KnE Social Sciences
ICITEP
International Conference on Innovation and Teacher Professionalism
Volume 2023

Knowledge E
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Research Article

Student Literacy Skills on Academic Performance as the Implication of Online Learning to University Students

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Abstract.

The students' literacy skills and some external factors that affect the student's academic achievements demand a considerable improvement in practice, making it an undeniable context within which to examine the implementation of the literacy strategy in teaching. This study looked into how students' literacy skills changed after they used an online learning system, as well as what their primary literacy skills were. This study used a survey approach and aimed to collect the data from students about their literacy skills. There are three aspects which are described and found, they are the aspects of explaining scientific phenomena (with the total score of 8.59 points and an average score of competency as 2.86 points, which is in a good category), identifying scientific issues (the total score of each indicator was 9.18 points and the average score of the competency was 3.06, which categorized as a good category) and interpreting and using scientific evidence (the total score was 8.93 points and the average score of the competency was 2.97 which categorized as a good category). It is feasible to conclude that every aspect of the information literacy skill of University of Borneo Tarakan students' in their academic activities was fairly good. The score in each indicator of competencies were varied, but still, show a stagnant value and serve as evidence for the assessment of students' information literacy skills.

Keywords: literacy skills, academic performance, scientific

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Published 5 June 2023

Publishing services provided by Knowledge E

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Selection and Peer-review under the responsibility of the ICITEP Conference Committee.

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1. INTRODUCTION

In the context of real-world literacy activities, literacy may be defined as the capacity to read and write in a situation-appropriate manner (Purcell-Gates et al., 2012) (in Dewi et al., 2018). Dewi, Padmadewi, dan Artini (2018) also explained that students must speak effectively, independently, and successfully in both the classroom and the real world. These fundamental skills are also essential for all students during the academic year in university. It requires the development of new ways of thinking and learning and the ability to communicate effectively. Reading can offer you access to cutting-edge technologies and a variety of other pertinent information. When it comes to critically analyzing and conveying information from various media sources, only the persons

who are adept in discourse are capable of critically understanding and communicating information from a range of media sources. Today's digitalization necessitates a solid reading ability. In particular, literacy skills are the foundation for effective academic achievement in any subject. This is especially true during an epidemic of COVID-19, where students are supposed to maintain physical distancing.

During the endeavor to control the spread of COVID-19 from 2020 to 2021, around 65 higher education institutions in Indonesia are shuttered to proliferate COVID-19 (Sadikin & Hamidah, 2020). Students and faculty members will be able to study more efficiently through online learning as a consequence of these adjustments. Virtually every educational institution in the world is migrating from face-to-face to distance learning (Chick et al. (2020); Iyer et al. (2020); Naciri et al. (2020)) (in Fredy et al., 2020). Due to its low cost and increased accessibility, students can now access higher-quality audiovisual resources that were previously unavailable. As a result of these favorable properties, student interest in online learning has increased. However, at the Borneo University of Tarakan, the learning migration paradigm performs in reverse, exerting pressure on students and contributing to poor evaluations of online learning.

Fryer & Bovee (2016) discovered that lecturers of online learning courses struggle to motivate their students. The formal educational teaching methodologies have been supplanted by technology-based learning tools, which have evolved into classrooms where academics provide personal speech and tutoring. As a result of this migration, the online learning committed by the students implied several challenges, including the lack of guaranteed supervision in the teaching and learning process (Sadikin & Hamidah, 2020), relative big-budget (Naserly, (2020), missing the class, or more minor in participation (depends on the students' condition and residence) (Astuti & Febrian, 2019). These disruptive effects of COVID-19 have impacted several aspects of academic achievement, and one of them is decreasing the students' GPA. and decreasing reading motivation (Rodiah & Sopandi, 2021). As cited from Rodiah & Sopandi (2021), students' motivation to study online affects both the process and outcome of learning. Students may be more willing to study as a consequence of their enhanced scheduling flexibility, but they may also be bored and unsatisfied with their online experience. Additionally, there is a correlation between learning experiences and information literacy abilities (Fredy et al., 2020).

Literacy is an intermediary utilized as a conduit for knowledge dissemination. By this means, the higher students' literacy skills, the higher their capability and readiness to learn which affect students' academic achievement. Determining the 'academic achievement' or 'academic success' needs measurable outcomes that can capture

the quality of students' academic work. Such course grades or GPA (Grade Point Average) then becomes an empiric measure instrument of undergraduate students' success. As a result, students who enhance their reading ability will have a greater chance of academic success (Marsela, 2017). However, the undergraduate students at the Borneo University of Tarakan show reverse conditions compared to the theoretical condition. The student's academic achievement remains stable, even improved during the shifting era of learning. In this case, the investigation of students' literacy skills and any external factors that affect their academic achievements would demand a considerable improvement in practice, making it an undeniable context within which to examine the implementation of the literacy strategy in teaching. Based on the problems described above, the researcher proposed research by lifting "Student Literacy Skill on Course Performance as Implication of Online Learning." Therefore, the research question in this research is formulated to answer the question about how the student literacy skills after conducting the online learning system.

2. METHOD

The researcher used survey approach and it involves the collection of information from a sample of individual through their responses to questions. In additional, A survey research is A survey is a method of collecting data from people about who they are (education, finance, etc.), how they think (motivations, beliefs, etc.) and what they do (behavior). This research aimed to collect the data from students about how their literacy skills. The researcher will collect by using questionnaire that distributed by online form. This research use public opinion survey that classify of purpose-based classification.

The population of this research is all of the students in faculty of teacher training and education which consist of 2.121 students, but this research may entail a large population which cannot all be studied. That portion of the population is called a sample of the population. A sample in this study is a smaller group of elements drawn through a definite procedure from an accessible population. The technique of sampling is a stratified random sampling that procedure will use for selecting the participants in this research. This technique will decide to ensure a fairly equal representation of the variables for the research. The stratification is based on departments, semesters, and ages. Within each section, selection of student is used by simple random sampling. To obtain the data in this research, the researcher use the instrument and the instrument of this type in research is questionnaire. The questionnaire has two sections, they are: section I is on personal information about the respondents and section II is about

statement of literacy skills. The instrument is structured in the likert scale on a 4-point scale, ranging from “Strongly Agree” (SA), through “Agree”, “Disagree” to Strongly Disagree”. The data obtained by questionnaire is tabulated and measured by using simple frequent percentage. The percentage showed the respondents’ literacy skills as their opinion. Then, all the research findings are conveyed descriptively. For complete processs, it can be seen from the figure bellow.

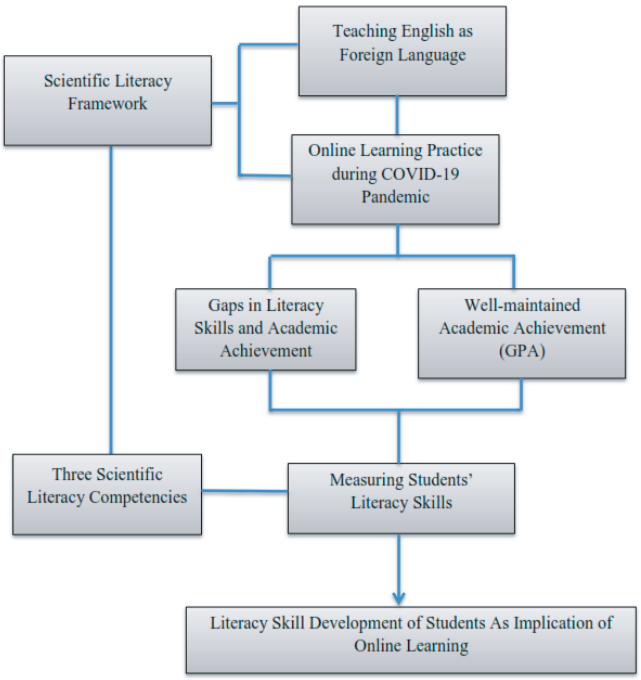

Figure 1: Research Framework.

