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# Level of Students' Digital Literacy Ability Entering the New Normal Era

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**ABSTRACT**

The COVID-19 pandemic has changed the pattern of human life, including the education sector. The rapid development of digital technology is very helpful in overcoming learning problems during a pandemic as well as accelerating digital transformation in the education sector, both online learning methods and the use of digital simulations as learning technology. This study aims to measure the level of digital literacy skills of students based on the characteristics of students entering the new normal era. This study uses a quantitative descriptive approach. The population is all students studying in Depok City with a sample of 410 students obtained by random sampling. The results of the study showed that the level of student digital literacy skills of 75.3% could be included in the Good category. There is no significant difference in the level of digital literacy ability based on gender and student residence, but there is a different trend based on age and year of study, where the higher the age or year of study the higher the level of digital literacy ability, and based on the source of tuition fees for scholarship recipients. Full level indicates a higher level of digital literacy ability. In conclusion, the level of digital literacy of students could be included in the Good category. There is no difference in the level of digital literacy ability based on the gender and place of residence of students, but there are different trends based on age, year of study, and source of student tuition fees.



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## 1. INTRODUCTION

The rapid development of digital technology in the era of the Industrial Revolution 4.0 and Society 5.0 has an impact on very fast changes in patterns of life and business, changes in the world of education. In this era, students are required to master 21st century competencies including 6C (Communication,

Collaboration, Critical Thinking, Citizenship, Creativity, and Character) from data literacy, technology literacy, and human literacy. This condition is both a hope and a challenge for students in completing the college process and preparing to enter the world of work. The COVID-19 pandemic requires educational methods to change drastically, learning which was generally done face-to-face must be changed to online learning, both lecturers and students experience many obstacles, both utility ones, such as difficult signals, internet quotas that add to the cost burden, as well as good digital literacy, in skills, ethics, safety and culture. After the pandemic enters the new normal era, of course, learning methods will also adapt to current conditions. The combination of online and offline learning is expected to further optimize the knowledge transfer process from lecturers to students. Digital transformation in the world of education has become a necessity as a consequence of changing times. It is important to know how students are prepared to enter the new normal era. This study aims to determine the level of digital literacy skills of students.

According to (Lankshear, Colin Knobel 2008) digital literacy is an ability possessed by individuals to use digital devices to access, manage, integrate, evaluate, analyze digital resources in order to build new knowledge, create media of expression, and communicate with others in certain situations. The use of digital tools aims to realize social development from several forms of literacy, namely: computers, information technology, visual, media and communication. This is also in line with the thinking (Bawden 2001) which means that digital literacy is a human ability to use and utilize information from various digital sources that are accessed through computers.

Digital literacy can also be interpreted as the ability of individuals to apply their skills on digital devices to find and select information, think critically, be creative, collaborate, and communicate while still paying attention to electronic security and the socio-cultural context that develops around them (Hague dan Payton 2010). UNESCO in the article "A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2." defines digital literacy as the ability to access, manage, understand, integrate, communicate, evaluate and create information safely and appropriately through digital technology for employment, decent work and entrepreneurship. It includes competencies that are variously referred to as computer literacy, ICT literacy, information literacy and media literacy (Law et al. 2018).

From the understanding that has been stated in the previous paragraph, digital literacy is not just a person's effort to use digital devices, digital literacy is a person's ability to use digital information to meet their needs without compromising electronic security that is dangerous and safe. Including the development of the socio-cultural context. Students with good digital literacy skills have the ability to find the information needed on digital networks/internet to be a factor in the success of academic learning (Dinata 2021). Digital literacy skills will open opportunities for students to think, communicate, and create which ultimately leads to learning success (Sujana dan Rachmatin 2019).

## 2. METHOD

This study uses a quantitative descriptive approach and a cross section approach. Data collection in this study was conducted through a questionnaire. The analysis was carried out by examining the level of achievement of the respondents based on the characteristics of the respondents, in this case students. The population in this study were all students studying at universities in Depok City area. the number of samples as many as 410 students were taken based on random sampling.

