THE INFLUENCE OF LITERACY AND NUMERACY SKILLS ON THE SUCCESS OF COLLEGE STUDENTS IN THE FACULTY OF TEACHER TRAINING AND EDUCATION

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ABSTRACT

In Indonesia, there are still many 3T zones, it defined as marginal, border, and isolated areas that require special development. College students from 3T zones are more likely to struggle with literacy and numeracy skills. Literacy and numeracy skills are, in fact, one of the success variables for students when they graduate and begin their careers. Literacy and numeracy skills are essential to learning, even university students, to receive learning effectively. The objective of this research is to examine the effect of literacy and numeracy skills on the success of students in higher education based on their GPA, particularly students from the 3T zone. The sample in this study were 57 students of Teachers Training and Education Faculty, Sanata Dharma University. Data were analyzed using simple regression. The results showed that numeracy skills have a positive and significant effect on student GPA but in the weak category with R=0.278. The regression equation Y= 2.429 + 0.033X. Literacy skills have a positive and significant effect on GPA but in moderate category with R=0.488. The regression equation for this effect is Y = 1.911 + 0.076X. Further research should be conducted to investigate not only the mastery of literacy and numeracy skills and their influences on GPA, but also their effect on employability skills.

Keywords: *Literacy skills, numeracy skills, GPA, 3T zones, higher education*

INTRODUCTION

Based on Presidential Regulation Number 63 of 2020 concerning the determination of underdeveloped regions for 2020-2024, the 3T area covers 62 cities/districts. Compared to Presidential Regulation Number 131 of 2015, the

number of underdeveloped regions in Indonesia is 122 districts. The number of 3T zoness in Indonesia has decreased by 60 districts/cities over the past five years.

Many policies have been taken by the government to accelerate the development of underdeveloped areas. The policy covers the fulfillment of basic public services and basic infrastructure in underdeveloped areas, increasing quality and competitive human resources, developing local economies through partnership development and promotion and utilization of digital technology, and accelerating infrastructure development as well as increasing connectivity and logistics systems between regions. carried out to catch up with the 3T zoness (Kemendes, 2019).

Education has an important role in improving the quality and competitiveness of human resources. Education in the 3T area is a development priority (Fahdi, 2022). Various government policies related to 3T zoness were launched by the government to accelerate development, such as Indonesia Teaching, independent learning, education financing (by using Kartu Indonesia Pintar), improving the quality of teachers and school principals, and so on.

Indicators of the quality of education are the competencies of graduates, both knowledge, skills, and social attitudes as well as religiosity. However, not all schools in the 3T area have the ability to produce graduates in accordance with national education standards. Some of the causes are education staff who do not have the ability, inadequate facilities and infrastructure, including access to communication, as well as the literacy skills of students.

Compared to other countries, student literacy in Indonesia is ranked 74th out of 79 countries based on PISA score in 2018. For eighteen years, Indonesia has participated in PISA. The average score of seven times participating in PISA, Mathematics literacy is the lowest, followed by scientific literacy, and reading literacy.

Tahun	Peringkat ke-	Jumlah Negara Disurvei	Literasi		
			Membaca	Sains	Matematika
2000	39	41	371	393	367
2003	38	40	382	395	360
2006	50	57	393	393	391
2009	57	65	402	383	371
2012	64	65	396	382	375
2015	64	72	397	386	403
2018	74	79	371	379	396

Pencapaian PISA Indonesia 2000-2018

Sumber: PISA 2000, PISA 2003, PISA 2006, PISA 2009, PISA 2012, PISA 2015, PISA 2018

Figure 1.
Indonesia's PISA Achievements
Source: (Billyantoro, 2020)

Literacy activities are held in schools every day for 15 to 30 minutes before class begins. However, this activity was unable to increase students' literacy skills (Mclean & Clymer, 2021). This indicates the failure of Indonesian education to increase students' literacy skills. It can be caused by the teacher's failure to apply the learning content to real-world situations and to engage students with higher-order thinking.