3. RESULTS AND DISCUSSION

In this study, PISA’s indicators of information literacy competency standards from the OECD (2019) were used to measure the students’ information literacy skills at Borneo Tarakan University. The scientific literacy skills in the domain competency were based on three features: 1) aspects of explaining scientific phenomena; 2) aspects of evaluating and designing scientific inquiry; and 3) aspects of scientifically analyzing data and evidence. The questionnaire is delivered in the form of a statement, with responses on a four-Likert scale. Respondents were asked to select one of the options based on their experiences and feelings. 30 statements are provided. Furthermore, the results of each statement are presented in the form of a bar chart as a representation of the processed

data collected from questionnaire distribution and will be detailed per indicator, followed by the overall quantitative percentage.

A. Distribution of Respondents' Answers Regarding the Ability to Identify Scientific Issues

This competency demands knowledge of the content of science (content knowledge), which is knowledge of the common procedures used in science (procedural knowledge) (OECD, 2019). In detail, students are expected to be able to develop an appropriate way of justifying scientific claims or data. There are 3 indicators developed to support the assessment, and each indicator is broken down into several standards. The following is the analysis of each standard:

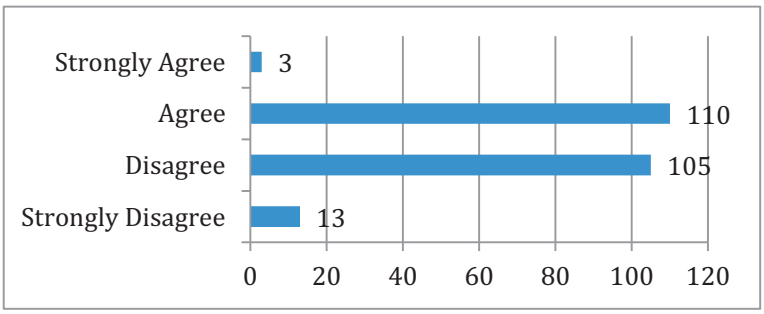

Figure 2: Students Can Independently Determine Potential Topics to be Investigate.

Based on the chart above, most of the students (49.3%) answered agree, an almost comparable group of students (47.1%) answered disagree, a small part answered strongly agree (1.3%) and strongly disagreeinging (5.8%). The numbers reflect the mean that most of the respondents are able to determine their ideas without the instructions of lecturer. However, a group that is almost as huge as this population has struggled to meet the standard, and still needs discussion with the lecturer first to determine the issued topic.

Based on this statement, the students are expected to have scientific mentality of breaking down the given specific data into numbers of representative possibilities. The results of the study indicate that the final value of the average score shown is 2.53363. This score is on an interval scale score of $2.51 \leq 3.25$ which indicates that even though the average students of Borneo Tarakan University are uncertain of their ability, the respondents are categorized as good in fulfilling standard of determining information need independently.

Referring to the data visualization, the majority of the students (68.2%) answered agree, followed by 68 students who answered strongly agree (47.1%), and the rest responded by disagreeing (3.1%), and strongly disagreeing (0.4%). The data reflects the mean that most of the samples are able to determine their ideas without the instructions

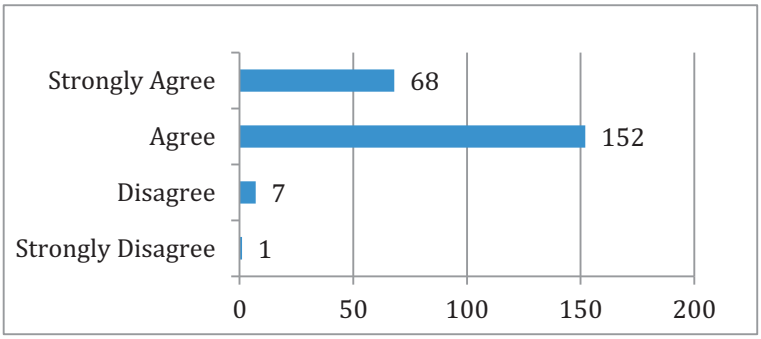

Figure 3: While Looking for Information in Books, the Internet, and Other Media, I can Sort and Choose Relevant and Important Information for the Discussed Topic.

of lecturer. However, small groups of students have had it hard to eliminate and choose the key information properly.

Based on this statement, the students are expected to have awareness of filtering and be able to choose the most trustworthy and relevant information. The results of the study indicate that the value of the average score shown is 3.331838565. This score is on an interval scale score of 3.28 – 4.03 which indicates that the average students of Borneo Tarakan University have excellent procedural knowledge, specifically in choosing accurate information for the research questions.

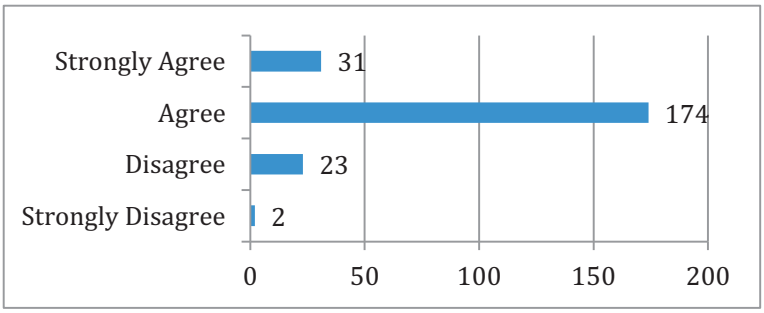

Figure 4: I am able to Search Relevant Sources of Information for the Discussed Topic in My Coursework by Using Appropriate Keywords.

More than 3/4 of the students (78%) acknowledged the standard, a small group of students (13.9%) agreed even more, and the rest of the sample chose to disagree (10.3% and strongly disagreeing (0.9%). The response presents the mean that most of the samples are able to identify any important keywords of the topics and engage them in the scientific investigation. However, a noticeable number of students have been struggling and even failed to optimize relevant information sources and keyword identification.

Based on this statement, the students are expected to highlight crucial terms in the coursework topic, and employ them in order to find applicable supporting sources of data. The results of the study indicate that the final value of the average score shown is 3.1121076233. This score is on an interval scale score of 2.51 ≤ 3.25 which indicates that the average students of Borneo Tarakan University is categorized as having good competency in choosing accurate keywords to access relevant sources of information.

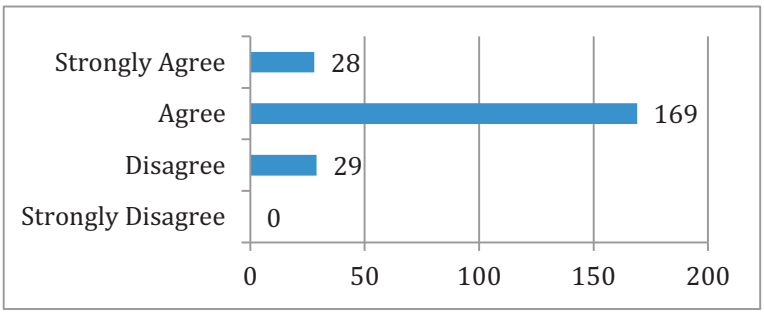

Figure 5: While Conducting Coursework, I Searched for Synonymous Term for the Topic being discussed as Alternative to Information Seeking.

