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Representation of Information Literacy Skills Interpreted From GPA and Gender: A Study of Prospective Science Education Teachers

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ABSTRACT

Information Literacy Skills (ILS) is an essential component in the university in preparing generations to face global challenges. This study aims to interpret the ILS in terms of the average Grade Point Average (GPA) and gender. Participants in this Prospective Science Education Teachers (PSET) in East Java from 2015-2017 with a total of 27 PSET, with details of 17 (67%) PSET and 10 (37%) male PSET. This study uses a quantitative approach using ILS exams as an instrument of study. The data that can be analyzed data is done descriptively statistically. The results of the study show the average percentage of correct answers to ILS relating to simple category investigations (49.6%). Based on gender, prefer the right percentage of answers to male PSET (48.5%) and female PSET (50.3%). This study concludes that the ILS of PSET is a straightforward category, the preference of the ILS of female PSET is rather high compared to male PSET.

Keywords: Gender, Grade Points Average, Science, Information Literacy

1. INTRODUCTION

This New educational models and information technology have changed the role of students in higher education [1]. At present, Indonesia has and is developing the importance of practical skills [2] to prepare students to be able to face global challenges [3] or also called the 21st century [4]. During the 21st century, troop work and the capacity to resolve problems and study in societies is more important in the world of achieving, and every student must know how to work productively by others[5]. In this era, the development of science, technology, and information took place very quickly, and there is free competition among the nations of the world [4]. To be successful in handling the challenges about the 21st century, it takes a lot of exceptional work and particular work [6]. Because education tries to shape itself to fit the requirements from the 21st century [7]. Thus, referring to that view, it is necessary to prepare graduates who are qualified and able to compete globally and essential for the future of a country [8]. Therefore, it becomes urgent at the higher education level to prioritize and encourage progress related to ILS mastery.

ILS refers to a thorough process of understanding information essential component in universities in preparing generations to face global challenges [9] in the industrial revolution 4.0, which is adaptive and professional and happy in life. ILS refers to a comprehensive process of understanding information in which people recognize, understand, interpret, produce, communicate, and calculate various ILS contexts [3]. ILS are multidisciplinary skills [10] related to the process of developing comprehensive understanding of information [11] for problem-solving, decision making, research value [12]. The ILS variables in this study are (a) choosing different references; (b) dictates the purpose of the case; (c) understand the term investigation; (d) write articles frequently; (e) analyzing knowledge from books; (f) analyzing knowledge from the internet (g) looking for information on the internet; (h) acquire the skills to administer the notice; (i) determine the type of information; and (j) prioritizing the chosen information [13] [14]. Thus, ILS is very important to master for Prospective Science Education Teachers (PSET).

Moreover, various studies in Prospective Science Education Teachers (PSET)' competence to integrate technology in learning[15], it is considered important to improve ILS of PSET. The reference also states PSET are demanded to improve their abilities and expertise

concerning the teaching profession in multiple ways [16] and place informati^g and communications technologies [17]. Additionally, based on the description above, the objectives of this study are (1) preference analysis of ILS of PSET; (2) preference interpreting ILS of PSET in terms of GPA, and (3) preference interpreting ILS of PSET in terms of gender. Thus, the urgency of this research leads to the availability of references as a basis for preparing future programs to improve ILS of PSET.

2. METHOD

2.1. Research Approach

These studies are categorized as descriptive studies [18] or also identified as surveys [19]. Surveys are widely used for technical studies [20] that allow researchers to formulate a set of features or measure their attitudes and opinions on a problem [19] to be revealed in a research activity or phenomenon. The phenomenon which is in the field of study is ILS in terms of GPA and gender.

2.2. Research Participants

The participants of this study were PSET of the STKIP PGRI Nganjuk from Science Education Study Program in the even semester of the academic year 2018/2019. The method of determining a sample with a typical case sampling technique, namely determining the sample to study a phenomenon in determining standards or dealing with "typical" members [21] or for trends [22] of the population. More specifically, the study participants consisted of 27 PSET (seventeen girls and ten sons) from the class of 2015 (semester 6) 11 people, 2016 (semester 4) 6 people, and 2017 (semester 2) 11 people. In terms of gender, this study was dominated by 17 (67%) female PSET and 10 (37%) male PSET. The data were collected by questionnaire form, the test of ILS and documents in the form of GPA.

