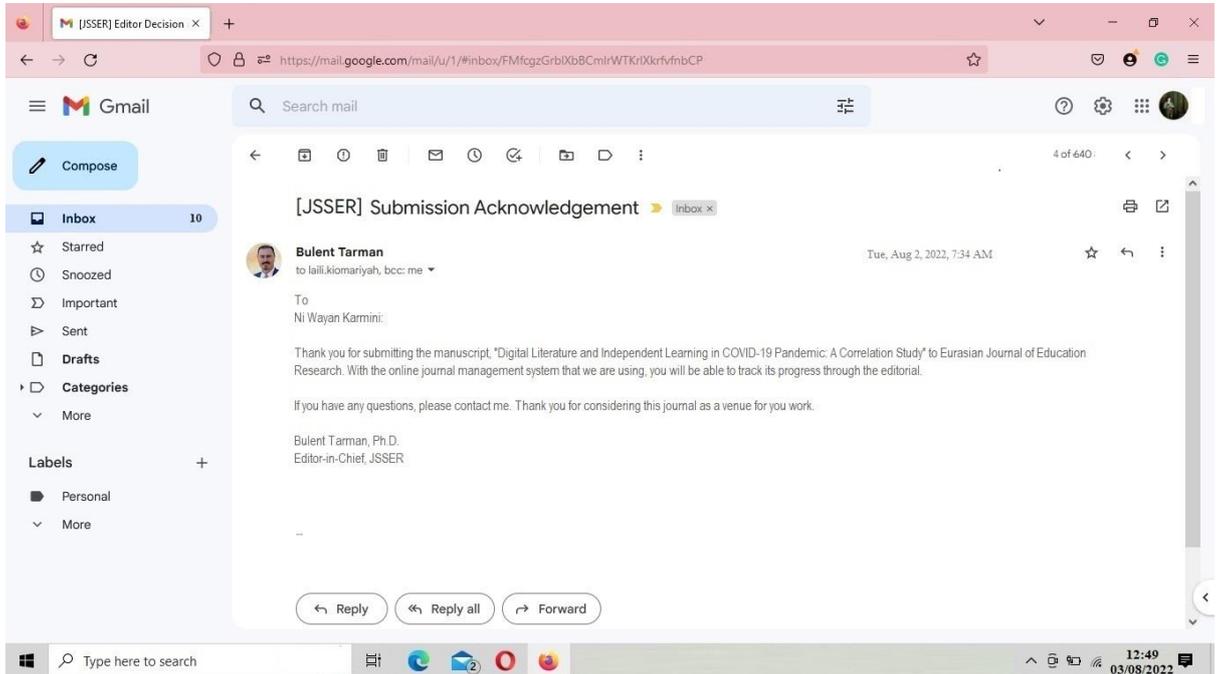
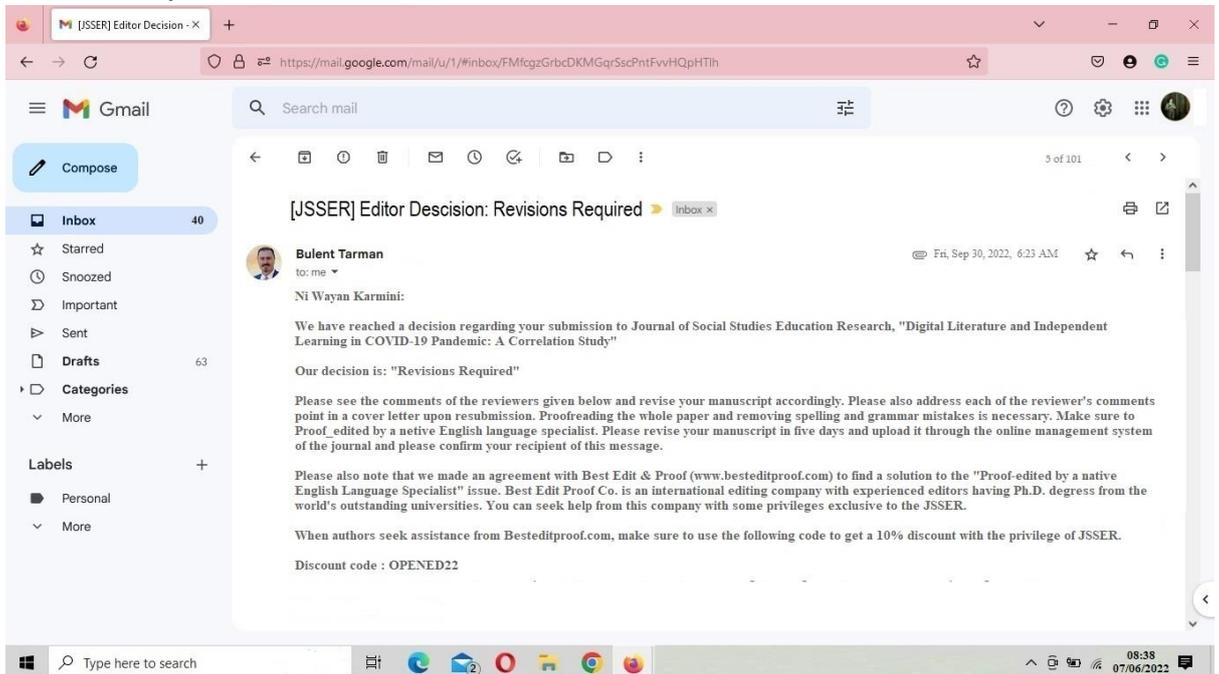


# BUKTI EMAIL JJSER NI WAYAN KARMINI

## 1. Submission Acknowledgement



## 2. Revisions Required



### 3. Accept Submission

The screenshot shows a Gmail interface with a browser window open to a specific email. The email is titled "[JSSER] Editor Decision: Accept Submission" and is from Bulent Tarman to Ni Wayan Karmini, dated Monday, September 12, 2022, at 11:21 AM. The email content reads: "We have reached a decision regarding your submission to Journal of Social Studies Education Research, 'Digital Literature and Independent Learning in COVID-19 Pandemic: A Correlation Study'. Our decision is: 'Accept submission.' Thank you for taking the time to revise the manuscript and address the required revisions. Please expect to get further instructions to follow in the near future for the publication procedure. Best regards, Bulent Tarman, Ph.D. Editor-in-Chief, JSSER". The interface includes a left sidebar with navigation options like Compose, Inbox (5), Starred, Snoozed, Important, Sent, Drafts, Categories, and Labels. The bottom of the browser shows the Windows taskbar with various application icons and the system clock at 13:05 on 12/09/2022.

### 4. Template

The screenshot shows a Gmail interface with a browser window open to a specific email. The email is titled "JSSER template" and is from Bulent Tarman to Ni Wayan Karmini, dated Saturday, December 12, 2022, at 6:34 PM. The email content reads: "Please send your accepted article 'Digital Literature and Independent Learning in COVID-19 Pandemic: A Correlation Study' with final revised version in the JSSER template. Please check each reference in the text to make sure that each is properly listed under the references according to the APA 7 guidelines. Regards, Prof. Dr. Bulent TARMAN, Ph.D. Turan University, Almaty, Kazakhstan <https://turau.edu.kz/en/science-and-innovation/research-department/> CEO, OpenED Network, <https://www.openednetwork.com/> Editor-in-Chief, Research in Social Sciences and Technology (<http://ressat.org/index.php/ressat>) Editor-in-Chief, Journal of Social Studies Education Research ([jsser.org](http://jsser.org)) Emails: [b.tarman@turau.edu.kz](mailto:b.tarman@turau.edu.kz) ; [btarman@gmail.com](mailto:btarman@gmail.com)". At the bottom, there is a disclaimer: "This e-mail may contain information that is privileged, confidential, and exempt from disclosure under applicable law. If the reader of this message is not the intended recipient, you are hereby notified that any unauthorized dissemination, distribution or copying of any information from this e-mail". The interface includes a left sidebar with navigation options like Compose, Inbox (23), Starred, Snoozed, Important, Sent, Drafts, Categories, and Labels. The bottom of the browser shows the Windows taskbar with various application icons and the system clock at 19:58 on 13/12/2022.

## 5. Copyediting Review Request

The screenshot shows a Gmail interface with a copyediting review request email. The email is from Dr. Bulent Tarman (btarman@gmail.com) to Ni Wayan Karmini, dated Tuesday, December 20, 2022, at 7:34 PM. The subject is "[JSSER] Copyediting Review Request". The email content includes a reference to a submission titled "Digital Literature and Independent Learning in COVID-19 Pandemic: A Correlation Study" for the Journal of Social Education Research and a list of eight steps for the review process. The sender is identified as Bulent Tarman, Ph.D., Editor-in-Chief, JSSER.

**[JSSER] Copyediting Review Request**

Dr. Bulent Tarman [btarman@gmail.com](mailto:btarman@gmail.com) via [via\\_sxb1plvcprn1452588.prod.sxb1.secureserver.net](mailto:via_sxb1plvcprn1452588.prod.sxb1.secureserver.net) Tue, Dec 20, 2022, 7:34 PM

Ni Wayan Karmini:

Your submission "Digital Literature and Independent Learning in COVID-19 Pandemic: A Correlation Study" for Jurnal of Social Education Research has been through the first step of copyediting, and is available for you to review by following these steps.

1. Click on the Submission URL below.
2. Log into the journal and click on the File that appears in Step 1.
3. Open the downloaded submission.
4. Review the text, including copyediting proposals and Author Queries.
5. Make any copyediting changes that would further improve the text.
6. When completed, upload the file in Step 2.
7. Click on METADATA to check indexing information for completeness and accuracy.
8. Send the COMPLETE email to the editor and copyeditor

Bulent Tarman, Ph.D.  
Editor-in-Chief, JSSER

## 6. Proofreading Request

The screenshot shows a Gmail interface with a proofreading request email. The email is from Dr. Bulent Tarman (btarman@gmail.com) to laali komariyah, dated Thursday, December 22, 2022, at 9:24 AM. The subject is "[JSSER] Proofreading Request (Author)". The email content includes a reference to a submission titled "Contribution of Transformational Leadership and Years of Leader Experience on the Effectiveness of Faculty in the Post Pandemic" for the Journal of Social Studies Education Research and a list of six steps for the proofreading process. The sender is identified as Bulent Tarman, Ph.D., Editor-in-Chief, JSSER.

**[JSSER] Proofreading Request (Author)**

Dr. Bulent Tarman [btarman@gmail.com](mailto:btarman@gmail.com) via [via\\_sxb1plvcprn1452588.prod.sxb1.secureserver.net](mailto:via_sxb1plvcprn1452588.prod.sxb1.secureserver.net) Thu, Dec 22, 2022 9:24 AM

laali komariyah:

Your submission "Contribution of Transformational Leadership and Years of Leader Experience on the Effectiveness of Faculty in the Post Pandemic" to Journal of Social Studies Education Research now needs to be proofread by following these steps.

1. Click on the Submission URL below.
2. Log into the journal and view PROFING INSTRUCTIONS.
3. Click on VIEW PROOF in Layout and proof the galley in the one or more formats used.
4. Enter corrections (typographical and format) in Proofreading Corrections.
5. Save and email corrections to Layout Editor and Proofreader.
6. Send the COMPLETE email to the editor.

Bulent Tarman, Ph.D.  
Editor-in-Chief, JSSER

**[JSSER] Editor Decision** External Inbox x

Dec 25, 2022, 10:18 PM ★ ↶ ⋮

**Bulent Tarman** <btarman@gmail.com>

to me ▾

Ni Wayan Karmini:

We have reached a decision regarding your submission to Journal of Social Studies Education Research, "Digital Literature and Independent Learning in COVID-19 Pandemic: A Correlation Study".

Our decision is to: "accept submission."

Thank you for taking the time to revise the manuscript and address the required revisions. Please expect to get further instructions to follow in the near future for the publication procedure.

Best regards,

Bulent Tarman, Ph. D  
Editor-in-Chief, JSSER

--

[↶ Reply](#)[↷ Forward](#)

Bulent Tarman <btarman@gmail.com> to me Dec 20, 2022, 5:27 PM

Ni Wayan Karmini:

We have reached a decision regarding your submission to Journal of Social Studies Education Research, "Digital Literature and Independent Learning in Covid-19 Pandemic: Correlation Study".

Our decision is: "Revisions Required"

Please see the comments of the reviewers given below and revise your manuscript accordingly. Please also address each of the reviewer's comments point by point in a cover letter upon resubmission. Proofreading the whole paper and removing spelling and grammar mistakes is necessary. Make sure to Proof-edited by a native English language specialist. Please revise your manuscript in five days and upload it through the online management system of the journal and please confirm your recipient of this message.

Please also note that we made an agreement with Best Edit & Proof (www.besteditproof.com) to find a solution to the "Proof-edited by a native English language specialist" issue. Best Edit Proof Co. is an international editing company with experienced editors having Ph.D. degrees from the world's outstanding universities. You can seek help from this company with some privileges exclusive to the JSSER.

When authors seek assistance from Besteditproof.com, make sure to use the following code to get a 10% discount with the privilege of JSSER.

Discount code: OPENED22

Please also note that the proof-editing certification is required and you need to provide this document once the revision files are uploaded to the online portal of the journal. Best regards,

Dr. Bulent Tarman Editor-in-Chief, Journal of Social Studies Education Research btarman@gmail.com

Reviewer A:

Relevance of the title with content: Yes

Type of manuscript (Research, Lit. review etc.): Research

Quality of the work: Good

Theoretical Framework: Acceptable

Objectives and Rationale: Defined properly

Method: Good

Findings: Needs to define your implication, novelty, and clear cut of statement your conclusion

Conclusion: Refine your novelty, indicate your limitation of your study then post your suggestion for the future research

smoothness: Academic English needs editing by native

Originality: Good

Note for Author/s: see the comment to make a proper revision

Reviewer B:

Relevance of the title with content: Yes

Type of manuscript (Research, Lit. review etc.): Research

Quality of the work: Good

Theoretical Framework: Theories have been provided properly

Objectives and Rationale: defined together with hypothesis

Method: Good,

Findings: Good proper to design and statistical tool

Conclusion: discussion and conclusion is combined, the authors did not yet state her conclusion

smoothness: Please send to native expert

Originality: Good

Note for Author/s: Improve for more proper presentation

2 Attachments • Scanned by Gmail



## **Digital Literature and Independent Learning in Covid-19 Pandemic: Correlation Study**

### **Abstract**

This study aims to determine the relationship between digital literacy and self-regulated learning during the Covid-19 pandemic for students at the Hindu Indonesia University Denpasar. The research method used is correlational quantitative. The population in this study are all active students at the Hindu Indonesia University Denpasar. Samples were selected by probability sampling as many as 148 students using the proportional method of layered random sampling. Data collection techniques using a questionnaire. The data analysis of this research used correlation test and simple regression test. The results showed that there was a significant positive relationship between digital literacy and independent learning during the pandemic. This is evidenced by: (1) the results of a simple correlation test show ( $r_{count} = 0,478 > r_{table} = 0.1603$ ) and the significance value is less than 0.05 ( $0.000 < 0.05$ ). (2) the equation model  $Y = 22.414 + 0.425X$  is statistically significant with  $t_{count} = 6.582 > t_{table} = 1.976$ , and the significance value =  $0.000 < 0.05$ . (3) the coefficient of determination ( $R^2$ ) is 22.9%, meaning that digital literacy variables have an influence of 22.9% on self-regulated learning variables during the Covid-19 pandemic for students at the Hindu Indonesia University Denpasar.

**Keywords:** Digital Literacy, Self-Regulated Learning, Covid-19 Pandemic

### **Introduction**

Currently, countries in the world are shocked by an extraordinary event, namely the emergence of a corona virus pandemic or commonly known as Covid-19 (Corona Virus Disease-2019) since the end of December 2019. All countries, including Indonesia, are trying to overcome the situation that is not controlled due to this outbreak, which has hampered all lines of life due to various policies to control the rapid spread of the corona virus, among others by imposing social and physical restrictions, as well as working from home (Herliandry et al., 2020). There is a recommendation to work from home based on the provisions of Article 86 paragraph (1) of Law Number 1 of 2003 concerning Manpower which states that every worker/labor has the right to protection of occupational safety and health, this requires everyone to survive. for their survival even though they are still at home with the help of technology and internet.

Controlling the situation during the Covid-19 pandemic by utilizing technology and the internet in accordance with the characteristics of the 4.0 industrial revolution era, one of which is the internet of things that is able to control almost all jobs that can be connected via an internet connection (Risdianto, 2019). The hallmark of education during the industrial revolution 4.0 is the use of the internet. According to Risdianto (2019) One of the provisions in implementing education during the industrial revolution 4.0 is the existence of connectivity or access to the internet network. This is in line with the emergence of digitalizationan education system through digital learning with the help of the internet that is able to provide a more meaningful learning experience, able to grow various strategies, methods, learning resources, and patterns of educator-student relationships so as to create innovative learning opportunities (Statti & Torres, 2020). This transformational change is also in accordance with adaptation to conditions during the pandemic, which requires all institutions or educational institutions to implement distance learning. Institutional education will be left behind if it does not quickly adapt to changes in digital-based education transformation during the industrial revolution 4.0 and

during the current pandemic (Sobri et al., 2020). In accordance with the new policy involving the government, it is recommended to stay and work at home during the Covid-19 pandemic. The educational paradigm has shifted from face-to-face learning to online learning. This is based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning.

Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic. This is based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning. Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic. This is based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning. Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic.

Online learning during a pandemic can be carried out with the support of rapid advances in technology, information, and communication using various platforms in the form of applications, websites, social networks, and learning management systems (Latip, 2020). Online learning is a learning process carried out using the internet, it can be done either synchronously or asynchronously. The emergence of online learning as part of digital literacy can be used as an alternative to using technology in learning, as well as to improve the quality of learning. It is necessary to cultivate Self-Regulated Learning (SRL) to face learning difficulties during the current Covid-19 pandemic. SRL is an active and constructive process for students to determine their learning goals, then monitor, regulate, and control their cognition, motivation, and behavior based on their learning goals and environment (Pintrich, 2000). SRL is one of the basic characters in the learning process, this is in accordance with the Presidential Regulation of the Republic of Indonesia Number 87 of 2017. It was reported in a news article on the Suaramerdeka.com page on June 22, 2020, explaining that students do not yet have Self-Regulated Learning which has become a habit. , this has become one of the complex problems that emerged as a challenge for the world of education during the pandemic.

In addition, the Acehtrend.com news page on September 16, 2020 also showed low self-regulation while studying, which used to be characterized by low self-discipline and motivation while studying. That's Bernasnews. com news page on April 26, 2020 also mentioned the lack of Self-Regulated Learning because most still feel dependent on face-to-face learning/traditional methods. The results of research from Badjeber (2020) conclude that there are still many students with a percentage of more than 60% who relatively lack the awareness to design, implement, monitor and supervise their own learning needs, including in utilizing various resources, as well as determining & practicing learning strategies during the pandemic.

Sulisworo et al., (2020) shows that students in Indonesia need to improve SRL during the pandemic in order to remain responsible for the learning process and be successful in implementing online learning. Research by Khairuddin et al., (2020) concluded that the achievement of each student SRL indicator in Padang City is still below 60%, which is relatively low. Yasdar & Mulyadi (2018) find 75% of students' SRL in South Sulawesi is low, research from Wahyuni (2018) shows 63.98% SRL of students in Riau tends to be low.

Rohaeti & Suwardi (2013) concluded that about 50% of SRL students in Yogyakarta are included in the low category because they rarely set and evaluate learning strategies, lack of discipline in learning which causes irregular study schedules, rarely use spare time to study the material being studied. This shows that the students' SRL is relatively low. Self-Regulated Learning has various benefits for students, because SRL is a supporter of success in everyday life including in learning, such as to improve academic achievement, key to discipline behavior, improve multitasking abilities, increase rationality in decision making, increase efficiency in learning new knowledge (Kristiyani, 2020). If students do not have Self-Regulated Learning, students will find it difficult to plan learning activities,

The development of SRL levels in students can be influenced by internal and external factors. Internal factors consist of epistemological beliefs, beliefs about learning, emotions, personal agency beliefs, and age and personality factors, while external factors that influence the development of SRL such as family factors include parenting and parental involvement, school factors including teacher-student relationships, support for teacher autonomy, the teaching model provided by the teacher, and peer factors (Kristiyani, 2020). SRL is also caused by factors such as personal, behavioral, and environmental. Personal factors consist of knowledge, thoughts, beliefs or self-efficacy, goals, behavioral factors consist of acts of observation, judgment, and self-reaction, while environmental factors in the form of physical and social environment while studying (Schunk & Zimmerman, 1998). Another factor that affects self-regulated learning is digital literacy (Sekarini, 2019).

Digital literacy is one of the competencies that individuals must have in using digital technology effectively to support academic needs such as when accessing information digitally via the internet. In a news article published on the Nusabali.com page on April 20, 2020, it was stated that digital technology is also similar to distraction which causes users to be unable to concentrate on completing their tasks and obligations, so that digital devices that are actually able to increase productivity turn into performance barriers. . Digital content and information widely distributed on the internet can facilitate SRL. Current learning resources can be obtained via the internet (Rohmah, 2019). It is undeniable that students need literature when doing assignments,

It is important for every individual to have digital literacy to limit things that can distract students' activities when accessing the internet, so that students' opportunities to achieve learning goals are greater. Digital competence can also be called digital literacy (Utama & Sajidan, 2020). According to (Risdianto, 2019) digital literacy aims to improve the ability to read, analyze, and use information digitally, in other words digital literacy encourages the use of digital technology devices to be more effective and healthy because today's digital natives, including students, feel less wise in use the internet to find information. what is done is not based on particular interests and is not appropriate for age, as well as excessive use of social media. The agreement by the 2015 World Economic Forum requires all components of society, including students, to master six very important literacy basics, one of which is digital literacy (Umar et al., 2019). Digital literacy needs to be embedded in the education system, because it

has a positive influence on student skills that are important for successful learning (Techataweewan & Prasertsin, 2018).

Mastery of digital literacy in learning is able to facilitate and strengthen the learning process and educational outcomes including student SRL achievements, because students are able to obtain information in a broader and deeper scope, thereby increasing student insight and helping students complete assignments (Elpira, 2018). Students are also able to survive various obstacles in learning and are able to solve problems that are being faced if they have digital literacy (Eshet, 2004).

According to the proposed framework (Beetham et al., 2009) that digitally literate students can better organize their learning activities through the use of technology than their less digitally literate counterparts. The same thing was also stated in a news article on the timesindonesia.co.id page on April 10, 2020 that the literacy skills that students have when accessing information from various digital sources are one of the important markers for Self-Regulated Learning. The rapid progress of science and technology can contribute to the growth of independent learning, as evidenced by the results of research from (Yot-Domínguez & Marcelo, 2017) which shows that everyday interactions with technology have a positive impact on students' Self-Regulated Learning.

There are several relevant previous studies, such as the results of research by Yang & Kim, (2014) showing a positive and significant correlation between digital literacy and Self-Regulated Learning in university e-learning environments. Research from (Muthupoltotage & Gardner, 2018) also found a positive relationship between digital literacy and Self-Regulated Learning in the context of technology-based learning. Likewise with research results from (Prior et al., 2016) that digital literacy can have a much deeper relationship with Self-Regulated Learning. In line with the Connectivism learning theory, created by George Siemens, he explains the role of Internet network technology in creating opportunities for individuals to learn and share information and skills learned.

### **Research Methods**

The type of research conducted is quantitative which is correlational. This study will examine the relationship between two or more variables. The aim is to examine the relationship between digital literacy and self-regulated learning during the student Covid-19 pandemic. In this study, there are two variables determined, namely the independent variable (X) is digital literacy, while the dependent variable (Y) is Self-Regulated Learning. The population is all research subjects that have certain characteristics to study and draw general conclusions (Kurniawan, 2012). Hindu Indonesia University Denpasar students from the 2017-2019 class became the population in this study. There were 79 students in 2017, 74 people in 2018 and 80 people in 2019 so that the total student population in this study was 233 people.

