*Proceeding Paper*

# Student Behavior, Sociocultural, Learning Environment and Information Literacy: A Proposed Framework in Managing Indigenous Knowledge [†]

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**Abstract:** Educational achievement is an essential component of the development indicator of a country. The phrase 'education for all' covers all levels of life, including indigenous students (ISs). Commonly, education among indigenous people (IP) is not very encouraging. Many previous studies have highlighted the factors involved in ISs' refusal to attend school and how to solve this problem. However, there are only a few studies on the relationship between the importance of obtaining literacy information in schools and managing knowledge for a guaranteed future. Previous studies found that a lack of information literacy skills, low motivation, cultural background, and learning environment contributed to supporting teaching and learning among ISs. Therefore, this paper proposes a conceptual framework to examine the relationship between student behavior, the sociocultural learning environment, and information literacy in managing IK among ISs in Malaysia. This future research will be carried out among indigenous primary school students aged 10 to 12 years. This proposed research framework will later adopt a quantitative research approach and use an appropriate questionnaire based on the level of education, age, and background after being reviewed by an expert. The expected contribution is the proposed new framework, since literature about ISs is lacking in Malaysia. It is expected that instruments will be developed and used for research, perhaps for indigenous secondary students in Malaysia.

**Keywords:** information literacy; indigenous knowledge (IK); indigenous student (IS); student behavior; sociocultural; learning environment

## 1. Introduction

Regarding learning in the 21st century learning, the transformation of education around the world has emphasized national education. Its foundation is to build a knowledge base society. The Sustainable Development Goal 4 of UNESCO highlighted the quality of education, which aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all, including indigenous students (ISs) among indigenous people (IP) [1]. IP create, manage, and disseminate their indigenous knowledge (IK) from one generation to another to survive in their lifestyle context. They need to manage their knowledge for sustainable development goals. This is due to the knowledge they use for their entire life and improve their next-generation lifestyle to obtain a better lifestyle for IP. Managing and maintaining IK will aid in poverty reduction, equity, environmental protection, and sustainable development, and improve local engagement in development [2]. However, ISs have lower access to and a worse level of education than other populations. Their education frequently lacks curriculum and teaching approaches that acknowledge their communities' cultures, pedagogies, and traditional knowledge. ISs frequently do not have access to education in their native languages or teaching techniques are not adequately included [3]. Thus, ISs are reluctant to obtain proper education from schools, leading to a

lack of literacy knowledge. Literacy was one of the important elements for the Orang Asli (one of the indigenous people in Malaysia) in formal education and schooling [4].

## 2. Literature Review

IPs are cultural groups that have shared ancestral links to the lands and natural resources they live on. Their identities, livelihoods, and physical and spiritual well-being are all intricately tied to the land and natural resources they rely on. Most IP continue to speak the languages of the nation or region they live in [5]. In Malaysia, 13.8 percent of the 31,660,700 million Malaysian population are IP [6]. The three largest ethnic groups of IP are Negrito, Senoi, and Proto Malays. In peninsular Malaysia, the states with the highest IP number are Pahang and Perak. Pahang recorded 67,504 IP while Perak recorded 53,299 IP. The Senoi is Malaysia's largest indigenous ethnic group [7]. In Sarawak, their IP, which is Dayak and/or Orang Ulu, is estimated have 15 groups, which is 70.5% of the Sarawak population. IP in Sabah or Anak Negeri have 39 ethnic groups, which is 58.6% of the Sabah population.

As part of Malaysia's population, IP also follow the same education systems that support Sustainable Development Goal 4: quality education by UNESCO (2030). However, studies found that the majority of ISs only have basic school education. According to a past study, parental influence contributes to ISs' poor academic performance [8]. Most IP, particularly parents, are unaware of the value of education in improving their and their children's lives. This is because the vast majority have never received a formal education, and a tiny percentage continue their studies until elementary school but do not complete it [9]. This group of minorities is still far behind. It has a high education rate at all stages of schooling, from preschool to institutions of higher learning [10]. According to studies, nearly half of ISs drop out after Year 6 [11], 39.1 percent of ISs finish sixth grade but do not register for grade one [12], and only 30 percent of ISs complete secondary school, which is less than half of the national average [13]. In this situation, the government proactively supports and encourages any possibilities by creating awareness of the importance of education among ISs, including the sustainability of social, environmental, and knowledge development among IP. Indigenous knowledge (IK) refers to the understandings, skills, and philosophies developed by societies with long histories of interaction with their natural surroundings. For IP, IK informs decision-making about fundamental aspects of day-to-day life [14]. IK is information that is unique to a particular culture or community. This is known as tribal knowledge, men's awareness, or traditional research. A previous study has defined IK as a collection of local people's knowledge, talents, and skills gathered over many years of experience, learning, development, and transmission [15]. To manage this IK, IP require information literacy, which is part of the management of education systems [16]. Literacy means the ability to read and write.