The distribution of the students is getting narrower. The biggest group of respondents (75.8%) claimed that they experienced as in the statement said. Meanwhile, other contrary groups of respondents show a slight gap with 13% refusing to be relevant, and the other brings up strongly agree (12.6%) to the table. The data above present that a huge group of the samples is able to use the information beyond the literal meaning. The students have had experience looking for alternatives to achieve the best result. However, there are still some students that are not on the same page as the majority of them. They might only type the given keywords during data investigation.

Based on this standard, the respondents are expected to find synonymous word that is quite accurate to alter the main keywords. In other words, the students are able to develop strategies for seeking information. The quantitative calculation showed that the value of Standard 1-B-2 average score shown is 3.0358744395. This score is on an interval scale score of 2.51 ≤ 3.25, which indicates that the average students of Borneo Tarakan University are categorized as good in employing strategies for the process of information investigation.

A huge number of students had the same experience as described in Standard 1-B-3. 73.1% of students agreed while another 19.7% agreed far more. Meanwhile, less than half of the samples (7.6%) reported that they did not execute their tasks using a trustworthy and scientific online platform. These assertions demonstrated that the majority of respondents had already relied on trustworthy academic resources. Despite

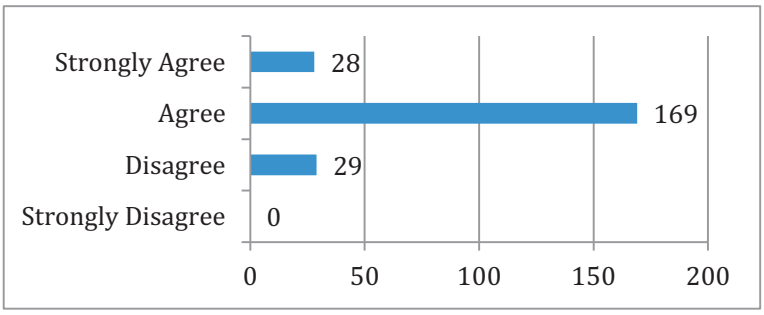

Figure 6: I accessed Credible and Accurate Scientific Sources on Internet for Coursework Composing.

the fact that the number is nearly all affirmative, few students nevertheless have a more casual choice of references to back up their coursework.

Based on this statement, students are required to commit to the scientific procedure; appreciate the significance of establishing a skeptical attitude toward all scientific media reports; recognize that all research relies on prior work, the findings of any one study are always prone to uncertainty, and that the study may be prejudiced by its financing sources (OECD, 2019).

According to the study's findings, the final value of the average score reported is 2.53363. This score is on an interval scale of $2.51 \leq 3.25$, indicating that the average Borneo Tarakan University students is categorized as good in keeping up with scientific and reliable resources when it comes to academic tasks.

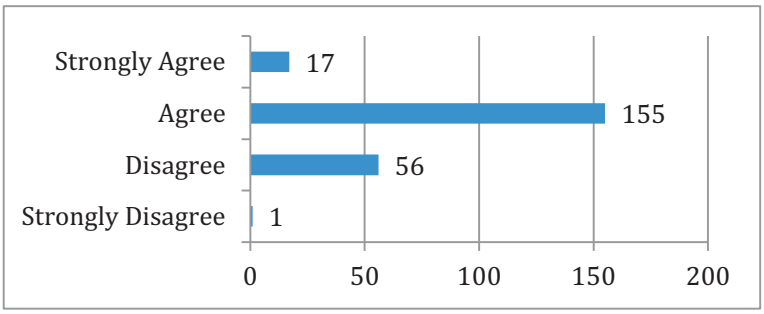

Figure 7: In Accessing Both Digital and Conventional Library, I utilized the Library Catalog Easier and more Efficient Method.

More than half (69.5%) of the samples utilized the library catalog for convenient access to the book they need. This is supported by another 7.6% of them who practiced it even more. However, a quite large group (25.1%) of the samples showed that they did not take the usage of the catalog, followed by 0.4% of respondents. The shared experience recorded the variety of choices to employ or not to employ the library catalog. Understanding and utilizing the library catalog is a sign of the ability to identify the need, locate and access information (Anunob & Udem, 2015). However, the response of the students toward standard 1-B-4 is based on their needs.

Based on this statement, the students are expected to have a comprehension of bibliographic instruction, which emphasized the exploitation of library tools, such as indexes, catalogs, and classification schemes. Referring to the study's findings, the final value of the average score of Standard 1-B-4 reported to be 2.89. This score is on an interval scale of $2.51 \leq 3.25$, indicating that the average Borneo Tarakan University students is categorized as good in applying their bibliographic knowledge.

Based on this standard, the respondents are expected to elaborate and employ a variety of information sources and apply appropriate strategies for seeking data. Based on the quantitative calculation, the value of Standard 1-C-3 average score shown is 2.93 points. This score is on an interval scale score of $2.51 \leq 3.25$, which indicates that the average students of Borneo Tarakan University are good at exploring information sources and applying proper information literacy strategies.

Based on the average value above, it can be concluded that the level of information literacy ability of the students of the University of Borneo Tarakan on the indicator of identifying scientific issues is fairly good. Below is the data distribution and average calculation of the first competency:

Table 1: Test Analysis Results of Competency of Identifying Scientific Issues.

No	Indicator	Average	Category
1	Recognizing issues that are possible to investigate scientifically	2.93	Good
2	Identifying keywords to search for scientific information	3.04	Good
3	Recognizing the critical features of a scientific investigation	3.06	Good
Total Score ($\sum$ score)		9.03	-
Average: $\sum$ score : N = 9.03 : 3 = 3.01			**Good**

(Sutrisna, 2020)

Table 4.1 shows the total score of each indicator of Identifying Scientific Issues obtained from the undergraduate students is 9.03 points. Therefore, the average score of the competency is 3.01 points, which is considered as a good category.

B. Distribution of Respondents' Answers Regarding the Ability to Explain Scientific Phenomena

This competency demands more than the memorization and application of theories, explanations, facts, and information (content knowledge). Providing scientific explanations also requires an understanding of how scientific knowledge was achieved

and the amount of one's trust in scientific assertions (OECD, 2019). Humans require knowledge of the standard forms and techniques used in scientific study to acquire such knowledge (procedural knowledge) as well as an understanding of their role and purpose in justifying the knowledge gained by research. There are 3 indicators developed to support the assessment, and each indicator is broken down into several standards. The following is the analysis of each standard:

a. Applying Knowledge of Science in Given Situation

This indicator consists of 4 standards in form of statements given in the questionnaire (statement number 11, 17, 18, and 20). The following is the response to those statements:

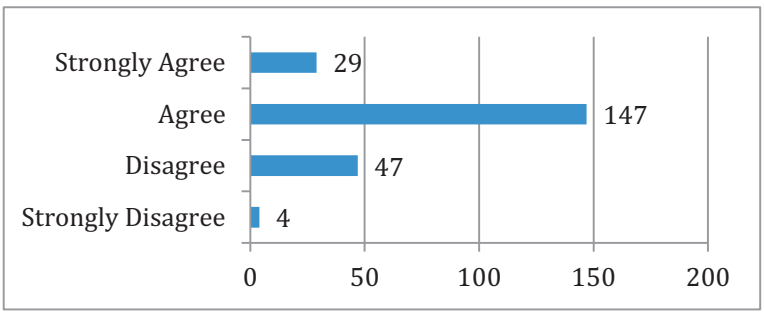

Figure 8: I am able to Correlate Scientific Elements with my Surroundings.