Respondents in this study were selected using probability sampling technique with proportional stratified random sampling method. The probability sampling technique treats all members of the population who are the research sample with chance. **Data collection techniques in this study by means of a questionnaire.** Questionnaires are variable data collection techniques that are carried out through the distribution of a set of questions or written statements that must be answered by respondents (Sugiyono, 2010). The questionnaire used is a closed questionnaire containing statements about digital literacy and self-regulated learning variables. The scale used in this research questionnaire is Likert scale. The questionnaire is structured in the form

of a checklist and uses four alternatives: answers, because it eliminates the neutral answer with the assumption that it is a little "ambiguous" (Sarjono & Julianita, 2011).

The validity test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program. Saputro, (2017) states the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. The validity test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program.

Saputro, (2017) defines the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. The validity test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program. Based on Saputro (2017) the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%.

A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. 2017) The instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. The instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa.

The first data analysis technique, with descriptive statistics that are useful for describing data samples through data categorization without the intention of determining conclusions for the population (Sugiyono, 2010). Two analytical prerequisite tests, in the prerequisite test analysis, were carried out in several stages, namely 1) by means of a normality test, which was carried out using the Kolmogorov-Smirnov technique. The criteria for the fulfillment of the normality test are seen from the significance value  $> 0.05$ , while the significance value  $< 0.05$  means that the data is not normally distributed. 2) The linearity test aims to see whether the two variables studied (independent and dependent variables) are linearly related or not. The linearity criteria can be seen through the deviation from the linearity value which must be greater than 0.05 (Prayitno, 2016).

Testing the linearity of this study using SPSS version 23 through the Linearity Test with a significance level of 0.05. 3) To find out the occurrence of inequality variance from one observation residual to another observation in the regression model, it can be done using the heteroscedasticity test (Ghozali, 2016). By looking at the pattern of the scatterplot image, it can be seen that the fulfillment of the heteroscedasticity test criteria, namely if the data points are spread either above, below or around the number 0, the spread of the points is not patterned, then there is no heteroscedasticity. **Test the third hypothesis.** In testing the hypothesis, two stages are needed, namely by using a correlation test and simple regression analysis. Correlation Test Correlation coefficient test is used to determine the strength of the relationship between the two variables studied.

According to Sunarto (2007) the correlation test is intended to measure the degree of relationship between the two variables studied, namely between the X variable (digital literacy) and the Y variable (self-regulated learning). In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale. And simple regression This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down. In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale.

This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down. In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale. And simple regression This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down.

## **Results**

### **Data Description**

The data obtained in this study as a result of distributing questionnaires through google forms in which there are statement items that represent each indicator both independently of the variable, namely digital literacy, and the dependent variable, namely self-regulated learning. The data obtained from the research subjects amounted to 148 students of the Hindu Indonesia University Denpasar, analyzed using the SPSS version 23 program, the following data were obtained:

**Table 1.** Descriptive Analysis Results

Descriptive Statistics								
	N	Range	Min	Max	Sum	mean	Std. Dev	Variance
Digital Literacy	148	29	58	87	11068	74.78	5,949	35,395
Self-Regulated Learning	148	26	41	67	8025	54.22	5,290	27,984
Valid N	148							

(Source: Processed primary data, 2021)

### Digital Literacy Variable (X)

Data on digital literacy variables were obtained from the results of distributing questionnaires as many as 23 statement items with four alternative answers based on a Likert scale score of 1 to 4. The highest total score for the sample of 148 respondents was  $23 \times 4 \times 148 = 13,616$ . The results of descriptive statistical processing with the help of the SPSS version 23 program can be presented in Table 1 above, it can be interpreted that the digital literacy variable collects a total score of 11,068 obtained from the summation value. The maximum value that students get from this variable is  $23 \times 4 = 92$ . It is known that the maximum score for the digital literacy variable is 87, meaning that most students score three or four in each indicator. The minimum score is 58, meaning that most students score two or three on each of the available indicators. The standard deviation value explains the heterogeneity of a group to the average, this value can be said to be good if the data is heterogeneous and the value is far from 0. The standard deviation value is 5.949, so it can be said to be heterogeneous. The average score of 74.78 indicates that the average student gives a score of three in each indicator.

It can be seen that the distribution of digital literacy data with the highest frequency is in the area of the 70-73 and 74-77 interval classes, as many as 35 students. Digital literacy level The tendency of students can be classified into three, namely high, medium, and low. The results of the category of digital literacy tendencies. The digital literacy of the Hindu University Siswa Indonesia Denpasar is at a moderate level, which is equivalent to 66.22%. The percentage of digital literacy achievement for students at Hindu Indonesia University Denpasar is obtained from the results of dividing the total score collected by the highest total score, which is  $11,068 : 13,616 = 81.28\%$ . Digital literacy is measured through three indicators,

**Table 2.** Digital Literacy Indicator Achievement

No	Indicators	Achievements Indicator
1	Technical Literacy	86.49%
2	Cognitive Literacy	80%
3	Socio-Emotional Literacy	81.44%

(Source: Processed primary data, 2021)

Based on Table 2, it can be seen that the role of each indicator has different magnitudes of influence. The most dominant indicator in achieving student digital literacy lies in the technical literacy indicator with an indicator achievement of 86.49%. This technical literacy indicator contains basic operational mastery of digital technology, this shows that most students have mastered the basic skills to use digital tools.

### Independent Learning Variables

Data on the Self-Regulated Learning variable was obtained from the distribution of a questionnaire as many as 18 statement items with four alternative answers based on a Likert scale score of 1 to 4. The highest total score for a sample of 148 respondents was  $18 \times 4 \times 148 = 10,656$ . The results of processing descriptive statistics with the help of the SPSS version 23

program can be presented in Table 1 above, with it being interpreted that the self-regulated learning variable collects a total score of 8025 obtained from that total score. The maximum score that can be obtained by students from this variable is  $18 \times 4 = 72$ . It is known that the maximum value for the self-regulated learning variable is 67, meaning most students give a score of three or four on each indicator. The minimum score is 41, this means that most students score two or three on each of the available indicators. The standard deviation value explains the heterogeneity of a group with respect to the mean, this value is said to be good if the data is heterogeneous and the value is far from 0 the deviation value is 5.290, so it can be said to be heterogeneous. The average score of 54.22 indicates that the average student gives a score of three on each indicator.

**Table 3. Self-Regulated Learning Indicator Achievement**

No	Indicators	Achievement Indicator
1	Memory strategy	70.44%
2	Goal setting	71.79%
3	Self evaluation	74.66%
4	Seeking help	81.93%
5	Environmental arrangements	78.04%
6	Learning responsibilities	72.41%
7	Planning & organizing	77.42%

(Source: Processed primary data, 2021)

Based on Table 3, it can be seen that the role of each indicator has different magnitudes of influence. The most dominant indicator of the achievement of students' self-regulated learning lies in the indicator of seeking assistance with an indicator achievement of 81.93%. This indicator of seeking help contains various efforts that students can make to seek help when they do not understand the material or assignments given by the lecturer, either through the social environment, namely all people involved in the learning process including lecturers and friends, as well as non-social environments including learning facilities. and facilities used. imary data, 2021)

## Hypothesis Testing

**Table 4. Simple Correlation Test Results**

	Correlations	Self-Regulated Learning (Y)
Digital Literacy Pearson (X)		,478
	Correlation	
	Sig. (2-tailed)	,000
	N	148

(Source: Processed primary data, 2021)

Based on Table 4, it is explained that the correlation coefficient (rcount) between digital literacy and learning independence is  $0.478 > r_{table} (0.1603)$ , then to see the level of relationship between the two variables, consult the correlation coefficient interval, a value of 0.478 is included in the moderate relationship level. The correlation coefficient value shows a positive relationship. The significance value is  $0.000 < 0.05$ , which means the relationship is significant. Based on these results, it can be concluded that  $H_0$  is rejected, and  $H_1$  is accepted so that the digital literacy variable has a positive and significant relationship with self-regulated learning during the COVID-19 pandemic for the Denpasar University of Hindu Indonesia students.

**Table 5.** Simple Regression Test Results

Unstandardized Coefficients		Standardized Coefficients		<i>t</i>	Sig.
<i>B</i>	<i>Std. Error</i>	<i>Beta</i>			
(Constant)	22.414	4,848		4,623	,000
Digital Literacy	,425	,065	,478	6.582	,000

Dependent Variable: Self-Regulated Learning  
(Source: Processed primary data, 2021)

Based on Table 5, the following regression model equation can be obtained:

$$Y = 22.414 + 0.425X$$

This equation can be interpreted as a constant 22,414 which means that if digital literacy (X) is 0, then the amount of self-regulated learning (Y) is 22.414. Digital literacy regression coefficient (X) is 0.425, meaning that for every 1% addition of digital literacy value, the value of self-study (Y) also increases by 0.425. The regression coefficient is positive, so it can be said that the direction of the influence of the digital literacy variable (X) on the Self-Regulated Learning variable (Y) is positive. From Table 4.9, a significance value of  $0.000 < 0.05$  is obtained, meaning that the digital literacy variable (X) has an effect on the self-regulated learning variable (Y). The tcount value is  $6.582 > t_{table} 1.976$  so it can be concluded that the digital literacy variable (X) has an effect on the self-regulated learning variable (Y).

### Discussion and Conclusion

The results of hypothesis testing using the correlation test show that there is a positive and significant relationship between digital literacy and independent learning during the Covid19 pandemic for students at the Hindu Indonesia University Denpasar. This is in accordance with the value indicated by the correlation coefficient (rcount) of 0.478 and a meaning value of 0.000. The correlation coefficient value is 0.478, when consulted with the correlation coefficient interval table, it is included in the moderate level of relationship. It can be seen that the rcount is positive, which means that when students' digital literacy increases, their independent learning will also increase. This is also in accordance with the results shown in the simple regression analysis, namely the regression value of digital literacy coefficient (X) of 0.425,

The results of hypothesis testing are in line with the research of Yang & Kim (2014) which shows a positive and significant correlation between digital literacy and Self-Regulated Learning in the university's e-learning environment. The results of other studies that support the testing of this hypothesis are the research of Atkins et al., (2013); Greene et al., (2014); Muthupoltotage & Gardner, (2018); Steiner et al., (2013) who concluded that there is a positive and significant relationship between digital literacy and independent learning. Independent learning is one of the important characters that students must have when carrying out the learning process, this is in accordance with Presidential Regulation of the Republic of Indonesia No. 87 of 2017 concerning Strengthening Character Development.

Students are said to have self-regulated learning if they are able to complete various tasks given by the lecturer based on their efforts and abilities. The current pandemic condition shows the real urgency of SRL, one of the important markers that students must have in order to achieve self-regulated learning is digital literacy skills. Digital literacy as a form of business that is manifested in the form of the ability to access, browse, analyze, and use information digitally. The habit of reading learning resources both offline and online from the internet in the form of digital books, articles, national and international journals that affect knowledge, increase understanding, open insight and further develop mindset skills, thus forming and facilitating

the achievement of SRL so that the decisions taken are right on target, both to solve problems and solve problems. problems being faced and to meet their learning needs. Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning.

Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning. Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning.

Digital literacy also helps students to know the limits of internet use according to their needs and interests, for example preventing excessive use of social media. Literacy as the main basis in increasing knowledge. According to Sekarini (2019) digital literacy is one of the efforts that can foster self-regulated learning. The agreement by the 2015 World Economic Forum also obliges everyone, including students, to master six basic literacies that are very important in life, one of which is digital literacy (Umar et al., 2019).

Digital literacy has a positive influence on skills that are important to support successful student learning (Techataweewan & Prasertsin, 2018). Students who have self-regulated learning can manage their learning patterns optimally, supported by their ability to use digital technology to find learning resources and literature digitally to complete the material needed for certain courses, due to pandemic conditions that require online learning. it is possible for students to re-read the material obtained so that there are no misconceptions, reconfirm for the lecturer or his friends by discussing to reach understanding, and be able to support the work given by the lecturer.

The level of digital literacy and self-regulated learning at Hindu Indonesia University Denpasar students are in the medium category, meaning that students are quite able to regulate the learning process that is relevant to the current development of science and technology. There are seven indicators to measure self-regulated learning. Of the seven indicators, the indicator that has the highest achievement is the indicator of seeking assistance at 81.93%. The indicator of seeking help relates to the various efforts made by students to seek help when they feel they do not understand the material or assignments given by the lecturer, both through the social environment, namely all people involved in the learning process including lecturers and friends, as well as non-social environments including facility. or learning tools used.

The level of digital literacy and self-regulated learning at Hindu Indonesia University Denpasar students are in the medium category, meaning that students are quite able to regulate the learning process that is relevant to the current development of science and technology. There are seven indicators to measure self-regulated learning. Of the seven indicators, the indicator that has the highest achievement is the indicator of seeking assistance at 81.93%. The indicator of seeking help relates to the various efforts made by students to seek help when they feel they do not understand the material or task given The achievement of a high indicator of seeking help indicates that students are able to use the ability to communicate with others to ask questions and discuss to complete a responsibility.

The lowest achievement indicator is the memory strategy indicator of 70.44%. The indicator of memory strategy is related to the memory ability shown by students towards the lecture material. With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used.

The indicator of memory strategy is related to the memory ability shown by students towards the lecture material. With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. The indicator of memory strategy is related to the memory ability shown by students towards the lecture material.

With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used.

The level of self-regulated learning is also caused by the level of digital literacy that each student has. Digital literacy measurement uses three indicators. Of the three indicators, the indicator that has the highest achievement is the technical literacy indicator at 86.49%. Technical literacy indicators are related to basic operational mastery of digital technology. This is also related to the high level of seeking help in Self-Regulated Learning indicators, if students are able to demonstrate their basic skills when using digital tools, this can make it easier when seeking help to find suitable alternatives for satisfaction with their learning achievements, for example through the use of laptops, gadgets, internet, browsers, and others.

Then, the digital literacy indicator that has the lowest achievement is cognitive literacy at the 80% level. This is related to the low memory strategy, because cognitive literacy is related to students' ability to find and process information. Weak memory can be caused because students lack the initiative to seek information first, usually students tend to like things that are instant. One of the behaviors that reflect a lack of memory is that students are not accustomed to rereading notes or lecture material, even though students should be able to analyze in depth first any information obtained so that it is embedded in long-term memory.

**-Indicate the implication of the study and your novelty**

Students need to enrich their digital literacy to enhance their independent learning. The results of this study have supported the theory of connectivism which explains the role of internet network technology in creating opportunities for individuals to learn and share information & learned skills. According to Sekarini (2019) digital literacy is included in environmental factors that can increase self-regulated learning. According to (Beetham et al., 2009) that digitally literate students are better at managing their learning activities through the use of technology. Digital literacy is an important provision to achieve student SRL because it is facilitated by the availability of technology (Latifah, 2020). Digital literacy has a positive influence on learner skills that are essential for successful learning (Techataweewan & Prasertsin, 2018). Utilization of technology is able to develop SRL. Daily interactions with technology have a positive impact on SRL, this shows the positive contribution made by the development of science and technology to the improvement of SRL (Yot-Dominguez & Marcelo, 2017).

-clear up where you state your conclusion then define proper conclusion statement. Redefine your novelty in your conclusion, indicate the limitation of your study then post your suggestions for the future research

## References

-check you APA 7<sup>th</sup> edition

-add 2 references from JSSER and group

- Atkins, L., Fraser, J., & Hall, R. (2013). *DigiLit Leicester: Survey Results 2013*. Leicester: Leicester City Council (CC BY-NC 3.0).
- Badjeber, R. (2020). Independent learning of tadris mathematics students, FTIK IAIN Palu, survived a brave learning period. *Coordinates of Journal of Mathematics and Science Learning*, 1(1), 1–9.
- Beetham, H., McGill, L., & Littlejohn, A. (2009). *Evolving in the 21st century: Report of the conclusions and recommendations of the LLiDA (Literacy for the Digital Age) project*. Glasgow, UK: Glasgow Caledonian University.
- Budiyono Saputro, (2017). *Management Research Development (Research & development) for Thesis and Dissertation Writers*. Aswaja Presindo.
- and Sunarto, R. (2007). *Introduction to Statistics. For Educational, Social, Economic, Communication and Business Research*. Bandung: Alfabeta.
- Elpira, B. (2018). The effect of applying digital literacy on improving learning students at SMP Negeri 6 Banda Aceh. *UIN Ar Raniry Banda Aceh*.
- Eshet, Y. (2004). Digital literacy: A conceptual framework for survival skills in a digital world era. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93–106.
- Ghozali, I. (2016). *Multivariate Analysis Application with IBM SPSS Program for Windows*. Semarang: BP Undip.
- Greene, J.A., Seung, B.Y., & Copeland, D.Z. (2014). Measuring critical components of digital literacy and its relation to learning. *Computer & Education*, 76, 55–69.
- Hanik, E.U. (2020). Self-learning based on digital literacy during the COVID-19 pandemic 19 at madrasah ibtidaiyah. *BASIS: Journal of Islamic Teachers*, 8(1), 183.
- Harahap, A.C.P. (2020). Covid 19: Student Self-Regulated Learning. *AL-IRSYAD*, 10(1). Hasanah, Law,

- & Setiaji, K. (2019). Effect of Digital Literacy, Self-Efficacy, Environment on Student Entrepreneurial Intentions in E-Business. *Journal of Economic Education Analysis*, 8(3), 1198–1215.
- Bung Hatta University Mathematics Education Student. *Jurnal Physics: Series Conference*, 1429(1), 12003.
- Christian, T. (2020). *Self-Regulated Learning: Concepts, Implications and Challenges for Students in Indonesia*. Sanata Dharma University Press.
- Kurniawan, B. (2012). *Research Methodology*. Explore Nusa. South Tangerang.
- Latifah, K. (2020). Digital Literacy and Self Directed Learning in Learning Student PBI IAIN Surakarta. *Academica: Journal of Multidisciplinary Studies*, 2(1), 159–167.
- Latip, A. (2020). The role of information and communication technology literacy in distance learning during the Covid-19 pandemic. *EduTeach: Journal of Education and Learning Technology*, 1(2), 108–116.
- Muthupoltotage, UP, & Gardner, L. (2018). Analyzing the relationship between digital literacy and student self-study-preliminary investigation. In *Progress in the development of information systems* (pp. 1–16). Jumper.
- Pintrich, PR (2000). The role of goal orientation in independent learning. In *The Handbook of self-regulation* (p. 451–502). other.
- Prayitno, D. (2016). *SPSS Handbook; Data Analysis, Data Processing, and Settlement of Statistical Cases*. Yogyakarta: Mediakom.
- Previously, DD, Mazanov, J., Meacheam, D., Heaslip, G., & Hanson, J. (2016). Attitudes, digital literacy and self-efficacy: Flow-on effects for online learning behavior. *The Internet and Higher Education*, 29, 91–97.
- Risdianto, E. (2019). *Analysis of Indonesian education in the era of the industrial revolution 4.0*. Bengkulu: Bengkulu University.
- Rohaeti, E., & Suwardi, JI (2013). Improving Student Achievement and Independent Learning through Reciprocal Teaching and Cooperative Learning Approaches. *Journal of Education Cakrawala*, 5(1).
- Rohmah, N. (2019). Digital Literacy to Improve Teacher Competence in the Revolutionary Era Industry 4.0. *Awwaliyah: Journal of Madrasah Ibtidaiyah Teacher Education*, 2(2), 128–134.
- Sarjono, H., & Julianita, W. (2011). *SPSS vs LISREL: an introduction, application to research*. Jakarta: Salemba Empat, 5(2), 23–34.
- schunk, DH, & Zimmerman, BJ (1998). *Independent learning: From teaching to being independent practice reflective*. Guilford Press.
- Today, DA (2019). *The Relationship Between Technological Literacy and Learning Independence of Class IX Students at SMP Negeri 5 Cilacap for the 2018/2019 Academic Year*. Semarang State University.
- Sobri, M., Nursaptini, N., & Novitasari, S. (2020). Realizing independent learning through courage-based learning in higher education in the industrial era 4.0. *Glasser Education Journal*, 4(1), 64–71.
- stats, A., & Torres, KM (2020). Digital literacy: The need for technology integration and its impact on learning and engagement in community school settings. *Peabody Journal of Education*, 95(1), 90–100.
- Steiner, CM, Wesiak, G., Moore, A., Conlan, O., Dagger, D., Donohoe, G., & Albert, D.

- (2013). Investigation of successful independent learning in a technology-enhanced learning environment. *Proceedings of the 2013 AIED Workshop Volume 10*, 19. Sugiyono, D.
- (2010). *Quantitative research methods and R&D*. Bandung: Alfabeta. Sulisworo, D., Fatimah, N., &
- Sunaryati, SS (2020). A Brief Study of the SRL Profile of Online Learning Participants in the Anticipation Period for the Spread of COVID-19. *Journal International Evaluation and Research in Education*, 9(3), 723–730. Techataweewan, W., & Prasertsin, U. (2018). Development of digital literacy indicators for Thai undergraduate students use mixed methods research. *Journal Social Sciences Kasetsart*, 39(2), 215–221.
- Omar, U., Hendra, H., & Jayanti, MI (2019). Literacy Level of Digital Teacher Students in Facing the Industrial Revolution Era 4.0. *TAJDID: Journal of Islamic and Humanitarian Thought*, 3(2), 188–202. Wijaya, R., Lukman, M., & Yadewani, D. (2020). The Impact of the Covid19 Pandemic on Utilization E Learning. *Journal of Dimensions*, 9(2), 307–322.
- Yang, M., & Kim, J. (2014). Correlation between digital literacy and self-learning skills of learners in university e-learning environments. *Advanced Science and Technology Letters*, 71, 80–83.
- Yasdar, M., & Mulyadi, M. (2018). Application of Self-Regulatory Techniques for improvement of Student Learning Independence Program Study Guidance and Counseling STKIP Muhammadiyah Enrekang. *Edumaspul: Journal of Education*, 2(2), 50–60. Yot-Dominguez, C., &
- Marcelo, C. (2017). Self-study of university students using digital technology. *International Journal Educational Technology in Higher Education*, 14(1), 1–18.

## Digital Literacy and Independent Learning in Covid-19 Pandemic: Correlation Study

Commented [H1]: Revision required

### Abstract

This study aims to determine the relationship between digital literacy and self-regulated learning during the Covid-19 pandemic for students at the Hindu Indonesia University Denpasar. The research method used is correlational quantitative. The population in this study are all active students at the Hindu Indonesia University Denpasar. Samples were selected by probability sampling as many as 148 students using the proportional method of layered random sampling. Data collection techniques using a questionnaire. The data analysis of this research used correlation test and simple regression test. The results showed that there was a significant positive relationship between digital literacy and independent learning during the pandemic. This is evidenced by: (1) the results of a simple correlation test show ( $r_{count} = 0,478 > r_{table} = 0,1603$ ) and the significance value is less than 0.05 ( $0,000 < 0,05$ ). (2) the equation model  $Y = 22,414 + 0,425X$  is statistically significant with  $t_{count} = 6,582 > t_{table} = 1,976$ , and the significance value =  $0,000 < 0,05$ . (3) the coefficient of determination ( $R^2$ ) is 22.9%, meaning that digital literacy variables have an influence of 22.9% on self-regulated learning variables during the Covid-19 pandemic for students at the Hindu Indonesia University Denpasar.

Commented [H2]: sentence

**Keywords:** Digital Literacy, Self-Regulated Learning, Covid-19 Pandemic

### Introduction

Currently, countries in the world are shocked by an extraordinary event, namely the emergence of a corona virus pandemic or commonly known as Covid-19 (Corona Virus Disease-2019) since the end of December 2019. All countries, including Indonesia, are trying to overcome the situation that is not controlled due to this outbreak, which has hampered all lines of life due to various policies to control the rapid spread of the corona virus, among others by imposing social and physical restrictions, as well as working from home (Herliandry et al., 2020). There is a recommendation to work from home based on the provisions of Article 86 paragraph (1) of Law Number 1 of 2003 concerning Manpower which states that every worker/labor has the right to protection of occupational safety and health, this requires everyone to survive. for their survival even though they are still at home with the help of technology and internet.