Digital literacy ability in this study was measured based on aspects developed by UNESCO which were adapted and in accordance with the needs of this research. The aspects of digital literacy are Information and data literacy, Communication and Collaboration, Digital content creation, Safety, Problem Solving (Law et al. 2018). The indicators which are derived from existing aspects and implemented into statements in the questionnaire are 20 items with 11 items being favorable and 9 items being unfavorable. From the results of the validity test using a sample of 30 students, it is known that the rcount value of item no.3 (0.164) and item no. 10 (0.286) < from rtable (0.361) and 18 other statement items have a value of rcount > rtable. This result shows item no. 3 and no. 10 is invalid so it is excluded from the instrument. While the other statement items can be said to be valid and the statement items are used for

research instruments in the field as outlined in the questionnaire. After items no. 3 and no. 10 were issued, a reliability test was carried out. The reliability coefficient was obtained from the calculation of the Cronbach Alpha coefficient of 0.931. These results show that the Digital Literacy Ability instrument has very high reliability. The final instrument used for the Digital Literacy Ability variable used 18 items.

The assessment of the instrument uses a rating scale, namely: SDA (Strongly Disagree), DA (Disagree), N (Neutral), QA (Quite Agree), SA (Strongly Agree). Assessment with a Likert scale that using a numbering approach of 1 to 5, where for items that are positive SDA: 1, DA: 2, N: 3, QA: 4, SA; 5 and negative SDA : 5, DA : 4, N : 3, QA : 2, SA : 1.

Because in this study uses a questionnaire with a Likert scale. Descriptive analysis aims to describe the characteristics of each research variable. By presenting the data into a frequency distribution table, calculating the average score, total score, and the respondent's level of achievement (TCR) and interpreting it. This analysis does not relate one variable to another and does not compare one variable with other variables. To find the level of achievement of respondents' answers, the following formula is used:

$$RLA = \frac{Average\ Score}{Maximum\ Score} \text{x } 100$$

RLA = Respondent's Level of Achievement

In this study, the largest score was 5, while the smallest score was 1, so the largest percentage value was (5/5) x 100% = 100%, while the smallest percentage value was (1/5) x 100% = 20%. Thus the range of values is 100% - 20% = 80%. If it is divided into five categories, then the percentage interval value is 80:5 = 16%. The principle of categorizing the number of respondents' response scores was adopted from (Arikunto 2014). Thus the level of achievement of respondents (RLA) can be categorized as in the following table,

| No | INTERVAL (%) | CATEGORY |
|---|---|---|
| 1 | 20 - 36 | Very Bad (VB) |
| 2 | 36 -52 | Bad (B) |
| 3 | 52 -68 | Good Enough (GE) |
| 4 | 68 -84 | Good (G) |
| 5 | 84 -100 | Very Good (VG) |

**Tabel 1. Respondent's level of achievement category**

## 3. FINDINGS AND DISCUSSION

Based on the responses of 410 student respondents to the 18 items of the instrument, it was found that the percentage of achieving the total score to the ideal score was 75.3%. The percentage is in the range of 68% to 84% which is categorized as good. Thus, a conclusion can be drawn that based on the respondents' responses, the Respondent's Level of Achievement on the Academic Resilience variable is included in the Good category. In Table 4-13 it can be seen that from 18 instrument items, 2 instruments are in the Very Good category, 11 instrument items are in the Good category and there are 5 instrument items included in the Good Enough category, and 1 instrument item is in the Not Good category.

| Respondent | Level of Achievement Respondent Category | | | | | Total |
|---|---|---|---|---|---|---|
| | VB | B | GE | G | VG | |
| Total | 0 | 8 | 120 | 219 | 63 | 410 |
| Percentage | 0,0% | 2,0% | 29,3% | 53,4% | 15,4% | 100% |

