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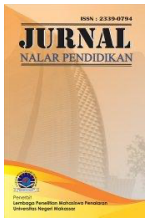

KETERAMPILAN LITERASI INFORMASI DAN KETERAMPILAN KOMUNIKASI MAHASISWA BIOLOGI UNIVERSITAS NEGERI MAKASSAR

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Abstrak

Keterampilan literasi informasi dan komunikasi merupakan keterampilan yang dibutuhkan saat ini. Penguasaan terhadap keterampilan literasi informasi dan keterampilan komunikasi berpengaruh pada karir mahasiswa di masa depan sehingga keterampilan literasi informasi dan komunikasi penting untuk dilatihkan sejak awal perkuliahan yaitu pada saat mahasiswa masih tingkat pertama. Penelitian ini bertujuan untuk mengukur keterampilan literasi informasi dan keterampilan komunikasi mahasiswa jurusan Biologi Universitas Negeri Makassar. Populasi penelitian ini adalah seluruh mahasiswa tahun pertama (6 kelas) tahun ajaran 2018/2019 yang memprogram mata kuliah Biologi Umum. Tiga kelas (N = 112) menjadi sampel penelitian ini. Instrumen penelitian berupa rubrik keterampilan literasi informasi dan keterampilan komunikasi. Dua pengamat ditugaskan untuk mengamati keterampilan mahasiswa dalam empat kali pertemuan. Hasil penelitian menunjukkan bahwa keterampilan literasi informasi mahasiswa Biologi secara umum berada pada tingkat maju (progress level). Sedangkan kemampuan komunikasi mahasiswa sebagian besar berada pada level mampu (level 2). Hasil pemetaan keterampilan literasi informasi dan keterampilan komunikasi mahasiswa dapat dijadikan masukan bagi pendidik dalam merancang pembelajaran.

Kata Kunci: Keterampilan Literasi Informasi, Keterampilan Komunikasi, Biologi Umum

UNCOVERING THE INFORMATION LITERACY AND COMMUNICATION SKILLS OF BIOLOGY STUDENTS IN THE STATE UNIVERSITY OF MAKASSAR

Abstract

Today's world necessitates information literacy and communication abilities. Mastery of information literacy and communication skills has a long-term impact on students' careers, hence information literacy and communication skills should be taught from the beginning of the lecture, while students are still in first year. This study aimed to assess information literacy skills and communication skills of students in Biology department, State University of Makassar. The population of this study was all first year students (six classes), in the academic year of 2018/2019, who took the General Biology Course. Three classes (N = 112) became samples of this research. The research instruments were rubric of information literacy skills and communication skills. Two observers were employed to examine students skill occurring in four meetings course. The study found that Biology student information literacy skills are generally in progress level. Meanwhile, the majority of the students' communication skills are in able tier level (level 2). The results of mapping information literacy and student communication skills can be used as input for educators in designing learning.

Keywords: *Information Literacy Skills, Communication Skills, General Biology Course.*

INTRODUCTION

Assessment and Teaching of 21st Century Skills (ATC21S) classify the 21st-century skills into four categories, namely ways of thinking, ways of working, tools for working, and skills for living in the world. Information literacy skill belongs to the skills for living in the world category; meanwhile, communication skill falls into the ways of working category [1]. These two skills bring a significant impact on other skills acquisition required in the 21st century [2].

Information literacy skill comprises skill of accessing, evaluation, and utilizing information. Someone has adequate literacy skills if having the skill to discover, evaluate, and utilize the information efficiently, effectively, and accurately to answer the information required [3]. In addition, based on the Association of College and Research Libraries, people have information literacy skill if they are capable of determining character and information range required, accessing the information required effectively and efficiently, evaluating information and sources critically, utilizing the information to finish specific goals, and understanding aspects of economics, law, and social-related to information utilizing [4].