The largest number of students had the ability as described in Standard 2-A-1, of which 61.9% of students agreed. However, the second largest group (33.6%) is those who could not relate to the statement at that time. The rest of the respondents represent a strong affirmation of the statement (5.4%), and strong frowning (1.3%). The data above present that more than half of the samples can apply the obtained information to critical thinking and problem-solving. However, the respondents who could not develop the skill at that time were as much as half of the largest group.

Based on this statement, students are required to organize and integrate information from a variety of sources and formats to apply this information in decision-making, problem-solving, critical thinking, and creative expression (Wijayanti, 2012). According to the study's findings, the final value of the average score reported is 2.75 points. This score is on an interval scale of $2.51 \leq 3.25$, indicating that the average Borneo Tarakan University student is categorized as good at correlating and synthesizing new information with prior knowledge.

Most of the students (81.6%) answered agreed and supported by 14.3% of students who strongly affirmed the experience. The rest of the respondents (6.7%) show that they cannot relate to the standard. The numbers reflect the mean that most of the samples

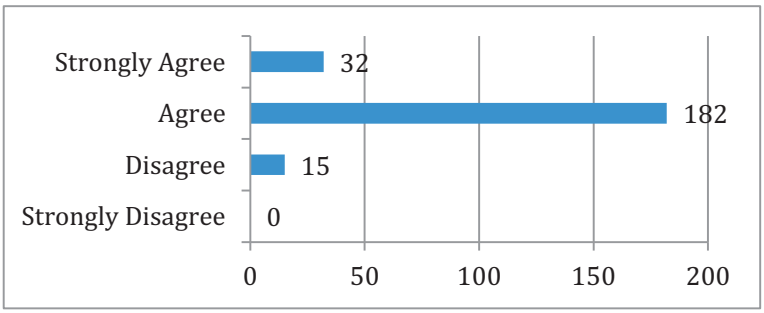

Figure 9: I am able to Actively Engage in Discussion about Current Issues with Peers.

can interpret and provide an explanation for the phenomenon of interest. However, a small group of students has struggled to meet the standard.

Based on this statement, students are required to identify, use, and generate explanatory models and representations; as well as Recalling and apply appropriate scientific knowledge (OECD, 2019). The responses of Standard 2-A-2 indicate that the final value of the average score shown is 3.15 points. This score is on an interval scale of 2.51 ≤ 3.25, indicating that the average Borneo Tarakan University student is categorized as good in providing an explanation of a phenomenon.

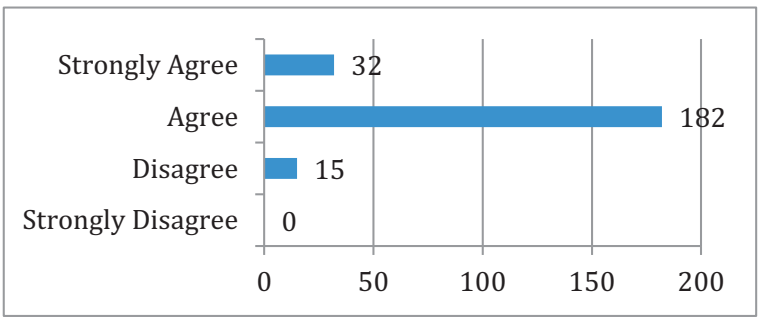

Figure 10: I am able to Answers the Triggering Questions from the Lecturer Correctly.

A large number of students (56.5%) showed that the statement matches their ability. However, an almost comparable number of respondents (43.5%) claimed that the statement was not relatable. The rest of the groups chose 'strongly agree' (3.6%), and 'strongly disagree' (1.3%). The numbers reflect that most of the samples can correctly connect their prior knowledge with the data given by the lecturer. However, a group that is almost as huge as this population has struggled to meet the standard.

Based on the results of the study indicate that the final value of the average score shown is 2.53363 points. This score is on an interval scale score of 2.51 ≤ 3.25 which indicates that even though the average students of Borneo Tarakan University are uncertain of their ability, the respondents are categorized as good at choosing accurate information for research questions.

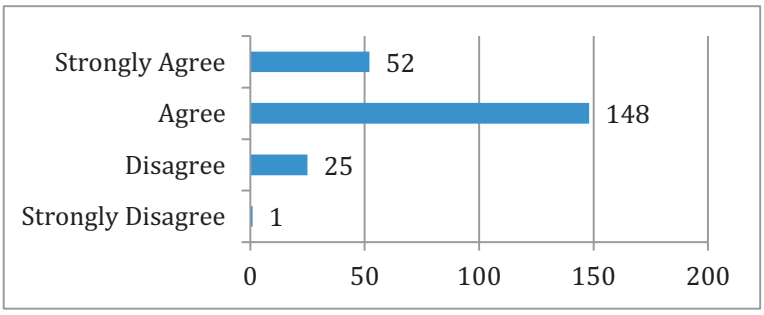

Figure 11: The Submitted Coursework should be Pitched up to the Class for Benefits of Knowledge Sharing.

More than half (66.4%) of the samples agreed on behalf of the knowledge-sharing benefits. This is supported by another 23.3% of them who agreed even more. However, the rest of the students showed that they did not recommend the perception, followed by a stronger frown from 0.4% of respondents. The shared perception recorded the variety of choices to present or not present individuals' work with peers. However, the response of the students toward standards 1-B-4 is based on their preferences and morality.

Based on this statement, the students are expected to offer explanatory hypotheses and explain the potential implications of scientific knowledge for society (OECD, 2019). Referring to the study's findings, the final value of the average score of Standard 2-A-4 was reported to be 3.15 points. This score is on an interval scale of $2.51 \leq 3.25$, indicating that the average Borneo Tarakan University student is categorized as good at sharing and explaining scientific information to peers.

b. Describing phenomena scientifically and predicting changes

This indicator consists of 2 standards in form of statements given in the questionnaire (statement number 13 and 14). The following is the response to those statements:

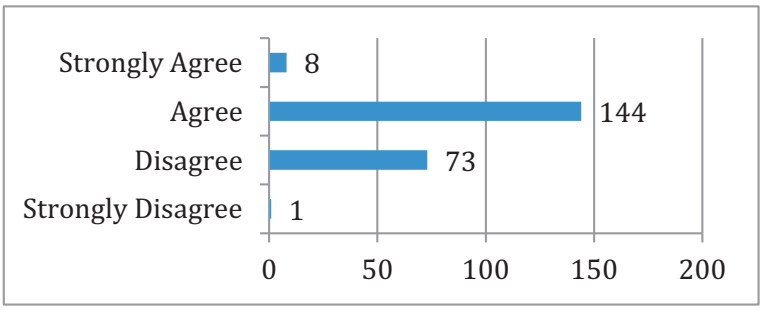

Figure 12: I am able to Determine Appropriate Scientific Explanation for my Surroundings.

More than half (64.6%) of the samples can generate the appropriate explanatory model. This is supported by another 3.6% of them who practiced it even more. However, a quite large group (32.7%) of the samples showed that they could not relate to the

statement, followed by 0.4% of respondents. The shared experience recorded by the students has quite a big gap in the ability on explaining scientific evidence.

