Application of The Big 6 Skills Model and Information Literacy Skills for Surveying Subject at Vocational School

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Abstract. This study aims to identify students' information literacy skills using the Big 6 Skills model in Vocational High Schools' survey subjects. The research method used is descriptive quantitative with survey design. The total sample is 80 vocational students using simple random sampling. The big skills 6 model consists of 6 aspects: Definition; Strategic Information Seeking; Location and Access; Use of Information; Synthesis and Evaluation. This study indicates that the students' information literacy skills in formulating problems and information-seeking strategies are quite good. Meanwhile, the ability to allocate sources, locations, access, and synthesis and evaluation such as utilizing information, organizing information, and evaluating information is still lacking. Thus it can be concluded that the information literacy skills of SMK students are not optimal.

Keywords: information literacy, land surveying, model the 6 big skills

1. Introduction

The science of measuring land is a branch of Geodetic science that specifically studies a small part of the earth's surface by making land measurements or surveying to determine the position of points or objects on the earth's surface or near/around the earth's surface to get the result namely a map [1]. Scientifically, it can be interpreted as determining the shape of the earth's surface while practically studying the depiction of a large part or a small part of the earth's surface, which is called a map [1]. Land surveying science is one of the subjects taught in Vocational High Schools (SMK). However, there is a significant decrease in learning outcomes in soil measuring science subjects at SMK. A reduction of learning outcomes is indicated by students who do not pass the KKM when UTS is 60% and UAS is 85%. A decrease in learning outcomes can cause a lack of students' information literacy skills. Based on research [2], one of the factors that influence learning outcomes is students' literacy skills. In fact, understanding the material in this subject is very important because it contains measurement methods on the earth's surface to determine the relative or absolute position of points on the ground. Survey subjects have a lot of reading material as an introduction to land surveying, so students' information literacy skills are needed to understand the reading sources of the material taught.

The literacy achievement of Indonesian students shown by the results of Indonesia's participation in several international comparative studies, such as Trends in International Mathematics and Science Study (TIMMS) and the Program for International Student Assessment (PISA). The TIMSS study results that aim to determine the development of mathematics and natural sciences (IPA) students aged 13 years (SMP / MTs class VIII) have not shown satisfactory achievement. Indonesian students in mathematics ability in 1999 were only able to rank 34 out of 38 countries. In 2003 the mathematics ability of Indonesian students were ranked 35th out of 46 countries. Furthermore, in 2007, Indonesian students' achievement did not significantly increase; namely, mathematics ability was ranked 36 out of 49 countries. TIMSS results in 2011 also did not go far; namely, mathematics was ranked 38 out of 42 countries. Furthermore, at PISA 2012, Indonesian students' mathematics literacy achievement slumped to rank 64th out of 65 countries [3]. According to the latest 2015 PISA survey, Indonesia is ranked 64th out of 72 countries surveyed [4]. This further confirms the low reading interest of the Indonesian people. Moreover, Indonesian students' reading literacy score (aged 15 years) is only 396, far below the standard average of 496 [5].
Since 2016 the Ministry of Education and Culture has intensified the School Literacy Movement to improve students’ literacy skills. The School Literacy Movement is a program to improve the school environment's literacy culture by implementing each subject. The purpose of the school literacy movement is to create a literacy-aware community in the school environment, create quality students, and produce active learning by forming reading habits directed towards the development of learning in the revised 2013 curriculum. The basic literacy movement applied to the 2013 revised curriculum in schools is an important program in developing student competencies to form productive, innovative, effective, insightful, and skilled individuals [6]. However, many literacy activities in schools have only served students. Literacy activities at school require students to read in class for 15 minutes, or students must go to the library to read. The study conducted by [7] and [8] of the literary movement School (GLS) found that there were some problems in the implementation of the GLS as the lack of teachers' understanding of the concept of GLS, lack of socialization and training GLS for teachers, they still lack textbooks source or reference books outside the compulsory textbooks, and the lack of facilities and infrastructure that support the activities of GLS.

The current development of information technology has an impact on the ease of obtaining information [9]. According to [9], Information literacy skills do not just come but are obtained through the practice's learning process. The development of information technology now impacts the ease with which users can access the information they need. However, the ease of accessing this information can have both good and bad impacts. This means that if the information received is correct, valid, and useful for readers. However, if you get invalid or incorrect, it will have bad consequences. This is because information technology can make it easy for individuals who are not responsible for exploiting or manipulating existing data. Besides, technological advances and complete school support facilities make students supposed to use the internet, information actively, and other social media to find learning resources. But in reality, students do not use these facilities for information retrieval.

Declaration by [10] states that “Literacy Information is also related to identifying, determining, discovering, evaluating, creating in an effective and organized manner, and using and communicating information to solve various problems. Every individual must possess this ability as a condition for participating in the information society. Literacy information is part of human rights about lifelong learning”. Information literacy is also one of the higher orders thinking skills needed to develop and support academic, professional, and personal success [11].

