Journal of Education Technology
Volume 6, Number 4, 2022 pp. 663-673
P-ISSN: 2549-4856 E-ISSN : 2549-8290
Open Access: https://ejournal.undiksha.ac.id/index.php/JET

Does Digital Literacy Influence SDL Performance of Pre-Service Educators?

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ARTICLE INFO

Article history:
Received April 24, 2022
Revised April 27, 2022
Accepted October 12, 2022
Available online November 25, 2022

Kata Kunci:
Literasi Digital, Belajar Mandiri, Calon Guru

Keywords:
Digital Literacy; Self-Direct Learning; Pre-Service Educators

DOI:
https://doi.org/10.23887/jet.v6i4.46592

ABSTRAK

Perkembangan teknologi berbanding lurus dengan kemajuan pendidikan. Hal ini mengharuskan siswa untuk terus meningkatkan kapasitas belajar, termasuk menggunakan teknologi untuk mendukung pembelajaran. Kemampuan siswa memanfaatkan platform digital merupakan salah satu kemampuan yang harus dimiliki mahasiswa untuk dapat menghadapi era baru abad ke-21. Tujuan dari penelitian ini adalah menganalisis literasi digital mahasiswa calon guru dan pengaruhnya terhadap kemampuan belajar mandiri menghadapi kecakapan abad 21. Penelitian ini menggunakan pendekatan kuantitatif dengan tipe korelasional. Populasi berjumlah 84 siswa aktif. Pengumpulan data dilakukan dengan melakukan survei dan menyebarkan kuesioner. Instrumen yang digunakan dalam angket literasi digital dan self direct learning. Teknik analisis data menggunakan analisis regresi linier sederhana. Studi ini menemukan bahwa korelasi antara variabel positif tetapi termasuk dalam kategori rendah. Sebaliknya, indikator setiap variabel memiliki skor atau nilai yang baik dengan kemampuan pemanfaatan teknologi digital sebesar 76,12% dan evaluasi 62,97%. Disimpulkan semakin tinggi literasi digital seseorang, maka semakin tinggi kekuatan kemampuan belajar mandiri seseorang. Pembelajaran melakukan self-management berhubungan signifikan dengan keterampilan literasi informasi yaitu menganalisis informasi. Perbedaan kemandirian mengakibatkan perbedaan kemampuan dalam menyerap materi dan menggunakan teknologi secara tepat.

ABSTRACT

The development of technology is directly proportional to the progress of education. It requires students to continue to improve their learning capacity, including using technology to support learning. The ability of students to use digital platforms is one of the skills students must have to be able to face the new era of the 21st century. This research aims to analyze prospective teacher students' digital literacy and its effect on independent learning ability to face 21st-century skills. This research uses a quantitative approach with a correlational type. The population is 84 active students. Data collection was carried out by conducting surveys and distributing questionnaires. Instruments used in digital literacy questionnaires and self-directed learning. Data analysis technique using simple linear regression analysis. This study found that the correlation between the variables was positive but included in the low category. Conversely, the indicators for each variable have a good score or value with the ability to use digital technology of 76.12% and an evaluation of 62.97%. It is concluded that the higher a person's digital literacy, the higher the strength of a person's independent learning ability. Learning to do self-management is significantly related to information literacy skills, namely analyzing information. Differences in independence result in differences in the ability to absorb the material and use technology appropriately.

1. INTRODUCTION

The ability to utilise digital technology and explore digital information is one of the skills that students must have to adapt to the global challenges of the 21st century (Astuti et al., 2021; Nahdi & Jatisunda, 2020; Setiaji & Dinata, 2020; Techataweewan & Prasertsin, 2018). Digital technology is closely related to education today, supporting the learning process. The transformation of online learning into one of the alternatives to implementing learning in college because students with pedagogical concepts can learn independently with network-based learning. The use of various digital platforms is a novelty in online education as a result of the success of the learning process (Benson & Kolsaker, 2015; Sutriyani, 2020). The transition of learning applied in education, especially by students, makes students use technology more to find information from the internet (Li et al., 2021; Yilmaz & Korur, 2021). It becomes a novelthis become proving that digital technology has become a crucial inseparable part of the educational aspect (Benson & Kolsaker, 2015; Sunarya et al., 2020).