Based on this statement, the students are expected to demonstrate competency in explaining phenomena scientifically (OECD, 2019). Referring to the study's findings, the final value of the average score of Standard 2-B-1 was reported to be 2.73 points. This score is on an interval scale of $2.51 \leq 3.25$, indicating that the average Borneo Tarakan University student is categorized as good in determining appropriate scientific explanation.

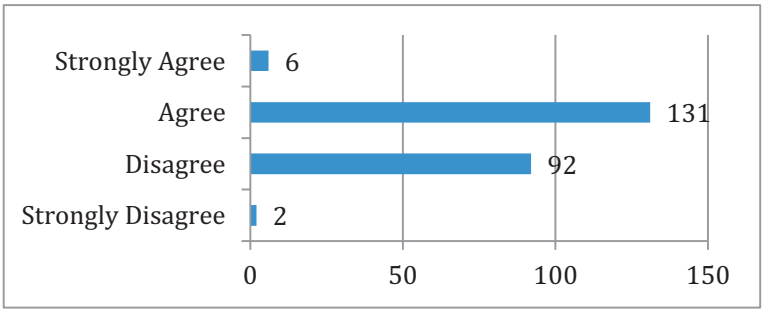

Figure 13: I am able to Determine Appropriate Scientific Prediction for my Surroundings.

Based on the chart above, most of the students (58.7%) answered agree, an almost comparable amount of students (41.3%) answered disagree, a small part answered strongly agree (2.7%), and strongly disagreeing (0.9%). The numbers reflect the mean that most of the respondents are able to generate and predict changes in the environment or community. However, a group that is almost as huge as this population has struggled to meet the standard. This data shows a quite big gap in proposing and justifying appropriate predictions.

Based on this statement, the students are expected to be able to draw on standard scientific models to construct simple representations for everyday phenomena and then use these representations to make predictions (OECD, 2019). The results of the study indicate that the average score of Standard 2-B-2 is 3.15 points. This score is on an interval scale score of $2.51 \leq 3.25$, which indicates that the average students of Borneo Tarakan University are categorized as good in fulfilling the standard of determining scientific predictions.

c. Identifying appropriate descriptions, explanations, and predictions

This indicator consists of 4 standards in form of statements given in the questionnaire (statement number 12, 15, 16, and 19). The following is the response to those statements:

More than half (69.1%) of the samples can generate an appropriate explanatory model for each keyword in the coursework. This is supported by another 9.4% of them who

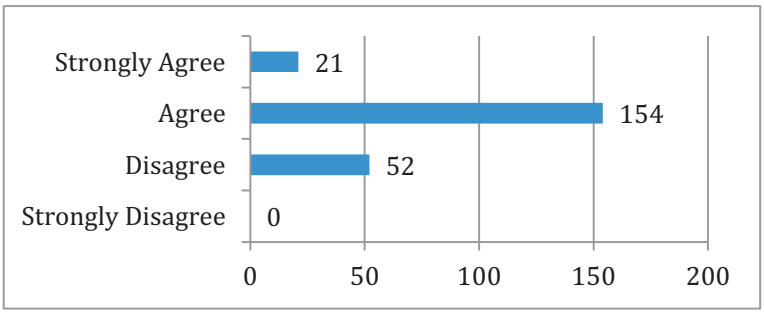

Figure 14: I am able to Generate the Descriptions to Every Keywords for the Topic Being Discussed in my Coursework.

agreed even more. However, the rest of the respondents (23.3%) showed that they could not relate to the statement. The shared experience recorded the students have a quite big gap in the ability to provide appropriate explanatory to scientific terms.

Based on this statement, the students are expected to demonstrate competency in explaining phenomena scientifically (OECD, 2019). Referring to the study's findings, the final value of the average score of Standard 2-C-1 was reported to be 2.91 points. This score is on an interval scale of $2.51 \leq 3.25$, indicating that the average Borneo Tarakan University student is categorized as good in the competency of generating descriptions of terms.

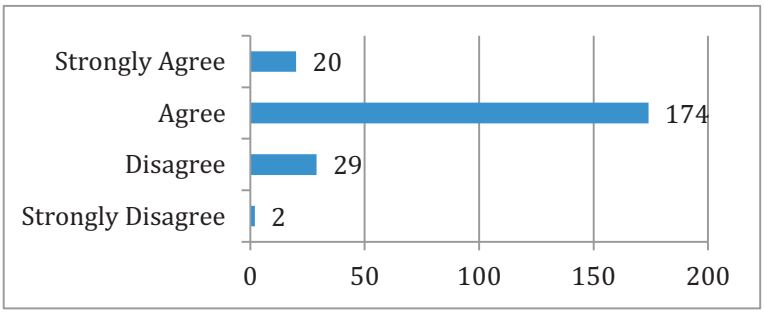

Figure 15: I am able to Convert Written Information into the Spoken one for the Audience.

A large number of students (73.5%) submitted affirmative responses toward Standard 2-C-2. This is supported by another 7.6% of them who agreed even more. However, the rest of the respondents (19.3%) showed that they could not relate to the statement, counting in the strongly agreed response from 0.4% of respondents. The numerical records show that there is more than a 60% gap among the groups who stated 'agree' and 'disagree'.

Based on this statement, the students are expected to be able to not only transfer information to the community but also can internalize the information and restate it. Referring to the study's findings, the final value of the average score of Standard 2-C-2 was reported to be 2.90 points. This score is on an interval scale of $2.51 \leq 3.25$,

indicating that the average Borneo Tarakan University student is categorized as good in the competency of providing restatement of information.

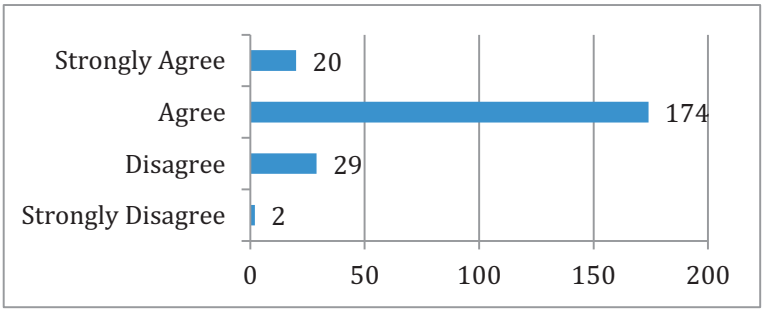

Figure 16: In Presenting Scientific Explanation, I Arranged and Utilized Affordable Tools and Equipment

A large number of students (78%) submitted affirmative responses toward Standard 2-C-3. This is supported by another 9% of them who agreed even more. However, the rest of the respondents (13%) showed that they could not relate to the statement, counting in the strongly agreed response from 0.9% of respondents. The numerical records show that there is more than a 70% gap among the groups who stated 'agree' and 'disagree', indicating that a large number of students can identify an appropriate way of data deliverance.

Based on this statement, the students are expected to be able to explain the potential implications of scientific knowledge for society (OECD, 2019). The results of the study indicate that the average score of Standard 2-C-3 is 2.96 points. This score is on an interval scale score of $2.51 \leq 3.25$ which indicates that the average students of Borneo Tarakan University are categorized as good in explaining the potential implications to peers.