**Table 1. RLA Distribution on Digital Literacy Ability**

Table 2 shows the RLA distribution of the Digital Literacy Ability variable based on the respondent's characteristic data. There were 8 (2.0%) in the Bad category, 120 (29.3%) in the Good Enough category, 219 (53%) in the Good category and 63 (15.4%) in the Very Good category.

| Category | Respondent Characteristic | RLA Average | Distribution Level of Respondent Achievement | | | | |
|---|---|---|---|---|---|---|---|
| | | | VB | B | GE | G | VG |
| Gender | Male | 73.9% | 0.0% | 0.0% | 25.3% | 64.7% | 10.0% |
| | Female | 74.5% | 0.0% | 0.0% | 22.7% | 63.8% | 13.5% |
| Age Range | 18 - 20 years old | 73.6% | 0.0% | 0.0% | 26.3% | 64.2% | 9.5% |
| | 20 -22 years old | 74.7% | 0.0% | 0.0% | 21.7% | 63.6% | 14.7% |
| | 22 -24 years old | 76.2% | 0.0% | 0.0% | 16.1% | 77.4% | 6.5% |
| College year | 1st year | 73.2% | 0.0% | 0.0% | 28.3% | 57.6% | 14.1% |
| | 2nd year | 74.8% | 0.0% | 0.0% | 16.7% | 73.8% | 9.5% |
| | 3rd year | 74.1% | 0.0% | 0.0% | 27.0% | 60.7% | 12.3% |
| | 4th year | 75.0% | 0.0% | 0.0% | 21.4% | 66.1% | 12.5% |
| Education Level | Bachelor degree | 73.1% | 0.0% | 0.0% | 23.1% | 64.9% | 12.0% |
| | Diploma | 74.5% | 0.0% | 0.0% | 26.5% | 60.3% | 13.2% |
| Source of Financing | Self-Expense | 74.2% | 0.0% | 0.0% | 24.7% | 63.8% | 11.5% |
| | Partially Scholarship | 74.1% | 0.0% | 0.0% | 26.4% | 56.6% | 17.0% |
| | Full Scholarship | 75.3% | 0.0% | 0.0% | 13.3% | 75.6% | 11.1% |
| residence | With Family | 74.3% | 0.0% | 0.0% | 23.3% | 65.3% | 11.4% |
| | Boarding and Dormitory | 74.2% | 0.0% | 0.0% | 24.7% | 60.2% | 15.1% |

**Table 2. RLA Average and Distribution**

**1. Level of Achievement based on Gender**

The average level of respondent's achievement for male is 73.9% and for female is 74.5%. The table shows that the distribution of RLA Digital Literacy Ability for male gender is 25.3% in the good enough category, 64.7% in the good category and 10.0% in the very good category. Meanwhile, for female gender, the distribution of RLA is 22.7% in good enough category, 63.8% in good category and 13.5% in very good category. From the data above, it can be concluded that the results of this study indicate that there is no significant difference based on gender in the Digital Literacy Ability variable.

**2. Level of Achievement based on Age**

The average level of achievement of respondents for the age range of 18-20 years is 73.6%, the age range of 20-22 years is 74.7%, and the age range of 22-24 years is 76.2% so that all fall into the Good category. The table also shows that there is a tendency that the higher the age of the respondents, the higher the Respondent's Level of Achievement in Digital Literacy Ability. The distribution of respondents' level of achievement is based on age range, where the majority are in the Good category, where for the age of 18-20 years it is 64.2%, for the age of 20-22 years is 63.6%, and 22-24 years is 77.4%. This condition shows that there is a tendency to increase the level of respondent's achievement where the higher the age of the respondent, the higher the level of digital literacy ability.

**3. Level of Achievement based on Education Level**

The average level of respondent's achievement for Diploma education level is 73.1% and for Bachelor Degree level is 74.5%. Both Diploma and Bachelor Degree are included in the Good category. The distribution of respondents' achievement levels based on education level shows that the majority are in the Good category, where for the Bachelor Degree level as much as 64% and for the diploma level as much as 60.3%. These results can be interpreted that the level of digital literacy at the Bachelor Degree level of education is higher than the Diploma level.