On the other hand, communication skill covers skill in delivering opinion clearly and persuasively, oral and written. It also comprises of skill in delivering opinion with explicit sentences, delivering instructions evidently, and motivating other people through speaking skills [5]. In addition, communication skill refers to individual ability to communicate clearly and utilize spoken, written, and non-verbal language [6].

As a matter of fact, information literacy skill is crucial in science, including Biology [7], [8]. The mastering of knowledge depends on the mastery of scientific literature, comprising discovering and analyzing scientific written [9]. In addition, weak information literacy skills will result in feeble research [10]. It also applies to Biology teacher candidates. A research on teacher candidates indicates that many Biology teacher candidates experience misconceptions due to improper information literacy skills [11]. The previous researches disclose that the Biology curriculum has not explicitly integrated information literacy in classes and laboratories. Consequently, students' literacy skill is poor [12]. It is in line with another research identifying that students' information literacy skill is low. In fact, Biology students in the first year have not had impressive information literacy skills [13]. Furthermore, it is found out that Bachelor of Biology often does not have a fundamental understanding of Biology literature [14]. Students, on the other hand, do not realize the urgency of information; thus, the ability to exploring information is not maximum [15].

Meanwhile, communication skill is also vital. Written and verbal communication skill must be mastered by students to prepare their career [16], [17], [18], [19], [20]. Communication skill is the first skill which will be tested when hunting job [21]. Furthermore, communication is not only a skill required by the biology expert, lecturer, or students, as an integral part of the scientific method [22]. Based on the research of Science Education Program students of the State University of Makassar, it is revealed that the communication skill of science program students is relatively low. The students' communication skill before the implementation of Project-Based Learning is still on level 1. It implies that the communication skill is low [23]. Accordingly, the university must ensure that the students have proper communication skills.

University has a responsibility to prepare the graduates to master various skills required in the 21st century, including information and communication literacy skills. Biology department is one of the departments at State University of Makassar (UNM) which also has that responsibility. Information literacy and communication skill must be taught explicitly [24]. As a matter of fact, information literacy and communication skill are essential to be trained since the first semester. The effort of learning process enforcement must be started with explicit mapping on students' literacy and communication skill. Without mapping, it will be difficult to provide a precise follow-up. Accordingly, this research aims to map the information literacy and communication skill of Biology Department students at the State University of Makassar.

RESEARCH METHOD

This research method is a descriptive method for describing the information literacy and communication skills of Makassar State University students majoring in Biology. This research was conducted in the odd semester of 2018/2019. The research population was all Biology students of 2018/2019. In addition, the research sample was students of the Biology Department at Education class A, Education class B, and Science class A

(N=112). The sampling technique is purposive sampling, which is based on the representation of the education class and science class.The instruments employed to measure information literacy skills were information literacy rubric adapted from the information model guidance of the Colorado Educational Media Association [25]. In addition, the communication skill instrument applied the Greenstein rubric. The data collection was conducted from observation assisted by two observers for four times in General Biology Course.

Information literacy rubric comprised of five indicators; namely, students as a knowledge seekers, students as a quality producers, students as a self-directed learners, students as a group contributors, and students as a responsible information users. The communication skill rubric comprised of indicators to deliver messages explicitly with particular intention and purpose, receptive process (receiving a message, listening, reading, and views), and to use various sources to deliver ideas and presentation skills.

Afterward, the research data were analyzed by calculating the achievement of information literacy and communication skill source. It was carried out by counting the average result from the information literacy and communication skills in four meetings. Then, it was classified based on the information literacy and communication skills category. The category is illustrated in Table 1 and Table 2

Table 1. Literacy Information Skills Category

Nilai	Kategori
2.0-2.7	In progress
2.8-3.1	Essensial
3.2-3.5	Proficient
3.6-4.0	Advanced

Table 2. Communication Skills Category

Nilai	Kategori
2.0-2.7	Level 1: Emerging Tier
2.8-3.1	Level 2: Able Tier
3.2-3.5	Level 3: Skilled Tier
3.6-4.0	Level 4: Top Tier