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The ability to use technology should be in line with technological development. Undergraduate student uses of technology include finding information and using information obtained to learn closer to student centres and self-direct learning (Ridha Rizki Novanda, 2019; Silamut & Petsangsri, 2020). Alternatively, self-learning requires a variety of skills separate to use this technology appropriately. In addition, academic exploration is relevant for students to gain a learning experience following their field and self-actualisation for student creativity (Bullock, 2013; Suárez-Perales et al., 2021). The ability to adapt to digital technology can improve literacy skills, increase analytical thinking motivation in learning new things, increase the effectiveness of communication and increase the level of (Guri-Rosenblit, 2018; Setiaji, 2018). In addition to using digital-based technology and supporting the achievement of goals considered to make it easier for a person to carry out the fulfilment of self-direct learning responsibilities (Bullock, 2013; Ilomäki & Lakkala, 2018).

A student with digital devices firmly supports to do independent learning (Anderson & Rivera-Vargas, 2020; Lomicka & Ducate, 2021). A learning environment supported by adequate digital technology is considered a solution to their knowledge, especially in students who enter adulthood because adults have skills. A more critical learning style in its development This is in line with Bullock's opinion that using and utilising of digiutilisationogy make it easier for a person to optimize learning independently (Bullock, 2013). The rapid development of technology requires students to have the ability to learn independently and quickly in understanding to adjust to the development of science.

In addition, it can also be used as advice for exploring the resources available to support being an active learner. The aspects of digital literacy have similarities with the characteristics of individuals with high self-learning (Chan et al., 2017; Patmanthara & Hidayat, 2018; Walsh, 2017). Bracey reveals that the traits of a person with independent knowledge are as follows: critical, creative, able to observe, a good listener, and quite responsive to various Clarifying that a student's self-study ability can be reviewed using their digital literacy competence. The evidence that strengthens the link between self-learning ability and digital literacy is research conducted stating that technology will enhance students' self-study (Akbar & Anggraeni, 2017; Bullock, 2013).

In order to optimize information literacy skills, including utilizing various information technology facilities provided by the university, students are still not optimal to find appropriate and fast information. The role of prospective teacher students in concluding information literacy includes several criteria, and what can only be actively implemented by students there are two criteria, namely identification and application (Agbenyegah & Dlamini, 2019; Ridha Rizki Novanda, 2019). Students as learners and are required to be ready to do information literacy cannot escape technological developments.

In comparison, other factors aren't connected because most students don't seem to be common to self-directed learning, while access to digital literacy is straightforward. to enhance the digital competence of pre-service educators and advance in their professional development, propose some practical strategies (Cabezas-González et al., 2021). Research on digital literacy has previously been conducted states that digital literacy skills are influenced by digital literacy skills several factors of differences in ownership, communication costs, and age factors of first using technological devices (Quaicoe & Pata, 2020; Tejedor et al., 2020; Yanti, 2016). Not many have discussed that it's necessary to find out independently of the technology within the use of technology.

Based on these problems, it's essential to investigate how digital literacy relates to the self-direct learning of prospective teacher students. This study aims to research the link between digital literacy and students' ability to try and do self-direct learning. during this case, nobody has discussed digital literacy associated with independent learning, especially for prospective teacher students. The authors limit the matter of digital literacy ability to operating, thinking, collaboration, and awareness skills. This study will identify the dominant factors that are shown to influence self-directed learning on digital literacy skills by prospective teacher students.

The American Library Association also defines information and communication technology as requiring cognitive and technical skills. Digital literacy is a general concept for developing skills using responsible technology (Reddy et al., 2020; Techataweewan & Prasertsin, 2018). There are at least three levels in the development of digital literacy, among others the first level of digital competence, which includes skills in understanding concepts, advancedness, and attitudes in technological competency knowledge. The second level is the use of digital that includes application and professionalism in digital use. The third stage is digital transformation that includes innovation and creativity in developing or discovering digital information (Beetham et al., 2009). The combination of dynamic thinking, knowledge, behaviors, and skills transforms and enhances undergraduate students through digital information, technology, and broad media (Techataweewan & Prasertsin, 2018; Tomczyk, 2020).