Information literacy skills are also urgently needed in the current COVID 19 pandemics. Learning as a whole online and online has required students to read, write, analyze, and make reports that require accuracy in literacy. To find out how the information literacy skills of students, this study will apply the Big 6 Skills model was developed by Michael B. Eisenberg and Robert E. Berkowitz in 1987 [12]. The Big 6 Skills model covers six components, namely task definition, strategy information retrieval, determination of access location, information use, synthesis, and evaluation [13]. (See figure 1).

Each of the six steps has two subskills. Task definition requires students to identify the exact information problem presented to them. They must also identify the types of information needed to solve the problem. They must have a clear hypothesis, a specific question, and a clear understanding of what is needed to answer that question. The information-seeking strategies stage requires students first to identify all the possible sources of information and then evaluate each source to determine which are best for them to use.

The next two steps are the location and access and use information, which consists of traditional bibliographic skills. Students must find personal resources such as books, magazines, reference materials, and Web sites and find the information within each source through the use of tables of contents, indexes, and other resource-specific tools. Next, they must engage each source (read, view, or listen) and extract specific information from it by applying notetaking, highlighting, and summarizing. Synthesis requires students to make a decision, create a product, or formulate an answer. Synthesis is linked to task definition in that students are expected to answer the specific question they created when initially engaging in the problem-solving process. Finally, evaluation requires students to evaluate their final product (whether it is a decision, paper, etc.) and evaluate how well they performed the information problem-solving task. Based on these 6 steps, this study will identify students' information literacy skills using the Big 6 Skills model in survey subjects in Vocational High Schools.
2. Methods

This study uses a quantitative approach with descriptive analysis. The population in this study were all students of class X Skills Program Design and Building Information Modeling. A total sample of eighty-eight (=88) students were taken by simple random sampling. The type of instrument used was a questionnaire using the Likert scale. Distribution of 25 questionnaires using a Likert scale. Always given a score of 5; often given a score of 4; sometimes given a score of 3; rarely given a score of 2 and was never given a score of 1. From the results of the calculation of the reliability of information literacy, the reliability results are 0.899.

The big skills 6 model consists of six steps, which are measured by the following indicators refer to [16], namely:

1. Task Definition. In this stage, students are invited to start solving problems by formulating problems. This first step consists of two indicators as follows: a. determines the topic and identify information needs. Here students try to limit their information needs to what the problem is.

2. Information seeking Strategy. At this stage, students determine the source of information. For this reason, students are taught to have broad insights about various sources of information, both those available in books and other media. Choose the best source. Of course, the selection of sources is also adjusted to the length of time it takes to work and the availability of information sources.

3. Location and Access. This stage is the stage where students must have the ability to use the index. Searching for information stored in various sources of information can be done more effectively and efficiently. The indicators of this step are:
   a. Allocating information sources. Here the student's ability to recognize the location of information sources is needed.
   b. Finding Information by identifying the information needed, students must look for sources and information relevant to student needs.

4. Use of Information. At this stage, students are faced with the problem of choosing an effective way to filter and select a large amount of Information into Information that is selected and ready to be used in various student problems. The indicators of this stage are as follows:
   a. Using stored information by reading, listening, observing, and observing the information.
   b. Extracting existing information. With this, students can take and identify the parts that are important and relevant to the problem.

5. Synthesis. In this step, students combine various information they have received. The indicators are:
   a. Organizing Information from various sources into one form / systematic result.
b. Presentation, namely showing, communicating stored information to others. This can be done in various ways, for example, PowerPoint presentations, statistical data, tables, comparisons, stories, narratives, etc.

6 Evaluation. At this stage, students are expected to deliver results and processes that have been passed. The indicators in the stages are an evaluation of the results of the activities that students do and process, namely evaluation that leads to the way and process of making this information.

| Tabel 1. Model The Big 6 Skills |
|----------------------------------|
| Big 6 skills | 12 Steps |
| 1. Task Definition | 1.1 Determines the topic | 1.2 Identify information needs |
| 2. Information seeking Strategy | 2.1 Determine the source of Information | 2.2 Choose the best source |
| 3. Location and Access | 3.1 Allocating information sources | 3.2 Finding Information by identifying the information needed |
| 4. Use of Information | 4.1 Using stored Information | 4.2 Extracting existing Information |
| 5. Synthesis | 5.1 Organizing information from various sources into one form / systematic result | 5.2 Presentation, namely showing, communicating stored information to others |
| 6. Evaluation | 6.1 Evaluation of the results | 6.2 Evaluation of the process |

Source: [12]

3. Results and Discussion

To determine students' ability, information literacy can be seen from 6 capabilities: the task definition, information seeking Strategy, Location and Access, problem formulation, Use of Information synthesis, and evaluation.