RESULT AND DISCUSSION

The average score obtained from the information literacy skill rubric of Introduction to Biology students in 2018/2019 is illustrated in Table 3

Table 3. Average Score from the Information Literacy Skill Rubric of Introduction to Biology Students in 2018/2019

Rubric Score of Communication Skill	Education Class A	Education Class B	Science Class A
Maximum Score	3.8	2.8	2.6
Minimum Score	2.2	1.2	2.0
Average	2.4	2.2	2.2

Based on Table 3, it is identified that the highest score is Education class A, and the lowest score is Education Class B. The research data related to information literacy skills can be identified in the average score of each category. This data is illustrated in Figure 1 below.

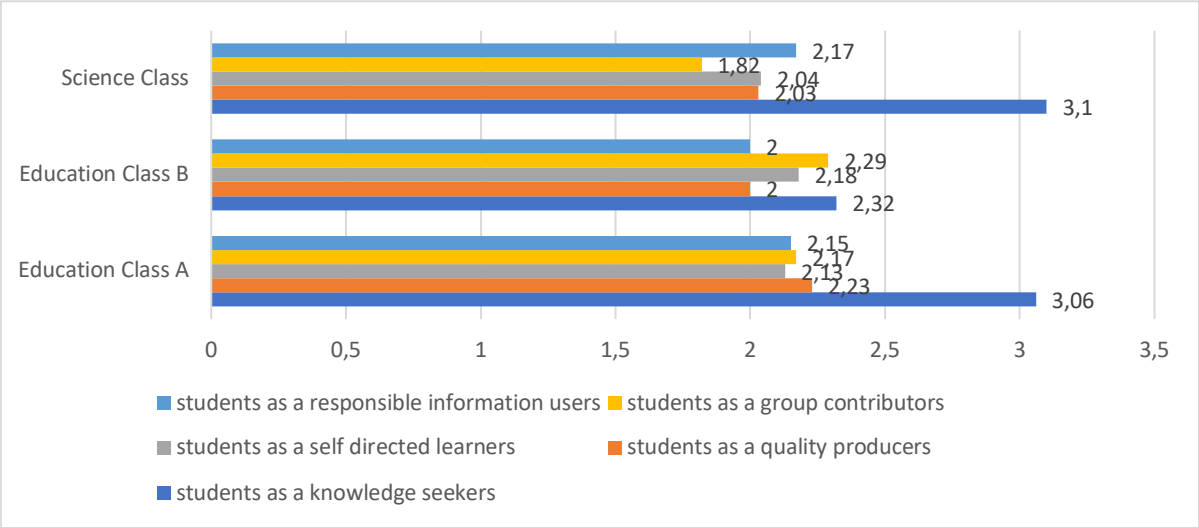

Figure 1. Average Score of Science Students' Information Literacy Skill of Introduction to Biology at UNM in 2018/2019

Figure 1 identifies that the students as information seekers category have the highest score in all classes. The scoring percentage of science students' information literacy skill of Introduction to Biology at UNM in 2018/2019 is illustrated in Table 4.

Table 4. Score Percentage of Science Students' Information Literacy Skill of Introduction to Biology at UNM in 2018/219

Category	Number of Students	Percentage (%)
In progress	106	94.64
Essential	2	1.79
Proficient	2	1.79
Advanced	2	1.79

The average score from the students' communication skills rubric of Introduction to Biology in 2018/2019 is illustrated in Table 5.

Table 5. Average Score from the Students' Communication Skill Rubric of Introduction to Biology in 2018/2019

Rubric Score of Communication Skill	Education Class A	Education Class B	Science Class A
Maximum Score	4	3.75	3.75
Minimum Score	2.75	2	2.5
Average	3.07	2.45	3.01

Table 5 indicates that the highest score is obtained by education class A; whereas, the lowest score is obtained by education class B. In addition, the research data on communication skill is demonstrated by the average score of each category. This data is illustrated in Figure 2 below.