One of the programs launched by the Ministry of Education is the Minimum Competency Assessment (MCA). MCA is an assessment model as a substitute for the national exam (Syaifuddin, 2022). The materials accessed in the MCA are language literacy and numeracy. These two fields are believed to equip students for lifelong learning and contribute to society. The results of the MCA are not used to correct the shortcomings of the school so that the school is able to provide educational services according to the national education standards that have been set.

Literacy and numeracy skills is one of the requirements so that students are able to take part in learning. Literacy skills are the knowledge and skills to read, write, search, browse, process and understand information to analyze, respond to, and use written texts to achieve goals, develop understanding and potential, as well as to participate in the social environment (Saryono, et al., 2017). Meanwhile, numeracy skills are the knowledge and ability to use a variety of numbers and symbols related to basic mathematics to solve practical problems in various contexts of everyday life and the ability to analyze information presented in various forms and interpret it to predict and make decisions. Han, et al., 2017). Thus, students who have good literacy will be able to attend lectures well.

In line, students from the 3T area need to have good literacy so that students are able to attend lectures at universities and have good academic achievement. This is in accordance with the research of Suhaini, Ahmad, & Harith (2020) which states that there are several factors that affect academic results, namely gender, socioeconomic background, previously mastered skills, interests, ambitions, and learning beliefs. Skills that have been mastered by students before can be in the form of numeracy skills and reading literacy. This study investigates the effect of literacy and numeracy skills toward the achievements of students from the 3T zones.

Literacy is the ability to write and read, knowledge or skills in certain fields or activities, individual abilities in processing information and knowledge for life-skills. Based on the Law of the Republic of Indonesia, 2017, literacy skill is defined as the ability to interpret information critically so that everyone can access science and technology as an effort to improve their quality of life. Based on the two definitions above, literacy skill is needed by every citizen in developing their knowledge and skills.

Literacy culture needs to be cultivated and developed by the whole community. The literacy movement in Indonesia started in 2016. The Ministry of Education and Culture has activated the National Literacy Movement (NLM) as part of the implementation of the Minister of Education and Culture Regulation Number 23 of

2015 concerning the Growth of Character (Saryono, et al., 2017). The purpose of NLM is to make the school a learning organization with a literacy culture.

Wiedarti, et al., (2019) stated that there are sixteen skills that must be mastered by students in order to be able to survive in the XXI century, namely 1) reading literacy, 2) numeracy skills, 3) science literacy, 4) digital literacy, 5) financial literacy, 6) culture and citizenship literacy, 7) problem solving, 8) creativity, 9) communication, 10) collaboration, 11) curiosity, 12) initiative. 13) perseverance, 14) adaptive, 15) leadership, and 16) social and culture sensitivity. Based on Wiedarti opinion, there are six skills related to literacy. This research focus on reading and numeracy skills.

The Ministry of Education and Culture (2020) defines literacy skills as the ability to understand, use, evaluate, reflect on written text forms that are needed by society and/or valued by individuals. Literacy skills are developed based on five basic principles. The five basic principles include 1) holistic, 2) integrated, 3) sustainability, 4) contextual, and 5) responsive to local wisdom (Saryono, et al., 2017). Reading and writing literacy are developed holistically. Literacy development involves schools, families and communities and cannot be separated from other aspects such as literacy of numeracy, science, digital, financial, and cultural and civic literacy.

Integrated principle is a principle that combines, connects, and harmonizes the existing elements. These elements include policies, programs, activities, as well as implementers and various supporting parties. For example, in learning, literacy development systematically integrates all subjects, programs, curricula, extracurricular activities, intra-curricular activities, and so on. The principle of sustainability in literacy development refers to continuity over time. This principle is carried out continuously in the school, family, and community environment. The development of reading and writing literacy adheres to the principle of context according to what is in society. Thus, NLM is implemented differently in each region. This is because the people in each region have different characteristics and peculiarities.

Numeracy skills is the ability to think using concepts, procedures, facts, and mathematical tools to solve problems in various types of contexts that are relevant for individuals as citizens of Indonesia and the world (Depdikbud, 2020). Numeracy skills need to be done continuously. Teachers need to repeat the ability to count so that students can memorize, understand, apply in their life.