Controlling the situation during the Covid-19 pandemic by utilizing technology and the internet in accordance with the characteristics of the 4.0 industrial revolution era, one of which is the internet of things that is able to control almost all jobs that can be connected via an internet connection (Risdianto, 2019). The hallmark of education during the industrial revolution 4.0 is the use of the internet. According to Risdianto (2019) One of the provisions in implementing education during the industrial revolution 4.0 is the existence of connectivity or access to the internet network. This is in line with the emergence of digitalizationan education system through digital learning with the help of the internet that is able to provide a more meaningful learning experience, able to grow various strategies, methods, learning resources, and patterns of educator-student relationships so as to create innovative learning opportunities (Statti & Torres, 2020). This transformational change is also in accordance with adaptation to conditions during the pandemic, which requires all institutions or educational institutions to implement distance learning. Institutional education will be left behind if it does not quickly adapt to changes in digital-based education transformation during the industrial revolution 4.0 and during the current pandemic (Sobri et al., 2020). In accordance with the new policy involving the government, it is recommended to stay and work at home during the Covid-19 pandemic. The educational paradigm has shifted from face-to-face learning to online learning. This is

based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning.

Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic. This is based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning. Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic. This is based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning. Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic.

Online learning during a pandemic can be carried out with the support of rapid advances in technology, information, and communication using various platforms in the form of applications, websites, social networks, and learning management systems (Latip, 2020). Online learning is a learning process carried out using the internet, it can be done either synchronously or asynchronously. The emergence of online learning as part of digital literacy can be used as an alternative to using technology in learning, as well as to improve the quality of learning. It is necessary to cultivate Self-Regulated Learning (SRL) to face learning difficulties during the current Covid-19 pandemic. SRL is an active and constructive process for students to determine their learning goals, then monitor, regulate, and control their cognition, motivation, and behavior based on their learning goals and environment (Pintrich, 2000). SRL is one of the basic characters in the learning process, this is in accordance with the Presidential Regulation of the Republic of Indonesia Number 87 of 2017. It was reported in a news article on the Suaramerdeka.com page on June 22, 2020, explaining that students do not yet have Self-Regulated Learning which has become a habit. , this has become one of the complex problems that emerged as a challenge for the world of education during the pandemic.

In addition, the Acehtrend.com news page on September 16, 2020 also showed low self-regulation while studying, which used to be characterized by low self-discipline and motivation while studying. That's Bernasnews. com news page on April 26, 2020 also mentioned the lack of Self-Regulated Learning because most still feel dependent on face-to-face learning/traditional methods. The results of research from Badjeber (2020) conclude that there are still many students with a percentage of more than 60% who relatively lack the awareness to design, implement, monitor and supervise their own learning needs, including in utilizing various resources, as well as determining & practicing learning strategies during the pandemic. Sulisworo et al., (2020) shows that students in Indonesia need to improve SRL during the pandemic in order to remain responsible for the learning process and be successful in implementing online learning. Research by Khairuddin et al., (2020) concluded that the

achievement of each student SRL indicator in Padang City is still below 60%, which is relatively low. Yasdar & Muliyadi (2018) find 75% of students' SRL in South Sulawesi is low, research from Wahyuni (2018) shows 63.98% SRL of students in Riau tends to be low.

Rohaeti & Suwardi (2013) concluded that about 50% of SRL students in Yogyakarta are included in the low category because they rarely set and evaluate learning strategies, lack of discipline in learning which causes irregular study schedules, rarely use spare time to study the material being studied. This shows that the students' SRL is relatively low. Self-Regulated Learning has various benefits for students, because SRL is a supporter of success in everyday life including in learning, such as to improve academic achievement, key to discipline behavior, improve multitasking abilities, increase rationality in decision making, increase efficiency in learning new knowledge (Kristiyani, 2020). If students do not have Self-Regulated Learning, students will find it difficult to plan learning activities,

The development of SRL levels in students can be influenced by internal and external factors. Internal factors consist of epistemological beliefs, beliefs about learning, emotions, personal agency beliefs, and age and personality factors, while external factors that influence the development of SRL such as family factors include parenting and parental involvement, school factors including teacher-student relationships, support for teacher autonomy, the teaching model provided by the teacher, and peer factors (Kristiyani, 2020). SRL is also caused by factors such as personal, behavioral, and environmental. Personal factors consist of knowledge, thoughts, beliefs or self-efficacy, goals, behavioral factors consist of acts of observation, judgment, and self-reaction, while environmental factors in the form of physical and social environment while studying (Schunk & Zimmerman, 1998). Another factor that affects self-regulated learning is digital literacy (Sekarini, 2019).

Digital literacy is one of the competencies that individuals must have in using digital technology effectively to support academic needs such as when accessing information digitally via the internet. In a news article published on the Nusabali.com page on April 20, 2020, it was stated that digital technology is also similar to distraction which causes users to be unable to concentrate on completing their tasks and obligations, so that digital devices that are actually able to increase productivity turn into performance barriers. . Digital content and information widely distributed on the internet can facilitate SRL. Current learning resources can be obtained via the internet (Rohmah, 2019). It is undeniable that students need literature when doing assignments,

It is important for every individual to have digital literacy to limit things that can distract students' activities when accessing the internet, so that students' opportunities to achieve learning goals are greater. Digital competence can also be called digital literacy (Utama & Sajidan, 2020). According to (Risdiyanto, 2019) digital literacy aims to improve the ability to read, analyze, and use information digitally, in other words digital literacy encourages the use of digital technology devices to be more effective and healthy because today's digital natives, including students, feel less wise in use the internet to find information. what is done is not based on particular interests and is not appropriate for age, as well as excessive use of social media. The agreement by the 2015 World Economic Forum requires all components of society, including students, to master six very important literacy basics, one of which is digital literacy (Umar et al., 2019). Digital literacy needs to be embedded in the education system, because it has a positive influence on student skills that are important for successful learning (Techataweewan & Prasertsin, 2018).

Mastery of digital literacy in learning is able to facilitate and strengthen the learning process and educational outcomes including student SRL achievements, because students are able to obtain information in a broader and deeper scope, thereby increasing student insight and helping students complete assignments (Elpira, 2018). Students are also able to survive various obstacles in learning and are able to solve problems that are being faced if they have digital literacy (Eshet, 2004).

According to the proposed framework (Beetham et al., 2009) that digitally literate students can better organize their learning activities through the use of technology than their less digitally literate counterparts. The same thing was also stated in a news article on the timesindonesia.co.id page on April 10, 2020 that the literacy skills that students have when accessing information from various digital sources are one of the important markers for Self-Regulated Learning. The rapid progress of science and technology can contribute to the growth of independent learning, as evidenced by the results of research from (Yot-Domínguez & Marcelo, 2017) which shows that everyday interactions with technology have a positive impact on students' Self-Regulated Learning.

There are several relevant previous studies, such as the results of research by Yang & Kim, (2014) showing a positive and significant correlation between digital literacy and Self-Regulated Learning in university e-learning environments. Research from (Muthupoltotage & Gardner, 2018) also found a positive relationship between digital literacy and Self-Regulated Learning in the context of technology-based learning. Likewise with research results from (Prior et al., 2016) that digital literacy can have a much deeper relationship with Self-Regulated Learning. In line with the Connectivism learning theory, created by George Siemens, he explains the role of Internet network technology in creating opportunities for individuals to learn and share information and skills learned.

### Research Methods

The type of research conducted is quantitative which is correlational. This study will examine the relationship between two or more variables. The aim is to examine the relationship between digital literacy and self-regulated learning during the student Covid-19 pandemic. In this study, there are two variables determined, namely the independent variable (X) is digital literacy, while the dependent variable (Y) is Self-Regulated Learning. The population is all research subjects that have certain characteristics to study and draw general conclusions (Kurniawan, 2012). Hindu Indonesia University Denpasar students from the 2017-2019 class became the population in this study. There were 79 students in 2017, 74 people in 2018 and 80 people in 2019 so that the total student population in this study was 233 people.

Respondents in this study were selected using probability sampling technique with proportional stratified random sampling method. The probability sampling technique treats all members of the population who are the research sample with chance. Data collection techniques in this study by means of a questionnaire. Questionnaires are variable data collection techniques that are carried out through the distribution of a set of questions or written statements that must be answered by respondents (Sugiyono, 2010). The questionnaire used is a closed questionnaire containing statements about digital literacy and self-regulated learning variables. The scale used in this research questionnaire is Likert scale. The questionnaire is structured in the form of a checklist and uses four alternatives: answers, because it eliminates the neutral answer with the assumption that it is a little "ambiguous" (Sarjono & Julianita, 2011).

Commented [H3]: sentence

**The validity** test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program. Saputro, (2017) states the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. The validity test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program.

Saputro, (2017) defines the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. The validity test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program. Based on Saputro (2017) the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with **Alpha Cronbach** through the help of the SPSS version 23 program, and the significance level was 5%.

A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. 2017) The instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. The instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa.

**The first data analysis technique**, with descriptive statistics that are useful for describing data samples through data categorization without the intention of determining conclusions for the population (Sugiyono, 2010). Two analytical prerequisite tests, in the prerequisite test analysis, were carried out in several stages, namely 1) by means of a normality test, which was carried out using the Kolmogorov-Smirnov technique. The criteria for the fulfillment of the normality test are seen from the significance value  $> 0.05$ , while the significance value  $< 0.05$  means that the data is not normally distributed. 2) The linearity test aims to see whether the two variables studied (independent and dependent variables) are linearly related or not. The linearity criteria can be seen through the deviation from the linearity value which must be greater than 0.05 (Prayitno, 2016).

Testing the linearity of this study using SPSS version 23 through the Linearity Test with a significance level of 0.05. 3) To find out the occurrence of inequality variance from one observation residual to another observation in the regression model, it can be done using the

heteroscedasticity test (Ghozali, 2016). By looking at the pattern of the scatterplot image, it can be seen that the fulfillment of the heteroscedasticity test criteria, namely if the data points are spread either above, below or around the number 0, the spread of the points is not patterned, then there is no heteroscedasticity. Test the third hypothesis. In testing the hypothesis, two stages are needed, namely by using a correlation test and simple regression analysis. Correlation Test Correlation coefficient test is used to determine the strength of the relationship between the two variables studied.

According to Sunarto (2007) the correlation test is intended to measure the degree of relationship between the two variables studied, namely between the X variable (digital literacy) and the Y variable (self-regulated learning). In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale. And simple regression This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down. In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale.

This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down. In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale. And simple regression This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down.

## Results

### Data Description

The data obtained in this study as a result of distributing questionnaires through google forms in which there are statement items that represent each indicator both independently of the variable, namely digital literacy, and the dependent variable, namely self-regulated learning. The data obtained from the research subjects amounted to 148 students of the Hindu Indonesia University Denpasar, analyzed using the SPSS version 23 program, the following data were obtained:

**Table 1.** Descriptive Analysis Results

	Descriptive Statistics							
	N	Range	Min	Max	Sum	mean	Std. Dev	Variance
Digital Literacy	148	29	58	87	11068	74.78	5,949	35,395

Self-Regulated Learning	148	26	41	67	8025	54.22	5,290	27,984
Valid N	148							

(Source: Processed primary data, 2021)

### Digital Literacy Variable (X)

Data on digital literacy variables were obtained from the results of distributing questionnaires as many as 23 statement items with four alternative answers based on a Likert scale score of 1 to 4. The highest total score for the sample of 148 respondents was  $23 \times 4 \times 148 = 13,616$ . The results of descriptive statistical processing with the help of the SPSS version 23 program can be presented in Table 1 above, it can be interpreted that the digital literacy variable collects a total score of 11,068 obtained from the summation value. The maximum value that students get from this variable is  $23 \times 4 = 92$ . It is known that the maximum score for the digital literacy variable is 87, meaning that most students score three or four in each indicator. The minimum score is 58, meaning that most students score two or three on each of the available indicators. The standard deviation value explains the heterogeneity of a group to the average, this value can be said to be good if the data is heterogeneous and the value is far from 0. The standard deviation value is 5.949, so it can be said to be heterogeneous. The average score of 74.78 indicates that the average student gives a score of three in each indicator.

It can be seen that the distribution of digital literacy data with the highest frequency is in the area of the 70-73 and 74-77 interval classes, as many as 35 students. Digital literacy level The tendency of students can be classified into three, namely high, medium, and low. The results of the category of digital literacy tendencies. The digital literacy of the Hindu University Siswa Indonesia Denpasar is at a moderate level, which is equivalent to 66.22%. The percentage of digital literacy achievement for students at Hindu Indonesia University Denpasar is obtained from the results of dividing the total score collected by the highest total score, which is  $11,068 : 13,616 = 81.28\%$ . Digital literacy is measured through three indicators,

**Table 2.** Digital Literacy Indicator Achievement

No	Indicators	Achievements Indicator
1	Technical Literacy	86.49%
2	Cognitive Literacy	80%
3	Socio-Emotional Literacy	81.44%

(Source: Processed primary data, 2021)

Based on Table 2, it can be seen that the role of each indicator has different magnitudes of influence. The most dominant indicator in achieving student digital literacy lies in the technical literacy indicator with an indicator achievement of 86.49%. This technical literacy indicator contains basic operational mastery of digital technology, this shows that most students have mastered the basic skills to use digital tools.

### Independent Learning Variables

Data on the Self-Regulated Learning variable was obtained from the distribution of a questionnaire as many as 18 statement items with four alternative answers based on a Likert

scale score of 1 to 4. The highest total score for a sample of 148 respondents was  $18 \times 4 \times 148 = 10,656$ . The results of processing descriptive statistics with the help of the SPSS version 23 program can be presented in Table 1 above, with it being interpreted that the self-regulated learning variable collects a total score of 8025 obtained from that total score. The maximum score that can be obtained by students from this variable is  $18 \times 4 = 72$ . It is known that the maximum value for the self-regulated learning variable is 67, meaning most students give a score of three or four on each indicator. The minimum score is 41, this means that most students score two or three on each of the available indicators. The standard deviation value explains the heterogeneity of a group with respect to the mean, this value is said to be good if the data is heterogeneous and the value is far from 0 the deviation value is 5.290, so it can be said to be heterogeneous. The average score of 54.22 indicates that the average student gives a score of three on each indicator.

**Table 3.** Self-Regulated Learning Indicator Achievement

No	Indicators	Achievement Indicator
1	Memory strategy	70.44%
2	Goal setting	71.79%
3	Self evaluation	74.66%
4	Seeking help	81.93%
5	Environmental arrangements	78.04%
6	Learning responsibilities	72.41%
7	Planning & organizing	77.42%

(Source: Processed primary data, 2021)

Based on Table 3, it can be seen that the role of each indicator has different magnitudes of influence. The most dominant indicator of the achievement of students' self-regulated learning lies in the indicator of seeking assistance with an indicator achievement of 81.93%. This indicator of seeking help contains various efforts that students can make to seek help when they do not understand the material or assignments given by the lecturer, either through the social environment, namely all people involved in the learning process including lecturers and friends, as well as non-social environments including learning facilities. and facilities used. (primary data, 2021)

### Hypothesis Testing

**Table 4.** Simple Correlation Test Results

Correlations	Self-Regulated Learning (Y)
Digital Literacy	,478
Pearson	
(X)	Correlation
	Sig. (2-tailed)
	,000
	N
	148

(Source: Processed primary data, 2021)

Based on Table 4, it is explained that the correlation coefficient (rcount) between digital literacy and learning independence is  $0.478 > r_{table} (0.1603)$ , then to see the level of relationship between the two variables, consult the correlation coefficient interval, a value of

0.478 is included in the moderate relationship level. The correlation coefficient value shows a positive relationship. The significance value is  $0.000 < 0.05$ , which means the relationship is significant. Based on these results, it can be concluded that  $H_0$  is rejected, and  $H_1$  is accepted so that the digital literacy variable has a positive and significant relationship with self-regulated learning during the COVID-19 pandemic for the Denpasar University of Hindu Indonesia students.

**Table 5.** Simple Regression Test Results

Unstandardized Coefficients		Standardized Coefficients		<i>t</i>	Sig.
<i>B</i>	<i>Std. Error</i>	<i>Beta</i>			
(Constant)	22.414	4,848		4,623	,000
Digital Literacy	,425	,065	,478	6.582	,000

Dependent Variable: Self-Regulated Learning  
(Source: Processed primary data, 2021)

Based on Table 5, the following regression model equation can be obtained:

$$Y = 22.414 + 0.425X$$

This equation can be interpreted as a constant 22,414 which means that if digital literacy (X) is 0, then the amount of self-regulated learning (Y) is 22.414. Digital literacy regression coefficient (X) is 0.425, meaning that for every 1% addition of digital literacy value, the value of self-study (Y) also increases by 0.425. The regression coefficient is positive, so it can be said that the direction of the influence of the digital literacy variable (X) on the Self-Regulated Learning variable (Y) is positive. From Table 4.9, a significance value of  $0.000 < 0.05$  is obtained, meaning that the digital literacy variable (X) has an effect on the self-regulated learning variable (Y). The *t*count value is  $6.582 > t_{table} 1.976$  so it can be concluded that the digital literacy variable (X) has an effect on the self-regulated learning variable (Y).

#### Discussion and Conclusion

The results of hypothesis testing using the correlation test show that there is a positive and significant relationship between digital literacy and independent learning during the Covid19 pandemic for students at the Hindu Indonesia University Denpasar. This is in accordance with the value indicated by the correlation coefficient (*r*count) of 0.478 and a meaning value of 0.000. The correlation coefficient value is 0.478, when consulted with the correlation coefficient interval table, it is included in the moderate level of relationship. It can be seen that the *r*count is positive, which means that when students' digital literacy increases, their independent learning will also increase. This is also in accordance with the results shown in the simple regression analysis, namely the regression value of digital literacy coefficient (X) of 0.425,

The results of hypothesis testing are in line with the research of Yang & Kim (2014) which shows a positive and significant correlation between digital literacy and Self-Regulated Learning in the university's e-learning environment. The results of other studies that support the testing of this hypothesis are the research of Atkins et al., (2013); Greene et al., (2014); Muthupoltotage & Gardner, (2018); Steiner et al., (2013) who concluded that there is a positive and significant relationship between digital literacy and independent learning. Independent learning is one of the important characters that students must have when carrying out the

learning process, this is in accordance with Presidential Regulation of the Republic of Indonesia No. 87 of 2017 concerning Strengthening Character Development.

Students are said to have self-regulated learning if they are able to complete various tasks given by the lecturer based on their efforts and abilities. The current pandemic condition shows the real urgency of SRL, one of the important markers that students must have in order to achieve self-regulated learning is digital literacy skills. Digital literacy as a form of business that is manifested in the form of the ability to access, browse, analyze, and use information digitally. The habit of reading learning resources both offline and online from the internet in the form of digital books, articles, national and international journals that affect knowledge, increase understanding, open insight and further develop mindset skills, thus forming and facilitating the achievement of SRL so that the decisions taken are right on target, both to solve problems and solve problems. problems being faced and to meet their learning needs. Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning.

Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning. Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning.

Digital literacy also helps students to know the limits of internet use according to their needs and interests, for example preventing excessive use of social media. Literacy as the main basis in increasing knowledge. According to Sekarini (2019) digital literacy is one of the efforts that can foster self-regulated learning. The agreement by the 2015 World Economic Forum also obliges everyone, including students, to master six basic literacys that are very important in life, one of which is digital literacy (Umar et al., 2019).

Digital literacy has a positive influence on skills that are important to support successful student learning (Techataweewan & Prasertsin, 2018). Students who have self-regulated learning can manage their learning patterns optimally, supported by their ability to use digital technology to find learning resources and literature digitally to complete the material needed for certain courses, due to pandemic conditions that require online learning. it is possible for students to re-read the material obtained so that there are no misconceptions, reconfirm for the lecturer or his friends by discussing to reach understanding, and be able to support the work given by the lecturer.

The level of digital literacy and self-regulated learning at Hindu Indonesia University Denpasar students are in the medium category, meaning that students are quite able to regulate the learning process that is relevant to the current development of science and technology. There are seven indicators to measure self-regulated learning. Of the seven indicators, the indicator that has the highest achievement is the indicator of seeking assistance at 81.93%. The indicator of seeking help relates to the various efforts made by students to seek help when they feel they do not understand the material or assignments given by the lecturer, both through the social environment, namely all people involved in the learning process including lecturers and friends, as well as non-social environments including facility. or learning tools used.

The level of digital literacy and self-regulated learning at Hindu Indonesia University Denpasar students are in the medium category, meaning that students are quite able to regulate the learning process that is relevant to the current development of science and technology. There are seven indicators to measure self-regulated learning. Of the seven indicators, the indicator that has the highest achievement is the indicator of seeking assistance at 81.93%. The indicator of seeking help relates to the various efforts made by students to seek help when they feel they do not understand the material or task given. The achievement of a high indicator of seeking help indicates that students are able to use the ability to communicate with others to ask questions and discuss to complete a responsibility.

The lowest achievement indicator is the memory strategy indicator of 70.44%. The indicator of memory strategy is related to the memory ability shown by students towards the lecture material. With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used.

The indicator of memory strategy is related to the memory ability shown by students towards the lecture material. With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. The indicator of memory strategy is related to the memory ability shown by students towards the lecture material.

With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used.

The level of self-regulated learning is also caused by the level of digital literacy that each student has. Digital literacy measurement uses three indicators. Of the three indicators, the indicator that has the highest achievement is the technical literacy indicator at 86.49%. Technical literacy indicators are related to basic operational mastery of digital technology. This is also related to the high level of seeking help in Self-Regulated Learning indicators, if students are able to demonstrate their basic skills when using digital tools, this can make it easier when seeking help to find suitable alternatives for satisfaction with their learning achievements, for example through the use of laptops, gadgets, internet, browsers, and others.

Then, the digital literacy indicator that has the lowest achievement is cognitive literacy at the 80% level. This is related to the low memory strategy, because cognitive literacy is related to students' ability to find and process information. Weak memory can be caused because students lack the initiative to seek information first, usually students tend to like things that are instant. One of the behaviors that reflect a lack of memory is that students are not accustomed to rereading notes or lecture material, even though students should be able to analyze in depth first any information obtained so that it is embedded in long-term memory.

Students need to enrich their digital literacy to enhance their independent learning. The results of this study have supported the theory of connectivism which explains the role of internet network technology in creating opportunities for individuals to learn and share information & learned skills. According to Sekarini (2019) digital literacy is included in environmental factors that can increase self-regulated learning. According to (Beetham et al., 2009) that digitally literate students are better at managing their learning activities through the use of technology. Digital literacy is an important provision to achieve student SRL because it is facilitated by the availability of technology (Latifah, 2020). Digital literacy has a positive influence on learner skills that are essential for successful learning (Techataweewan & Prasertsin, 2018). Utilization of technology is able to develop SRL. Daily interactions with technology have a positive impact on SRL, this shows the positive contribution made by the development of science and technology to the improvement of SRL (Yot-Dominguez & Marcelo, 2017).