2.3. Research Instruments

The instruments included a partisan demographic notice (3 questions) and ten ILS indicators (42 questions). Notification of participant's demographic includes name, PSET master number (NIM), level of study, and gender. The ILS indicator consists of (1) identify the source of information (3 queries); (2) identify the type of information (4 queries); (3) identify the strategy of accessing information (5 queries); (4) identify the device accessing the information (3 queries); (5) evaluate the source of the internet; (6) evaluate the source of the book (3 queries); (7) recognize the use of information to complete tasks (3 queries); (8) identify

various terms related to the article (12 queries); (9) identify issues, ethics, or laws surrounding plagiarism (3 queries); and (10) recognize the use of bibliography (4 queries), which was adapted from Subekti [14]. All of these questions are multiple-choice questions. Data collection used was written tests and documents in the form of GPA.

2.4. Data Analysis

The form of semi quantitative data analysis, because the process of analysis involves counting or numbers, but qualitatively in the sense that the numbers narrated in the form of text to understand what they mean [23]. Data collected from the ILS exam analyzed, and then the percentage is calculated. Determine the quality of ILS¹ by comparing the total score obtained by PSET with a standard score of 70 [5], which is the standard score of the ILS indicators. Descriptive statistics did the data analysis technique.

3. RESULTS AND DISCUSSION

This section describes of partisan demographic data, GPA, and ILS. Visualization of the diversity or range of GPA data displayed among a dot plot in Figure 1.

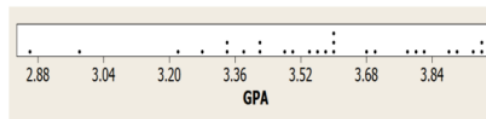


Figure 1 Dot plot of GPA

However, the contrary, if the preferences are almost close when the measure¹⁷ of the multifariousness favours to be inadequate. The results of the data analysis show the data range than the GPA is $3.96 - 2.86 = 11$. The GPA range is 2.86 (lowest) until 3.96 (highest), with a mean GPA of 3.58.

Further, the range of ILS coverage is $76.2 - 28.6 = 47.6$. Visualization of the diversity or range of ILS data presented with a dot plot in Figure 1.

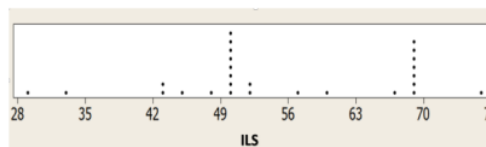


Figure 2 Dot plot of ILS

A detailed description of (1) preference analysis of ILS of PSET; (2) preference interpreting ILS of PSET in terms of GPA, and (3) preference interpreting ILS of

PSET in terms of gender, described in more detail as follows.

3.1. Analysis ILS of Pre-Service Science Teachers

Information literate personalities described as somebody conscious of knowledge needs, who understand to obtain information and how to assess and apply information gathered efficiently [24]. The completion of the interpretation of the mean grades of ILS were 49.6 out of 100 points. Percentage indicators correct answer ILS related to the study presented in Figure 3.

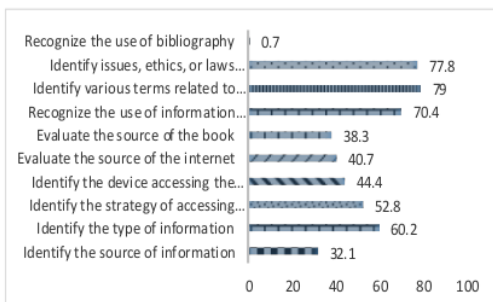


Figure 3 Percentage of ILS Indicators Correct Answers

Referring to Figure 3 shows the tendency indicator to recognize the use of bibliography low category with an average value of 0.7 and types of information in the high category with an average value of 60.2 to scale 0-100. PSET triumph and score at the expert level in the ability they feel to distinguish source variations [25]. This certainly requires innovation from educators so that ILS can be properly mutilated.

ILS of PSET on two themes, PSET showed a strategy of accessing information in a relatively medium category (52.8%) and a tool for accessing information through the internet in a medium category (44.4%). In the period of globalization, several people's experiences were inspired by the improvement of technology and science [26]. Instruction on this topic will be more useful for PSET later in the curriculum when more advanced topics that require the use of the skills search literature are regularly taught [27].