Various daily activities require numeracy skills both at home, at work, and in the community (Han, et al., 2017). For example, activities, saving activities, starting activities, borrowing money activities, and so on. Numerical literacy makes a significant contribution to the social, economic, and well-being of individuals and communities. This can happen because individuals as members of the community will be very careful in spending their money, business planning is carried out in detail, borrowing money is done for productive activities and not for consumptive activities, and so on.

Numeracy skills are different from mathematics. Numeracy skills has three basic principles, namely 1) contextual in nature, in accordance with geographical, socio-cultural conditions, and so on, 2) in harmony with the scope of mathematics, interdependence and enriching other elements of literacy. Numerical literacy is a part of mathematics, in terms of content coverage. Numerical literacy components included in mathematics subjects in the Curriculum of 2013 include 1) estimating and calculating with integers, using fractions, decimals, percentage, and comparisons, 3) recognizing and changing patterns and relationships, 4) using spatial reasoning, 5) using measurement, 5) interpret statistical information.

Similar to reading literacy, numeracy skills need to be done both at school, at home, and in the community. This is intended so that students can apply mathematical knowledge in other fields. The main strategy of the School Numeracy skills Movement is in the form of Numeracy Across Curriculum, which is an approach to applying numeracy consistently and thoroughly in schools to support the development of numeracy skills for each student (Han, et al., 2017).

The success of numeracy skills is not only imposed in schools. Parents and society also need to be responsible for the success of numeracy skills. Thus, parents and the public need to know numeracy skills. Children need to be involved in activities related to numeracy: taking children to the market to buy daily necessities, paying attention to the distance and travel time when communicating, introducing other countries' currencies and calculating the value of the rupiah, and so on.

The educational challenges faced today are access to education for everyone, the quality of education is not evenly distributed, and the budget allocation and the seriousness of local governments in improving the quality of education (Syafii, 2018). For people in the 3T area, the problem becomes more complex, especially with the emergence of government policies related to online learning due to the Covid-19 pandemic (Kemendikbud, 2020). Online learning cannot be implemented properly in 3T areas. Some of the obstacles faced by the community in the 3T area are that the community does not have the awareness and ability related to digital literacy, the absence of online learning facilities and infrastructure such as communication tools, internet networks.

Other limitations, especially in the 3T area, are the lack of teachers' ability to use technology, the low motivation to learn in students, and the lack of government reach in distributing aid due to limited road access (Ulfiaturrohmah, Hargianti, & Diantoro, 2021). Teachers in the 3T area have received training in the use of information and communication technology online by the Education Information and Communication Technology Center (Pustekkom) of the Ministry of Education and Culture (Kusnandar, 2018). However, the use of ICT has not been directed to implement learning innovations.

Schools, parents, and the community need to make literacy habits for students. The involvement of these various parties can solve the problems faced in cultivating literacy in students (Purwadi, Hendrik, & Arafatun, 2019). It is hoped that literacy habituation and cultivation of students will continue considering that basic literacy is the basis for solving problems in the 21st century.

Literacy culture plays an important role for students. Literacy culture will increase students' scientific insight, improve student beliefs, make students sensitive to the surrounding phenomena (Ariyani, Habibah, & Puspita, 2021). Literacy culture can be started by growing awareness of reading among students by giving assignments to read journals/mass media and analyze journals.

At the higher education level, the basic literacy culture also needs to be improved. It is suspected that the spirit of building a literacy culture has not run optimally and students tend to experience shallow thinking (Syahriyani, 2010). Many final year students still have difficulty in composing sentences, discussing tables/pictures/diagrams, analyzing problems and so on. In addition, it is not uncommon for students to experience difficulties in discussing their data, conveying ideas systematically, logically, critically, analytically. As a result, student writings rarely appear in scientific journals or in newspapers.