**Commented [H4]:** You have no implication yet

Accordingly, you did not specify which one you define as your conclusion

## References

- Atkins, L., Fraser, J., & Hall, R. (2013). DigiLit Leicester: Survey Results 2013. Leicester: Leicester City Council (CC BY-NC 3.0).
- Badjeber, R. (2020). Independent learning of tadaris mathematics students, FTIK IAIN Palu, survived a brave learning period. *Coordinates of Journal of Mathematics and Science Learning*, 1(1), 1–9.
- Beetham, H., McGill, L., & Littlejohn, A. (2009). *Evolving in the 21st century: Report of the conclusions and recommendations of the LLiDA (Literacy for the Digital Age) project*. Glasgow, UK: Glasgow Caledonian University.
- Budiyono Saputro, (2017). *Management Research Development (Research & development) for Thesis and Dissertation Writers*. Aswaja Presindo.
- and Sunarto, R. (2007). *Introduction to Statistics. For Educational, Social, Economic, Communication and Business Research*. Bandung: Alfabeta.
- Elpira, B. (2018). The effect of applying digital literacy on improving learning students at SMP Negeri 6 Banda Aceh. UIN Ar Raniry Banda Aceh.
- Eshet, Y. (2004). Digital literacy: A conceptual framework for survival skills in a digital world era. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93–106.
- Ghozali, I. (2016). *Multivariate Analysis Application with IBM SPSS Program for Windows*. Semarang: BP Undip.
- Greene, J.A., Seung, B.Y., & Copeland, D.Z. (2014). Measuring critical components of digital literacy and its relation to learning. *Computer & Education*, 76, 55–69.
- Hanik, E.U. (2020). Self-learning based on digital literacy during the COVID-19 pandemic 19 at madrasah ibtidaiyah. *BASIS: Journal of Islamic Teachers*, 8(1), 183.
- Harahap, ACP (2020). Covid 19: Student Self-Regulated Learning. *AL-IRSYAD*, 10(1). Hasanah, Law,

- & Setiaji, K. (2019). Effect of Digital Literacy, Self-Efficacy, Environment on Student Entrepreneurial Intentions in E-Business. *Journal of Economic Education Analysis*, 8(3), 1198–1215.  
Bung Hatta University Mathematics Education Student. *Jurnal Physics: Series Conference*, 1429(1), 12003.
- Christian, T. (2020). *Self-Regulated Learning: Concepts, Implications and Challenges for Students in Indonesia*. Sanata Dharma University Press.
- Kurniawan, B. (2012). *Research Methodology*. Explore Nusa. South Tangerang.
- Latifah, K. (2020). Digital Literacy and Self Directed Learning in Learning Student PBI IAIN Surakarta. *Academica: Journal of Multidisciplinary Studies*, 2(1), 159–167.
- Latip, A. (2020). The role of information and communication technology literacy in distance learning during the Covid-19 pandemic. *EduTeach: Journal of Education and Learning Technology*, 1(2), 108–116.
- Muthupoltotage, UP, & Gardner, L. (2018). Analyzing the relationship between digital literacy and student self-study-preliminary investigation. In *Progress in the development of information systems* (pp. 1–16). Jumper.
- Pintrich, PR (2000). The role of goal orientation in independent learning. In *The Handbook of self-regulation* (p. 451–502). other.
- Prayitno, D. (2016). *SPSS Handbook; Data Analysis, Data Processing, and Settlement of Statistical Cases*. Yogyakarta: Mediakom.
- Previously, DD, Mazanov, J., Meacheam, D., Heaslip, G., & Hanson, J. (2016). Attitudes, digital literacy and self-efficacy: Flow-on effects for online learning behavior. *The Internet and Higher Education*, 29, 91–97.
- Risdianto, E. (2019). *Analysis of Indonesian education in the era of the industrial revolution 4.0*. Bengkulu: Bengkulu University.
- Rohaeti, E., & Suwardi, JI (2013). Improving Student Achievement and Independent Learning through Reciprocal Teaching and Cooperative Learning Approaches. *Journal of Education Cakrawala*, 5(1).
- Rohmah, N. (2019). Digital Literacy to Improve Teacher Competence in the Revolutionary Era Industry 4.0. *Awwaliyah: Journal of Madrasah Ibtidaiyah Teacher Education*, 2(2), 128–134.
- Sarjono, H., & Julianita, W. (2011). *SPSS vs LISREL: an introduction, application to research*. Jakarta: Salemba Empat, 5(2), 23–34.
- Schunk, DH, & Zimmerman, BJ (1998). *Independent learning: From teaching to being independent practice reflective*. Guilford Press.
- Today, DA (2019). *The Relationship Between Technological Literacy and Learning Independence of Class IX Students at SMP Negeri 5 Cilacap for the 2018/2019 Academic Year*. Semarang State University.
- Sobri, M., Nursaptini, N., & Novitasari, S. (2020). Realizing independent learning through courage-based learning in higher education in the industrial era 4.0. *Glasser Education Journal*, 4(1), 64–71.
- stats, A., & Torres, KM (2020). Digital literacy: The need for technology integration and its impact on learning and engagement in community school settings. *Peabody Journal of Education*, 95(1), 90–100.
- Steiner, CM, Wesiak, G., Moore, A., Conlan, O., Dagger, D., Donohoe, G., & Albert, D.

- (2013). Investigation of successful independent learning in a technology-enhanced learning environment. *Proceedings of the 2013 AIED Workshop Volume 10*, 19. Sugiyono, D.
- (2010). *Quantitative research methods and R&D*. Bandung: Alfabeta. Sulisworo, D., Fatimah, N., & Sunaryati, SS (2020). A Brief Study of the SRL Profile of Online Learning Participants in the Anticipation Period for the Spread of COVID-19. *Journal International Evaluation and Research in Education*, 9(3), 723–730. Techataweewan, W., & Prasertsin, U. (2018). Development of digital literacy indicators for Thai undergraduate students use mixed methods research. *Journal Social Sciences Kasetsart*, 39(2), 215–221.
- Omar, U., Hendra, H., & Jayanti, MI (2019). Literacy Level of Digital Teacher Students in Facing the Industrial Revolution Era 4.0. *TAJDID: Journal of Islamic and Humanitarian Thought*, 3(2), 188–202. Wijaya, R., Lukman, M., & Yadewani, D. (2020). The Impact of the Covid19 Pandemic on Utilization E Learning. *Journal of Dimensions*, 9(2), 307–322.
- Yang, M., & Kim, J. (2014). Correlation between digital literacy and self-learning skills of learners in university e-learning environments. *Advanced Science and Technology Letters*, 71, 80–83.
- Yasdar, M., & Mulyadi, M. (2018). Application of Self-Regulatory Techniques for improvement of Student Learning Independence Program Study Guidance and Counseling STKIP Muhammadiyah Enrekang. *Edumaspul: Journal of Education*, 2(2), 50–60. Yot-Dominguez, C., & Marcelo, C. (2017). Self-study of university students using digital technology. *International Journal Educational Technology in Higher Education*, 14(1), 1–18.

----- Forwarded message -----  
 Dari: **Bulent Tarman** <[btarman@gmail.com](mailto:btarman@gmail.com)>  
 Date: Sel, 20 Des 2022 17.27  
 Subject: [JSSER] Editor Decision  
 To: <[karmini@unhi.ac.id](mailto:karmini@unhi.ac.id)>

Ni Wayan Karmini:

We have reached a decision regarding your submission to Journal of Social Studies Education Research, "Digital Literature and Independent Learning in Covid-19 Pandemic: Correlation Study".

Our decision is: "Revisions Required"

Please see the comments of the reviewers given below and revise your manuscript accordingly. Please also address each of the reviewer's comments point by point in a cover letter upon resubmission. Proofreading the whole paper and removing spelling and grammar mistakes is necessary. Make sure to Proof-edited by a native English language specialist. Please revise your manuscript in five days and upload it through the online management system of the journal and please confirm your recipient of this message.

Please also note that we made an agreement with Best Edit & Proof ([www.besteditproof.com](http://www.besteditproof.com)) to find a solution to the "Proof-edited by a native English language specialist" issue. Best Edit Proof Co. is an international editing company with experienced editors having Ph.D. degrees from the world's outstanding universities. You can seek help from this company with some privileges exclusive to the JSSER.

When authors seek assistance from Besteditproof.com, make sure to use the following code to get a 10% discount with the privilege of JSSER.

Discount code: OPENED22

Please also note that the proof-editing certification is required and you need to provide this document once the revision files are uploaded to the online portal of the journal.  
Best regards,

Dr. Bulent Tarman  
 Editor-in-Chief,  
 Journal of Social Studies Education Research  
[btarman@gmail.com](mailto:btarman@gmail.com)

Relevance of the title with content:  
Yes

Type of manuscript (Research, Lit. review etc.):  
Research

Quality of the work:  
Good

Theoretical Framework:  
Acceptable

Objectives and Rationale:  
Defined properly

Method:  
Good

Findings:  
Needs to define your implication, novelty, and clear cut of statement your conclusion

Conclusion:  
Refine your novelty, indicate your limitation of your study then post your suggestion for the future research

smoothness:  
Academic English needs editing by native

Originality:  
Good

Note for Author/s:  
see the comment to make a proper revision

Relevance of the title with content:  
Yes

Type of manuscript (Research, Lit. review etc.):  
Research

Quality of the work:  
Good

Theoretical Framework:  
Theories have been provided properly

Objectives and Rationale:  
defined together with hypothesis

Method:  
Good,

Findings:  
Good proper to design and statistical tool

Conclusion:  
discussion and conclusion is combined, the authors did not yet state her conclusion

smoothness:  
Please send to native expert

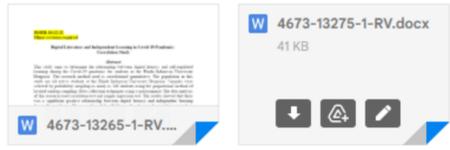
Originality:  
Good

Note for Author/s:  
Improve for more proper presentation

4673-13275-1-RV.docx (41K)

Send

2 Attachments • Scanned by Gmail



Reply Forward

## **Digital Literature and Independent Learning in Covid-19 Pandemic: Correlation Study**

### **Abstract**

This study aims to determine the relationship between digital literacy and self-regulated learning during the Covid-19 pandemic for students at the Hindu Indonesia University Denpasar. The research method used is correlational quantitative. The population in this study are all active students at the Hindu Indonesia University Denpasar. Samples were selected by probability sampling as many as 148 students using the proportional method of layered random sampling. Data collection techniques using a questionnaire. The data analysis of this research used correlation test and simple regression test. The results showed that there was a significant positive relationship between digital literacy and independent learning during the pandemic. This is evidenced by: (1) the results of a simple correlation test show ( $r_{count} = 0,478 > r_{table} = 0.1603$ ) and the significance value is less than 0.05 ( $0.000 < 0.05$ ). (2) the equation model  $Y = 22.414 + 0.425X$  is statistically significant with  $t_{count} = 6.582 > t_{table} = 1.976$ , and the significance value =  $0.000 < 0.05$ . (3) the coefficient of determination ( $R^2$ ) is 22.9%, meaning that digital literacy variables have an influence of 22.9% on self-regulated learning variables during the Covid-19 pandemic for students at the Hindu Indonesia University Denpasar.

**Keywords:** Digital Literacy, Self-Regulated Learning, Covid-19 Pandemic

### **Introduction**

Currently, countries in the world are shocked by an extraordinary event, namely the emergence of a corona virus pandemic or commonly known as Covid-19 (Corona Virus Disease-2019) since the end of December 2019. All countries, including Indonesia, are trying to overcome the situation that is not controlled due to this outbreak, which has hampered all lines of life due to various policies to control the rapid spread of the corona virus, among others by imposing social and physical restrictions, as well as working from home (Herliandry et al., 2020). There is a recommendation to work from home based on the provisions of Article 86 paragraph (1) of Law Number 1 of 2003 concerning Manpower which states that every worker/labor has the right to protection of occupational safety and health, this requires everyone to survive. for their survival even though they are still at home with the help of technology and internet.

Controlling the situation during the Covid-19 pandemic by utilizing technology and the internet in accordance with the characteristics of the 4.0 industrial revolution era, one of which is the internet of things that is able to control almost all jobs that can be connected via an internet connection (Risdianto, 2019). The hallmark of education during the industrial revolution 4.0 is the use of the internet. According to Risdianto (2019) One of the provisions in implementing education during the industrial revolution 4.0 is the existence of connectivity or access to the internet network. This is in line with the emergence of digitalizationan education system through digital learning with the help of the internet that is able to provide a more meaningful learning experience, able to grow various strategies, methods, learning resources, and patterns of educator-student relationships so as to create innovative learning opportunities (Statti & Torres, 2020). This transformational change is also in accordance with adaptation to conditions during the pandemic, which requires all institutions or educational institutions to implement distance learning. Institutional education will be left behind if it does not quickly adapt to changes in digital-based education transformation during the industrial revolution 4.0 and

during the current pandemic (Sobri et al., 2020). In accordance with the new policy involving the government, it is recommended to stay and work at home during the Covid-19 pandemic. The educational paradigm has shifted from face-to-face learning to online learning. This is based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning.

Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic. This is based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning. Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic. This is based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning. Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic.

Online learning during a pandemic can be carried out with the support of rapid advances in technology, information, and communication using various platforms in the form of applications, websites, social networks, and learning management systems (Latip, 2020). Online learning is a learning process carried out using the internet, it can be done either synchronously or asynchronously. The emergence of online learning as part of digital literacy can be used as an alternative to using technology in learning, as well as to improve the quality of learning. It is necessary to cultivate Self-Regulated Learning (SRL) to face learning difficulties during the current Covid-19 pandemic. SRL is an active and constructive process for students to determine their learning goals, then monitor, regulate, and control their cognition, motivation, and behavior based on their learning goals and environment (Pintrich, 2000). SRL is one of the basic characters in the learning process, this is in accordance with the Presidential Regulation of the Republic of Indonesia Number 87 of 2017. It was reported in a news article on the Suaramerdeka.com page on June 22, 2020, explaining that students do not yet have Self-Regulated Learning which has become a habit. , this has become one of the complex problems that emerged as a challenge for the world of education during the pandemic.

In addition, the Acehtrend.com news page on September 16, 2020 also showed low self-regulation while studying, which used to be characterized by low self-discipline and motivation while studying. That's Bernasnews. com news page on April 26, 2020 also mentioned the lack of Self-Regulated Learning because most still feel dependent on face-to-face learning/traditional methods. The results of research from Badjeber (2020) conclude that there are still many students with a percentage of more than 60% who relatively lack the awareness to design, implement, monitor and supervise their own learning needs, including in utilizing various resources, as well as determining & practicing learning strategies during the pandemic.

Sulisworo et al., (2020) shows that students in Indonesia need to improve SRL during the pandemic in order to remain responsible for the learning process and be successful in implementing online learning. Research by Khairuddin et al., (2020) concluded that the achievement of each student SRL indicator in Padang City is still below 60%, which is relatively low. Yasdar & Mulyadi (2018) find 75% of students' SRL in South Sulawesi is low, research from Wahyuni (2018) shows 63.98% SRL of students in Riau tends to be low.

Rohaeti & Suwardi (2013) concluded that about 50% of SRL students in Yogyakarta are included in the low category because they rarely set and evaluate learning strategies, lack of discipline in learning which causes irregular study schedules, rarely use spare time to study the material being studied. This shows that the students' SRL is relatively low. Self-Regulated Learning has various benefits for students, because SRL is a supporter of success in everyday life including in learning, such as to improve academic achievement, key to discipline behavior, improve multitasking abilities, increase rationality in decision making, increase efficiency in learning new knowledge (Kristiyani, 2020). If students do not have Self-Regulated Learning, students will find it difficult to plan learning activities,

The development of SRL levels in students can be influenced by internal and external factors. Internal factors consist of epistemological beliefs, beliefs about learning, emotions, personal agency beliefs, and age and personality factors, while external factors that influence the development of SRL such as family factors include parenting and parental involvement, school factors including teacher-student relationships, support for teacher autonomy, the teaching model provided by the teacher, and peer factors (Kristiyani, 2020). SRL is also caused by factors such as personal, behavioral, and environmental. Personal factors consist of knowledge, thoughts, beliefs or self-efficacy, goals, behavioral factors consist of acts of observation, judgment, and self-reaction, while environmental factors in the form of physical and social environment while studying (Schunk & Zimmerman, 1998). Another factor that affects self-regulated learning is digital literacy (Sekarini, 2019).

Digital literacy is one of the competencies that individuals must have in using digital technology effectively to support academic needs such as when accessing information digitally via the internet. In a news article published on the Nusabali.com page on April 20, 2020, it was stated that digital technology is also similar to distraction which causes users to be unable to concentrate on completing their tasks and obligations, so that digital devices that are actually able to increase productivity turn into performance barriers. . Digital content and information widely distributed on the internet can facilitate SRL. Current learning resources can be obtained via the internet (Rohmah, 2019). It is undeniable that students need literature when doing assignments,

It is important for every individual to have digital literacy to limit things that can distract students' activities when accessing the internet, so that students' opportunities to achieve learning goals are greater. Digital competence can also be called digital literacy (Utama & Sajidan, 2020). According to (Risdianto, 2019) digital literacy aims to improve the ability to read, analyze, and use information digitally, in other words digital literacy encourages the use of digital technology devices to be more effective and healthy because today's digital natives, including students, feel less wise in use the internet to find information. what is done is not based on particular interests and is not appropriate for age, as well as excessive use of social media. The agreement by the 2015 World Economic Forum requires all components of society, including students, to master six very important literacy basics, one of which is digital literacy (Umar et al., 2019). Digital literacy needs to be embedded in the education system, because it

has a positive influence on student skills that are important for successful learning (Techataweewan & Prasertsin, 2018).

Mastery of digital literacy in learning is able to facilitate and strengthen the learning process and educational outcomes including student SRL achievements, because students are able to obtain information in a broader and deeper scope, thereby increasing student insight and helping students complete assignments (Elpira, 2018). Students are also able to survive various obstacles in learning and are able to solve problems that are being faced if they have digital literacy (Eshet, 2004).

According to the proposed framework (Beetham et al., 2009) that digitally literate students can better organize their learning activities through the use of technology than their less digitally literate counterparts. The same thing was also stated in a news article on the timesindonesia.co.id page on April 10, 2020 that the literacy skills that students have when accessing information from various digital sources are one of the important markers for Self-Regulated Learning. The rapid progress of science and technology can contribute to the growth of independent learning, as evidenced by the results of research from (Yot-Domínguez & Marcelo, 2017) which shows that everyday interactions with technology have a positive impact on students' Self-Regulated Learning.

There are several relevant previous studies, such as the results of research by Yang & Kim, (2014) showing a positive and significant correlation between digital literacy and Self-Regulated Learning in university e-learning environments. Research from (Muthupoltotage & Gardner, 2018) also found a positive relationship between digital literacy and Self-Regulated Learning in the context of technology-based learning. Likewise with research results from (Prior et al., 2016) that digital literacy can have a much deeper relationship with Self-Regulated Learning. In line with the Connectivism learning theory, created by George Siemens, he explains the role of Internet network technology in creating opportunities for individuals to learn and share information and skills learned.

### **Research Methods**

The type of research conducted is quantitative which is correlational. This study will examine the relationship between two or more variables. The aim is to examine the relationship between digital literacy and self-regulated learning during the student Covid-19 pandemic. In this study, there are two variables determined, namely the independent variable (X) is digital literacy, while the dependent variable (Y) is Self-Regulated Learning. The population is all research subjects that have certain characteristics to study and draw general conclusions (Kurniawan, 2012). Hindu Indonesia University Denpasar students from the 2017-2019 class became the population in this study. There were 79 students in 2017, 74 people in 2018 and 80 people in 2019 so that the total student population in this study was 233 people.

Respondents in this study were selected using probability sampling technique with proportional stratified random sampling method. The probability sampling technique treats all members of the population who are the research sample with chance. **Data collection techniques in this study by means of a questionnaire.** Questionnaires are variable data collection techniques that are carried out through the distribution of a set of questions or written statements that must be answered by respondents (Sugiyono, 2010). The questionnaire used is a closed questionnaire containing statements about digital literacy and self-regulated learning variables. The scale used in this research questionnaire is Likert scale. The questionnaire is structured in the form

of a checklist and uses four alternatives: answers, because it eliminates the neutral answer with the assumption that it is a little "ambiguous" (Sarjono & Julianita, 2011).

The validity test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program. Saputro, (2017) states the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the  $r_i$  value  $> 0.70$  means the questionnaire is reliable, and vice versa. The validity test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program.

Saputro, (2017) defines the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the  $r_i$  value  $> 0.70$  means the questionnaire is reliable, and vice versa. The validity test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program. Based on Saputro (2017) the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%.

A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the  $r_i$  value  $> 0.70$  means the questionnaire is reliable, and vice versa. 2017) The instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the  $r_i$  value  $> 0.70$  means the questionnaire is reliable, and vice versa. The instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the  $r_i$  value  $> 0.70$  means the questionnaire is reliable, and vice versa.

The first data analysis technique, with descriptive statistics that are useful for describing data samples through data categorization without the intention of determining conclusions for the population (Sugiyono, 2010). Two analytical prerequisite tests, in the prerequisite test analysis, were carried out in several stages, namely 1) by means of a normality test, which was carried out using the Kolmogorov-Smirnov technique. The criteria for the fulfillment of the normality test are seen from the significance value  $> 0.05$ , while the significance value  $< 0.05$  means that the data is not normally distributed. 2) The linearity test aims to see whether the two variables studied (independent and dependent variables) are linearly related or not. The linearity criteria can be seen through the deviation from the linearity value which must be greater than 0.05 (Prayitno, 2016).

Testing the linearity of this study using SPSS version 23 through the Linearity Test with a significance level of 0.05. 3) To find out the occurrence of inequality variance from one observation residual to another observation in the regression model, it can be done using the heteroscedasticity test (Ghozali, 2016). By looking at the pattern of the scatterplot image, it can be seen that the fulfillment of the heteroscedasticity test criteria, namely if the data points are spread either above, below or around the number 0, the spread of the points is not patterned, then there is no heteroscedasticity. **Test the third hypothesis.** In testing the hypothesis, two stages are needed, namely by using a correlation test and simple regression analysis. Correlation Test Correlation coefficient test is used to determine the strength of the relationship between the two variables studied.

According to Sunarto (2007) the correlation test is intended to measure the degree of relationship between the two variables studied, namely between the X variable (digital literacy) and the Y variable (self-regulated learning). In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale. And simple regression This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down. In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale.

This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down. In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale. And simple regression This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down.

## **Results**

### **Data Description**

The data obtained in this study as a result of distributing questionnaires through google forms in which there are statement items that represent each indicator both independently of the variable, namely digital literacy, and the dependent variable, namely self-regulated learning. The data obtained from the research subjects amounted to 148 students of the Hindu Indonesia University Denpasar, analyzed using the SPSS version 23 program, the following data were obtained:

**Table 1.** Descriptive Analysis Results

	Descriptive Statistics							
	N	Range	Min	Max	Sum	mean	Std. Dev	Variance
Digital Literacy	148	29	58	87	11068	74.78	5,949	35,395
Self-Regulated Learning	148	26	41	67	8025	54.22	5,290	27,984
Valid N	148							

(Source: Processed primary data, 2021)

### Digital Literacy Variable (X)

Data on digital literacy variables were obtained from the results of distributing questionnaires as many as 23 statement items with four alternative answers based on a Likert scale score of 1 to 4. The highest total score for the sample of 148 respondents was  $23 \times 4 \times 148 = 13,616$ . The results of descriptive statistical processing with the help of the SPSS version 23 program can be presented in Table 1 above, it can be interpreted that the digital literacy variable collects a total score of 11,068 obtained from the summation value. The maximum value that students get from this variable is  $23 \times 4 = 92$ . It is known that the maximum score for the digital literacy variable is 87, meaning that most students score three or four in each indicator. The minimum score is 58, meaning that most students score two or three on each of the available indicators. The standard deviation value explains the heterogeneity of a group to the average, this value can be said to be good if the data is heterogeneous and the value is far from 0. The standard deviation value is 5.949, so it can be said to be heterogeneous. The average score of 74.78 indicates that the average student gives a score of three in each indicator.

It can be seen that the distribution of digital literacy data with the highest frequency is in the area of the 70-73 and 74-77 interval classes, as many as 35 students. Digital literacy level The tendency of students can be classified into three, namely high, medium, and low. The results of the category of digital literacy tendencies. The digital literacy of the Hindu University Siswa Indonesia Denpasar is at a moderate level, which is equivalent to 66.22%. The percentage of digital literacy achievement for students at Hindu Indonesia University Denpasar is obtained from the results of dividing the total score collected by the highest total score, which is  $11,068 : 13,616 = 81.28\%$ . Digital literacy is measured through three indicators,

**Table 2.** Digital Literacy Indicator Achievement

No	Indicators	Achievements Indicator
1	Technical Literacy	86.49%
2	Cognitive Literacy	80%
3	Socio-Emotional Literacy	81.44%

(Source: Processed primary data, 2021)

Based on Table 2, it can be seen that the role of each indicator has different magnitudes of influence. The most dominant indicator in achieving student digital literacy lies in the technical literacy indicator with an indicator achievement of 86.49%. This technical literacy indicator contains basic operational mastery of digital technology, this shows that most students have mastered the basic skills to use digital tools.

### Independent Learning Variables

Data on the Self-Regulated Learning variable was obtained from the distribution of a questionnaire as many as 18 statement items with four alternative answers based on a Likert scale score of 1 to 4. The highest total score for a sample of 148 respondents was  $18 \times 4 \times 148 = 10,656$ . The results of processing descriptive statistics with the help of the SPSS version 23

program can be presented in Table 1 above, with it being interpreted that the self-regulated learning variable collects a total score of 8025 obtained from that total score. The maximum score that can be obtained by students from this variable is  $18 \times 4 = 72$ . It is known that the maximum value for the self-regulated learning variable is 67, meaning most students give a score of three or four on each indicator. The minimum score is 41, this means that most students score two or three on each of the available indicators. The standard deviation value explains the heterogeneity of a group with respect to the mean, this value is said to be good if the data is heterogeneous and the value is far from 0 the deviation value is 5.290, so it can be said to be heterogeneous. The average score of 54.22 indicates that the average student gives a score of three on each indicator.