Skills that emphasize literacy must connect in the digital age, not only limited to the ability to read, hear, write and speak orally, there are at least seven elements in the development of digital literacy, including information of literacy, digital use, eager to learning skills, ict literacy, career identity & management, communication &collaboration, media literacy includes critical skills in reading, creative in scientific and professional communication in various (Beetham et al., 2009; Black et al., 2019). Digital literacy also has criteria that are the benchmark of a person's digital literacy, consisting of four factors that implicitly contain 12 indicators,

namely: the first factor is related how to operating technology skills consisting of cognition skills, discovery skills, and presentation, the second factor is how thinking skills to improve technology consisting of analysis, evaluation, and creativity, the third factor is collaboration skills consisting of teamwork, Teamwork, teamwork. Networking, and sharing, the fourth factor is mindfulness skills consisting of ethics, legal literacy, and self-care (Asad et al., 2020; Techataweewan & Prasertsin, 2018).

Directed learning is skills to learn self-sufficient or increase personal knowledge, expertise, achievement, and development within self-study planning initiatives. Self-study, recognising the need to learn by creating self-study strategies and assessing independent learning outcomes. (Bullock, 2013; Hanik, 2020). Self-direct learning positively affects undergaffectnd graduate education students The central part of Creativity and Innovative A student to Face challenge Learning (Akbar & Anggraeni, 2017). in other words, consistsist of a process in which students, within or without the help of others, take the initiative to indicate learning needs, formulate student goals of learning, identify humthe an, environment and material resources for learning, select and implement appropriate learning strategies, and evaluate all of the learning outcomes. Self-study is a way of developing learning objectives by pursuing the required scientific fields and exploring information as a resource for independent learning (Silamut & Petsangsri, 2020; Walsh, 2017).

The development of self-directed learning has at least three factors that influence self-learning, namely first, people, including individual characteristics, such as creativity, critical thinking, enthusiasm skills, life experience in environment, life satisfaction, motivation, previous education, resilience and self-concept. Second, process, involving teaching and learning transactions, including facilitation, skills learning styles, planning, organization and assessment skills, teaching style and ability to use technology. Third, context (content) covering environmental aspects and climates socio-political, such as culture, power, learning environment, finance, gender, learning (Banyu Biru et al., 2020; Nasri & Mansor, 2016).

This is in line with the development of education within science and technology will contribute to the improvement of human self-learning skills. Some of the stages pursued to achieve students self-study skills include first, readiness motivates students to learn new things, to ensure students are ready to learn. Second, set goals after readiness, followed by determining goals in learning. Third, planning, the next important thing to do good planning. Fourth, learning activities, the implementation of learning activities related to self-study applications such as finding sources of information from the internet. Fifth, evaluation of learning, discussing learning that has taken place and improving certain things becomes essential in becoming self-learning (Silamut & Petsangsri, 2020; Walsh, 2017). Seeing the importance of digital literacy for prospective teacher students regarding its effect on independent learning abilities, so the purpose of this research is to analyze the digital literacy of prospective teacher students and its effect on independent learning abilities to face 21st-century skills.

2. METHOD

The study used a quantitative approach with a correlational type to look out correlations and relationships between variables. The population used in this study is an active student of the 4th grade of the madrasah teacher education program UIN Sunan Kalijaga Yogyakarta, which amounted to 84 active students. The entire population was used for data retrieval in this study, so this study is a population study. Data collection uses Likert scale type questionnaires. The instrument used in digital literacy and self-direct learning questionnaires was distributed to be filled by UIN Sunan Kalijaga Yogyakarta students pre-service elementary educators.

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Table 1 Variable Indicator

Variable	Aspects
Digital Literacy (Beetham et al., 2009)	Knowledge of various digital media Competence in the use of various digital media Ability to find information following the rules of use of digital media Creating innovation through creativity

Variable	Aspects
Self-Direct Learning (Walsh, 2017)	The ability to use digital media to develop the ability of self-learning Readiness to face new things Set learning goals Determine the source of learning that suits. Choosing a learning strategy Evaluating the learning

The validity of the instrument using the Product *Moment* and Rehabilitation Test using *Alfa Cronbach* was discovered by Karl Pearson. Statistically aimed to determine the relationship (correlation) between the two variables explained in the correlation coefficient. Data analysis techniques use simple linear regression analysis with the help of SPSS version 2.4. Interpretation of Correlation Coefficient showed in Table 2.