Students' literacy and numeracy skills will optimize students' reasoning abilities. Furthermore, literacy and numeracy skills will encourage students' academic achievement. MeenuDev (2016) states that students' academic achievement is influenced by a good home environment and students' interest in learning.

literacy trains students to think at a higher order. Higher order thinking is related to Bloom's taxonomy (Heng & Ziguang, 2015). In Bloom's Taxonomy, the level of knowledge of students is divided into six levels, namely, 1) remembering, 2) understanding, 3) applying, 4) analyzing, 5) evaluating, and 6) creating (Anderson & Krathwohl, 2001). The first three levels are included in the category of low-level thinking, while the next three levels are included in the category of higher-order thinking. Higher order thinking is defined as logical, reflective, metacognitive, and creative critical thinking.

Higher-order thinking for each level of education is different. Higher-order thinking models are adapted to student development. In this case, the role and creativity of educators in developing students' higher-order thinking is very decisive. Educators should direct their students to think at higher levels in the learning process.

Minimum competency assessment (MCA) is an assessment that measures the ability of students to think at a higher level. MCA is used to replace the national exam. Some of the reasons for the abolition of the National Examination are the uneven distribution of educational facilities in Indonesia, the evaluation of the uniform model of the national education system, avoiding students dropping out of school, the National Examination cannot yet become an instrument of quality improvement, and the National Examination does not encourage the development of students' abilities as a whole. The abolition of the UN had actually been initiated by Prof. D. Muhadjir Effendy, M.A.P, when he was Minister of Education and Culture (Tashandra, 2016).

MCA as a substitute for the national exam aims to 1) obtain information on student achievement of the expected competencies, 2) produce information that triggers the improvement of the quality of teaching and learning, 3) provide

information about the level of student competence, 4) formulate effective and quality learning strategies according to the level of student achievement, 5) facilitate students master the content or competencies expected in a subject.

MCA is implemented to measure students' reading and numeracy skills. The components of literacy skills consist of, 1) content: informational texts and literary texts, 2) cognitive processes: determining information, interpretation and integration, and evaluation and reflection, 3) context: personal, cultural, and scientific. Meanwhile, the numeracy skills component consists of 1) content: numbers, measurement and geometry, algebra, data and uncertainty, 2) cognitive processes: understanding, application, reasoning, 3) connection: personal, socio-cultural, and scientific.

The questions developed in the MCA are contextual and stimulate students to think critically. The development of the questions to be tested is carried out through several stages as follows (Depdikbud, 2020).

Figure 2.
Stages of Question Bank Development
Source: Center for Assessment and Learning, Agency for Research and Development of Books, Indonesian Ministry of Education and Culture, 2020

The form of questions in MCA are very varied. The forms of the questions are multiple choice, complex multiple-choice, matchmaking, short entry, and essay (Depdikbud, 2020). The multiple-choice questions presented consist of main questions with several answers. Students are asked to answer questions by choosing one correct answer from several answers provided. Complex multiple choice allows students to answer more than one answer among the alternative choices. There is more than one correct answer in complex multiple choice. The form of matching questions measures students' ability to match/connect the two available information. Short entries require students to answer briefly, either words, phrases,

numbers, or symbols. Essay questions are description questions that require explanations/expressions from students based on their knowledge and experience.

The results of the MCA are categorized into four, namely the need for special intervention, basic, proficient, and proficient. In the category requiring special intervention, students have not been able to find and retrieve explicit information in the text or make simple interpretations. In the basic category, students are able to find and retrieve explicit information in the text and make simple interpretations. In the proficient category, students are able to make interpretations of the implicit information in the text, able to make conclusions from the results of the integration of some information in a text. In the advanced category, students are able to integrate some cross-text information, evaluate the content, quality, way of writing a text, and be reflective of the content of the text.