**Table 3. Self-Regulated Learning Indicator Achievement**

No	Indicators	Achievement Indicator
1	Memory strategy	70.44%
2	Goal setting	71.79%
3	Self evaluation	74.66%
4	Seeking help	81.93%
5	Environmental arrangements	78.04%
6	Learning responsibilities	72.41%
7	Planning & organizing	77.42%

(Source: Processed primary data, 2021)

Based on Table 3, it can be seen that the role of each indicator has different magnitudes of influence. The most dominant indicator of the achievement of students' self-regulated learning lies in the indicator of seeking assistance with an indicator achievement of 81.93%. This indicator of seeking help contains various efforts that students can make to seek help when they do not understand the material or assignments given by the lecturer, either through the social environment, namely all people involved in the learning process including lecturers and friends, as well as non-social environments including learning facilities. and facilities used. imary data, 2021)

### Hypothesis Testing

**Table 4. Simple Correlation Test Results**

	Correlations	Self-Regulated Learning (Y)
Digital Literacy Pearson (X)		,478
	Correlation	
	Sig. (2-tailed)	,000
	N	148

(Source: Processed primary data, 2021)

Based on Table 4, it is explained that the correlation coefficient (rcount) between digital literacy and learning independence is  $0.478 > r_{table} (0.1603)$ , then to see the level of relationship between the two variables, consult the correlation coefficient interval, a value of 0.478 is included in the moderate relationship level. The correlation coefficient value shows a positive relationship. The significance value is  $0.000 < 0.05$ , which means the relationship is significant. Based on these results, it can be concluded that  $H_0$  is rejected, and  $H_1$  is accepted so that the digital literacy variable has a positive and significant relationship with self-regulated learning during the COVID-19 pandemic for the Denpasar University of Hindu Indonesia students.

**Table 5.** Simple Regression Test Results

Unstandardized Coefficients		Standardized Coefficients		<i>t</i>	Sig.
<i>B</i>	<i>Std. Error</i>	<i>Beta</i>			
(Constant)	22.414	4,848		4,623	,000
Digital Literacy	,425	,065	,478	6.582	,000

Dependent Variable: Self-Regulated Learning  
(Source: Processed primary data, 2021)

Based on Table 5, the following regression model equation can be obtained:

$$Y = 22.414 + 0.425X$$

This equation can be interpreted as a constant 22,414 which means that if digital literacy (X) is 0, then the amount of self-regulated learning (Y) is 22.414. Digital literacy regression coefficient (X) is 0.425, meaning that for every 1% addition of digital literacy value, the value of self-study (Y) also increases by 0.425. The regression coefficient is positive, so it can be said that the direction of the influence of the digital literacy variable (X) on the Self-Regulated Learning variable (Y) is positive. From Table 4.9, a significance value of  $0.000 < 0.05$  is obtained, meaning that the digital literacy variable (X) has an effect on the self-regulated learning variable (Y). The *t*count value is  $6.582 > t_{table} 1.976$  so it can be concluded that the digital literacy variable (X) has an effect on the self-regulated learning variable (Y).

### Discussion and Conclusion

The results of hypothesis testing using the correlation test show that there is a positive and significant relationship between digital literacy and independent learning during the Covid19 pandemic for students at the Hindu Indonesia University Denpasar. This is in accordance with the value indicated by the correlation coefficient (*r*count) of 0.478 and a meaning value of 0.000. The correlation coefficient value is 0.478, when consulted with the correlation coefficient interval table, it is included in the moderate level of relationship. It can be seen that the *r*count is positive, which means that when students' digital literacy increases, their independent learning will also increase. This is also in accordance with the results shown in the simple regression analysis, namely the regression value of digital literacy coefficient (X) of 0.425,

The results of hypothesis testing are in line with the research of Yang & Kim (2014) which shows a positive and significant correlation between digital literacy and Self-Regulated Learning in the university's e-learning environment. The results of other studies that support the testing of this hypothesis are the research of Atkins et al., (2013); Greene et al., (2014); Muthupoltotage & Gardner, (2018); Steiner et al., (2013) who concluded that there is a positive and significant relationship between digital literacy and independent learning. Independent learning is one of the important characters that students must have when carrying out the learning process, this is in accordance with Presidential Regulation of the Republic of Indonesia No. 87 of 2017 concerning Strengthening Character Development.

Students are said to have self-regulated learning if they are able to complete various tasks given by the lecturer based on their efforts and abilities. The current pandemic condition shows the real urgency of SRL, one of the important markers that students must have in order to achieve self-regulated learning is digital literacy skills. Digital literacy as a form of business that is manifested in the form of the ability to access, browse, analyze, and use information digitally. The habit of reading learning resources both offline and online from the internet in the form of digital books, articles, national and international journals that affect knowledge, increase understanding, open insight and further develop mindset skills, thus forming and facilitating

the achievement of SRL so that the decisions taken are right on target, both to solve problems and solve problems. problems being faced and to meet their learning needs. Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning.

Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning. Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning.

Digital literacy also helps students to know the limits of internet use according to their needs and interests, for example preventing excessive use of social media. Literacy as the main basis in increasing knowledge. According to Sekarini (2019) digital literacy is one of the efforts that can foster self-regulated learning. The agreement by the 2015 World Economic Forum also obliges everyone, including students, to master six basic literacies that are very important in life, one of which is digital literacy (Umar et al., 2019).

Digital literacy has a positive influence on skills that are important to support successful student learning (Techataweewan & Prasertsin, 2018). Students who have self-regulated learning can manage their learning patterns optimally, supported by their ability to use digital technology to find learning resources and literature digitally to complete the material needed for certain courses, due to pandemic conditions that require online learning. it is possible for students to re-read the material obtained so that there are no misconceptions, reconfirm for the lecturer or his friends by discussing to reach understanding, and be able to support the work given by the lecturer.

The level of digital literacy and self-regulated learning at Hindu Indonesia University Denpasar students are in the medium category, meaning that students are quite able to regulate the learning process that is relevant to the current development of science and technology. There are seven indicators to measure self-regulated learning. Of the seven indicators, the indicator that has the highest achievement is the indicator of seeking assistance at 81.93%. The indicator of seeking help relates to the various efforts made by students to seek help when they feel they do not understand the material or assignments given by the lecturer, both through the social environment, namely all people involved in the learning process including lecturers and friends, as well as non-social environments including facility. or learning tools used.

The level of digital literacy and self-regulated learning at Hindu Indonesia University Denpasar students are in the medium category, meaning that students are quite able to regulate the learning process that is relevant to the current development of science and technology. There are seven indicators to measure self-regulated learning. Of the seven indicators, the indicator that has the highest achievement is the indicator of seeking assistance at 81.93%. The indicator of seeking help relates to the various efforts made by students to seek help when they feel they do not understand the material or task given The achievement of a high indicator of seeking help indicates that students are able to use the ability to communicate with others to ask questions and discuss to complete a responsibility.

The lowest achievement indicator is the memory strategy indicator of 70.44%. The indicator of memory strategy is related to the memory ability shown by students towards the lecture material. With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used.

The indicator of memory strategy is related to the memory ability shown by students towards the lecture material. With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. The indicator of memory strategy is related to the memory ability shown by students towards the lecture material.

With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used.

The level of self-regulated learning is also caused by the level of digital literacy that each student has. Digital literacy measurement uses three indicators. Of the three indicators, the indicator that has the highest achievement is the technical literacy indicator at 86.49%. Technical literacy indicators are related to basic operational mastery of digital technology. This is also related to the high level of seeking help in Self-Regulated Learning indicators, if students are able to demonstrate their basic skills when using digital tools, this can make it easier when seeking help to find suitable alternatives for satisfaction with their learning achievements, for example through the use of laptops, gadgets, internet, browsers, and others.

Then, the digital literacy indicator that has the lowest achievement is cognitive literacy at the 80% level. This is related to the low memory strategy, because cognitive literacy is related to students' ability to find and process information. Weak memory can be caused because students lack the initiative to seek information first, usually students tend to like things that are instant. One of the behaviors that reflect a lack of memory is that students are not accustomed to rereading notes or lecture material, even though students should be able to analyze in depth first any information obtained so that it is embedded in long-term memory.

**-Indicate the implication of the study and your novelty**

Students need to enrich their digital literacy to enhance their independent learning. The results of this study have supported the theory of connectivism which explains the role of internet network technology in creating opportunities for individuals to learn and share information & learned skills. According to Sekarini (2019) digital literacy is included in environmental factors that can increase self-regulated learning. According to (Beetham et al., 2009) that digitally literate students are better at managing their learning activities through the use of technology. Digital literacy is an important provision to achieve student SRL because it is facilitated by the availability of technology (Latifah, 2020). Digital literacy has a positive influence on learner skills that are essential for successful learning (Techataweewan & Prasertsin, 2018). Utilization of technology is able to develop SRL. Daily interactions with technology have a positive impact on SRL, this shows the positive contribution made by the development of science and technology to the improvement of SRL (Yot-Dominguez & Marcelo, 2017).

-clear up where you state your conclusion then define proper conclusion statement. Redefine your novelty in your conclusion, indicate the limitation of your study then post your suggestions for the future research

## References

-check you APA 7<sup>th</sup> edition

-add 2 references from JSSER and group

- Atkins, L., Fraser, J., & Hall, R. (2013). *DigiLit Leicester: Survey Results 2013*. Leicester: Leicester City Council (CC BY-NC 3.0).
- Badjeber, R. (2020). Independent learning of tadris mathematics students, FTIK IAIN Palu, survived a brave learning period. *Coordinates of Journal of Mathematics and Science Learning*, 1(1), 1–9.
- Beetham, H., McGill, L., & Littlejohn, A. (2009). *Evolving in the 21st century: Report of the conclusions and recommendations of the LLiDA (Literacy for the Digital Age) project*. Glasgow, UK: Glasgow Caledonian University.
- Budiyono Saputro, (2017). *Management Research Development (Research & development) for Thesis and Dissertation Writers*. Aswaja Presindo.
- and Sunarto, R. (2007). *Introduction to Statistics. For Educational, Social, Economic, Communication and Business Research*. Bandung: Alfabeta.
- Elpira, B. (2018). The effect of applying digital literacy on improving learning students at SMP Negeri 6 Banda Aceh. *UIN Ar Raniry Banda Aceh*.
- Eshet, Y. (2004). Digital literacy: A conceptual framework for survival skills in a digital world era. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93–106.
- Ghozali, I. (2016). *Multivariate Analysis Application with IBM SPSS Program for Windows*. Semarang: BP Undip.
- Greene, J.A., Seung, B.Y., & Copeland, D.Z. (2014). Measuring critical components of digital literacy and its relation to learning. *Computer & Education*, 76, 55–69.
- Hanik, E.U. (2020). Self-learning based on digital literacy during the COVID-19 pandemic 19 at madrasah ibtidaiyah. *BASIS: Journal of Islamic Teachers*, 8(1), 183.
- Harahap, A.C.P. (2020). Covid 19: Student Self-Regulated Learning. *AL-IRSYAD*, 10(1). Hasanah, Law,

- & Setiaji, K. (2019). Effect of Digital Literacy, Self-Efficacy, Environment on Student Entrepreneurial Intentions in E-Business. *Journal of Economic Education Analysis*, 8(3), 1198–1215.
- Bung Hatta University Mathematics Education Student. *Jurnal Physics: Series Conference*, 1429(1), 12003.
- Christian, T. (2020). *Self-Regulated Learning: Concepts, Implications and Challenges for Students in Indonesia*. Sanata Dharma University Press.
- Kurniawan, B. (2012). *Research Methodology*. Explore Nusa. South Tangerang.
- Latifah, K. (2020). Digital Literacy and Self Directed Learning in Learning Student PBI IAIN Surakarta. *Academica: Journal of Multidisciplinary Studies*, 2(1), 159–167.
- Latip, A. (2020). The role of information and communication technology literacy in distance learning during the Covid-19 pandemic. *EduTeach: Journal of Education and Learning Technology*, 1(2), 108–116.
- Muthupoltotage, UP, & Gardner, L. (2018). Analyzing the relationship between digital literacy and student self-study-preliminary investigation. In *Progress in the development of information systems* (pp. 1–16). Jumper.
- Pintrich, PR (2000). The role of goal orientation in independent learning. In *The Handbook of self-regulation* (p. 451–502). other.
- Prayitno, D. (2016). *SPSS Handbook; Data Analysis, Data Processing, and Settlement of Statistical Cases*. Yogyakarta: Mediakom.
- Previously, DD, Mazanov, J., Meacheam, D., Heaslip, G., & Hanson, J. (2016). Attitudes, digital literacy and self-efficacy: Flow-on effects for online learning behavior. *The Internet and Higher Education*, 29, 91–97.
- Risdianto, E. (2019). *Analysis of Indonesian education in the era of the industrial revolution 4.0*. Bengkulu: Bengkulu University.
- Rohaeti, E., & Suwardi, JI (2013). Improving Student Achievement and Independent Learning through Reciprocal Teaching and Cooperative Learning Approaches. *Journal of Education Cakrawala*, 5(1).
- Rohmah, N. (2019). Digital Literacy to Improve Teacher Competence in the Revolutionary Era Industry 4.0. *Awwaliyah: Journal of Madrasah Ibtidaiyah Teacher Education*, 2(2), 128–134.
- Sarjono, H., & Julianita, W. (2011). *SPSS vs LISREL: an introduction, application to research*. Jakarta: Salemba Empat, 5(2), 23–34.
- schunk, DH, & Zimmerman, BJ (1998). *Independent learning: From teaching to being independent practice reflective*. Guilford Press.
- Today, DA (2019). *The Relationship Between Technological Literacy and Learning Independence of Class IX Students at SMP Negeri 5 Cilacap for the 2018/2019 Academic Year*. Semarang State University.
- Sobri, M., Nursaptini, N., & Novitasari, S. (2020). Realizing independent learning through courage-based learning in higher education in the industrial era 4.0. *Glasser Education Journal*, 4(1), 64–71.
- stats, A., & Torres, KM (2020). Digital literacy: The need for technology integration and its impact on learning and engagement in community school settings. *Peabody Journal of Education*, 95(1), 90–100.
- Steiner, CM, Wesiak, G., Moore, A., Conlan, O., Dagger, D., Donohoe, G., & Albert, D.

- (2013). Investigation of successful independent learning in a technology-enhanced learning environment. *Proceedings of the 2013 AIED Workshop Volume 10*, 19. Sugiyono, D.
- (2010). *Quantitative research methods and R&D*. Bandung: Alfabeta. Sulisworo, D., Fatimah, N., &
- Sunaryati, SS (2020). A Brief Study of the SRL Profile of Online Learning Participants in the Anticipation Period for the Spread of COVID-19. *Journal International Evaluation and Research in Education*, 9(3), 723–730. Techataweewan, W., & Prasertsin, U. (2018). Development of digital literacy indicators for Thai undergraduate students use mixed methods research. *Journal Social Sciences Kasetsart*, 39(2), 215–221.
- Omar, U., Hendra, H., & Jayanti, MI (2019). Literacy Level of Digital Teacher Students in Facing the Industrial Revolution Era 4.0. *TAJDID: Journal of Islamic and Humanitarian Thought*, 3(2), 188–202. Wijaya, R., Lukman, M., & Yadewani, D. (2020). The Impact of the Covid19 Pandemic on Utilization E Learning. *Journal of Dimensions*, 9(2), 307–322.
- Yang, M., & Kim, J. (2014). Correlation between digital literacy and self-learning skills of learners in university e-learning environments. *Advanced Science and Technology Letters*, 71, 80–83.
- Yasdar, M., & Mulyadi, M. (2018). Application of Self-Regulatory Techniques for improvement of Student Learning Independence Program Study Guidance and Counseling STKIP Muhammadiyah Enrekang. *Edumaspul: Journal of Education*, 2(2), 50–60. Yot-Dominguez, C., &
- Marcelo, C. (2017). Self-study of university students using digital technology. *International Journal Educational Technology in Higher Education*, 14(1), 1–18.

## Digital Literacy and Independent Learning in Covid-19 Pandemic: Correlation Study

Commented [H1]: Revision required

### Abstract

This study aims to determine the relationship between digital literacy and self-regulated learning during the Covid-19 pandemic for students at the Hindu Indonesia University Denpasar. The research method used is correlational quantitative. The population in this study are all active students at the Hindu Indonesia University Denpasar. Samples were selected by probability sampling as many as 148 students using the proportional method of layered random sampling. Data collection techniques using a questionnaire. The data analysis of this research used correlation test and simple regression test. The results showed that there was a significant positive relationship between digital literacy and independent learning during the pandemic. This is evidenced by: (1) the results of a simple correlation test show ( $r_{count} = 0,478 > r_{table} = 0,1603$ ) and the significance value is less than 0.05 ( $0,000 < 0,05$ ). (2) the equation model  $Y = 22,414 + 0,425X$  is statistically significant with  $t_{count} = 6,582 > t_{table} = 1,976$ , and the significance value =  $0,000 < 0,05$ . (3) the coefficient of determination ( $R^2$ ) is 22.9%, meaning that digital literacy variables have an influence of 22.9% on self-regulated learning variables during the Covid-19 pandemic for students at the Hindu Indonesia University Denpasar.

Commented [H2]: sentence

**Keywords:** Digital Literacy, Self-Regulated Learning, Covid-19 Pandemic

### Introduction

Currently, countries in the world are shocked by an extraordinary event, namely the emergence of a corona virus pandemic or commonly known as Covid-19 (Corona Virus Disease-2019) since the end of December 2019. All countries, including Indonesia, are trying to overcome the situation that is not controlled due to this outbreak, which has hampered all lines of life due to various policies to control the rapid spread of the corona virus, among others by imposing social and physical restrictions, as well as working from home (Herliandry et al., 2020). There is a recommendation to work from home based on the provisions of Article 86 paragraph (1) of Law Number 1 of 2003 concerning Manpower which states that every worker/labor has the right to protection of occupational safety and health, this requires everyone to survive. for their survival even though they are still at home with the help of technology and internet.

Controlling the situation during the Covid-19 pandemic by utilizing technology and the internet in accordance with the characteristics of the 4.0 industrial revolution era, one of which is the internet of things that is able to control almost all jobs that can be connected via an internet connection (Risdianto, 2019). The hallmark of education during the industrial revolution 4.0 is the use of the internet. According to Risdianto (2019) One of the provisions in implementing education during the industrial revolution 4.0 is the existence of connectivity or access to the internet network. This is in line with the emergence of digitalizationan education system through digital learning with the help of the internet that is able to provide a more meaningful learning experience, able to grow various strategies, methods, learning resources, and patterns of educator-student relationships so as to create innovative learning opportunities (Statti & Torres, 2020). This transformational change is also in accordance with adaptation to conditions during the pandemic, which requires all institutions or educational institutions to implement distance learning. Institutional education will be left behind if it does not quickly adapt to changes in digital-based education transformation during the industrial revolution 4.0 and during the current pandemic (Sobri et al., 2020). In accordance with the new policy involving the government, it is recommended to stay and work at home during the Covid-19 pandemic. The educational paradigm has shifted from face-to-face learning to online learning. This is

based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning.

Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic. This is based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning. Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic. This is based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning. Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic.

Online learning during a pandemic can be carried out with the support of rapid advances in technology, information, and communication using various platforms in the form of applications, websites, social networks, and learning management systems (Latip, 2020). Online learning is a learning process carried out using the internet, it can be done either synchronously or asynchronously. The emergence of online learning as part of digital literacy can be used as an alternative to using technology in learning, as well as to improve the quality of learning. It is necessary to cultivate Self-Regulated Learning (SRL) to face learning difficulties during the current Covid-19 pandemic. SRL is an active and constructive process for students to determine their learning goals, then monitor, regulate, and control their cognition, motivation, and behavior based on their learning goals and environment (Pintrich, 2000). SRL is one of the basic characters in the learning process, this is in accordance with the Presidential Regulation of the Republic of Indonesia Number 87 of 2017. It was reported in a news article on the Suaramerdeka.com page on June 22, 2020, explaining that students do not yet have Self-Regulated Learning which has become a habit. , this has become one of the complex problems that emerged as a challenge for the world of education during the pandemic.

In addition, the Acehtrend.com news page on September 16, 2020 also showed low self-regulation while studying, which used to be characterized by low self-discipline and motivation while studying. That's Bernasnews. com news page on April 26, 2020 also mentioned the lack of Self-Regulated Learning because most still feel dependent on face-to-face learning/traditional methods. The results of research from Badjeber (2020) conclude that there are still many students with a percentage of more than 60% who relatively lack the awareness to design, implement, monitor and supervise their own learning needs, including in utilizing various resources, as well as determining & practicing learning strategies during the pandemic. Sulisworo et al., (2020) shows that students in Indonesia need to improve SRL during the pandemic in order to remain responsible for the learning process and be successful in implementing online learning. Research by Khairuddin et al., (2020) concluded that the

achievement of each student SRL indicator in Padang City is still below 60%, which is relatively low. Yasdar & Muliyadi (2018) find 75% of students' SRL in South Sulawesi is low, research from Wahyuni (2018) shows 63.98% SRL of students in Riau tends to be low.

Rohaeti & Suwardi (2013) concluded that about 50% of SRL students in Yogyakarta are included in the low category because they rarely set and evaluate learning strategies, lack of discipline in learning which causes irregular study schedules, rarely use spare time to study the material being studied. This shows that the students' SRL is relatively low. Self-Regulated Learning has various benefits for students, because SRL is a supporter of success in everyday life including in learning, such as to improve academic achievement, key to discipline behavior, improve multitasking abilities, increase rationality in decision making, increase efficiency in learning new knowledge (Kristiyani, 2020). If students do not have Self-Regulated Learning, students will find it difficult to plan learning activities,

The development of SRL levels in students can be influenced by internal and external factors. Internal factors consist of epistemological beliefs, beliefs about learning, emotions, personal agency beliefs, and age and personality factors, while external factors that influence the development of SRL such as family factors include parenting and parental involvement, school factors including teacher-student relationships, support for teacher autonomy, the teaching model provided by the teacher, and peer factors (Kristiyani, 2020). SRL is also caused by factors such as personal, behavioral, and environmental. Personal factors consist of knowledge, thoughts, beliefs or self-efficacy, goals, behavioral factors consist of acts of observation, judgment, and self-reaction, while environmental factors in the form of physical and social environment while studying (Schunk & Zimmerman, 1998). Another factor that affects self-regulated learning is digital literacy (Sekarini, 2019).

Digital literacy is one of the competencies that individuals must have in using digital technology effectively to support academic needs such as when accessing information digitally via the internet. In a news article published on the Nusabali.com page on April 20, 2020, it was stated that digital technology is also similar to distraction which causes users to be unable to concentrate on completing their tasks and obligations, so that digital devices that are actually able to increase productivity turn into performance barriers. . Digital content and information widely distributed on the internet can facilitate SRL. Current learning resources can be obtained via the internet (Rohmah, 2019). It is undeniable that students need literature when doing assignments,

It is important for every individual to have digital literacy to limit things that can distract students' activities when accessing the internet, so that students' opportunities to achieve learning goals are greater. Digital competence can also be called digital literacy (Utama & Sajidan, 2020). According to (Risdiyanto, 2019) digital literacy aims to improve the ability to read, analyze, and use information digitally, in other words digital literacy encourages the use of digital technology devices to be more effective and healthy because today's digital natives, including students, feel less wise in use the internet to find information. what is done is not based on particular interests and is not appropriate for age, as well as excessive use of social media. The agreement by the 2015 World Economic Forum requires all components of society, including students, to master six very important literacy basics, one of which is digital literacy (Umar et al., 2019). Digital literacy needs to be embedded in the education system, because it has a positive influence on student skills that are important for successful learning (Techataweewan & Prasertsin, 2018).

Mastery of digital literacy in learning is able to facilitate and strengthen the learning process and educational outcomes including student SRL achievements, because students are able to obtain information in a broader and deeper scope, thereby increasing student insight and helping students complete assignments (Elpira, 2018). Students are also able to survive various obstacles in learning and are able to solve problems that are being faced if they have digital literacy (Eshet, 2004).

