedbacks shows that inadequate number of ICT facilities such as LCD projectors, time to prepare the course content/slides, and time to setup the session. This probably the reason teachers who are not responsible of ICT subject prefer not to use ICT facilities in classroom. From the analysis, the lack of ICT literacy among indigenous is due to limited time access to computer which only during one or two hours at school and only standard 4,5 and 6 fortunate to use the ICT facilities in school.

Unfortunately, the situation limits them to improve their ICT literacy skill and wider the digital gap. this study result also shows there is a need for continuous training and knowledge updating for both teachers and students on latest progress of ICT technology and applications. In summary, there are more to do in the area if blending ICT and process if teaching using ICT at school. However, there is positive indication from the interest shown the facilities and teaching materials are complete and ready.

TABLE II. TEACHERS EXPECTATION AND EXPERIENCE USING ICT AS TEACHING AND LEARNING TOOLS

#	Expectation(s)	Experience(s)
The effectiveness of using ICT in teaching-learning sessions	ICT useful for teaching and learning session and making the session fun and enjoy.	☐ They were encouraged to use e-learning portal that is virtual learning environment (VLE) during learning activities which contains the subject notes and interactive videos ☐ Students follow the instructions quite well and show interest in using the system.
Adequacy of ICT infrastructure	☐ School well equip with ICT infrastructure to smooth the teaching and learning process.	☐ Notably, there are limited number of computers, LCD projectors and printers available at the school. Almost all equipment is provided by the government as part of Bestari Net project. ☐ There are forty (40) netbooks at the school with a wireless Internet access facility. These had helped the students to access information from Internet like access to Google and Youtube. ☐ There is no computer lab available; as a result a meeting room was used to place all the computer equipment.
The challenges they might have in using ICT facilities.	The facilities available are at par with the mainstream schools in the city	☐ The facilities like LCD projectors are not enough to conduct concurrent teaching using computers for all subjects. ☐ Lack of ICT maintenance support provided. ☐ Internet intermittent: the instability of internet access at the school which clearly due to the location in rural area.

V. CONCLUSION

The results from the interviews had shown there are still huge gap between mainstream school and indigenous primary school in terms of facility, knowledge, experience and the readiness of the students to use ICT in their learning sessions. To gauge the effectiveness based on these limitations are quite premature in theory. However, there are positive signs towards motivation in using computer application amongst school students even though they do not have enough exposure to the use of the facility before. This should encourage all parties including teachers, parents, community and the government to work hand in hand to improve this situation. Indigenous school should not be treated less important as the talent lies in young children should be discovered with right tools and quality teaching materials or techniques. Interestingly, few students feel encourage to come to school if there is ICT class

or subject that will be taught using ICT, which in return create good motivation for them to come to school and learn other subjects too. ICT managed to make teaching and learning fun and enjoyable for both teachers and students. ICT is believed can help to elevate the experience for the students/children to seek for better knowledge and information.

VI. REFERENCES

- [1] C. Cunningham and F. Stanley, "Indigenous by definition, experience, or world view: Links between people, their land, and culture need to be acknowledged," *BMJ: British Medical Journal*, vol. 327, p. 403, 2003.
- [2] M. Rom and J. Jain, "The Importance of Information and Communication Technology in English Learning: Indigenous Students' Perspectives," *Malaysian Journal of Distance Education*, vol. 18, pp. 87-101, 2016.
- [3] A. A. Ghani, "Revitalizing The Indigenous Semai Orang Asli Language In Malaysia," *Asia Pacific Journal of Advanced Business and Social Studies*, vol. 1, pp. 180-185, 2015.

- [4] A. A. Ghani, "The Teaching of Indigenous Orang Asli Language in Peninsular Malaysia," *Procedia - Social and Behavioral Sciences*, vol. 208, pp. 253-262, 2015/11/20 2015.
- [5] M. M. Lloyd, "Towards a definition of the integration of ICT in the classroom," 2005.
- [6] L. E. Dyson, "Cultural issues in the adoption of information and communication technologies by Indigenous Australians," in *Proceedings cultural attitudes towards communication and technology*, 2004, pp. 58-71.
- [7] C. M. Zuppo, "Defining ICT in a boundaryless world: The development of a working hierarchy," *International Journal of Managing Information Technology*, vol. 4, pp. 13-22, 2012.
- [8] B. T. Lau and C. H. Sim, "Exploring the extent of ICT adoption among secondary school teachers in Malaysia," *International Journal of Computing and ICT research*, vol. 2, pp. 19-36, 2008.
- [9] N. F. Jumaat, A. Hamid, and D. Tiawa, "Ict Dalam Pendidikan Anak-anak Orang Asli di Sekolah-sekolah Rendah," Universiti Teknologi Malaysia, 2010.
- [10] J. Kenrick and J. Lewis, "Indigenous peoples' rights and the politics of the term 'indigenous'," *Anthropology Today*, vol. 20, pp. 4-9, 2004.
- [11] C. Stephens, J. Porter, C. Nettleton, and R. Willis, "Disappearing, displaced, and undervalued: a call to action for Indigenous health worldwide," *The lancet*, vol. 367, pp. 2019-2028, 2006.
- [12] J. S. Fu, "ICT in education: A critical literature review and its implications," *International Journal of Education and Development using Information and Communication Technology*, vol. 9, p. 112, 2013.
- [13] J. Sánchez and A. Salinas, "ICT & learning in Chilean schools: Lessons learned," *Computers & Education*, vol. 51, pp. 1621-1633, 2008.
- [14] C. Baskin and M. Williams, "ICT integration in schools: Where are we now and what comes next?," *Australasian Journal of Educational Technology*, vol. 22, 2006.
- [15] D. N. Hayes, "ICT and learning: Lessons from Australian classrooms," *Computers & Education*, vol. 49, pp. 385-395, 2007.
- [16] T. F. T. Ariffin, "Gender differences in computer attitudes and skills," *Jurnal Pendidikan*, vol. 30, pp. 75-91, 2005.
- [17] N. Walid, N. L. M. Noor, E. N. Mior, and C. S. Ang, "Potential Motivational Factors of Technology Usage for Indigenous People in Peninsular Malaysia," 2016.
- [18] BernamaMedia. Malaysia ahead in distributing free laptops to the people [Online]. Available: <http://www.theborneopost.com/2012/06/13/malaysia-ahead-in-distributing-free-laptops-to-the-people-new/>
- [19] M. Volman, E. van Eck, I. Heemskerk, and E. Kuiper, "New technologies, new differences. Gender and ethnic differences in pupils' use of ICT in primary and secondary education," *Computers & Education*, vol. 45, pp. 35-55, 2005.
- [20] N. Dlodlo, "Access to ICT education for girls and women in rural South Africa: A case study," *Technology in society*, vol. 31, pp. 168-175, 2009.