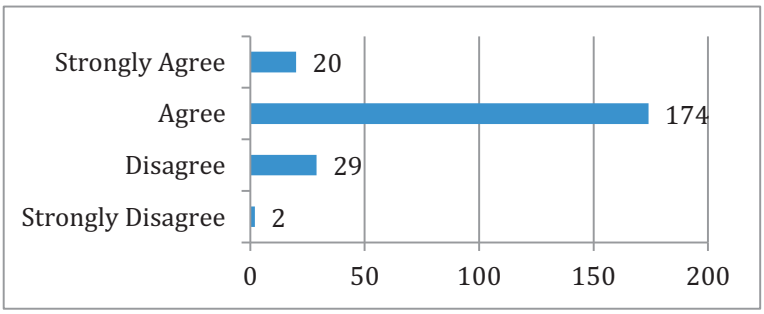

Figure 17: In Presenting Scientific Explanation, I Arranged and Utilized Affordable Tools and Equipment.

The majority of the students (77.1%) have shared their relatable responses to Standard 2-C-4. This is strongly supported by a group of 11.7% amount of samples; added to approximately 88% of affirmative attitude toward the statement. However, the rest of the samples showed that they could not present the submitted tasks in a proper format.

12.1% of them showed disagreeing statement, followed by a strongly disagree attitude of 0.4%. The shared experience recorded the huge gap among these groups, indicating that most of the students can convey their research work in speech, and the others does not.

Referring to the study's findings, the final value of the average score of Standard 3-C-3 was reported to be 3.36 points. This score is on an interval scale of $3.26 \leq 4.00$, indicating that the average Borneo Tarakan University student is categorized as excellent in explaining scientific information.

Based on the average value above, it can be concluded that the level of information literacy ability on the indicator of explaining phenomena of the students of the University of Borneo Tarakan scientifically is fairly good. The following is the data distribution and average calculation for the second competency:

TABLE 2: Test Analysis Results of Competency of Explaining Phenomena Scientifically.

No	Indicator	Average	Category
1	Applying knowledge of science in given situation	2.94	Good
2	Describing phenomena scientifically and predicting changes	2.71	Good
3	Identifying appropriate descriptions, explanations, and predictions	2.94	Good
Total Score ($\sum$ score)		8.59	-
Average: $\sum$ score : N = 8.59 : 3 = 2.86			**Good**

(Sutrisna, 2020)

Table 4.22 shows the total score of each indicator of explaining phenomena scientifically obtained from the undergraduate students is 8.59 points. Therefore, the average score of the competency is 2.86 points which in the a good category.

3. Distribution of Respondents' Answers Regarding the Ability to Use Scientific Evidence

This competency demands accessing scientific information and producing and evaluating arguments and conclusions based on scientific evidence (OECD, 2019). It may also involve analyzing alternative conclusions based on evidence, providing reasons for or against a certain result, and outlining the assumptions made in obtaining a decision. In summary, a person with scientific literacy should be able to recognize logical or erroneous linkages between facts and conclusions. The following is the analysis of each standard:

a. Interpreting scientific evidence and making conclusions

This indicator consists of 4 standards in form of statements given in the questionnaire (statement number 22, 23, 26, and 27). The following is the response to those statements:

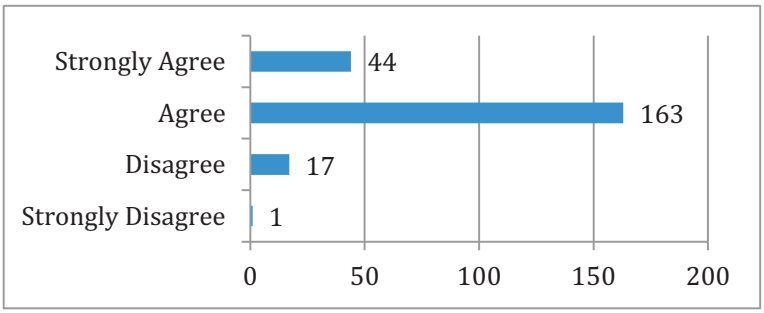

Figure 18: In Working on Coursework, I Followed Scientific Writing Guidelne (e.g. Introduction, Literature Review/Discussion, and Conclusion).

A majority of the students appeared to have developed the attitude in Standard 3-A-1. 73.1% have claimed the experience of applying scientific writing guidelines in completing their coursework. This is strongly supported by a small group with 19.7% amount of the samples. However, the rest of the samples (7.6%) showed that they did not do as much for the academic tasks. The graph above showed that the quite big gap among these groups means that most of the students can determine an accurate form of delivering information.

Based on the study's findings, the final value of the average score of Standard 3-A-1 was reported to be 3.013 points. This score is on an interval scale of $2.51 \leq 3.25$, indicating that the average Borneo Tarakan University student is categorized as good in choosing the proper format in composing academic writing.

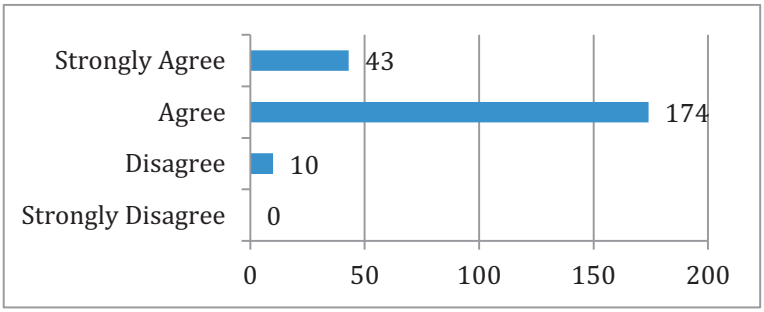

Figure 19: I am able to Distinguish between Fact and Opinion.

A majority of the students appeared to approve of Standard 3-B-2. 78% have claimed that they can identify several interpretations once in every piece of information given. This is strongly supported by a small group with 19.3% amount of the samples. However, the rest of the samples (4.5%) showed that they were not experienced in differing factual statements and opinions. The graph above showed quite a big gap among these groups,

which means that most of the students can interpret the information by categorizing them accurately.

Based on this statement, the students are required to distinguish between arguments that are based on scientific evidence and theory and those based on other considerations (OECD, 2019). Referring to the study's findings, the final value of the average score of Standard 3-B-2 was reported to be 3.04 points. This score is on an interval scale of $2.51 \leq 3.25$, indicating that the average Borneo Tarakan University student is categorized as good at analyzing scientific features in information.

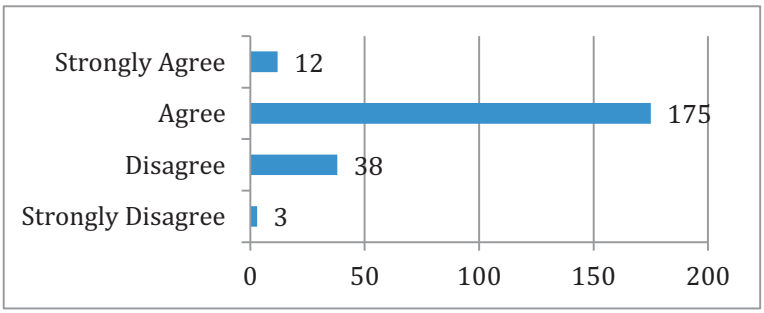

Figure 20: I am able to Organize Ideas and Information Coherently, whether they are already known or Newly Acquired.

The largest group of the students (78.5) has shared their relatable response to the Standard 3-A-3. This is supported by a small group, where the 5.4% of them agreed even more; added to at least 83% of approved relatable experience toward the statement. However, the rest of the samples showed that they were not able to organize information coherently. The 17% of respondents showed disagreeing statement, and the rest 1.3% added up more intense disapproval. The graphs above presents a huge gap among these groups, which also provides imagery of most of the respondents are able to organize and integrate information.

Referring to the study's findings, the final value of the average score of Standard 3-A-3 reported to be 2.92 points. This score is on an interval scale of $2.51 \leq 3.25$, indicating that the average Borneo Tarakan University students is categorized as good in organizing obtained data scientifically.