According to the proposed framework (Beetham et al., 2009) that digitally literate students can better organize their learning activities through the use of technology than their less digitally literate counterparts. The same thing was also stated in a news article on the timesindonesia.co.id page on April 10, 2020 that the literacy skills that students have when accessing information from various digital sources are one of the important markers for Self-Regulated Learning. The rapid progress of science and technology can contribute to the growth of independent learning, as evidenced by the results of research from (Yot-Domínguez & Marcelo, 2017) which shows that everyday interactions with technology have a positive impact on students' Self-Regulated Learning.

There are several relevant previous studies, such as the results of research by Yang & Kim, (2014) showing a positive and significant correlation between digital literacy and Self-Regulated Learning in university e-learning environments. Research from (Muthupoltotage & Gardner, 2018) also found a positive relationship between digital literacy and Self-Regulated Learning in the context of technology-based learning. Likewise with research results from (Prior et al., 2016) that digital literacy can have a much deeper relationship with Self-Regulated Learning. In line with the Connectivism learning theory, created by George Siemens, he explains the role of Internet network technology in creating opportunities for individuals to learn and share information and skills learned.

### Research Methods

The type of research conducted is quantitative which is correlational. This study will examine the relationship between two or more variables. The aim is to examine the relationship between digital literacy and self-regulated learning during the student Covid-19 pandemic. In this study, there are two variables determined, namely the independent variable (X) is digital literacy, while the dependent variable (Y) is Self-Regulated Learning. The population is all research subjects that have certain characteristics to study and draw general conclusions (Kurniawan, 2012). Hindu Indonesia University Denpasar students from the 2017-2019 class became the population in this study. There were 79 students in 2017, 74 people in 2018 and 80 people in 2019 so that the total student population in this study was 233 people.

Respondents in this study were selected using probability sampling technique with proportional stratified random sampling method. The probability sampling technique treats all members of the population who are the research sample with chance. Data collection techniques in this study by means of a questionnaire. Questionnaires are variable data collection techniques that are carried out through the distribution of a set of questions or written statements that must be answered by respondents (Sugiyono, 2010). The questionnaire used is a closed questionnaire containing statements about digital literacy and self-regulated learning variables. The scale used in this research questionnaire is Likert scale. The questionnaire is structured in the form of a checklist and uses four alternatives: answers, because it eliminates the neutral answer with the assumption that it is a little "ambiguous" (Sarjono & Julianita, 2011).

Commented [H3]: sentence

**The validity** test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program. Saputro, (2017) states the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. The validity test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program.

Saputro, (2017) defines the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. The validity test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program. Based on Saputro (2017) the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with **Alpha Cronbach** through the help of the SPSS version 23 program, and the significance level was 5%.

A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. 2017) The instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. The instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa.

**The first data analysis technique**, with descriptive statistics that are useful for describing data samples through data categorization without the intention of determining conclusions for the population (Sugiyono, 2010). Two analytical prerequisite tests, in the prerequisite test analysis, were carried out in several stages, namely 1) by means of a normality test, which was carried out using the Kolmogorov-Smirnov technique. The criteria for the fulfillment of the normality test are seen from the significance value  $> 0.05$ , while the significance value  $< 0.05$  means that the data is not normally distributed. 2) The linearity test aims to see whether the two variables studied (independent and dependent variables) are linearly related or not. The linearity criteria can be seen through the deviation from the linearity value which must be greater than 0.05 (Prayitno, 2016).

Testing the linearity of this study using SPSS version 23 through the Linearity Test with a significance level of 0.05. 3) To find out the occurrence of inequality variance from one observation residual to another observation in the regression model, it can be done using the

heteroscedasticity test (Ghozali, 2016). By looking at the pattern of the scatterplot image, it can be seen that the fulfillment of the heteroscedasticity test criteria, namely if the data points are spread either above, below or around the number 0, the spread of the points is not patterned, then there is no heteroscedasticity. Test the third hypothesis. In testing the hypothesis, two stages are needed, namely by using a correlation test and simple regression analysis. Correlation Test Correlation coefficient test is used to determine the strength of the relationship between the two variables studied.

According to Sunarto (2007) the correlation test is intended to measure the degree of relationship between the two variables studied, namely between the X variable (digital literacy) and the Y variable (self-regulated learning). In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale. And simple regression This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down. In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale.

This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down. In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale. And simple regression This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down.

## Results

### Data Description

The data obtained in this study as a result of distributing questionnaires through google forms in which there are statement items that represent each indicator both independently of the variable, namely digital literacy, and the dependent variable, namely self-regulated learning. The data obtained from the research subjects amounted to 148 students of the Hindu Indonesia University Denpasar, analyzed using the SPSS version 23 program, the following data were obtained:

**Table 1.** Descriptive Analysis Results

	Descriptive Statistics							
	N	Range	Min	Max	Sum	mean	Std. Dev	Variance
Digital Literacy	148	29	58	87	11068	74.78	5,949	35,395

Self-Regulated Learning	148	26	41	67	8025	54.22	5,290	27,984
Valid N	148							

(Source: Processed primary data, 2021)

### Digital Literacy Variable (X)

Data on digital literacy variables were obtained from the results of distributing questionnaires as many as 23 statement items with four alternative answers based on a Likert scale score of 1 to 4. The highest total score for the sample of 148 respondents was  $23 \times 4 \times 148 = 13,616$ . The results of descriptive statistical processing with the help of the SPSS version 23 program can be presented in Table 1 above, it can be interpreted that the digital literacy variable collects a total score of 11,068 obtained from the summation value. The maximum value that students get from this variable is  $23 \times 4 = 92$ . It is known that the maximum score for the digital literacy variable is 87, meaning that most students score three or four in each indicator. The minimum score is 58, meaning that most students score two or three on each of the available indicators. The standard deviation value explains the heterogeneity of a group to the average, this value can be said to be good if the data is heterogeneous and the value is far from 0. The standard deviation value is 5.949, so it can be said to be heterogeneous. The average score of 74.78 indicates that the average student gives a score of three in each indicator.

It can be seen that the distribution of digital literacy data with the highest frequency is in the area of the 70-73 and 74-77 interval classes, as many as 35 students. Digital literacy level The tendency of students can be classified into three, namely high, medium, and low. The results of the category of digital literacy tendencies. The digital literacy of the Hindu University Siswa Indonesia Denpasar is at a moderate level, which is equivalent to 66.22%. The percentage of digital literacy achievement for students at Hindu Indonesia University Denpasar is obtained from the results of dividing the total score collected by the highest total score, which is  $11,068 : 13,616 = 81.28\%$ . Digital literacy is measured through three indicators,

**Table 2.** Digital Literacy Indicator Achievement

No	Indicators	Achievements Indicator
1	Technical Literacy	86.49%
2	Cognitive Literacy	80%
3	Socio-Emotional Literacy	81.44%

(Source: Processed primary data, 2021)

Based on Table 2, it can be seen that the role of each indicator has different magnitudes of influence. The most dominant indicator in achieving student digital literacy lies in the technical literacy indicator with an indicator achievement of 86.49%. This technical literacy indicator contains basic operational mastery of digital technology, this shows that most students have mastered the basic skills to use digital tools.

### Independent Learning Variables

Data on the Self-Regulated Learning variable was obtained from the distribution of a questionnaire as many as 18 statement items with four alternative answers based on a Likert

scale score of 1 to 4. The highest total score for a sample of 148 respondents was  $18 \times 4 \times 148 = 10,656$ . The results of processing descriptive statistics with the help of the SPSS version 23 program can be presented in Table 1 above, with it being interpreted that the self-regulated learning variable collects a total score of 8025 obtained from that total score. The maximum score that can be obtained by students from this variable is  $18 \times 4 = 72$ . It is known that the maximum value for the self-regulated learning variable is 67, meaning most students give a score of three or four on each indicator. The minimum score is 41, this means that most students score two or three on each of the available indicators. The standard deviation value explains the heterogeneity of a group with respect to the mean, this value is said to be good if the data is heterogeneous and the value is far from 0 the deviation value is 5.290, so it can be said to be heterogeneous. The average score of 54.22 indicates that the average student gives a score of three on each indicator.

**Table 3.** Self-Regulated Learning Indicator Achievement

No	Indicators	Achievement Indicator
1	Memory strategy	70.44%
2	Goal setting	71.79%
3	Self evaluation	74.66%
4	Seeking help	81.93%
5	Environmental arrangements	78.04%
6	Learning responsibilities	72.41%
7	Planning & organizing	77.42%

(Source: Processed primary data, 2021)

Based on Table 3, it can be seen that the role of each indicator has different magnitudes of influence. The most dominant indicator of the achievement of students' self-regulated learning lies in the indicator of seeking assistance with an indicator achievement of 81.93%. This indicator of seeking help contains various efforts that students can make to seek help when they do not understand the material or assignments given by the lecturer, either through the social environment, namely all people involved in the learning process including lecturers and friends, as well as non-social environments including learning facilities. and facilities used. (primary data, 2021)

### Hypothesis Testing

**Table 4.** Simple Correlation Test Results

Correlations	Self-Regulated Learning (Y)
Digital Literacy	,478
Pearson	
(X)	Correlation
	Sig. (2-tailed)
	,000
	N
	148

(Source: Processed primary data, 2021)

Based on Table 4, it is explained that the correlation coefficient (rcount) between digital literacy and learning independence is  $0.478 > r_{table} (0.1603)$ , then to see the level of relationship between the two variables, consult the correlation coefficient interval, a value of

0.478 is included in the moderate relationship level. The correlation coefficient value shows a positive relationship. The significance value is  $0.000 < 0.05$ , which means the relationship is significant. Based on these results, it can be concluded that  $H_0$  is rejected, and  $H_1$  is accepted so that the digital literacy variable has a positive and significant relationship with self-regulated learning during the COVID-19 pandemic for the Denpasar University of Hindu Indonesia students.

**Table 5.** Simple Regression Test Results

Unstandardized Coefficients		Standardized Coefficients		<i>t</i>	Sig.
<i>B</i>	<i>Std. Error</i>	<i>Beta</i>			
(Constant)	22.414	4,848		4,623	,000
Digital Literacy	,425	,065	,478	6.582	,000

Dependent Variable: Self-Regulated Learning  
(Source: Processed primary data, 2021)

Based on Table 5, the following regression model equation can be obtained:

$$Y = 22.414 + 0.425X$$

This equation can be interpreted as a constant 22,414 which means that if digital literacy (X) is 0, then the amount of self-regulated learning (Y) is 22.414. Digital literacy regression coefficient (X) is 0.425, meaning that for every 1% addition of digital literacy value, the value of self-study (Y) also increases by 0.425. The regression coefficient is positive, so it can be said that the direction of the influence of the digital literacy variable (X) on the Self-Regulated Learning variable (Y) is positive. From Table 4.9, a significance value of  $0.000 < 0.05$  is obtained, meaning that the digital literacy variable (X) has an effect on the self-regulated learning variable (Y). The *t*count value is  $6.582 > t_{table} 1.976$  so it can be concluded that the digital literacy variable (X) has an effect on the self-regulated learning variable (Y).

#### Discussion and Conclusion

The results of hypothesis testing using the correlation test show that there is a positive and significant relationship between digital literacy and independent learning during the Covid19 pandemic for students at the Hindu Indonesia University Denpasar. This is in accordance with the value indicated by the correlation coefficient (*r*count) of 0.478 and a meaning value of 0.000. The correlation coefficient value is 0.478, when consulted with the correlation coefficient interval table, it is included in the moderate level of relationship. It can be seen that the *r*count is positive, which means that when students' digital literacy increases, their independent learning will also increase. This is also in accordance with the results shown in the simple regression analysis, namely the regression value of digital literacy coefficient (X) of 0.425,

The results of hypothesis testing are in line with the research of Yang & Kim (2014) which shows a positive and significant correlation between digital literacy and Self-Regulated Learning in the university's e-learning environment. The results of other studies that support the testing of this hypothesis are the research of Atkins et al., (2013); Greene et al., (2014); Muthupoltotage & Gardner, (2018); Steiner et al., (2013) who concluded that there is a positive and significant relationship between digital literacy and independent learning. Independent learning is one of the important characters that students must have when carrying out the

learning process, this is in accordance with Presidential Regulation of the Republic of Indonesia No. 87 of 2017 concerning Strengthening Character Development.

Students are said to have self-regulated learning if they are able to complete various tasks given by the lecturer based on their efforts and abilities. The current pandemic condition shows the real urgency of SRL, one of the important markers that students must have in order to achieve self-regulated learning is digital literacy skills. Digital literacy as a form of business that is manifested in the form of the ability to access, browse, analyze, and use information digitally. The habit of reading learning resources both offline and online from the internet in the form of digital books, articles, national and international journals that affect knowledge, increase understanding, open insight and further develop mindset skills, thus forming and facilitating the achievement of SRL so that the decisions taken are right on target, both to solve problems and solve problems. problems being faced and to meet their learning needs. Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning.

Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning. Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning.

Digital literacy also helps students to know the limits of internet use according to their needs and interests, for example preventing excessive use of social media. Literacy as the main basis in increasing knowledge. According to Sekarini (2019) digital literacy is one of the efforts that can foster self-regulated learning. The agreement by the 2015 World Economic Forum also obliges everyone, including students, to master six basic literacys that are very important in life, one of which is digital literacy (Umar et al., 2019).

Digital literacy has a positive influence on skills that are important to support successful student learning (Techataweewan & Prasertsin, 2018). Students who have self-regulated learning can manage their learning patterns optimally, supported by their ability to use digital technology to find learning resources and literature digitally to complete the material needed for certain courses, due to pandemic conditions that require online learning. it is possible for students to re-read the material obtained so that there are no misconceptions, reconfirm for the lecturer or his friends by discussing to reach understanding, and be able to support the work given by the lecturer.

The level of digital literacy and self-regulated learning at Hindu Indonesia University Denpasar students are in the medium category, meaning that students are quite able to regulate the learning process that is relevant to the current development of science and technology. There are seven indicators to measure self-regulated learning. Of the seven indicators, the indicator that has the highest achievement is the indicator of seeking assistance at 81.93%. The indicator of seeking help relates to the various efforts made by students to seek help when they feel they do not understand the material or assignments given by the lecturer, both through the social environment, namely all people involved in the learning process including lecturers and friends, as well as non-social environments including facility. or learning tools used.

The level of digital literacy and self-regulated learning at Hindu Indonesia University Denpasar students are in the medium category, meaning that students are quite able to regulate the learning process that is relevant to the current development of science and technology. There are seven indicators to measure self-regulated learning. Of the seven indicators, the indicator that has the highest achievement is the indicator of seeking assistance at 81.93%. The indicator of seeking help relates to the various efforts made by students to seek help when they feel they do not understand the material or task given. The achievement of a high indicator of seeking help indicates that students are able to use the ability to communicate with others to ask questions and discuss to complete a responsibility.

The lowest achievement indicator is the memory strategy indicator of 70.44%. The indicator of memory strategy is related to the memory ability shown by students towards the lecture material. With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used.

The indicator of memory strategy is related to the memory ability shown by students towards the lecture material. With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. The indicator of memory strategy is related to the memory ability shown by students towards the lecture material.

With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used.

The level of self-regulated learning is also caused by the level of digital literacy that each student has. Digital literacy measurement uses three indicators. Of the three indicators, the indicator that has the highest achievement is the technical literacy indicator at 86.49%. Technical literacy indicators are related to basic operational mastery of digital technology. This is also related to the high level of seeking help in Self-Regulated Learning indicators, if students are able to demonstrate their basic skills when using digital tools, this can make it easier when seeking help to find suitable alternatives for satisfaction with their learning achievements, for example through the use of laptops, gadgets, internet, browsers, and others.

Then, the digital literacy indicator that has the lowest achievement is cognitive literacy at the 80% level. This is related to the low memory strategy, because cognitive literacy is related to students' ability to find and process information. Weak memory can be caused because students lack the initiative to seek information first, usually students tend to like things that are instant. One of the behaviors that reflect a lack of memory is that students are not accustomed to rereading notes or lecture material, even though students should be able to analyze in depth first any information obtained so that it is embedded in long-term memory.

Students need to enrich their digital literacy to enhance their independent learning. The results of this study have supported the theory of connectivism which explains the role of internet network technology in creating opportunities for individuals to learn and share information & learned skills. According to Sekarini (2019) digital literacy is included in environmental factors that can increase self-regulated learning. According to (Beetham et al., 2009) that digitally literate students are better at managing their learning activities through the use of technology. Digital literacy is an important provision to achieve student SRL because it is facilitated by the availability of technology (Latifah, 2020). Digital literacy has a positive influence on learner skills that are essential for successful learning (Techataweewan & Prasertsin, 2018). Utilization of technology is able to develop SRL. Daily interactions with technology have a positive impact on SRL, this shows the positive contribution made by the development of science and technology to the improvement of SRL (Yot-Dominguez & Marcelo, 2017).

**Commented [H4]:** You have no implication yet

Accordingly, you did not specify which one you define as your conclusion

## References

- Atkins, L., Fraser, J., & Hall, R. (2013). *DigiLit Leicester: Survey Results 2013*. Leicester: Leicester City Council (CC BY-NC 3.0).
- Badjeber, R. (2020). Independent learning of tadaris mathematics students, FTIK IAIN Palu, survived a brave learning period. *Coordinates of Journal of Mathematics and Science Learning*, 1(1), 1–9.
- Beetham, H., McGill, L., & Littlejohn, A. (2009). *Evolving in the 21st century: Report of the conclusions and recommendations of the LLiDA (Literacy for the Digital Age) project*. Glasgow, UK: Glasgow Caledonian University.
- Budiyono Saputro, (2017). *Management Research Development (Research & development) for Thesis and Dissertation Writers*. Aswaja Presindo.
- and Sunarto, R. (2007). *Introduction to Statistics. For Educational, Social, Economic, Communication and Business Research*. Bandung: Alfabeta.
- Elpira, B. (2018). The effect of applying digital literacy on improving learning students at SMP Negeri 6 Banda Aceh. *UIN Ar Raniry Banda Aceh*.
- Eshet, Y. (2004). Digital literacy: A conceptual framework for survival skills in a digital world era. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93–106.
- Ghozali, I. (2016). *Multivariate Analysis Application with IBM SPSS Program for Windows*. Semarang: BP Undip.
- Greene, J.A., Seung, B.Y., & Copeland, D.Z. (2014). Measuring critical components of digital literacy and its relation to learning. *Computer & Education*, 76, 55–69.
- Hanik, E.U. (2020). Self-learning based on digital literacy during the COVID-19 pandemic 19 at madrasah ibtidaiyah. *BASIS: Journal of Islamic Teachers*, 8(1), 183.
- Harahap, A.C.P. (2020). Covid 19: Student Self-Regulated Learning. *AL-IRSYAD*, 10(1). Hasanah, Law,

- & Setiaji, K. (2019). Effect of Digital Literacy, Self-Efficacy, Environment on Student Entrepreneurial Intentions in E-Business. *Journal of Economic Education Analysis*, 8(3), 1198–1215.  
Bung Hatta University Mathematics Education Student. *Jurnal Physics: Series Conference*, 1429(1), 12003.
- Christian, T. (2020). *Self-Regulated Learning: Concepts, Implications and Challenges for Students in Indonesia*. Sanata Dharma University Press.
- Kurniawan, B. (2012). *Research Methodology*. Explore Nusa. South Tangerang.
- Latifah, K. (2020). Digital Literacy and Self Directed Learning in Learning Student PBI IAIN Surakarta. *Academica: Journal of Multidisciplinary Studies*, 2(1), 159–167.
- Latip, A. (2020). The role of information and communication technology literacy in distance learning during the Covid-19 pandemic. *EduTeach: Journal of Education and Learning Technology*, 1(2), 108–116.
- Muthupoltotage, UP, & Gardner, L. (2018). Analyzing the relationship between digital literacy and student self-study-preliminary investigation. In *Progress in the development of information systems* (pp. 1–16). Jumper.
- Pintrich, PR (2000). The role of goal orientation in independent learning. In *The Handbook of self-regulation* (p. 451–502). other.
- Prayitno, D. (2016). *SPSS Handbook; Data Analysis, Data Processing, and Settlement of Statistical Cases*. Yogyakarta: Mediakom.
- Previously, DD, Mazanov, J., Meacheam, D., Heaslip, G., & Hanson, J. (2016). Attitudes, digital literacy and self-efficacy: Flow-on effects for online learning behavior. *The Internet and Higher Education*, 29, 91–97.
- Risdianto, E. (2019). *Analysis of Indonesian education in the era of the industrial revolution 4.0*. Bengkulu: Bengkulu University.
- Rohaeti, E., & Suwardi, JI (2013). Improving Student Achievement and Independent Learning through Reciprocal Teaching and Cooperative Learning Approaches. *Journal of Education Cakrawala*, 5(1).
- Rohmah, N. (2019). Digital Literacy to Improve Teacher Competence in the Revolutionary Era Industry 4.0. *Awwaliyah: Journal of Madrasah Ibtidaiyah Teacher Education*, 2(2), 128–134.
- Sarjono, H., & Julianita, W. (2011). *SPSS vs LISREL: an introduction, application to research*. Jakarta: Salemba Empat, 5(2), 23–34.
- Schunk, DH, & Zimmerman, BJ (1998). *Independent learning: From teaching to being independent practice reflective*. Guilford Press.
- Today, DA (2019). *The Relationship Between Technological Literacy and Learning Independence of Class IX Students at SMP Negeri 5 Cilacap for the 2018/2019 Academic Year*. Semarang State University.
- Sobri, M., Nursaptini, N., & Novitasari, S. (2020). Realizing independent learning through courage-based learning in higher education in the industrial era 4.0. *Glasser Education Journal*, 4(1), 64–71.
- stats, A., & Torres, KM (2020). Digital literacy: The need for technology integration and its impact on learning and engagement in community school settings. *Peabody Journal of Education*, 95(1), 90–100.
- Steiner, CM, Wesiak, G., Moore, A., Conlan, O., Dagger, D., Donohoe, G., & Albert, D.

- (2013). Investigation of successful independent learning in a technology-enhanced learning environment. *Proceedings of the 2013 AIED Workshop Volume 10*, 19. Sugiyono, D.
- (2010). Quantitative research methods and R&D. Bandung: Alfabeta. Sulisworo, D., Fatimah, N., & Sunaryati, SS (2020). A Brief Study of the SRL Profile of Online Learning Participants in the Anticipation Period for the Spread of COVID-19. *Journal International Evaluation and Research in Education*, 9(3), 723–730. Techataweewan, W., & Prasertsin, U. (2018). Development of digital literacy indicators for Thai undergraduate students use mixed methods research. *Journal Social Sciences Kasetsart*, 39(2), 215–221.
- Omar, U., Hendra, H., & Jayanti, MI (2019). Literacy Level of Digital Teacher Students in Facing the Industrial Revolution Era 4.0. *TAJDID: Journal of Islamic and Humanitarian Thought*, 3(2), 188–202. Wijaya, R., Lukman, M., & Yadewani, D. (2020). The Impact of the Covid19 Pandemic on Utilization E Learning. *Journal of Dimensions*, 9(2), 307–322.
- Yang, M., & Kim, J. (2014). Correlation between digital literacy and self-learning skills of learners in university e-learning environments. *Advanced Science and Technology Letters*, 71, 80–83.
- Yasdar, M., & Mulyadi, M. (2018). Application of Self-Regulatory Techniques for improvement of Student Learning Independence Program Study Guidance and Counseling STKIP Muhammadiyah Enrekang. *Edumaspul: Journal of Education*, 2(2), 50–60. Yot-Dominguez, C., & Marcelo, C. (2017). Self-study of university students using digital technology. *International Journal Educational Technology in Higher Education*, 14(1), 1–18.