Nevertheless, there are various types of literacy, such as audio-visual literacy, print literacy, computer literacy, media literacy, web literacy, technical literacy, functional literacy, library literacy, and information literacy. Nominal and active literacy focuses on making people aware of reading and writing in their day-to-day activities [17]. Others define a low literacy rate as an important challenge among IP in knowing their own cultural identity. To recognize their communities, they require the development of a certain set of skills, which is why they need literacy to manage and understand their IK [18].

## 3. Problem Statement

The educational development of ISs is a critical challenge in achieving the aim of education for all. Yet, despite the government of Malaysia's many measures, there is still a significant incidence of attrition among ISs in schools. This is because school instructional programs and educational activities are geared toward mainstream education and tend to overlook the IP culture's conventional integration. This might be one reason why ISs reject the traditional education system [19]. The issue that has been highlighted among ISs is that the lack of information literacy skills of ISs results in many problems [20]. In sharp contrast

to the national literacy rate of 93.1 percent in 2010, the Orang Asli literacy rate was only 51 percent in 2008 [4]. They do have tremendous IK but not the set skills of formal literacy to manage it. Studies also found that indigenous students have low motivation and behavior in terms of learning, including their cultural background and learning environment [20]. This is due to their feelings about living with their community and social ecology. Some ISs have low motivation to go to school and do not prioritize their education [21]. Lastly, undocumented IK leads to the extinction of all precious local history and heritage because of the illiterate and inadequate management of IK [22].

**4. Proposed Framework**

The framework developed for this research is discussed in this section. The interaction of variables was derived from the literature in this research. It was then conceptualized to make an original contribution to knowledge, and to explore the relationships between student behavior, sociocultural, learning environment, and information literacy in managing indigenous knowledge. The independent variables (IVs) developed for this research are student behavior, sociocultural, and learning environment. The dependent variable (DV) that is attached is information literacy in managing indigenous knowledge. The framework is shown in Figure 1 below:
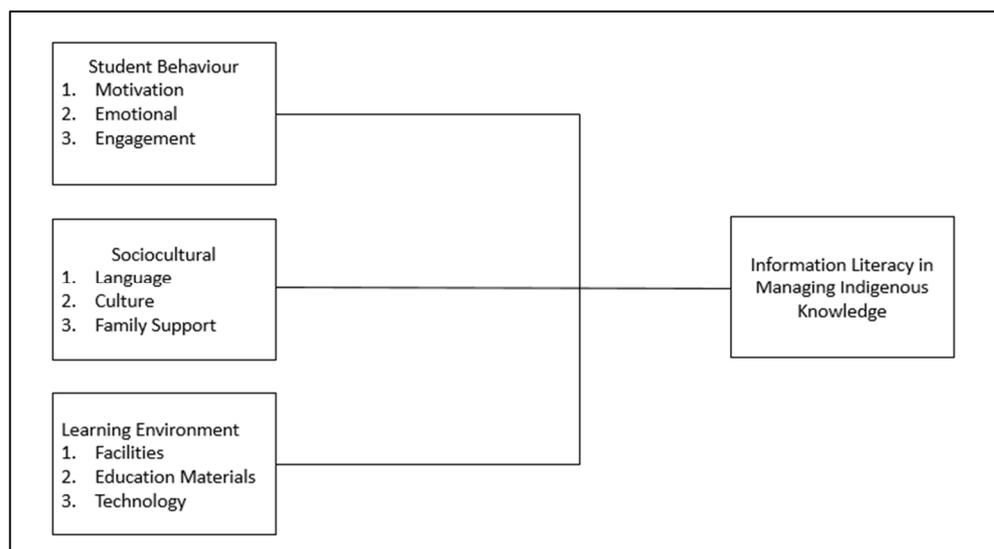


**Figure 1.** Research framework of the study.

Figure 1 shows the variables that have been measured in this study have been discussed below.

*4.1. Student Behavior*

Students are taught new behaviors by observing the behavior of others, which is known as social learning or modeling: they see how other individuals behave and copy them.

4.1.1. Motivation

Students have an essential role in determining academic success. Although numerous adjustments and reforms have been undertaken, educational progress will not be made unless the student is willing to adapt to succeed. Student motivation elements have a significant impact on student accomplishment. They believe that learning is not as crucial to their life as they think. Even if their parents are not highly educated, they can still live 'well' according to the average [23]. ISs' highly motivated attitudes towards education will positively impact ISs because they are eager to acquire knowledge in school. This is because they know that obtaining a formal education in schools with teachers is mandatory

to ensure that they are not left behind from obtaining knowledge [21]. Self-motivation also consists of a sense of confidence to study in school and work hard even if it is difficult for ISs [24]. Children with a poor quality of life may feel inadequate, have low self-esteem, or have other self-related issues. This leads to personality flaws in children, such as low self-esteem, passive talking to teachers, a lack of cognitive abilities in the context of learning, and classroom actions that can be classified as learned helpless behaviors [24].