The majority of the samples agreed with the shared attitude in Standard 3-A-4. A large group of students (74.9%) shared their relatable responses about the statement. This is supported by a group with 19.3% of all respondents agreeing even more; added to approximately 93% of affirmative attitude toward the statement. However, the rest of the samples showed that they did not seek information from another resource. 7.2% of all samples showed disagreeing statements. The shared experience recorded the huge

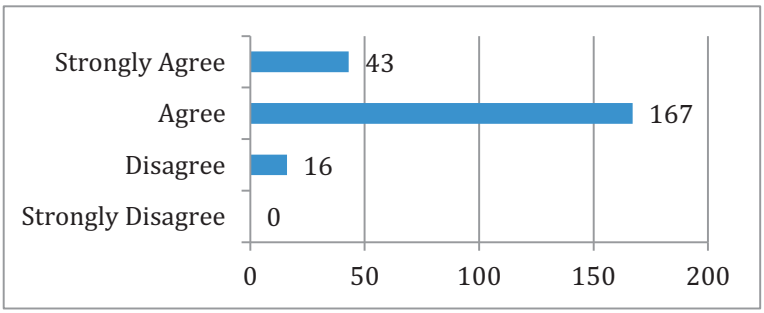

Figure 21: I am able to Seek Additional Information during Coursework Work when it is Needed.

gap among these groups, indicating that most of the students can elaborate and use strategies in seeking information properly.

Based on this statement, the students are required to develop and apply strategies in information seeking. Referring to the study's findings, the final value of the average score of Standard 3-A-4 was reported to be 3.16 points. This score is on an interval scale of 3.26 $\leq$ 4.00, indicating that the average Borneo Tarakan University student is categorized as excellent in employing several strategies and determining the needs for information.

b. Interpreting Scientific Evidence and Making Conclusions

This indicator consists of 4 standards in form of statements given in the questionnaire (statement number 11, 17, 18, and 20). The following is the response to those statements:

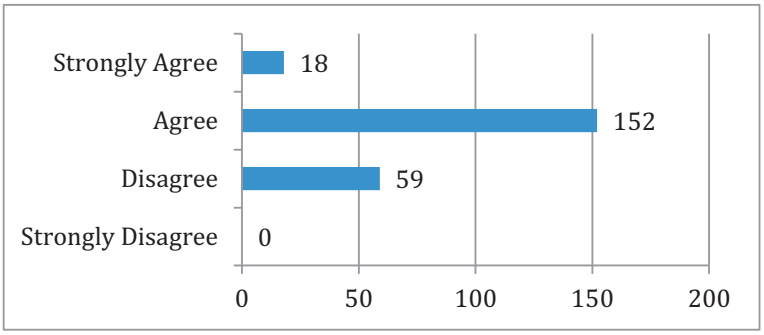

Figure 22: I am able to Generate Questions related to Topics being discussed to the point I can identify the Main Elements of the Coursework.

More than half (68.2%) of the samples can generate research questions based on informational needs. This is supported by another 8.1% of them who practiced it even more. However, the rest of the samples (26.5%) of the samples showed that they did not feel included in the term of stated academic experience. The shared experience recorded that approximately, 86% of the students can recognize the need for information. However, there are still students who lacked in interpreting scientific evidence.

Based on this statement, the students are expected to have a comprehension of determining the issued topic, and the important keywords. Referring to the study's findings, the final value of the average score of Standard 1-B-1 was reported to be 2.73 points. This score is on an interval scale of $2.51 \leq 3.25$, indicating that the average Borneo Tarakan University student is categorized as good in determining their own needs in seeking information.

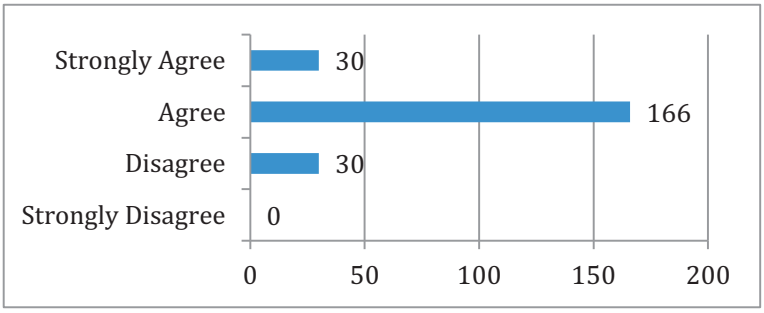

Figure 23: I am able to Recognize Varied Interpretation I can Obtain from Single information.

A majority of the students appeared to have developed the attitude in Standard 3-B-2. 74.4% have claimed that they can identify several interpretations once in any information given. This is strongly supported by a small group with 13.5% amount of the samples. However, the rest of the samples (13.5%) showed that they did not recognize alternative perspectives that can be found in the required knowledge. The graph above showed that the quite big gap among these groups means that most of the students can interpret the information and perceive it from several perspectives.

Based on this statement, the students are required to involve in evaluating alternative conclusions using evidence (OECD, 2019). Referring to the study's findings, the final value of the average score of Standard 3-B-2 was reported to be 3.04 points. This score is on an interval scale of $2.51 \leq 3.25$, indicating that the average Borneo Tarakan University student is categorized as good in using scientific evidence to create conclusions.

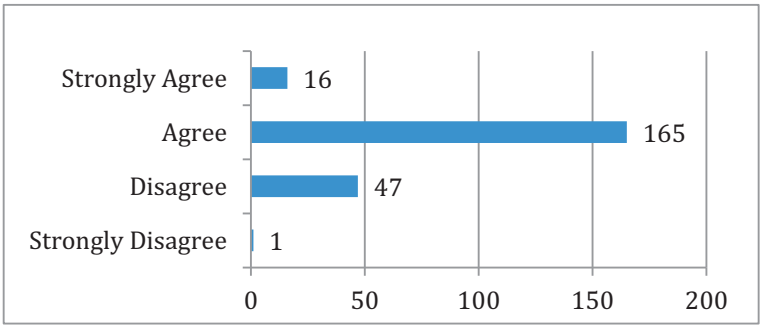

Figure 24: During Coursework Working, I am able to Organize Gained Information in Appropriate and Practical.

More than half of the students (74%) have shared their relatable responses to Standard 3-B-3. This is supported by another group, where 7.2% of them agreed even more; adding to approximately 81% of affirmative attitude toward the statement. However, the number of students showed that they could not organize the gained information properly. 21.1% of the respondents showed disagreeing statements, followed by 0.4% of all the students. This can be inferred that the quite big gap among these groups means that most of the students have the ability of knowledge synthesis.

Based on this statement, the students are required to investigate the quality of organizing and integrating information into prior knowledge (Lestari, 2019). Referring to the study's findings, the final value of the average score of Standard 3-B-3 was reported to be 2.93 points. This score is on an interval scale of $2.51 \leq 3.25$, indicating that the average Borneo Tarakan University student is categorized as good at using scientific evidence to synthesize new knowledge.

c. Identifying Appropriate Descriptions, Explanations, and Predictions

This indicator consists of 3 standards in form of statements given in the questionnaire (statement number 25, 28, and 30). The following is the response to those statements:

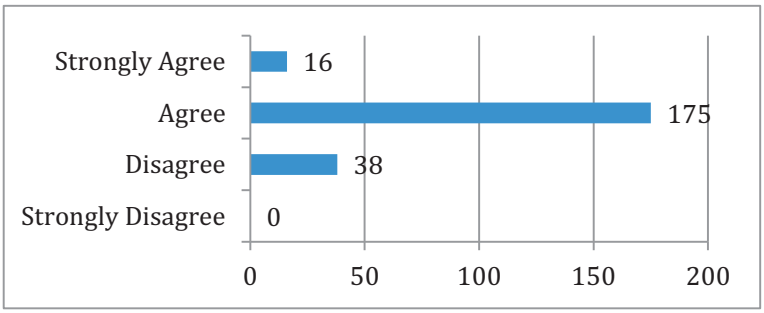

Figure 25: In Working on Coursework, I am Able to give my Opinion toward Topic being Discussed regardless of Information I have Gained from Variety of Sources..