**4. Level of Achievement based on College Year**

It can be seen that the average level of achievement of the first year student respondents is 73.2%, the second year is 74.8%, for the third year is 74.1% and for the fourth year is 75.0%, so all the characteristics respondents have the level of achievement of respondents in the Good category. Distribution of respondents' level of achievement on digital literacy skills by year of college. The figure shows that the highest distribution is in the Good category, with the percentage for the 1st year of 57.6%, for the 2nd year of 73.8%, for the 3rd year of 60.7%, and for the 4th year of 66.1%. From the average data and the distribution of respondents' achievement levels, it can be seen that there is a tendency for an increase in the RLA of Digital Literacy Ability along with the increasing number of years of college. This can be interpreted that the more the college year, the better the digital literacy skills.

**5. Level of Achievement based on Source of tuition**

It can be seen that the average level of respondent's achievement on the variable of digital literacy ability based on the source of financing, for Self-Expense is 74.2%, for Partial Scholarship is 74.1%, for Full Scholarship is 75.3%, all three are in the Good category. Distribution of respondents' level of achievement on digital literacy skills based on the source of tuition fees. The figure shows that the highest distribution is in the Good category, with a percentage of 63.8% for respondents who pay for themselves, 56.6% for partial scholarship recipients, and 75.6% for full scholarship recipients. From the average data and distribution of respondents' level of achievement based on the source of tuition fees, it is seen that respondents who receive full scholarships have a higher level of achievement than recipients of partial and self-funded scholarships.

**6. Level of Achievement based on Residence**

The level of achievement of respondents on the variable of digital literacy ability for respondents who live with their families is 74.3% and for respondents who live in boarding houses and dormitories it

is 74.2%. Both those who live with family, boarding houses or dormitories are included in the Good category. There is no significant difference based on the characteristics of the respondent's residence in the RLA of the Social Support variable. Distribution of respondents' level of achievement on digital literacy skills based on the respondent's place of residence. The figure shows that the highest distribution is in the Good category, with a percentage of 65.3% for respondents who live with their families, and 60.2% for respondents who live in boarding houses or dormitories. From the average data and the distribution of the respondents' level of achievement based on the respondent's place of residence, it can be interpreted that there is no significant difference based on the respondent's residence to the respondent's level of achievement for digital literacy skills.

The results of the respondent's level of achievement on digital literacy skills are based on the percentage of the total score against the ideal score of 75.8%, this result is in the range of 68% to 84%, which means it is in the Good category. In terms of distribution, the highest level of respondent achievement was in the Good category as much as 219 (53%), then 120 (29.3%) in the Fairly Good category, 63 (15.4%) in the Very Good category, and the smallest in the Bad category with 8 (2.0%) respondents. These results illustrate that the majority of students who are studying at universities in Depok City area have a good level of digital literacy skills.

In the aspect of information and data literacy, the respondent's level of achievement is good, so it can be interpreted that students have good abilities to articulate information needs, find and retrieve digital data, information and content, assess the relevance of sources and their contents, and store, manage, and organize data, information and digital content. This good ability is very supportive in completing assignments in lectures. In the aspect of communication and collaboration, it can be seen that some students still have obstacles in online learning and the use of digital media to share information, for this item the level of achievement is still in the Good Enough category. This problem cannot be separated from the constraints of facilities and infrastructure owned by students, several obstacles in online learning including the availability of internet services, weak signals and quotas that require fees (Sadikin dan Hamidah 2020). Another problem is the loss of focus, this is the most cited reason why students who did not succeed in online lectures and did assignments according to schedule (Bauer 2019).