Table 2 Interpretation of Correlation Coefficient

Coefficient Interval	Relationship Level
0,00-0,199	Very Low
0,20-0,399	Low
0,40-0,599	Keep
0,60-0,799	Strong
0,80-1,00	Very Strong

(Sugiyono, 2012)

3. RESULT AND DISCUSSION

Result

The questioner's research results were previously distributed to pre-educator students to obtain the data. The validity test and reliability were calculated before the questionary was disseminated to determine the instrument's validity and the question items compiled. How to calculate the validity of one of them using a way to compare the table of r and calculate of r, the instrument must be valid if the calculate of r is greater than the table of r. The table for the calculation of the table of r obtained the magnitude of 0.279. From the results of the validity and reliability Test calculation using SPSS. The next step is to find the Reliability Test to discover the level of reliability of the item, use the value of Cronbach alpha with the help of SPSS, an instrument said to be reliable if the Cronbach alpha value is at least 0.07—judging from the results of SPSS each instrument in each variable, namely Digital Literacy Variable of 0.798 and Self-Direct Learning Variable of 0.758. So it can be concluded that the strum questionnaire is valid and reliable and can be used as a measuring tool in research. To find the correlation between digital literacy variables and *self-direct learning*, use spss statistics with product-moment correlation statistics, but perform correlation tests with several prerequisites for classical assumption tests. Among them must ensure the data is distributed normally and linearly, for that first conducted a normality test and a linearity test on both variables. Test of normality showed in Table 3. Test of Linear showed in Table 4.

Table 3 Test of Normality

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistics	Df	Sig.	Statistics	Df	Sig.
DL	0.123	48	0.068	0.970	48	0.243
SDL	0.083	48	0.200	0.978	48	0.496

Table 4 Test of Linear

Model			Sum of Squares	Df	Mean Square	F	Sig.
SDL * DL	BetweenGroups	(Combined)	2242.917	27	83.071	0.631	0.869
		Linearity	672.045	1	672.045	5.101	0.035
		Deviation from Linearity	1570.871	26	60.418	0.459	0.969
	Within Groups		**2635.000**	**20**	**131.750**		
	Total		**4877.917**	**47**			

Based on the table above, linearity can be seen by looking at the value f and the signification value in the deviation form, known sig value of 0.969. It can be concluded when sig > 0.05 data between variables is linear. Based on the value of the calculated r (Pearson Correlation): If the value of r calculates the > r of the table, then there is a correlation between variables, and vice versa if the value of r calculates < r of the table, then there is no correlation between variables. Several criteria can determine how strong or quality of relationships between variables. This study uses correlation analysis techniques to test hypotheses using *product-moment* correlation. The value of the correlation coefficient is calculated using the product correlation formula. After generating a correlation value, the interpretation of the correlation coefficient showed in Table 5.

Table 5 Correlation Product Moment

		DL	SDL
DL	Pearson Correlation	1	0.571
	Sig. (2-tailed)		0.009
	N	48	48
SDL	Pearson Correlation	0.571	1
	Sig. (2-tailed)	0.009	
	N	**48**	**48**

In addition to knowing each variable's "excellent" category, a correlation test was conducted to determine the relationship between the two variables. The correlation results, the relationship of the two variables showed a correlation confession of 0—571 with the signification of 0.009 and practical contribution of 19%. Score of Variable Indicator showed in Table 6. Result of Digital Literacy showed in Figure 1.

Table 6 Score of Variable Indicator

No.	Indicators	Acquisition Score	Number of Items	Average	Percentage (%)
1.	Knowledge of various digital media	1380	8	172,5	44.56%
2.	Competence in the use of various digital media	1242	6	207	40.10%
3.	Ability to find information following the rules of use of digital media	1019	5	203,8	54.31%
4.	Creating innovation through creativity	1166	8	145,75	47.46%
5.	The ability to use digital media to develop the ability of self.	727	4	181,75	76.12%
	Total	**5534**	**30**	**910,8**	