3.1 Task Definition

![Figure 2. Task Definition](image)

The data shows that 39% of respondents can sometimes determine the topic of seeking information, 40% of respondents often determine information related to learning sources, 40% of respondents often have discussions with friends, and 50% of respondents often discuss learning.
resources. This condition shows that the teacher's role is very large in the definition of the task.
Students are more comfortable discussing with the teacher in determining and formulating problems
than looking for information themselves. For this reason, teacher literacy skills are very important. A
teacher is required to have information literacy skills. Box-Mansilla and Gardner, in [12], explained
that "a teacher must understand knowledge about the knowledge, objectives, methods, and forms of
the material being taught" [12]. Therefore, the teacher has a role in teaching students how to find and
use information wisely. Information literacy is lifelong learning or lifelong learning because this
ability will continue to be used at any time, even until students reach the world of work.

3.2 Information Seeking Strategies

![Figure 3. Information Seeking Strategies](image)

The data shows that 51% of respondents often use keywords to find information, 36% of
respondents often read books as a learning resource, 51% of respondents often read the information
via the internet, and 50% of respondents often record material given. Thus, it can be concluded that
literacy skills are still lacking, as indicated by 36% of respondents often reading books, and 64% of
others rarely or lazy to read books. This was confirmed by a UNESCO survey in 2012, which showed
that Indonesian society's reading index was 0.001 [17]. This means that out of 1,000 Indonesians,
only one person reads seriously.

3.3 Location and Access

![Figure 4. Location and Access](image)
The data shows that 43% of the respondents rarely look for information in the library, but 49% of the respondents often search for information via the internet, 43% of the respondents rarely use other sources such as magazines, newspapers, etc., in finding information, and 38% of respondents can sometimes determine the information they are looking for. Thus, it is said that the respondents do not fully have the ability to location and access. This ability is important because it will make it easier to identify the sources needed through existing facilities, for example using libraries or other sources besides the internet. These results are not in line with the school literacy movement program, which emphasizes the use of literacy facilities wherever they are.

3.4 Use of Information

Figure 5. Use of Information

The data shows that 48% of respondents can sometimes read the information in the form of graphs, diagrams, and articles, 38% of respondents are occasionally critical in filtering information, 46% of respondents often compare information, and 68% of respondents usually keep information neatly. Thus, it can conclude that the respondents have not fully utilized the information. in other words, these results are not in line with the school literacy movement

3.5 Synthesis

Figure 6. Synthesis
The Synthesis stage shows that 45% of respondents rarely compile information logically, 49% of respondents can sometimes combine information, 60% of respondents rarely make conclusions in their language, and 39% of respondents sometimes edit the presented information. Thus, it can conclude that the respondent has not fully synthesized the information, so it still needs attention. Synthesis in the cognitive realm is included in the HOTS (High Order Thinking Scale) level. HOTS is a thought process that requires students to manipulate existing information and ideas in certain ways that give them new insights and implications [18]. For example, when students combine facts and ideas in synthesizing, generalizing, explaining, hypothesizing, analyzing, and concluding.

3.6 Evaluation

In the evaluation stage, students are asked to assess the results and processes they have successfully passed. Evaluation of results, namely evaluating the form of results from activities carried out by students. Meanwhile, process evaluation is an evaluation that is more directed at the way and process of making this information. Based on the data obtained, it shows that 50% of the respondents completed their tasks and exercises well, 48% of the respondents understood the information obtained, 55% of the respondents were sometimes actively seeking information, 50% of the respondents sometimes used information facilities, and 50% of sometimes find it difficult to find information. These results mean that 50% of the respondents have not been optimal in their information literacy skills at the evaluation stage. This suboptimal factor can be caused by several things, such as giving less time to read a book before learning begins in the concept of the School Literacy Movement; students are not used to knowing and checking their own work, and students are not used to associating the information they get with what they have. This is in line with [9], which states that students' learning and habituation to communicate and receive input from peers, teachers, and librarians are also the causes of differences in evaluation abilities.

According to [19] Evaluation ability in the cognitive realm is included in high ability. As with Synthesis, Evaluation is included in HOTS. Higher-Order Thinking Skill (HOTS) can occur when someone associates newly received Information with Information stored in their memory, then links it and/or rearranges and develops the information so that it becomes an achieved goal or solution [20]. Related to the findings in this study, the teacher has a very important role in giving assignments, and then students review the assignments made. Students' information literacy skills in this stage are very important because it is a skill that students need to have in the 21st century that involves searching, receiving, processing, and conveying information.
4. Conclusions

Based on the study results, it can be concluded that the information literacy skills of class X students in soil survey subjects were tested using the big skill 6 model, which indicates that students' information literacy skills in formulating information-seeking strategies on the problem are quite good. Meanwhile, the ability to allocate resources, location, access, and synthesis and evaluation such as information utilization, information organization, and information evaluation are still not optimal. For this reason, the involvement of teachers and librarians is very important in efforts to increase literacy skills. Teachers and librarians act as facilitators in identifying information needs, accessing information, and evaluating information to maximize schools' literacy activities through collaboration between teachers and librarians, teachers and students, students, and librarians. Thus, all elements work together to achieve the target of increasing information literacy.

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