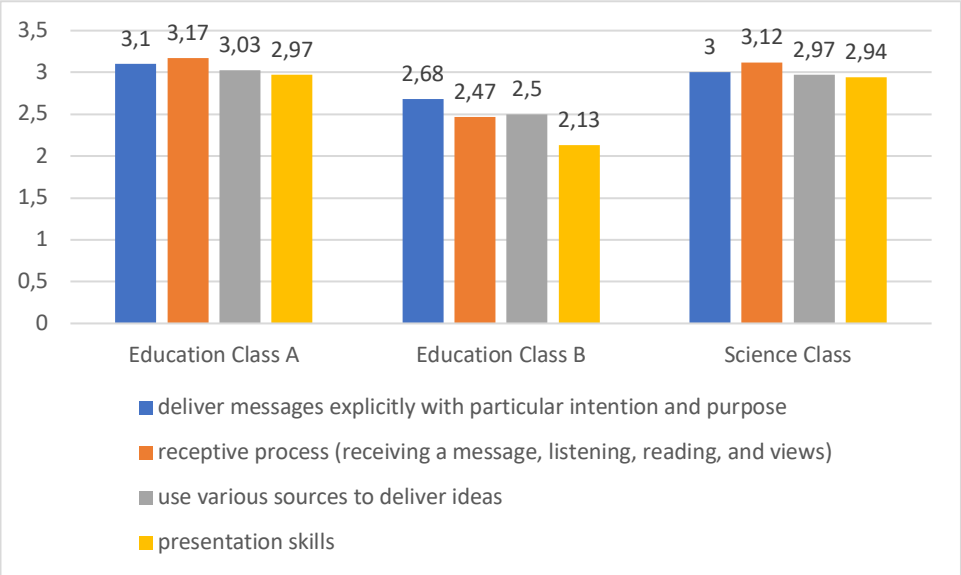

Figure 2. The Average Score of Science Students' Communication Skill of Introduction to Biology at UNM in 2018/2019

Furthermore, the score percentage of Science students' communication skill of Introduction to Biology at UNM in 2018/2019 is demonstrated in Table 6 below

Table 6. The Score Percentage of Science Students' Communication Skill of Introduction to Biology at UNM in 2018/2019

Category	Number of Students	Percentage (%)
Level 1: Emerging	32	28.57
Level 2: Able	68	60.72
Level3 : Skilled	7	6.25
Level 4: Top	5	4.46

Discussion

Literacy Information Skill of Biology Students in General Biology Course

The analysis result of Biology students' information literacy skill explains that students' information literacy skills vary from in-progress to advanced categories. In general, the information literacy skill is still in-progress category. In this category, people require someone else to tell when they need information and the information type required. Congruently, there are other people who help in finding the information required. They have not been able to determine product quality; in contrast, they are only capable of proposing quality according to other people's standards. Besides, they still have difficulties in choosing the information source required. Moreover, they depend on someone's help to work in groups, have difficulties in taking responsibility in group work, still directly copy the information obtained, and still need to be reminded about the information sharing ethics. In addition, another research also identifies that Biology students do not have excellent information literacy skills in the first year [13].

Among the five indicators on information literacy skills, the indicator of student as information seekers had the highest average score in all classes. It is possible since the students had obtained assignments from lecturers, such as compiling summaries and paper for the final assignment. In addition, from the observation result in the learning process, it was obtained that lecturers were still more active than students. Lecturers always helped students to find the information required. The

students did not have the initiative to ask; in contrast, they were waiting for the lecturers' instructions.

Additionally, the references employed in compiling paper assignments were very minimal. Generally, the references were Campbel, Kymbal books, and handbooks from lecturers. There were no students who used primary sources, such as journals. As a matter of fact, first semester students had not been introduced yet in accessing references derived from journals. From interviews with students, it was found that there were only 3.57% of students using google scholar. In addition, students had not known yet about other databases such as Proquest or Ebsco. It was often found out that students were not knowledgeable in searching literature which would contribute to in-depth discussions about their laboratory results [26].