## **Digital Literature and Independent Learning in Covid-19 Pandemic: Correlation Study**

### **Abstract**

This study aims to determine the relationship between digital literacy and self-regulated learning during the Covid-19 pandemic for students at the Hindu Indonesia University Denpasar. The research method used is correlational quantitative. The population in this study are all active students at the Hindu Indonesia University Denpasar. Samples were selected by probability sampling as many as 148 students using the proportional method of layered random sampling. Data collection techniques using a questionnaire. The data analysis of this research used correlation test and simple regression test. The results showed that there was a significant positive relationship between digital literacy and independent learning during the pandemic. This is evidenced by: (1) the results of a simple correlation test show ( $r_{count} = 0,478 > r_{table} = 0.1603$ ) and the significance value is less than 0.05 ( $0.000 < 0.05$ ). (2) the equation model  $Y = 22.414 + 0.425X$  is statistically significant with  $t_{count} = 6.582 > t_{table} = 1.976$ , and the significance value =  $0.000 < 0.05$ . (3) the coefficient of determination ( $R^2$ ) is 22.9%, meaning that digital literacy variables have an influence of 22.9% on self-regulated learning variables during the Covid-19 pandemic for students at the Hindu Indonesia University Denpasar.

**Keywords:** Digital Literacy, Self-Regulated Learning, Covid-19 Pandemic

### **Introduction**

Currently, countries in the world are shocked by an extraordinary event, namely the emergence of a corona virus pandemic or commonly known as Covid-19 (Corona Virus Disease-2019) since the end of December 2019. All countries, including Indonesia, are trying to overcome the situation that is not controlled due to this outbreak, which has hampered all lines of life due to various policies to control the rapid spread of the corona virus, among others by imposing social and physical restrictions, as well as working from home (Herliandry et al., 2020). There is a recommendation to work from home based on the provisions of Article 86 paragraph (1) of Law Number 1 of 2003 concerning Manpower which states that every worker/labor has the right to protection of occupational safety and health, this requires everyone to survive. for their survival even though they are still at home with the help of technology and internet.

Controlling the situation during the Covid-19 pandemic by utilizing technology and the internet in accordance with the characteristics of the 4.0 industrial revolution era, one of which is the internet of things that is able to control almost all jobs that can be connected via an internet connection (Risdianto, 2019). The hallmark of education during the industrial revolution 4.0 is the use of the internet. According to Risdianto (2019) One of the provisions in implementing education during the industrial revolution 4.0 is the existence of connectivity or access to the internet network. This is in line with the emergence of digitalizationan education system through digital learning with the help of the internet that is able to provide a more meaningful learning experience, able to grow various strategies, methods, learning resources, and patterns of educator-student relationships so as to create innovative learning opportunities (Statti & Torres, 2020). This transformational change is also in accordance with adaptation to conditions during the pandemic, which requires all institutions or educational institutions to implement distance learning. Institutional education will be left behind if it does not quickly adapt to changes in digital-based education transformation during the industrial revolution 4.0 and

during the current pandemic (Sobri et al., 2020). In accordance with the new policy involving the government, it is recommended to stay and work at home during the Covid-19 pandemic. The educational paradigm has shifted from face-to-face learning to online learning. This is based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning.

Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic. This is based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning. Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic. This is based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning. Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic.

Online learning during a pandemic can be carried out with the support of rapid advances in technology, information, and communication using various platforms in the form of applications, websites, social networks, and learning management systems (Latip, 2020). Online learning is a learning process carried out using the internet, it can be done either synchronously or asynchronously. The emergence of online learning as part of digital literacy can be used as an alternative to using technology in learning, as well as to improve the quality of learning. It is necessary to cultivate Self-Regulated Learning (SRL) to face learning difficulties during the current Covid-19 pandemic. SRL is an active and constructive process for students to determine their learning goals, then monitor, regulate, and control their cognition, motivation, and behavior based on their learning goals and environment (Pintrich, 2000). SRL is one of the basic characters in the learning process, this is in accordance with the Presidential Regulation of the Republic of Indonesia Number 87 of 2017. It was reported in a news article on the Suaramerdeka.com page on June 22, 2020, explaining that students do not yet have Self-Regulated Learning which has become a habit. , this has become one of the complex problems that emerged as a challenge for the world of education during the pandemic.

In addition, the Acehtrend.com news page on September 16, 2020 also showed low self-regulation while studying, which used to be characterized by low self-discipline and motivation while studying. That's Bernasnews. com news page on April 26, 2020 also mentioned the lack of Self-Regulated Learning because most still feel dependent on face-to-face learning/traditional methods. The results of research from Badjeber (2020) conclude that there are still many students with a percentage of more than 60% who relatively lack the awareness to design, implement, monitor and supervise their own learning needs, including in utilizing various resources, as well as determining & practicing learning strategies during the pandemic.

Sulisworo et al., (2020) shows that students in Indonesia need to improve SRL during the pandemic in order to remain responsible for the learning process and be successful in implementing online learning. Research by Khairuddin et al., (2020) concluded that the achievement of each student SRL indicator in Padang City is still below 60%, which is relatively low. Yasdar & Mulyadi (2018) find 75% of students' SRL in South Sulawesi is low, research from Wahyuni (2018) shows 63.98% SRL of students in Riau tends to be low.

Rohaeti & Suwardi (2013) concluded that about 50% of SRL students in Yogyakarta are included in the low category because they rarely set and evaluate learning strategies, lack of discipline in learning which causes irregular study schedules, rarely use spare time to study the material being studied. This shows that the students' SRL is relatively low. Self-Regulated Learning has various benefits for students, because SRL is a supporter of success in everyday life including in learning, such as to improve academic achievement, key to discipline behavior, improve multitasking abilities, increase rationality in decision making, increase efficiency in learning new knowledge (Kristiyani, 2020). If students do not have Self-Regulated Learning, students will find it difficult to plan learning activities,

The development of SRL levels in students can be influenced by internal and external factors. Internal factors consist of epistemological beliefs, beliefs about learning, emotions, personal agency beliefs, and age and personality factors, while external factors that influence the development of SRL such as family factors include parenting and parental involvement, school factors including teacher-student relationships, support for teacher autonomy, the teaching model provided by the teacher, and peer factors (Kristiyani, 2020). SRL is also caused by factors such as personal, behavioral, and environmental. Personal factors consist of knowledge, thoughts, beliefs or self-efficacy, goals, behavioral factors consist of acts of observation, judgment, and self-reaction, while environmental factors in the form of physical and social environment while studying (Schunk & Zimmerman, 1998). Another factor that affects self-regulated learning is digital literacy (Sekarini, 2019).

Digital literacy is one of the competencies that individuals must have in using digital technology effectively to support academic needs such as when accessing information digitally via the internet. In a news article published on the Nusabali.com page on April 20, 2020, it was stated that digital technology is also similar to distraction which causes users to be unable to concentrate on completing their tasks and obligations, so that digital devices that are actually able to increase productivity turn into performance barriers. . Digital content and information widely distributed on the internet can facilitate SRL. Current learning resources can be obtained via the internet (Rohmah, 2019). It is undeniable that students need literature when doing assignments,

It is important for every individual to have digital literacy to limit things that can distract students' activities when accessing the internet, so that students' opportunities to achieve learning goals are greater. Digital competence can also be called digital literacy (Utama & Sajidan, 2020). According to (Risdianto, 2019) digital literacy aims to improve the ability to read, analyze, and use information digitally, in other words digital literacy encourages the use of digital technology devices to be more effective and healthy because today's digital natives, including students, feel less wise in use the internet to find information. what is done is not based on particular interests and is not appropriate for age, as well as excessive use of social media. The agreement by the 2015 World Economic Forum requires all components of society, including students, to master six very important literacy basics, one of which is digital literacy (Umar et al., 2019). Digital literacy needs to be embedded in the education system, because it

has a positive influence on student skills that are important for successful learning (Techataweewan & Prasertsin, 2018).

Mastery of digital literacy in learning is able to facilitate and strengthen the learning process and educational outcomes including student SRL achievements, because students are able to obtain information in a broader and deeper scope, thereby increasing student insight and helping students complete assignments (Elpira, 2018). Students are also able to survive various obstacles in learning and are able to solve problems that are being faced if they have digital literacy (Eshet, 2004).

According to the proposed framework (Beetham et al., 2009) that digitally literate students can better organize their learning activities through the use of technology than their less digitally literate counterparts. The same thing was also stated in a news article on the timesindonesia.co.id page on April 10, 2020 that the literacy skills that students have when accessing information from various digital sources are one of the important markers for Self-Regulated Learning. The rapid progress of science and technology can contribute to the growth of independent learning, as evidenced by the results of research from (Yot-Domínguez & Marcelo, 2017) which shows that everyday interactions with technology have a positive impact on students' Self-Regulated Learning.

There are several relevant previous studies, such as the results of research by Yang & Kim, (2014) showing a positive and significant correlation between digital literacy and Self-Regulated Learning in university e-learning environments. Research from (Muthupoltotage & Gardner, 2018) also found a positive relationship between digital literacy and Self-Regulated Learning in the context of technology-based learning. Likewise with research results from (Prior et al., 2016) that digital literacy can have a much deeper relationship with Self-Regulated Learning. In line with the Connectivism learning theory, created by George Siemens, he explains the role of Internet network technology in creating opportunities for individuals to learn and share information and skills learned.

### **Research Methods**

The type of research conducted is quantitative which is correlational. This study will examine the relationship between two or more variables. The aim is to examine the relationship between digital literacy and self-regulated learning during the student Covid-19 pandemic. In this study, there are two variables determined, namely the independent variable (X) is digital literacy, while the dependent variable (Y) is Self-Regulated Learning. The population is all research subjects that have certain characteristics to study and draw general conclusions (Kurniawan, 2012). Hindu Indonesia University Denpasar students from the 2017-2019 class became the population in this study. There were 79 students in 2017, 74 people in 2018 and 80 people in 2019 so that the total student population in this study was 233 people.

Respondents in this study were selected using probability sampling technique with proportional stratified random sampling method. The probability sampling technique treats all members of the population who are the research sample with chance. **Data collection techniques in this study by means of a questionnaire.** Questionnaires are variable data collection techniques that are carried out through the distribution of a set of questions or written statements that must be answered by respondents (Sugiyono, 2010). The questionnaire used is a closed questionnaire containing statements about digital literacy and self-regulated learning variables. The scale used in this research questionnaire is Likert scale. The questionnaire is structured in the form

of a checklist and uses four alternatives: answers, because it eliminates the neutral answer with the assumption that it is a little "ambiguous" (Sarjono & Julianita, 2011).

The validity test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program. Saputro, (2017) states the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the  $r_i$  value  $> 0.70$  means the questionnaire is reliable, and vice versa. The validity test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program.

Saputro, (2017) defines the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the  $r_i$  value  $> 0.70$  means the questionnaire is reliable, and vice versa. The validity test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program. Based on Saputro (2017) the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%.

A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the  $r_i$  value  $> 0.70$  means the questionnaire is reliable, and vice versa. 2017) The instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the  $r_i$  value  $> 0.70$  means the questionnaire is reliable, and vice versa. The instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the  $r_i$  value  $> 0.70$  means the questionnaire is reliable, and vice versa.

The first data analysis technique, with descriptive statistics that are useful for describing data samples through data categorization without the intention of determining conclusions for the population (Sugiyono, 2010). Two analytical prerequisite tests, in the prerequisite test analysis, were carried out in several stages, namely 1) by means of a normality test, which was carried out using the Kolmogorov-Smirnov technique. The criteria for the fulfillment of the normality test are seen from the significance value  $> 0.05$ , while the significance value  $< 0.05$  means that the data is not normally distributed. 2) The linearity test aims to see whether the two variables studied (independent and dependent variables) are linearly related or not. The linearity criteria can be seen through the deviation from the linearity value which must be greater than 0.05 (Prayitno, 2016).

Testing the linearity of this study using SPSS version 23 through the Linearity Test with a significance level of 0.05. 3) To find out the occurrence of inequality variance from one observation residual to another observation in the regression model, it can be done using the heteroscedasticity test (Ghozali, 2016). By looking at the pattern of the scatterplot image, it can be seen that the fulfillment of the heteroscedasticity test criteria, namely if the data points are spread either above, below or around the number 0, the spread of the points is not patterned, then there is no heteroscedasticity. **Test the third hypothesis.** In testing the hypothesis, two stages are needed, namely by using a correlation test and simple regression analysis. Correlation Test Correlation coefficient test is used to determine the strength of the relationship between the two variables studied.

According to Sunarto (2007) the correlation test is intended to measure the degree of relationship between the two variables studied, namely between the X variable (digital literacy) and the Y variable (self-regulated learning). In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale. And simple regression This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down. In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale.

This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down. In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale. And simple regression This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down.

## **Results**

### **Data Description**

The data obtained in this study as a result of distributing questionnaires through google forms in which there are statement items that represent each indicator both independently of the variable, namely digital literacy, and the dependent variable, namely self-regulated learning. The data obtained from the research subjects amounted to 148 students of the Hindu Indonesia University Denpasar, analyzed using the SPSS version 23 program, the following data were obtained:

**Table 1.** Descriptive Analysis Results

	Descriptive Statistics							
	N	Range	Min	Max	Sum	mean	Std. Dev	Variance
Digital Literacy	148	29	58	87	11068	74.78	5,949	35,395
Self-Regulated Learning	148	26	41	67	8025	54.22	5,290	27,984
Valid N	148							

(Source: Processed primary data, 2021)

### Digital Literacy Variable (X)

Data on digital literacy variables were obtained from the results of distributing questionnaires as many as 23 statement items with four alternative answers based on a Likert scale score of 1 to 4. The highest total score for the sample of 148 respondents was  $23 \times 4 \times 148 = 13,616$ . The results of descriptive statistical processing with the help of the SPSS version 23 program can be presented in Table 1 above, it can be interpreted that the digital literacy variable collects a total score of 11,068 obtained from the summation value. The maximum value that students get from this variable is  $23 \times 4 = 92$ . It is known that the maximum score for the digital literacy variable is 87, meaning that most students score three or four in each indicator. The minimum score is 58, meaning that most students score two or three on each of the available indicators. The standard deviation value explains the heterogeneity of a group to the average, this value can be said to be good if the data is heterogeneous and the value is far from 0. The standard deviation value is 5.949, so it can be said to be heterogeneous. The average score of 74.78 indicates that the average student gives a score of three in each indicator.

It can be seen that the distribution of digital literacy data with the highest frequency is in the area of the 70-73 and 74-77 interval classes, as many as 35 students. Digital literacy level The tendency of students can be classified into three, namely high, medium, and low. The results of the category of digital literacy tendencies. The digital literacy of the Hindu University Siswa Indonesia Denpasar is at a moderate level, which is equivalent to 66.22%. The percentage of digital literacy achievement for students at Hindu Indonesia University Denpasar is obtained from the results of dividing the total score collected by the highest total score, which is  $11,068 : 13,616 = 81.28\%$ . Digital literacy is measured through three indicators,

**Table 2.** Digital Literacy Indicator Achievement

No	Indicators	Achievements Indicator
1	Technical Literacy	86.49%
2	Cognitive Literacy	80%
3	Socio-Emotional Literacy	81.44%

(Source: Processed primary data, 2021)

Based on Table 2, it can be seen that the role of each indicator has different magnitudes of influence. The most dominant indicator in achieving student digital literacy lies in the technical literacy indicator with an indicator achievement of 86.49%. This technical literacy indicator contains basic operational mastery of digital technology, this shows that most students have mastered the basic skills to use digital tools.

### Independent Learning Variables

Data on the Self-Regulated Learning variable was obtained from the distribution of a questionnaire as many as 18 statement items with four alternative answers based on a Likert scale score of 1 to 4. The highest total score for a sample of 148 respondents was  $18 \times 4 \times 148 = 10,656$ . The results of processing descriptive statistics with the help of the SPSS version 23

program can be presented in Table 1 above, with it being interpreted that the self-regulated learning variable collects a total score of 8025 obtained from that total score. The maximum score that can be obtained by students from this variable is  $18 \times 4 = 72$ . It is known that the maximum value for the self-regulated learning variable is 67, meaning most students give a score of three or four on each indicator. The minimum score is 41, this means that most students score two or three on each of the available indicators. The standard deviation value explains the heterogeneity of a group with respect to the mean, this value is said to be good if the data is heterogeneous and the value is far from 0 the deviation value is 5.290, so it can be said to be heterogeneous. The average score of 54.22 indicates that the average student gives a score of three on each indicator.

**Table 3. Self-Regulated Learning Indicator Achievement**

No	Indicators	Achievement Indicator
1	Memory strategy	70.44%
2	Goal setting	71.79%
3	Self evaluation	74.66%
4	Seeking help	81.93%
5	Environmental arrangements	78.04%
6	Learning responsibilities	72.41%
7	Planning & organizing	77.42%

(Source: Processed primary data, 2021)

Based on Table 3, it can be seen that the role of each indicator has different magnitudes of influence. The most dominant indicator of the achievement of students' self-regulated learning lies in the indicator of seeking assistance with an indicator achievement of 81.93%. This indicator of seeking help contains various efforts that students can make to seek help when they do not understand the material or assignments given by the lecturer, either through the social environment, namely all people involved in the learning process including lecturers and friends, as well as non-social environments including learning facilities. and facilities used. imary data, 2021)

### Hypothesis Testing

**Table 4. Simple Correlation Test Results**

	Correlations	Self-Regulated Learning (Y)
Digital Literacy Pearson (X)		,478
	Correlation	
	Sig. (2-tailed)	,000
	N	148

(Source: Processed primary data, 2021)

Based on Table 4, it is explained that the correlation coefficient (rcount) between digital literacy and learning independence is  $0.478 > r_{table} (0.1603)$ , then to see the level of relationship between the two variables, consult the correlation coefficient interval, a value of 0.478 is included in the moderate relationship level. The correlation coefficient value shows a positive relationship. The significance value is  $0.000 < 0.05$ , which means the relationship is significant. Based on these results, it can be concluded that  $H_0$  is rejected, and  $H_1$  is accepted so that the digital literacy variable has a positive and significant relationship with self-regulated learning during the COVID-19 pandemic for the Denpasar University of Hindu Indonesia students.

**Table 5.** Simple Regression Test Results

Unstandardized Coefficients		Standardized Coefficients		<i>t</i>	Sig.
<i>B</i>	<i>Std. Error</i>	<i>Beta</i>			
(Constant)	22.414	4,848		4,623	,000
Digital Literacy	,425	,065	,478	6.582	,000

Dependent Variable: Self-Regulated Learning  
(Source: Processed primary data, 2021)

Based on Table 5, the following regression model equation can be obtained:

$$Y = 22.414 + 0.425X$$

This equation can be interpreted as a constant 22,414 which means that if digital literacy (X) is 0, then the amount of self-regulated learning (Y) is 22.414. Digital literacy regression coefficient (X) is 0.425, meaning that for every 1% addition of digital literacy value, the value of self-study (Y) also increases by 0.425. The regression coefficient is positive, so it can be said that the direction of the influence of the digital literacy variable (X) on the Self-Regulated Learning variable (Y) is positive. From Table 4.9, a significance value of  $0.000 < 0.05$  is obtained, meaning that the digital literacy variable (X) has an effect on the self-regulated learning variable (Y). The tcount value is  $6.582 > t_{table} 1.976$  so it can be concluded that the digital literacy variable (X) has an effect on the self-regulated learning variable (Y).

### Discussion and Conclusion

The results of hypothesis testing using the correlation test show that there is a positive and significant relationship between digital literacy and independent learning during the Covid19 pandemic for students at the Hindu Indonesia University Denpasar. This is in accordance with the value indicated by the correlation coefficient (rcount) of 0.478 and a meaning value of 0.000. The correlation coefficient value is 0.478, when consulted with the correlation coefficient interval table, it is included in the moderate level of relationship. It can be seen that the rcount is positive, which means that when students' digital literacy increases, their independent learning will also increase. This is also in accordance with the results shown in the simple regression analysis, namely the regression value of digital literacy coefficient (X) of 0.425,

The results of hypothesis testing are in line with the research of Yang & Kim (2014) which shows a positive and significant correlation between digital literacy and Self-Regulated Learning in the university's e-learning environment. The results of other studies that support the testing of this hypothesis are the research of Atkins et al., (2013); Greene et al., (2014); Muthupoltotage & Gardner, (2018); Steiner et al., (2013) who concluded that there is a positive and significant relationship between digital literacy and independent learning. Independent learning is one of the important characters that students must have when carrying out the learning process, this is in accordance with Presidential Regulation of the Republic of Indonesia No. 87 of 2017 concerning Strengthening Character Development.

Students are said to have self-regulated learning if they are able to complete various tasks given by the lecturer based on their efforts and abilities. The current pandemic condition shows the real urgency of SRL, one of the important markers that students must have in order to achieve self-regulated learning is digital literacy skills. Digital literacy as a form of business that is manifested in the form of the ability to access, browse, analyze, and use information digitally. The habit of reading learning resources both offline and online from the internet in the form of digital books, articles, national and international journals that affect knowledge, increase understanding, open insight and further develop mindset skills, thus forming and facilitating

the achievement of SRL so that the decisions taken are right on target, both to solve problems and solve problems. problems being faced and to meet their learning needs. Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning.

Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning. Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning.

Digital literacy also helps students to know the limits of internet use according to their needs and interests, for example preventing excessive use of social media. Literacy as the main basis in increasing knowledge. According to Sekarini (2019) digital literacy is one of the efforts that can foster self-regulated learning. The agreement by the 2015 World Economic Forum also obliges everyone, including students, to master six basic literacies that are very important in life, one of which is digital literacy (Umar et al., 2019).

Digital literacy has a positive influence on skills that are important to support successful student learning (Techataweewan & Prasertsin, 2018). Students who have self-regulated learning can manage their learning patterns optimally, supported by their ability to use digital technology to find learning resources and literature digitally to complete the material needed for certain courses, due to pandemic conditions that require online learning. it is possible for students to re-read the material obtained so that there are no misconceptions, reconfirm for the lecturer or his friends by discussing to reach understanding, and be able to support the work given by the lecturer.

The level of digital literacy and self-regulated learning at Hindu Indonesia University Denpasar students are in the medium category, meaning that students are quite able to regulate the learning process that is relevant to the current development of science and technology. There are seven indicators to measure self-regulated learning. Of the seven indicators, the indicator that has the highest achievement is the indicator of seeking assistance at 81.93%. The indicator of seeking help relates to the various efforts made by students to seek help when they feel they do not understand the material or assignments given by the lecturer, both through the social environment, namely all people involved in the learning process including lecturers and friends, as well as non-social environments including facility. or learning tools used.

The level of digital literacy and self-regulated learning at Hindu Indonesia University Denpasar students are in the medium category, meaning that students are quite able to regulate the learning process that is relevant to the current development of science and technology. There are seven indicators to measure self-regulated learning. Of the seven indicators, the indicator that has the highest achievement is the indicator of seeking assistance at 81.93%. The indicator of seeking help relates to the various efforts made by students to seek help when they feel they do not understand the material or task given The achievement of a high indicator of seeking help indicates that students are able to use the ability to communicate with others to ask questions and discuss to complete a responsibility.

The lowest achievement indicator is the memory strategy indicator of 70.44%. The indicator of memory strategy is related to the memory ability shown by students towards the lecture material. With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used.

The indicator of memory strategy is related to the memory ability shown by students towards the lecture material. With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. The indicator of memory strategy is related to the memory ability shown by students towards the lecture material.

With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used.

The level of self-regulated learning is also caused by the level of digital literacy that each student has. Digital literacy measurement uses three indicators. Of the three indicators, the indicator that has the highest achievement is the technical literacy indicator at 86.49%. Technical literacy indicators are related to basic operational mastery of digital technology. This is also related to the high level of seeking help in Self-Regulated Learning indicators, if students are able to demonstrate their basic skills when using digital tools, this can make it easier when seeking help to find suitable alternatives for satisfaction with their learning achievements, for example through the use of laptops, gadgets, internet, browsers, and others.

Then, the digital literacy indicator that has the lowest achievement is cognitive literacy at the 80% level. This is related to the low memory strategy, because cognitive literacy is related to students' ability to find and process information. Weak memory can be caused because students lack the initiative to seek information first, usually students tend to like things that are instant. One of the behaviors that reflect a lack of memory is that students are not accustomed to rereading notes or lecture material, even though students should be able to analyze in depth first any information obtained so that it is embedded in long-term memory.