Measuring the ability of students is not an easy thing. Many factors affect student achievement. These factors include the personality of students, interactions with other people such as parents, teachers, and the larger system that surrounds students (Bertolini, Stremmel, & Thorngren, 2012). Bertolini, Sremmel, and Thorngren then adapted Bronfernbrenner's Bio-ecological model for the factors that influence student achievement as follows:
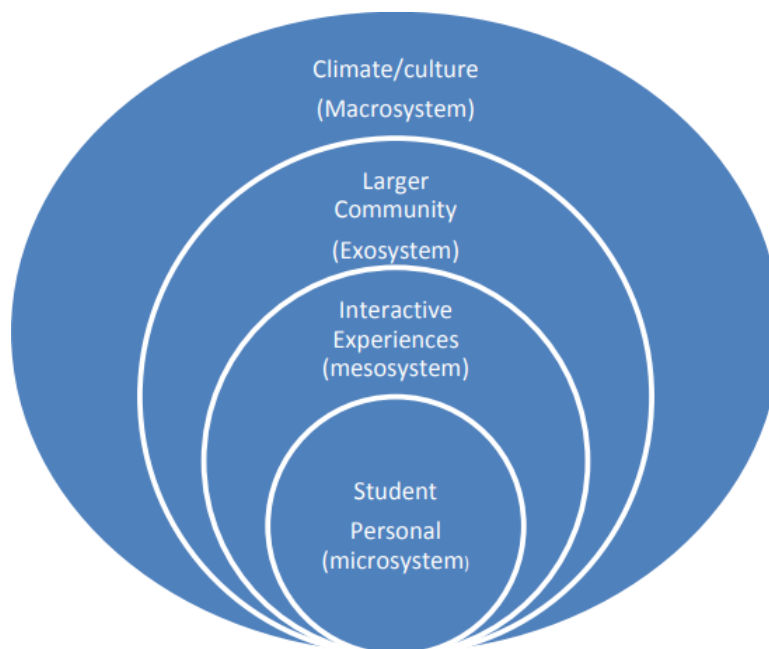

Figure 3. Bronfernbrenner's Bio-ecological Model
Source: Bertolini, Stremmel, & Thorngren (2012)

Student progress needs to be measured continuously, accurately, and comprehensively (Cunningham, 2012). These measurements are carried out to get a real picture of students (authentic). Authentic assessment shifts the old paradigm, namely the traditional paradigm because traditional assessment fails to assess the ability of students as a whole (Widharyanto & Prijowuntato, 2021). Based on the

explanation above, the research hypothesis is that literacy and numeracy skills affect student achievement in the higher education student from 3T zones.

RESEARCH METHOD

This study was quantitative study. Population of this study are students who are studying at the Faculty of Teacher Training and Education. Sampling is carried out with purposive samples. Purposive samples are taken because the population has certain characteristics related to the purpose of the study. The subjects of this study are students from 3T zones who are studying at the Faculty of Teacher Training and Education, Sanata Dharma University, Indonesia.

Data was collected using the literacy and numeracy skills instrument in June to August 2022. Instruments are categorized as high-level thinking instruments. Instrument development is carried out using a minimal competency assessment pattern. The variable of literacy skills was measured using an instrument developed by the researcher. The development of variable reading instruments is based on the development of MCA questions which include finding information, understanding, evaluating and reflecting. The numeracy skills variable was measured using an instrument developed by the researcher. The development of numeracy skills instruments includes numbers, geometry and measurement, algebra, and data and uncertainty domains. Student achievement variables are student competency achievements which are reflected in the GPA.

The data analysis technique used in this research is simple regression with a significance level of 5%. Before performing multiple regression test, the data were tested for normality and linearity.

RESULTS AND DISCUSSION
Results

The number of students who returned instruments amounted to 68 people from 80 instruments distributed. 57 respondents filled out the instrument completely. The data processing was based on 57 completed instruments that returned. There were 20 male respondents and 37 female respondents. The distribution of respondents' study programs is shown in Table 2 below.

Table 1.
Distribution of Respondent Study Program

No	Study Program	Respondent
1	Counseling Guidance	2
2	Management	2
3	Indonesian Language and Literature Education	1
4	Economic Education	2
5	Catholic Religious Education	1
6	Mathematics Education	1
7	Primary Teacher Education	48

Source: Primary Data

Based on Table 2, the ability to master numeracy skills from students from 3T can be classified as follows, 1) there are 84.21% classified as not mastering numeracy skills, 2) a total of 10.53% of respondents do not master numeracy skills, and 3) there are a number of 5.26% of respondents who have sufficient mastery of numeracy skills.