The majority of the students (78.5%) have shared their relatable responses to Standard 3-C-1. This is supported by another 7.2% of them who agreed, and even more, added to approximately 85% of affirmative attitude toward the statement. However, the rest of the samples showed that they did not experience the same during their academic task completion. There was 17% of all samples showed disagreeing statements. The shared experience recorded the huge gap among these groups.

Based on this statement, the students are expected to not only understand but also connect the prior knowledge and generate an original idea. Referring to the study's findings, the final value of the average score of Standard 3-C-1 was reported to be 2.98 points. This score is on an interval scale of $2.51 \leq 3.25$, indicating that the average

Borneo Tarakan University student is categorized as good in using scientific evidence to create a new idea.

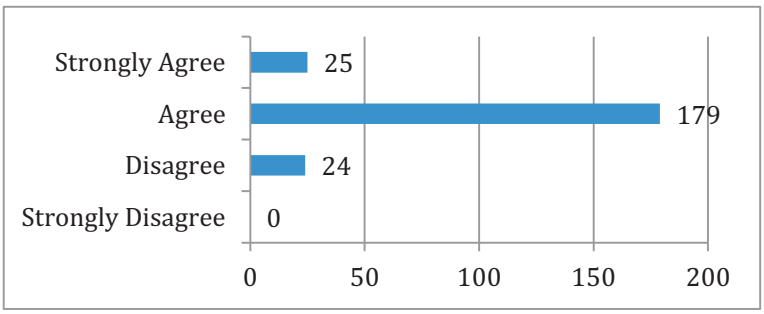

Figure 26: I am able to Generate Restatement the obtained Information Using my Own Words.

The majority of the students (80.3%) have shared their relatable responses to Standard 3-C-2. This is supported by another 11.2% of them who agreed, even more, added to approximately 91% of affirmative attitude toward the statement. However, the rest of the samples showed that they did not experience the same during their academic task completion. 10.8% of all samples showed disagreeing statements, followed by 0.4% stronger disagreeing statements. The shared experience recorded the huge gap among these groups.

Based on this statement, the students are expected to not only understand but also connect the prior knowledge and generate the original idea. Referring to the study's findings, the final value of the average score of Standard 3-C-2 was reported to be 3.07 points. This score is on an interval scale of $2.51 \leq 3.25$, indicating that the average Borneo Tarakan University student is categorized as good at generating their ideas.

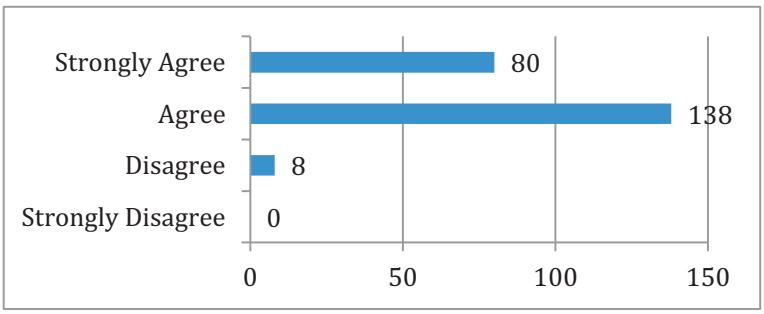

Figure 27: I Use Coursework-Related Feedback as Evaluation.

More than half of the students (61.9%) have shared their relatable responses to Standard 3-C-3. This is supported by a group with half of the amount of the largest group, where 35.9% of them agreed even more; added to approximately 96% of affirmative attitude toward the statement. However, the rest of the samples showed that they did not conduct the feedback-based revision on their course works. 3.6% of all samples

showed disagreeing statements. The shared experience recorded the huge gap among these groups, indicating that most of the students can investigate the quality of process and self-awareness when it comes to information literacy.

Based on this statement, the students are required to not only understand, but also develop the ability to create suitable strategies for revising, improving, and updating information knowledge. The information-literate student critically assesses information and its sources and incorporates selected information into his or her knowledge base and value system (Neely, 2006). Referring to the study's findings, the final value of the average score of Standard 3-C-3 was reported to be 3.36 points. This score is on an interval scale of $3.26 \leq 4.00$, indicating that the average Borneo Tarakan University student is categorized as excellent in using scientific evidence to revise and improve the information knowledge.

Based on the average value above, it can be concluded that the level of information literacy ability of the students of the University of Borneo Tarakan on the indicator of Using Scientific Evidence is fairly good. Below is the data distribution and average calculation of the third competency:

Table 3: Test Analysis Results of Competency of Using Scientific Evidence.

No	Indicator	Average	Category
1	Interpreting scientific evidence and making conclusions	3.10	Good
2	Identifying the assumptions, evidence, and reasoning behind conclusion	2.95	Good
3	Explaining feedback toward scientific conclusion.	3.13	Good
Total Score ($\sum$ score)		9.18	
Average: $\sum$ score : N = 9.18 : 3 = 3.06			**Good**

(Sutrisna, 2020)

Table 4.32 shows the total score of each indicator of Identifying Scientific Issues obtained from the undergraduate students is 9.18 points. Therefore, the average score of the competency is 3.06 points, which is categorized as a good category.

3.0.1. Statistic Analysis Based on Four Likert-Scale

The authors present the value per indicator with four response options (strongly disagree, disagree, agree, and strongly agree) to determine the average responses of

respondents to the topic research on the information information literacy ability of Students at Borneo Tarakan University, along with the following information:

Table 4: Average Score Range.

No	Indicator	Average
1	Very Poor	1.00 ≤ 1. 075
2	Poor	1.76 ≤ 2.50
3	Good	2.51 ≤ 3.25
4	Excellent	3.26 ≤ 4.00

(Huda, 2014)

Based on the previous analysis of each of the competencies' indicators, the researchers indicate the overall analysis of the information literacy of the respondents as followed:

Table 5: Test Analysis Results of Competency of Using Scientific Evidence.

No	Competency	Average	Category
1	Identifying scientific issues	3.01	Good
2	Explaining scientific phenomena	2.86	Good
3	Using scientific evidence.	3.06	Good
Total Score (∑ score)		8.93	
Average: ∑ score : N = 8.93 : 3 = 2.97			**Good**

(Sutrisna, 2020)

4. CONCLUSION

Based on the finding above, it is feasible to conclude that every aspect of the information literacy skill of University of Borneo Tarakan students' in their academic activities is fairly good. The score in each indicator of competencies are varied, but still, show a stagnant value, and serve as evidence of the assessment of students' information literacy skills. In addition, it was accelerated from the result of document analysis of students' GPA which showed that the students' academic were good category. Therefore, It can be assumed that the students literacy skills were good as the implication of online learning implementation.

ACKNOWLEDGEMENTS

Authors thank to Universitas Borneo Tarakan as the financial support in finishing and completing this research.

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