### 4.1.2. Emotional

Emotions are complicated and intricately linked to intellect and motivation [25]. Emotional experiences are attached to situations that are important to the individual. Emotions are likely to be elicited when a scenario, event, or circumstance is relevant to us or when we are affected by anything. Learners will feel delighted, frustrated, worried, proud, or satisfied only if the learning topic or method is meaningful to them [26–28]. A previous study focused on the passionate side of incorporating the emotions of IP that some educators might overlook [29]. If teachers do not level their leadership gaps in schools with a majority of ISs, where teachers are conducting a teaching and learning process between ISs and non-ISs, these ISs will be left behind if they do not understand something because the influence of culture results in them remaining silent and holding back without a reaction even if they feel offended by the teacher's words, especially in school. Parents of ISs are more likely to trust their children's concerns and parents of ISs easily believe in their children's complaints, which contributes to the school dropout factor and will reduce their interest in learning.

### 4.1.3. Engagement

Student engagement is described as "the willingness, need, desire, and compulsion of students to participate in and succeed in the learning process" [30]. Student engagement has also been defined as students' degree of interest, how they interact with others in the course, and their drive to learn about subjects [31]. Students are more likely to be engaged in their education when they are driven to achieve well in their classes, involved or invested in their desire to learn, and willing to expend the effort demanded by their professors [32].

### *4.2. Sociocultural*

Sociocultural variables heavily influence individual growth and functioning. Because sociocultural support, stressors, and other variables frequently have major facilitative or debilitative impacts on learning outcomes, they often have a significant role in the learning process. As a result, these elements are commonly considered in most approaches to learning ability.

### 4.2.1. Culture

The strong cultural influence in the lives of IP is not a foreign thing in their daily lives, including aspects of education. The influence of culture in education for ISs can have positive and negative effects. A previous study stated that the teachers involved in teaching in schools had incorporated elements such as IK as one of their subjects [16]. This can encourage ISs to have an interest in learning. A rural school geography teacher said he adds topics such as forest conservation to his teaching so that "children may learn from rural people. The pupils can ask the community elders how to maintain the forest". Teachers from an urban elementary school and a teacher of Lao language and literature discussed the necessity of instilling traditional moral values in children. Learning about traditional culture, for example, "may help pupils conduct appropriately and respect things" according to one of the elementary school teachers, and "Teachers may learn to appreciate students, and students can learn to respect teachers." Learning about Lao culture, according to the other main instructor, "allows kids to learn" and learn about morals.

### 4.2.2. Language

In the context of education for indigenous students (ISs), the language issue is an important issue because the language used by IP is not the same as the language used by teachers at school. The literacy practices and expectations in school are different for indigenous children and children from other marginalized populations [33–35]. As a result of this detachment from their world, children do not do well in school, which adds to indigenous children encountering greater academic obstacles than children from other groups [36,37]. The Orang Asli children's academic performance has been hindered by the lack of awareness of the relevance of their culture in the school curriculum [38]. Because the community's literacy experiences were not properly recognized, Malaysian language education did not effectively allow ISs to engage in meaningful learning in schools [4]. Many past studies have found that language is important in IS education development. Use of the correct language can increase students' desire to continue to strive to gain knowledge and make the learning meaningful to them [39].

### 4.2.3. Family Support

The family institution significantly impacts children's development since the parent is the agent of strong socialization and the amount of time children spend at home is greater than the time spent at school [40]. The factor that affects individual development is parents' academic level, being a low, medium, or high degree. ISs do not master literacy as this relates to their parents' academic background [41]. Past studies have proven that environmental factors influence the formation and development of students' personalities covering family circumstances and intellectual-level parents. Parents with low educational levels do not serve as role models for their children. For example, they do not read in front of their children. As a result, their children's enthusiasm for reading decreases, which influences their literacy skills. Apart from this, parents provide their children with less assistance and direction [41]. Indigenous people know the importance of a good education, especially for their children. Good mastery of literacy can impact ISs more significantly [21]. One impact is that they can manage their indigenous knowledge in order to improve the standard of living and the family economy [42,43].

### *4.3. Learning Environment*

The learning environment is one of the important factors in promoting a positive environment for students. In addition, factors such as good facilities at school with perfect classrooms encourage students to go to school.