Table 2.
Mastery of Numeracy Literacy

No	Range	Respondent	%	Category
1	26 – 32	0	0%	Expert
2	21 – 25	0	0%	Master
3	18 – 20	3	5,26%	Quite master
4	13 – 17	6	10,53%	Less master
5	0 – 12	48	84,21%	Do not master

Source: Primary Data

Based on Table 3, the students' literacy skills mastery from the 3T zones are categorized as follows, 1) there are 73.68% of students who are categorized as not very good at reading literacy, 2) there are 19.30% of students who are classified as not mastering reading literacy, and 3) a total of 7.02% of students who have sufficient mastery of numeracy skills.

Table 3.
Mastery of Numeracy Literacy

No	Range	Respondent	%	Category
1	22 – 30	0	0%	Expert
2	20 – 23	0	0%	Master
3	17 – 19	4	7,02%	Quite master
4	12 – 16	11	19,30%	Less master
5	0 – 11	42	73,68%	Do not master

Source: Primary Data

the average cumulative achievement index of students is 2.66. this is included in the unsatisfactory category

The average of GPA students is 2.66. It is categorized as unsatisfied. Based on Table 4, GPA of students from the 3T zones are categorized as follows, 1) there are 3,5% of students who are categorized as with compliments, 2) there are 26,31% of students who are classified as very satisfy, and 3) a total of 24,56% of students who have satisfy, and 45% of students who are categorized as less satisfy.

Table 4.
Mastery of Numeracy Literacy

No	Range	Respondent	%	Category
1	> 3,50	2	3,5%	With compliments
2	3,00 < IPK ≤ 3,50	15	26,31%	Very satisfy
3	2,76 ≤ IPK ≤ 3,00	14	24,56%	Satisfy
4	< 2,76	26	45,63%	Unsatisfy

Source: Primary Data

The normality of the data for the three variables was tested using the Kolmogorov-Smirnov test with a significance level of 5%. The results of the data normality test show that the distribution of the data for the three variables follows a normal distribution.

The results of the numerical literacy variable linearity test show that the relationship between the GPA variable and numeracy skills is linear. The deviation from the linearity value is 0.897. This value is greater than the significance level of 0.05. The linearity test of the literacy skills variable shows that the relationship between the GPA variable and literacy is linear. The deviation from the linearity value is 0.170. This value is greater than the significance level of 0.05.

A simple regression test for numeracy variables shows that numeracy skills affect GPA. This influence is shown at a significance value of 0.036 < a significance level of 0.05. The contribution of numeracy skills variables to GPA is 0.077 or 7.7%. While the remaining 92.3% is influenced by other variables. This influence is included in the weak category with R=0.278. the influence of numeracy skills variables on GPA can be formulated mathematically as follows.

$$Y = 2.429 + 0.033X$$

This effect shows that an increase in X by 1 will cause Y to increase to 2,462. The results of the simple regression test for the literacy skills variable show that literacy skills affect GPA. This influence is shown at a significance value of 0.000 < a significance level of 0.05. The contribution of the literacy variable to GPA is 0.238 or 23.8%. While the remaining 76.2% is influenced by other variables. This effect is included in the moderate category with R=0.488. The influence of literacy skills variables on GPA can be formulated mathematically as follows.

$$Y = 1.911 + 0.076X$$

This shows that an increase in X by 1 will cause Y to increase to 1.987.

Discussion

Based on the explanation of the data above, the mastery of numeracy skills and literacy of students from the 3T zones is categorized as do not mastery. This is supported by data with the average numeracy skills ability of students from the 3T area of 7.12 and literacy skills ability of 9.96. These results reflect, students from the 3T zones have not been able to understand, use, and reflect on the existing problems. One of the possible causes is that students are not optimal in reading. This is in line with the findings of Muhid et al., (2020) which states that literacy skills need to be improved so that achievement can be maximized.