Information literature on theme 3, most PSET correctly answered questions about the variables evaluating sources from the internet with a low category of 40.7%, and evaluating the sources of books with a low category (38.3%). Therefore, it can designate that although learners own intellectual information about evaluation standards toward the internet, others do not

have useful abilities in using those standards. ILS in the contemporary workplace is explored from a new perspective by a panel of international experts, in a newly published book [28].

Informational literature on the theme of 4 PSET showed knowledge of carrying out high category written research (70.4%) and mastery of terms in high category research (79.0%). The development of PSET or student study skills in universities has linked to improving skills related to critical thinking, problem-solving, and mastering ability skills [29]. The investigation is a systematic and objective activity to find the truth and solve or answer problems [30].

PSET literacy literature on theme 5, a meagre percentage shows weakness in the high category copyright issue (77.8%). However, in the identification of various categories of bibliographic writing is very low (0.7%). Scientific writers, whether in articles or college reports based solely on library research, go beyond the scope of laboratory reports in a significant way [31]. Make sure to note at this time all detailed bibliographic announcements-author, editorial, journal name, date, volume number, and page [19]. Focusing on topics goes hand in hand with the process of searching for bibliographies [31]. Also, ethical studies often understood by researchers primarily through the regulatory structure indicated in the examination principles review method [32].

3.2. Analysis of Preference ILS Students in Terms of GPA

This section discusses the analysis of preference ILS students in terms of GPA. In summary, the results of descriptive statistical analysis presented in Table 1.

Table 1. Results of Descriptive Statistical Analysis

Variable	N	Mean	σ	Min	Median	Max
ILS	27	55.11	12.12	28.57	50	76.19
GPA	27	3.55	0.28	2.86	3.58	3.96

Referring to Table 1, it shows a GPA average of 3.58 (on a scale of 0-4), while the average ILS capability is 50 (on a scale of 0-100). This data can be interpreted that GPA in PSET tends to be high, but in general ILS in PSET is still low. In other words, the higher the GPA, not necessarily the ILS is also high. GPA is an imperfect measure of learning and achievement.

In line with the data, it is considered important to improve the dynamic and quality world of education so

as not to become expired tomorrow [33] when plunging into real life. Also, efforts to civilize learning to improve ILS need to be used as habituation. Besides to improve the mastery of information technology and identify various changes that are appropriate to the current development of information technology.

3.3. Analysis of Preference ILS Students in Terms of Gender

Various studies on the effect of gender on learning have been studied by many education experts [34] [35] to encourage alignment in learners for men and women. The various investigations discussed the majorities of the competition for the achievement of learning outcomes between female and male students [36]. ILS was useful for the work of students and the development of their abilities as citizens [37]. The results of the Analysis of Preference ILS Students in Terms of Gender are generally presented in Figure 4.

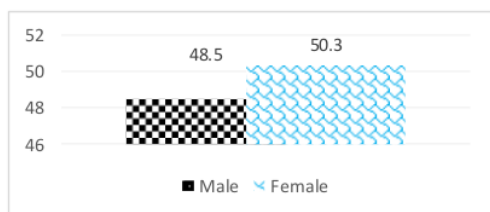


Figure 4 Percentage of correct answers to ILS by gender

The findings show that those who have ILS grade for female (50.3%) PSET relatively higher when compared to PSET male (48.5%). However, the results of similar research findings show a different tendency of ILS for students [14]. The implications of this study contribute to the development of professionalism of PSET. In the process, this research activity offers implications for field study activities as material for designing student activities in facing global challenges. In the scientific field, this study can use as a reference, comparative, and enrichment material in developing ILS in students.

4. CONCLUSION

Based on advance exposure it appears explicitly that, this research concludes that the literacy information of science education students is of moderate category and GPA PSET tend to be high, but in general ILS in PSET is still low and the preferences of ILS of female students (50.3%) to be relatively higher than male students (48.5%). The implication of this study is based on line data that can be used as a reference to improve ILS in PSET. The further research focus is needed for studies

that explore the practicality and effectiveness of various models, strategies, and learning media to improve ILS for prospective science education teachers.

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