### 4.3.1. Facilities

A good learning environment is an important aspect for ISs. A bad environment will result in ISs not mastering literacy and even reacting negatively to learning. Disruptions in the IS environment prevent them from obtaining literacy such as a lack of transportation facilities and discomfort in the space used for education. For example, it has been identified that the space in the homes of ISs is used for sleeping, eating, and studying simultaneously [41]. It can be said that the provision of good facilities in schools equipped with electricity and water sources will provide a good learning experience for ISs [21].

### 4.3.2. Educational Materials

Providing adequate teaching and learning materials for ISs is compulsory. The materials should also be appropriate to the level of education for the IS group. This is because not all ISs can easily accept this with the curriculum learning syllabus provided by the Ministry of Education [44]. The Malaysian Ministry of Education has developed a specific curriculum syllabus tailored to the cognitive level and abilities of Orang Asli children, which incorporates cultural components within the framework of the Orang Asli community [45]. The Orang Asli and Penan Curriculum (KAP), for example, is an early childhood

learning curriculum program aimed at improving ISs' 3M literacy skills (reading, writing, and counting) [46].

### 4.3.3. Technology

The educational process, both formal and informal, includes the use of tools and devices to socialize or cultivate an individual to develop in a balanced or commensurate manner in cognitive, affective, physical, and social aspects in line with the current developmental demand [47,48]. All students, including ISs, should be exposed to every change that occurs so that they are ready and always open to gaining knowledge to face the challenges ahead. The role of ICT literacy culture is channeled through teaching and learning processes such as ICT literacy programs. The application of ICT interests, knowledge, skills, and readiness in the early stages of education is a priority among ISs to prevent them being left behind by other mainstream institutions [49]. Nowadays, the use of the internet is not just to browse entertainment sites; it is also an important requirement for managing a business. Unfortunately, the internet network in some areas is not as good, for example, in the IP hinterlands [50].

Nevertheless, studies on internet use among ISs have shown a positive effect. Access to a computer and the internet enables pupils' ICT proficiency to increase. With suitable infrastructure, such as computers and the internet, students may gain experience using them, which indirectly helps to increase their ICT competency. A previous study revealed that pupils with ICT access at home have a higher ICT experience [51].

### 4.4. Information Literacy in Managing Indigenous Knowledge

The importance of information literacy among IP, according to past studies, is to understand how to integrate relevant and appropriate information with what they already know to create new construct knowledge that increases their capacity to improve their daily lives or resolve demands relating to specific situations that have arisen [16]. The application of information literacy elements in ISs' education will increase the knowledge that ISs use to manage their IK. The benefits will become apparent: students' self-confidence will grow and lead to independent thinking. This positive effect will help to increase the skills of ISs used to innovatively manage their IK. A high-literacy individual may play an important part in conserving cultural traditions and introducing contemporary innovations into the community, and helping to amplify indigenous perspectives over time and places [52]. This is evident in research on digital literacy, which has a favorable influence on student learning. Some indigenous communities have embraced digital technology literacy to manage their IK. To overcome IP's inadequate language and literacy abilities, attempts have been made to establish teaching and learning methodologies using digital technology literacy [53]. IP frequently interact via text messaging and social media, and they utilize photography and video to generate content to self-represent and define their identity and achieve visibility within and outside their communities [54]. Furthermore, according to research, the utilization of digital technology has increased their exposure to and practice of basic interpersonal communication skills in their native languages and English [55]. ISs remarked that being in touch with their relatives via phone and email helped them to preserve their original tongue [56].

### 5. Discussion and Conclusions

This study is significant in its support of the Malaysia Education Blueprint 2013–2025 and Sustainable Development Goals of UNESCO (2030), which is to provide a quality education for all with no one left behind. The importance of conducting this study is that researchers can identify the problems faced by IP in preserving IK, which may become extinct if is no effort is made to manage it. Furthermore, this can help them to improve individual literacy rates to find information on how to manage IK so they can improve their quality of life and economic status and reduce the gap with the outside community. Authors have found several factors that influence learning desire among ISs. First, there is

student behavior, which divided into the several aspects of student motivation, emotion, and engagement with school, even though the constraints faced by ISs are well known. The sociocultural aspect contains the aspects of language, family support, and culture. This biggest aspect is most frequently found in previous studies on IS education. Lastly, the learning environment contains the aspects of facilities, education materials, and technology. These three factors are independent variables in the research development while the dependent variable is the information literacy in managing indigenous knowledge, which is mainly used to test IS literacy rates. Information literacy is a major prerequisite in sustaining IK as cultural heritage as individuals rely on information to survive in society. It is hoped that the incorporation of information literacy in managing IK as cultural heritage is vital for IP to sustain their socio-economy and knowledge development and improve their lifestyles. This also supports the Sustainable Development Goals (SDGs) 1 (No Poverty), 4 (Quality of Education), and 11 (Sustainability Cities and Communities).

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