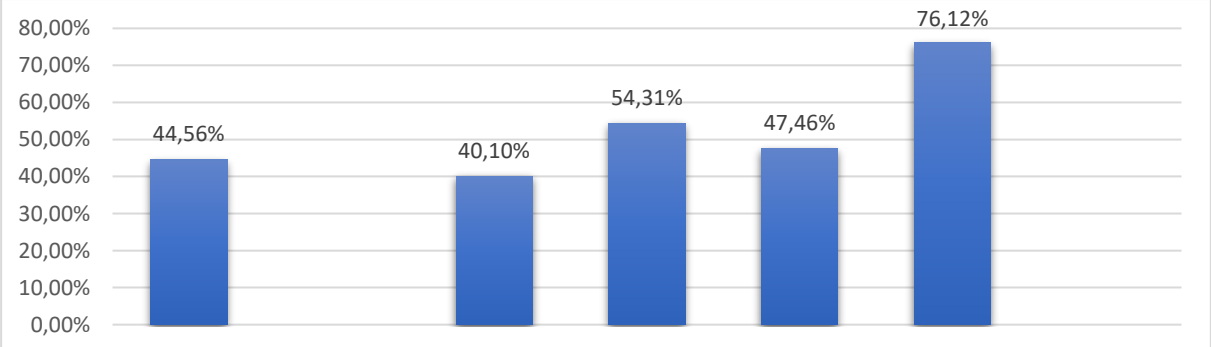

Figure 1 Result of Digital Literacy

Data obtained in Figure 1 shows that digital literacy skills consist of five aspects digital knowledge owned by students by 44.56%, competence in use of technology by 40.10%, ability to find by 54.31%, innovation skills by 54.31%, also creating skill 47.46% and the ability to use digital media to develop the ability of self-amounted to 76.12%. The findings of students' digital literacy conditions from the data showed that operating skills of technology in the higher skill of digital literacy is the ability to use digital media to develop the ability of self that contains data. Score of Indicator Variable showed in Table 7. Result of Self-Direct Learning shoed in Figure 2.

Table 7 Score of Indicator Variable

No.	Indicators	Acquisition Score	Number of Items	Average	Percentage (%)
1	Readiness to face new things	1349	7	678	40.19%
2	Set learning goals	1204	7	605.5	45.03%
3	Determine the source of learning that suits him.	1111	6	558.5	48.80%
4	Choosing a learning strategy	897	5	451	60.45%
5	Evaluating the learning that is being run	861	5	433	62.97%
	Total	**5422**	**30**	**2726**	

Figure 2 shows that students conduct self-study based on five aspects: readiness, setting goals, determining learning resources, choosing strategies and evaluating. The data obtained showed that factors that affect students in conducting independent learning from the aspect of learning readiness by 40.19% then from setting learning goals by 45.03% and from the aspect of determining learning resources by 48.80% after the aspect of choosing a learning strategy 60.45% and the last aspect is evaluation of 62.97%.