In the aspect of Digital Content Creation, which relates to digital skills and digital ethics, there are still some who are in the Good Enough category. Seen obstacles in the operation of the application in supporting the completion of college assignments. This condition is in line with the results of research (Ririen dan Daryanes 2022) where students' ability to communicate online, critical thinking skills and ethics in using technology are in the Good Enough category.

In the safety aspect, it is seen that the achievement is not good where the use of gadgets for more than 12 hours has a low rate of 48.6%. This means that 51.4% use the device more than 12 hours a day. This condition greatly affects physical and mental health. Although the use of devices can support online learning, there are negative impacts that need attention and anticipation, namely excessive use of devices. Some of the impacts of excessive use of gadgets include radiation that can interfere with health, disturbed sleep patterns, emotional problems and social behavior such as impaired social interaction with the environment and reduced physical activity due to gadget addiction. This is supported by research results (Chaidirman, Indriastuti, dan Narmi 2019). In the problem solving aspect, there are instruments in the sufficient category, where the tendency of students to rarely update software with the latest version. This condition indicates that there are still quite a lot of students who do not understand the importance of updating software. Software updates are the easiest way to keep your device safe, apart from improving performance and beautifying your appearance. However, at the level of ability to identify needs and problems and to solve conceptual problems and problem situations in a digital environment, especially to support life, they fall into the Good and Very Good categories. These results are also in line with research (Dinata 2021) (Ririen dan Daryanes 2022).

There is no significant difference between men and women in the level of respondents' achievement of digital literacy skills, where for the male gender it is 73.9% and for the female it is 74.5%. Both men and women are included in the good category. The development of digital technology makes it easier to access,

manage, integrate, evaluate, and analyze digital resources, so that there is no longer any difference based on gender. The results of this study are also supported by research results (Iswadi dan Apriyanto 2021) which in their research stated that there were no significant differences between men and women.

For the age characteristics of the respondents, it appears that there is a tendency to increase with increasing age, in the processed research data for ages 18-20 years is 73.6%, for ages 20-22 the LRA is 74.7%, for ages 22-24 years is 76, 2%. This tendency is the same as the characteristics of the college year, the higher the year of study the higher the respondent's achievement. This result relates to the experience of interacting through digital media. This result is different from research (Ririen dan Daryanes 2022) which shows a downward trend in second semester students of 77.8% and fourth semester of 76.6%. However, it is in line with the results (Güneş dan Bahçivan 2018) which say that someone who is more experienced has stronger literacy skills than someone who is less experienced.

The level of achievement of respondents on the variable of digital literacy ability based on education level, for Diploma education level is 73.1% and for Strata 1 education level is 74.5%. It can be seen that the strata 1 level is higher than the Diploma level. Likewise for the science cluster where for Science and Technology it is 75.26%, the Social sciences and Humanities clump is 73.68%, it is seen that Science and Technology is higher than Social and Culture. This difference is the influence of education patterns, both differences in education patterns at the Diploma and Strata 1 level or the science and technology clumps with Social and Humanities. From the average data and distribution of respondents' level of achievement based on the source of tuition fees, it is seen that respondents who receive full scholarships have a higher level of achievement than recipients of partial and self-funded scholarships. It can be interpreted that digital literacy skills can support student achievement.

At the level of achievement of respondents based on place of residence, there is no significant difference, where for respondents who live with their families it is 74.3% and for respondents who live in boarding houses and dormitories it is 74.2%. This is because the impact of digital technology is being able to carry out activities anywhere. All digital and electronic activities with data as their main role, individuals are no longer limited to space and time, they can conduct transactions electronically anywhere, with anyone and anytime (Danuri 2019).

## 4. CONCLUSION

The level of digital literacy of students is included in the Good category. There is no difference in the level of digital literacy ability based on gender and student residence, but there are different trends based on age, year of study, group of knowledge, and source of student tuition fees. Digital transformation in the world of education needs to be accompanied by increasing the competence of lecturers in digital literacy in order to optimize the transfer of knowledge to students mastering 21st century competencies.

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