In terms of cognitive processes, students have not been able to find information either by finding, accessing or finding information that is written in the content about literacy. Students also do not understand the resulting information, combining interpretations between sections to produce conclusions. In addition, students have not been able to relate to the text with other things outside the text.

From the existing level of competence view, the students are included in the level of Need for Special Intervention. In the context of reading literacy, students

have not been able to find and retrieve explicit information in the text and make simple interpretations. In the context of numeracy skills, students have partial mastery of concepts and limited computational skills.

In the context of reading literacy, this finding needs to be followed up by stakeholders, both lecturers, principle of educational institutions, and local governments, in this case the education office. Lecturers need to invite students to read a lot not only on lecture material, but also other readings outside of lecture material. Lecturers need to work hard to increase students' awareness to read. In the digital era, knowledge can be easily obtained. Many sources of knowledge are easily accessible on the internet. Thus, students also need to be digitally literate so that they can easily use ICT to find useful reading (Warsihna, 2016).

Information about the low literacy skills of students needs to be addressed wisely by the management of educational institutions. Institutional managers can make special policies for students whose literacy skills are still low. For example, students are asked to spend time reading in the library, and give special classes outside of class hours. Continuous guidance can increase students' literacy awareness.

On the other hand, the local government in this case the education and culture department can make policies related to improving literacy skills. The policy currently being carried out in schools is literacy activities. Students, especially elementary, middle, and high school students are given time to read books. However, it is rare for teachers to check students' reading comprehension. Usually, after the literacy activity is finished, the teacher starts the lesson. The habits of students in primary and secondary education will have an impact on the habits of students in higher education.

In the context of numeracy skills, students' mastery of mathematical concepts is poor. Most students have not been able to use the concept of numbers and arithmetic operations skills in daily life (Nadjamuddin & Hulukati, 2022). Therefore, students need to be accompanied intensively in terms of recording, understanding, and learning.

Lecturers need to conduct diagnostic tests on students before learning begins. The purpose of this diagnostic test is to map students' initial abilities. Thus, lecturers can provide material according to the ability level of students. Lecturers also need to pay attention to the accuracy of students in working on questions, meaning of symbols, conceptual errors, principles and calculation procedures (Nadjamuddin & Hulukati, (2022); Sarlina, (2015))

From the results of the regression test, numeracy skills have an effect on students' GPA in the weak category and literacy skills has an effect on students' GPA in the medium category. Both of these literacies are basic literacy that must be mastered by students. The biggest effective contribution is reading literacy, which is 23.8%. Reading comprehension is the most important requirement in student learning success. In numeracy skills, especially word problems, students will easily understand, interpret, translate if students are proficient in reading.

Reading comprehension cannot be obtained instantly. Students need a process to be able to understand a reading well. The reading movement must start from childhood in the family environment (Wirawati, 2017). Families can get children used to reading stories, newspapers, magazines, textbooks, comics, and so on.

The growth of reading interest in student needs to be done systemically, both in the campus environment and in the student residence environment. Students are accustomed to reading and referencing scientific literature related to the subject. students are also accustomed to scientific discussions, are active in scientific forums (seminars/workshops), are asked to be active both in asking and answering questions. In this case, lecturers need to facilitate student activities in the learning strategies carried out.

CONCLUSION

Based on the results of the discussion above, it can be said that numeracy skills and literacy skills have a positive and significant effect on student GPA, but on numeracy skills the effect is weak (R=0.278) and on literacy skills the effect is moderate (R=0.488). Mathematically, the effect of numeracy skills on GPA is Y = 2.429 + 0.033X with a sig. value of 0.036 (less than α=0.05) and the effect of literacy skills on GPA is Y = 1.911 + 0.076X with a sig. value of 0.000 (less than α=0.05). According to the findings of this study, stakeholders must begin fostering numeracy and literacy skills in students at an early age. Because of heteroscedasticity in those variables, this study was unable to determine the effect of numeracy and literacy skills on GPA simultaneously. Therefore, further research should be conducted to investigate not only the mastery of literacy and numeracy skills and their influences on GPA, but also their effect on employability skills because it is critical to prepare graduates of higher education for the job market.

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