Likewise, an indicator of students as quality producers indicates low score among all three classes observed. First-year students tend to procrastinate and have a low willingness to submit high-quality work compared to high-level students [27]. It is influenced by the lower emotional intelligence of the first-year students compared to the high-level students. Information literacy skills should be trained since the first year. Also, their tasks should be integrated with information literacy. Even, some research findings reveal that integrating information literacy skills into Biology class increases students' ability to select, integrate, and cite high-quality scientific information sources [13], [28], [29].

Having information literacy skills, the students establish their hypotheses based on literature, produce bibliographies, collect and analyze data, and present their findings in short discussions which come from the literature they quote before [12]. Hence, appropriate and proven methods or strategies are required to guide students to obtain various information sources that are constantly developing. One of them is the learning model implementation which facilitates students to sharpen their information literacy skills. The integration of information literacy into the learning model will provide learning experiences for students. In fact, learning experiences obtained during the lecture will determine their abilities in the future [30]. In addition, mastery of information literacy competence is not only useful for active students who are still learning; even, it is highly useful for working. Information literacy is the skill to discover and seek information, as well as reject information to be used in decision making or conclusion [31]. In fact, the skill to decide something quickly and accurately will be significantly required by the working world. Hence, the students/alumni will not have this skill if they do not have proper literacy skills.

Communication Skills of Biology Students in General Biology Course

Biology students commonly have communication skills at level 2. This data is almost in line with the research result of Saenab et al in Ref. [23], who revealed the communication skills of Science Education Students at UNM were at level 2 after being given the PjBL application. Communication skills at this level mean that their communication skills are developing, partially understanding the purpose of the message. At this level, several misconceptions still occur.

Regarding the percentage of each indicator in communication skills, the presentation skills indicator has a lower mean score than the other indicators. It can be caused by the audience doing activities other than learning, such as laughing and playing when the presenter started to deliver the material. Consequently, it interfered with the presentation. Students should be ready to listen and pay attention when other people talk and give presentations. Thus, they will remember what has been presented, identify the main problems, and give meaning to what is presented [21]. The observation results indicated that the presenter had difficulties in balancing the presentation, looked nervous and awkward, but quite responsive. The presenters, nevertheless, were still not maximum in interpreting the message since they were not capable of covering the main point of the question given by the audience. In addition, the diction choice from the presenter was improper. The presenters used the local language more. On the other hand, some of the audiences did not respect the opinion of other audiences.

Another research finding is that some students have excellent communication skills in the skilled and Top categories. The students expressed ideas or opinions clearly and summarized the main ideas. It proves that they actually have the basis of verbal communication skills. Even, from the summaries they compiled, it is evident that the

presenters could choose more than one relevant source based on the task given.

Accordingly, communication skills should be trained since the first year. Students should take part in activities which can develop their communication skills starting from their first year at a university [32]. Therefore, the university must provide more activities to develop student communication skills in order to meet the challenges of the global world.

Furthermore, the results of mapping information literacy skills and student communication can be used as input for educators in designing learning methods, such as arranging and implementing a learning model that can facilitate the emergence of both skills.

CONCLUSION

Information literacy skills of Biology Science Students at UNM were generally in progress in which the in-progress percentage is 94.64%, essential percentage is 1.79%, expert percentage is 1.79%, and advanced percentage is1.79%. This indicates that a better strategy is needed to improve student literacy skills. Meanwhile, the percentage score of basic level communication skill is 28.57% for the level 1, 60.72 % for the level 2, 6.25% for the level 3, and 4.46% for the level 4. In general, students' communication skills are at level 2 which means that their communication skills are developing, some understand the purpose of the message and some misunderstandings still occur.

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