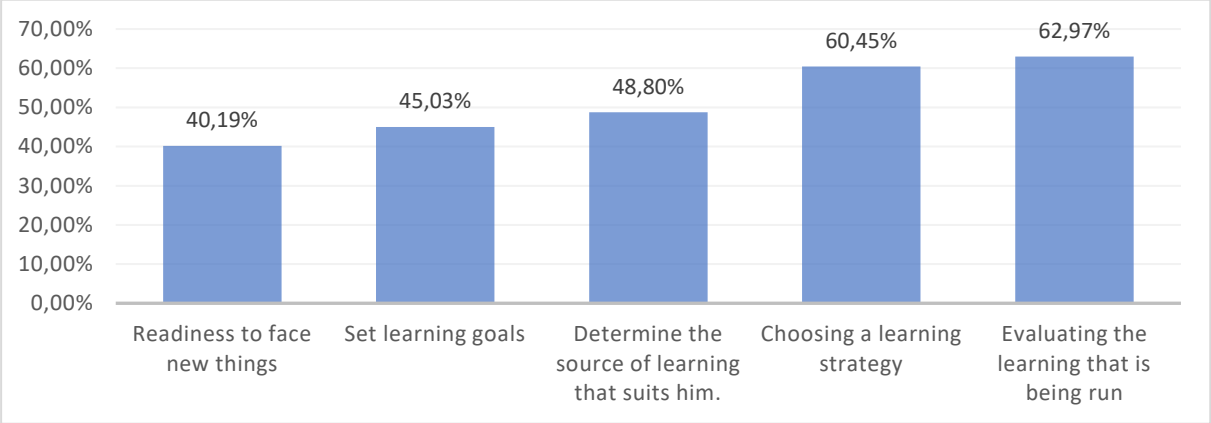

Figure 2 Result of Self-Direct Learning

Discussion

The findings above confirmed that college students' virtual literacy abilities in self-getting to know might be classified as "good." It is classified primarily based totally on the respondent's stage of achievement category. This fact is only sometimes included in the schooling sector because the virtual age proves a brand new definition of the function of college students and lecturers. It is rethinking the teaching-getting to know the method in keeping with how a brand new era learns and accesses. The capacity of virtual competence has marked an applicable study line withinside the technological skill subject at one-of-a-kind tiers and contexts. For simply retaining in thoughts that virtual competence is a complex and fast of techno-pedagogical and conversational abilities that characteristic efficiently withinside the new instructional contexts generated through technology. Improving teachers' virtual competence arises through using instructional praxis in reaction to society and the virtual age demands (Basantes-Andrade et al., 2020; Baser et al., 2016). Students have an excellent ability to find information, but students are still less efficient in finding the necessary information (Buchanan et al., 2019; Dinata, 2021; Luo et al., 2020). PGMI students are expected to master literacy in both digital and media because learning within the digital era also allows teachers to equip learners with cognitive skills necessary for the knowledge age and skills that are important for overcoming an excessive amount of knowledge, like problem-solving, critical thinking, creativity, independent learning. Strategies, meta-cognition, reflective thinking, social discussion skills, teamwork, and personal skills, like perseverance, curiosity and initiative (Purnama et al., 2021; Sujana & Rachmatin, 2019).

Digital media has contributed to learning, adore learning associate degreed social media (Alit et al., 2021; Budiarto et al., 2020; Küsel et al., 2020). Immediate service is an element of dependence on digital media. Meanwhile, digital attainment and knowledge analysis do not gift it as an act of learning, ability, and essential understanding. This example causes passive learning such as presentation and sophistication discussion; lecturers and students who dominate learning are not concerned as discussion partners. Although new models and techniques aren't all events may be capable of using them as many factors, era manage and simplicity stage and trouble the use of era, there have to be an alternate from the vintage to the brand new that greater powerful and

green and capable of result in alternate (Chan et al., 2017; Purba, 2021). The digital literacy figure of scholars of prospective academics demonstrates technical and psychological feature skills by operating digital devices and interacting with computers, smartphones, and therefore the web in learning and on the far side learning activities (Churchill, 2020; Giovanni & Komariah, 2019). In different words, students know, identify, and use digital media functionally and effectively. For prospective elementary school students, digital literacy skills absolutely must be owned because when they become teachers, they will become sources of information for their students. Moreover, elementary school children still consider teachers the only source of credible information. If a teacher cannot filter information obtained from the internet, then it could be that the information he conveys to his students during learning is false information (hoax) (Anggrasari, 2020; Suchyadi et al., 2021).

Digital competency isn't associate degree isolated ability that pre-service educators should develop; instead, they must acquire knowledge, procedures, and attitudes in numerous areas and also the dimension of their understanding and develop their ability in technology (Cabezas-González et al., 2021; Cahyani & Jayanta, 2021). Digital technology maturity in students is also influenced by digital technology maturity in teachers (Astuti et al., 2021; Kivunja, 2013; Safitri et al., 2020). The teacher's role as a facilitator of learning should guide and model students to increase digital technology literacy maturity (Anggraeni et al., 2019; Saputra & Salim, 2020). Several training and learning innovations relevant to digital technology competency skills need significant improvement. The learning model can be carried out in the online learning process. Teachers are considering models that can motivate students to become more engaged in online learning. A motivated motivational design model encourages tech-savvy students to enhance inquiry-based learning experiences (Wijaya et al., 2021). Furthermore, the findings of independent learning conditions from the data above show that aspects of learning to evaluate learning have different scores. It can be seen that the evaluation score has the highest percentage. Other aspects show that respondents are aware of learning and learning independently.

One of the innovations to improve self-directed learning is using Flipped Classroom as an innovative method in learning, communicative, and dynamic or flexible; understanding is impartial of time and location also may be powerful every time and anywhere (Jayanti & Rahayuningsih, 2020; Van Alten et al., 2019). Education does now no longer handiest cognizance on teachers. However, it specializes in students because they are allowed to improvise the material adjustment; indeed, material may be customized (Purba, 2021; Yu & Gao, 2022). On the indicator measuring that students are able to measure the distance through good communication skill and related to increase the gap. As known communication is one of the students' abilities to discuss measurement results and how to present and communicate. Through teamwork using the internet, students are trained not only in their abilities to observe but also to improve their self-study skills review through technology (Astalini et al., 2019; Tsai et al., 2020). Self-directed learning may be a means that of targeting learning to areas wherever it's needs. There needn't be an excessive amount between syllabus-driven learning and the relationship with self-directed learning. Ultimately, as a trainee, the curriculum is a resource to withdraw into (Turan & Koç, 2018; Walsh, 2017). Personal responsibility refers to individuals assuming ownership for their thoughts and actions. In terms of learning, it is the ability or willingness of individuals to take control that determines any potential for self-direction (Curran et al., 2019; Durnali, 2020).

Based on the study results and discussion that has been outlined, it can be concluded that there is a relationship between the digital literacy of students and the ability to learn independently. This reality is not excluded from the field of education because the digital age proves a new definition of the role of students and lecturers (Chan et al., 2017; Guri-Rosenblit, 2018). Rethink the teaching-learning process according to how a new generation learns and accesses knowledge. Adults with work experience needed self-directed learning, beginning with internal and external triggers. The environment around them has influenced the needs of adult learners, job offers and invitations, from peers to join and learn something new or read from advertisements and must-have digital technology skills beyond the rudiments of ordinary people to seek other digital media knowledge and usage (Silamut & Petsangsri, 2020; Tejedor et al., 2020). Students need SDL skills defined as a learning process that specialize in adult learners also do an important role, including planning, setting goals, selecting and seeking information or resources, and evaluating the educational process. Eventually, students can even spread the present knowledge of their discoveries and their newly created knowledge into society external to the organizations through digital media, allowing third parties to apply that knowledge (Silamut & Petsangsri, 2020).

As for one in all the recommendations for Guiding the learner (guiding students or students), the educational materials contained in e-learning is discussed at face-to-face meetings or in discussions in online classes. If the educational process is conducted online, the mentoring process can use several applications already available in various marketplaces (Andayani et al., 2020; Kaisara & Bwalya, 2021; Suryani, 2013). A student's independent intelligence is directly proportional to the event of technology mastery ability or digital literacy, that the prototype of learning materials and therefore the instructional design will continuously be developed and evaluated. Experiential Theory Learning Identity and Self-Directed Learning All four theories included the aspect of motivation as the spectrum of human activity, a necessary factor for the effective integration of digital literacy. With technology. When learning opportunities involve technology, the focus is often on learning how to use

technology rather than learning (Wahyuni et al., 2020; Zimmer et al., 2021). Prospective teachers' ideas about what constitutes digital competence can profoundly influence their behaviour as learners and their teaching practices. And the digital skills they emphasize or neglect when teaching this concept to their future students. Teachers' beliefs on various topics have influenced the effectiveness of teaching (List et al., 2020; Sert & Boynueğri, 2016). Competence maturity in mistreatment digital generation for learning that's enclosed with digital technology is additionally crucial for instructors and students The adulthood degree of mastery of digital technology is one part that plays a task in aiding the transformation of enterprise-based aiming to develop competency- based human resources in the 4.0 industrial revolution era.

4. CONCLUSION

The results of research on Islamic elementary school teacher education students showed a positive relationship between the variables studied. The higher a person's digital literacy, the higher the strength of a person's independent learning ability. In another view, digital literacy knowledge can also show students' independent learning abilities. Some experts also argue that technology used for education can improve independent learning skills, especially for students, based on the indicators formulated in the questionnaire. Learning to do self-management is significantly related to information literacy skills, namely analyzing information. Furthermore, analyzing the ability of information literacy to absorb sources of information is significantly related to a student's ability to think independently. Student self-direct learning is related to the behavior of carrying out learning activities independently; differences in independence in students result in differences in students' ability to absorb learning material using technology appropriately.

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