**-Indicate the implication of the study and your novelty**

Students need to enrich their digital literacy to enhance their independent learning. The results of this study have supported the theory of connectivism which explains the role of internet network technology in creating opportunities for individuals to learn and share information & learned skills. According to Sekarini (2019) digital literacy is included in environmental factors that can increase self-regulated learning. According to (Beetham et al., 2009) that digitally literate students are better at managing their learning activities through the use of technology. Digital literacy is an important provision to achieve student SRL because it is facilitated by the availability of technology (Latifah, 2020). Digital literacy has a positive influence on learner skills that are essential for successful learning (Techataweewan & Prasertsin, 2018). Utilization of technology is able to develop SRL. Daily interactions with technology have a positive impact on SRL, this shows the positive contribution made by the development of science and technology to the improvement of SRL (Yot-Dominguez & Marcelo, 2017).

-clear up where you state your conclusion then define proper conclusion statement. Redefine your novelty in your conclusion, indicate the limitation of your study then post your suggestions for the future research

## References

-check you APA 7<sup>th</sup> edition

-add 2 references from JSSER and group

- Atkins, L., Fraser, J., & Hall, R. (2013). DigiLit Leicester: Survey Results 2013. Leicester: Leicester City Council (CC BY-NC 3.0).
- Badjeber, R. (2020). Independent learning of tadris mathematics students, FTIK IAIN Palu, survived a brave learning period. *Coordinates of Journal of Mathematics and Science Learning*, 1(1), 1–9.
- Beetham, H., McGill, L., & Littlejohn, A. (2009). *Evolving in the 21st century: Report of the conclusions and recommendations of the LLiDA (Literacy for the Digital Age) project*. Glasgow, UK: Glasgow Caledonian University.
- Budiyono Saputro, (2017). *Management Research Development (Research & development) for Thesis and Dissertation Writers*. Aswaja Presindo.
- and Sunarto, R. (2007). *Introduction to Statistics. For Educational, Social, Economic, Communication and Business Research*. Bandung: Alfabeta.
- Elpira, B. (2018). The effect of applying digital literacy on improving learning students at SMP Negeri 6 Banda Aceh. *UIN Ar Raniry Banda Aceh*.
- Eshet, Y. (2004). Digital literacy: A conceptual framework for survival skills in a digital world era. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93–106.
- Ghozali, I. (2016). *Multivariate Analysis Application with IBM SPSS Program for Windows*. Semarang: BP Undip.
- Greene, J.A., Seung, B.Y., & Copeland, D.Z. (2014). Measuring critical components of digital literacy and its relation to learning. *Computer & Education*, 76, 55–69.
- Hanik, E.U. (2020). Self-learning based on digital literacy during the COVID-19 pandemic 19 at madrasah ibtidaiyah. *BASIS: Journal of Islamic Teachers*, 8(1), 183.
- Harahap, A.C.P. (2020). Covid 19: Student Self-Regulated Learning. *AL-IRSYAD*, 10(1). Hasanah, Law,

- & Setiaji, K. (2019). Effect of Digital Literacy, Self-Efficacy, Environment on Student Entrepreneurial Intentions in E-Business. *Journal of Economic Education Analysis*, 8(3), 1198–1215.
- Bung Hatta University Mathematics Education Student. *Jurnal Physics: Series Conference*, 1429(1), 12003.
- Christian, T. (2020). *Self-Regulated Learning: Concepts, Implications and Challenges for Students in Indonesia*. Sanata Dharma University Press.
- Kurniawan, B. (2012). *Research Methodology*. Explore Nusa. South Tangerang.
- Latifah, K. (2020). Digital Literacy and Self Directed Learning in Learning Student PBI IAIN Surakarta. *Academica: Journal of Multidisciplinary Studies*, 2(1), 159–167.
- Latip, A. (2020). The role of information and communication technology literacy in distance learning during the Covid-19 pandemic. *EduTeach: Journal of Education and Learning Technology*, 1(2), 108–116.
- Muthupoltotage, UP, & Gardner, L. (2018). Analyzing the relationship between digital literacy and student self-study-preliminary investigation. In *Progress in the development of information systems* (pp. 1–16). Jumper.
- Pintrich, PR (2000). The role of goal orientation in independent learning. In *The Handbook of self-regulation* (p. 451–502). other.
- Prayitno, D. (2016). *SPSS Handbook; Data Analysis, Data Processing, and Settlement of Statistical Cases*. Yogyakarta: Mediakom.
- Previously, DD, Mazanov, J., Meacheam, D., Heaslip, G., & Hanson, J. (2016). Attitudes, digital literacy and self-efficacy: Flow-on effects for online learning behavior. *The Internet and Higher Education*, 29, 91–97.
- Risdianto, E. (2019). *Analysis of Indonesian education in the era of the industrial revolution 4.0*. Bengkulu: Bengkulu University.
- Rohaeti, E., & Suwardi, JI (2013). Improving Student Achievement and Independent Learning through Reciprocal Teaching and Cooperative Learning Approaches. *Journal of Education Cakrawala*, 5(1).
- Rohmah, N. (2019). Digital Literacy to Improve Teacher Competence in the Revolutionary Era Industry 4.0. *Awwaliyah: Journal of Madrasah Ibtidaiyah Teacher Education*, 2(2), 128–134.
- Sarjono, H., & Julianita, W. (2011). *SPSS vs LISREL: an introduction, application to research*. Jakarta: Salemba Empat, 5(2), 23–34.
- schunk, DH, & Zimmerman, BJ (1998). *Independent learning: From teaching to being independent practice reflective*. Guilford Press.
- Today, DA (2019). *The Relationship Between Technological Literacy and Learning Independence of Class IX Students at SMP Negeri 5 Cilacap for the 2018/2019 Academic Year*. Semarang State University.
- Sobri, M., Nursaptini, N., & Novitasari, S. (2020). Realizing independent learning through courage-based learning in higher education in the industrial era 4.0. *Glaser Education Journal*, 4(1), 64–71.
- stats, A., & Torres, KM (2020). Digital literacy: The need for technology integration and its impact on learning and engagement in community school settings. *Peabody Journal of Education*, 95(1), 90–100.
- Steiner, CM, Wesiak, G., Moore, A., Conlan, O., Dagger, D., Donohoe, G., & Albert, D.

- (2013). Investigation of successful independent learning in a technology-enhanced learning environment. *Proceedings of the 2013 AIED Workshop Volume 10*, 19. Sugiyono, D.
- (2010). *Quantitative research methods and R&D*. Bandung: Alfabeta. Sulisworo, D., Fatimah, N., &
- Sunaryati, SS (2020). A Brief Study of the SRL Profile of Online Learning Participants in the Anticipation Period for the Spread of COVID-19. *Journal International Evaluation and Research in Education*, 9(3), 723–730. Techataweewan, W., & Prasertsin, U. (2018). Development of digital literacy indicators for Thai undergraduate students use mixed methods research. *Journal Social Sciences Kasetsart*, 39(2), 215–221.
- Omar, U., Hendra, H., & Jayanti, MI (2019). Literacy Level of Digital Teacher Students in Facing the Industrial Revolution Era 4.0. *TAJDID: Journal of Islamic and Humanitarian Thought*, 3(2), 188–202. Wijaya, R., Lukman, M., & Yadewani, D. (2020). The Impact of the Covid19 Pandemic on Utilization E Learning. *Journal of Dimensions*, 9(2), 307–322.
- Yang, M., & Kim, J. (2014). Correlation between digital literacy and self-learning skills of learners in university e-learning environments. *Advanced Science and Technology Letters*, 71, 80–83.
- Yasdar, M., & Mulyadi, M. (2018). Application of Self-Regulatory Techniques for improvement of Student Learning Independence Program Study Guidance and Counseling STKIP Muhammadiyah Enrekang. *Edumaspul: Journal of Education*, 2(2), 50–60. Yot-Dominguez, C., &
- Marcelo, C. (2017). Self-study of university students using digital technology. *International Journal Educational Technology in Higher Education*, 14(1), 1–18.

## Digital Literacy and Independent Learning in Covid-19 Pandemic: Correlation Study

Commented [H1]: Revision required

### Abstract

This study aims to determine the relationship between digital literacy and self-regulated learning during the Covid-19 pandemic for students at the Hindu Indonesia University Denpasar. The research method used is correlational quantitative. The population in this study are all active students at the Hindu Indonesia University Denpasar. Samples were selected by probability sampling as many as 148 students using the proportional method of layered random sampling. Data collection techniques using a questionnaire. The data analysis of this research used correlation test and simple regression test. The results showed that there was a significant positive relationship between digital literacy and independent learning during the pandemic. This is evidenced by: (1) the results of a simple correlation test show ( $r_{count} = 0,478 > r_{table} = 0,1603$ ) and the significance value is less than 0.05 ( $0,000 < 0,05$ ). (2) the equation model  $Y = 22,414 + 0,425X$  is statistically significant with  $t_{count} = 6,582 > t_{table} = 1,976$ , and the significance value =  $0,000 < 0,05$ . (3) the coefficient of determination ( $R^2$ ) is 22.9%, meaning that digital literacy variables have an influence of 22.9% on self-regulated learning variables during the Covid-19 pandemic for students at the Hindu Indonesia University Denpasar.

Commented [H2]: sentence

**Keywords:** Digital Literacy, Self-Regulated Learning, Covid-19 Pandemic

### Introduction

Currently, countries in the world are shocked by an extraordinary event, namely the emergence of a corona virus pandemic or commonly known as Covid-19 (Corona Virus Disease-2019) since the end of December 2019. All countries, including Indonesia, are trying to overcome the situation that is not controlled due to this outbreak, which has hampered all lines of life due to various policies to control the rapid spread of the corona virus, among others by imposing social and physical restrictions, as well as working from home (Herliandry et al., 2020). There is a recommendation to work from home based on the provisions of Article 86 paragraph (1) of Law Number 1 of 2003 concerning Manpower which states that every worker/labor has the right to protection of occupational safety and health, this requires everyone to survive. for their survival even though they are still at home with the help of technology and internet.

Controlling the situation during the Covid-19 pandemic by utilizing technology and the internet in accordance with the characteristics of the 4.0 industrial revolution era, one of which is the internet of things that is able to control almost all jobs that can be connected via an internet connection (Risdianto, 2019). The hallmark of education during the industrial revolution 4.0 is the use of the internet. According to Risdianto (2019) One of the provisions in implementing education during the industrial revolution 4.0 is the existence of connectivity or access to the internet network. This is in line with the emergence of digitalizationan education system through digital learning with the help of the internet that is able to provide a more meaningful learning experience, able to grow various strategies, methods, learning resources, and patterns of educator-student relationships so as to create innovative learning opportunities (Statti & Torres, 2020). This transformational change is also in accordance with adaptation to conditions during the pandemic, which requires all institutions or educational institutions to implement distance learning. Institutional education will be left behind if it does not quickly adapt to changes in digital-based education transformation during the industrial revolution 4.0 and during the current pandemic (Sobri et al., 2020). In accordance with the new policy involving the government, it is recommended to stay and work at home during the Covid-19 pandemic. The educational paradigm has shifted from face-to-face learning to online learning. This is

based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning.

Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic. This is based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning. Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic. This is based on the Circular Letter of the Minister of Education and Culture Number 4 of 2020 concerning the Implementation of Education Policies in the Emergency Period for the Spread of Covid-19, which contains six important things related to changes in the implementation of education in Indonesia, one of which is the process of learning from home through online learning. Online learning is considered the most appropriate solution for learning during the current pandemic (Wijaya et al., 2020) conveying the idea that the use of online learning has increased during the Covid-19 pandemic.

Online learning during a pandemic can be carried out with the support of rapid advances in technology, information, and communication using various platforms in the form of applications, websites, social networks, and learning management systems (Latip, 2020). Online learning is a learning process carried out using the internet, it can be done either synchronously or asynchronously. The emergence of online learning as part of digital literacy can be used as an alternative to using technology in learning, as well as to improve the quality of learning. It is necessary to cultivate Self-Regulated Learning (SRL) to face learning difficulties during the current Covid-19 pandemic. SRL is an active and constructive process for students to determine their learning goals, then monitor, regulate, and control their cognition, motivation, and behavior based on their learning goals and environment (Pintrich, 2000). SRL is one of the basic characters in the learning process, this is in accordance with the Presidential Regulation of the Republic of Indonesia Number 87 of 2017. It was reported in a news article on the Suaramerdeka.com page on June 22, 2020, explaining that students do not yet have Self-Regulated Learning which has become a habit. , this has become one of the complex problems that emerged as a challenge for the world of education during the pandemic.

In addition, the Acehtrend.com news page on September 16, 2020 also showed low self-regulation while studying, which used to be characterized by low self-discipline and motivation while studying. That's Bernasnews. com news page on April 26, 2020 also mentioned the lack of Self-Regulated Learning because most still feel dependent on face-to-face learning/traditional methods. The results of research from Badjeber (2020) conclude that there are still many students with a percentage of more than 60% who relatively lack the awareness to design, implement, monitor and supervise their own learning needs, including in utilizing various resources, as well as determining & practicing learning strategies during the pandemic. Sulisworo et al., (2020) shows that students in Indonesia need to improve SRL during the pandemic in order to remain responsible for the learning process and be successful in implementing online learning. Research by Khairuddin et al., (2020) concluded that the

achievement of each student SRL indicator in Padang City is still below 60%, which is relatively low. Yasdar & Mulyadi (2018) find 75% of students' SRL in South Sulawesi is low, research from Wahyuni (2018) shows 63.98% SRL of students in Riau tends to be low.

Rohaeti & Suwardi (2013) concluded that about 50% of SRL students in Yogyakarta are included in the low category because they rarely set and evaluate learning strategies, lack of discipline in learning which causes irregular study schedules, rarely use spare time to study the material being studied. This shows that the students' SRL is relatively low. Self-Regulated Learning has various benefits for students, because SRL is a supporter of success in everyday life including in learning, such as to improve academic achievement, key to discipline behavior, improve multitasking abilities, increase rationality in decision making, increase efficiency in learning new knowledge (Kristiyani, 2020). If students do not have Self-Regulated Learning, students will find it difficult to plan learning activities,

The development of SRL levels in students can be influenced by internal and external factors. Internal factors consist of epistemological beliefs, beliefs about learning, emotions, personal agency beliefs, and age and personality factors, while external factors that influence the development of SRL such as family factors include parenting and parental involvement, school factors including teacher-student relationships, support for teacher autonomy, the teaching model provided by the teacher, and peer factors (Kristiyani, 2020). SRL is also caused by factors such as personal, behavioral, and environmental. Personal factors consist of knowledge, thoughts, beliefs or self-efficacy, goals, behavioral factors consist of acts of observation, judgment, and self-reaction, while environmental factors in the form of physical and social environment while studying (Schunk & Zimmerman, 1998). Another factor that affects self-regulated learning is digital literacy (Sekarini, 2019).

Digital literacy is one of the competencies that individuals must have in using digital technology effectively to support academic needs such as when accessing information digitally via the internet. In a news article published on the Nusabali.com page on April 20, 2020, it was stated that digital technology is also similar to distraction which causes users to be unable to concentrate on completing their tasks and obligations, so that digital devices that are actually able to increase productivity turn into performance barriers. . Digital content and information widely distributed on the internet can facilitate SRL. Current learning resources can be obtained via the internet (Rohmah, 2019). It is undeniable that students need literature when doing assignments,

It is important for every individual to have digital literacy to limit things that can distract students' activities when accessing the internet, so that students' opportunities to achieve learning goals are greater. Digital competence can also be called digital literacy (Utama & Sajidan, 2020). According to (Risdiyanto, 2019) digital literacy aims to improve the ability to read, analyze, and use information digitally, in other words digital literacy encourages the use of digital technology devices to be more effective and healthy because today's digital natives, including students, feel less wise in use the internet to find information. what is done is not based on particular interests and is not appropriate for age, as well as excessive use of social media. The agreement by the 2015 World Economic Forum requires all components of society, including students, to master six very important literacy basics, one of which is digital literacy (Umar et al., 2019). Digital literacy needs to be embedded in the education system, because it has a positive influence on student skills that are important for successful learning (Techataweewan & Prasertsin, 2018).

Mastery of digital literacy in learning is able to facilitate and strengthen the learning process and educational outcomes including student SRL achievements, because students are able to obtain information in a broader and deeper scope, thereby increasing student insight and helping students complete assignments (Elpira, 2018). Students are also able to survive various obstacles in learning and are able to solve problems that are being faced if they have digital literacy (Eshet, 2004).

According to the proposed framework (Beetham et al., 2009) that digitally literate students can better organize their learning activities through the use of technology than their less digitally literate counterparts. The same thing was also stated in a news article on the timesindonesia.co.id page on April 10, 2020 that the literacy skills that students have when accessing information from various digital sources are one of the important markers for Self-Regulated Learning. The rapid progress of science and technology can contribute to the growth of independent learning, as evidenced by the results of research from (Yot-Domínguez & Marcelo, 2017) which shows that everyday interactions with technology have a positive impact on students' Self-Regulated Learning.

There are several relevant previous studies, such as the results of research by Yang & Kim, (2014) showing a positive and significant correlation between digital literacy and Self-Regulated Learning in university e-learning environments. Research from (Muthupoltotage & Gardner, 2018) also found a positive relationship between digital literacy and Self-Regulated Learning in the context of technology-based learning. Likewise with research results from (Prior et al., 2016) that digital literacy can have a much deeper relationship with Self-Regulated Learning. In line with the Connectivism learning theory, created by George Siemens, he explains the role of Internet network technology in creating opportunities for individuals to learn and share information and skills learned.

### Research Methods

The type of research conducted is quantitative which is correlational. This study will examine the relationship between two or more variables. The aim is to examine the relationship between digital literacy and self-regulated learning during the student Covid-19 pandemic. In this study, there are two variables determined, namely the independent variable (X) is digital literacy, while the dependent variable (Y) is Self-Regulated Learning. The population is all research subjects that have certain characteristics to study and draw general conclusions (Kurniawan, 2012). Hindu Indonesia University Denpasar students from the 2017-2019 class became the population in this study. There were 79 students in 2017, 74 people in 2018 and 80 people in 2019 so that the total student population in this study was 233 people.

Respondents in this study were selected using probability sampling technique with proportional stratified random sampling method. The probability sampling technique treats all members of the population who are the research sample with chance. Data collection techniques in this study by means of a questionnaire. Questionnaires are variable data collection techniques that are carried out through the distribution of a set of questions or written statements that must be answered by respondents (Sugiyono, 2010). The questionnaire used is a closed questionnaire containing statements about digital literacy and self-regulated learning variables. The scale used in this research questionnaire is Likert scale. The questionnaire is structured in the form of a checklist and uses four alternatives: answers, because it eliminates the neutral answer with the assumption that it is a little "ambiguous" (Sarjono & Julianita, 2011).

Commented [H3]: sentence

**The validity** test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program. Saputro, (2017) states the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. The validity test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program.

Saputro, (2017) defines the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. The validity test in this study uses the correlation coefficient technique using the Product Moment formula through the help of SPSS version 23 program. Based on Saputro (2017) the instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with **Alpha Cronbach** through the help of the SPSS version 23 program, and the significance level was 5%.

A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. 2017) The instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa. The instrument is called reliable if a person's answer to the statement tends to be stable or consistent from time to time. The instrument was tested with Alpha Cronbach through the help of the SPSS version 23 program, and the significance level was 5%. A questionnaire can be said to be reliable if the results obtained show a critical value of Cronbach's Alpha  $> 0.70$  (Widoyoko, 2012). The criterion test is if the ri value  $> 0.70$  means the questionnaire is reliable, and vice versa.

**The first data analysis technique**, with descriptive statistics that are useful for describing data samples through data categorization without the intention of determining conclusions for the population (Sugiyono, 2010). Two analytical prerequisite tests, in the prerequisite test analysis, were carried out in several stages, namely 1) by means of a normality test, which was carried out using the Kolmogorov-Smirnov technique. The criteria for the fulfillment of the normality test are seen from the significance value  $> 0.05$ , while the significance value  $< 0.05$  means that the data is not normally distributed. 2) The linearity test aims to see whether the two variables studied (independent and dependent variables) are linearly related or not. The linearity criteria can be seen through the deviation from the linearity value which must be greater than 0.05 (Prayitno, 2016).

Testing the linearity of this study using SPSS version 23 through the Linearity Test with a significance level of 0.05. 3) To find out the occurrence of inequality variance from one observation residual to another observation in the regression model, it can be done using the

heteroscedasticity test (Ghozali, 2016). By looking at the pattern of the scatterplot image, it can be seen that the fulfillment of the heteroscedasticity test criteria, namely if the data points are spread either above, below or around the number 0, the spread of the points is not patterned, then there is no heteroscedasticity. Test the third hypothesis. In testing the hypothesis, two stages are needed, namely by using a correlation test and simple regression analysis. Correlation Test Correlation coefficient test is used to determine the strength of the relationship between the two variables studied.

According to Sunarto (2007) the correlation test is intended to measure the degree of relationship between the two variables studied, namely between the X variable (digital literacy) and the Y variable (self-regulated learning). In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale. And simple regression This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down. In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale.

This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down. In this study, we learned to use the Pearson Product Moment technique, therefore the data was collected in the form of interval data with a Likert scale. And simple regression This analysis is useful for detecting the direction of the positive or negative relationship between the independent variable and the dependent variable, as well as predicting how much change occurs in the value of the dependent variable if the independent variable changes either up or down.

## Results

### Data Description

The data obtained in this study as a result of distributing questionnaires through google forms in which there are statement items that represent each indicator both independently of the variable, namely digital literacy, and the dependent variable, namely self-regulated learning. The data obtained from the research subjects amounted to 148 students of the Hindu Indonesia University Denpasar, analyzed using the SPSS version 23 program, the following data were obtained:

**Table 1.** Descriptive Analysis Results

	Descriptive Statistics							
	N	Range	Min	Max	Sum	mean	Std. Dev	Variance
Digital Literacy	148	29	58	87	11068	74.78	5,949	35,395

Self-Regulated Learning	148	26	41	67	8025	54.22	5,290	27,984
Valid N	148							

(Source: Processed primary data, 2021)

### Digital Literacy Variable (X)

Data on digital literacy variables were obtained from the results of distributing questionnaires as many as 23 statement items with four alternative answers based on a Likert scale score of 1 to 4. The highest total score for the sample of 148 respondents was  $23 \times 4 \times 148 = 13,616$ . The results of descriptive statistical processing with the help of the SPSS version 23 program can be presented in Table 1 above, it can be interpreted that the digital literacy variable collects a total score of 11,068 obtained from the summation value. The maximum value that students get from this variable is  $23 \times 4 = 92$ . It is known that the maximum score for the digital literacy variable is 87, meaning that most students score three or four in each indicator. The minimum score is 58, meaning that most students score two or three on each of the available indicators. The standard deviation value explains the heterogeneity of a group to the average, this value can be said to be good if the data is heterogeneous and the value is far from 0. The standard deviation value is 5.949, so it can be said to be heterogeneous. The average score of 74.78 indicates that the average student gives a score of three in each indicator.

It can be seen that the distribution of digital literacy data with the highest frequency is in the area of the 70-73 and 74-77 interval classes, as many as 35 students. Digital literacy level The tendency of students can be classified into three, namely high, medium, and low. The results of the category of digital literacy tendencies. The digital literacy of the Hindu University Siswa Indonesia Denpasar is at a moderate level, which is equivalent to 66.22%. The percentage of digital literacy achievement for students at Hindu Indonesia University Denpasar is obtained from the results of dividing the total score collected by the highest total score, which is  $11,068 : 13,616 = 81.28\%$ . Digital literacy is measured through three indicators,

**Table 2.** Digital Literacy Indicator Achievement

No	Indicators	Achievements Indicator
1	Technical Literacy	86.49%
2	Cognitive Literacy	80%
3	Socio-Emotional Literacy	81.44%

(Source: Processed primary data, 2021)

Based on Table 2, it can be seen that the role of each indicator has different magnitudes of influence. The most dominant indicator in achieving student digital literacy lies in the technical literacy indicator with an indicator achievement of 86.49%. This technical literacy indicator contains basic operational mastery of digital technology, this shows that most students have mastered the basic skills to use digital tools.

### Independent Learning Variables

Data on the Self-Regulated Learning variable was obtained from the distribution of a questionnaire as many as 18 statement items with four alternative answers based on a Likert

scale score of 1 to 4. The highest total score for a sample of 148 respondents was  $18 \times 4 \times 148 = 10,656$ . The results of processing descriptive statistics with the help of the SPSS version 23 program can be presented in Table 1 above, with it being interpreted that the self-regulated learning variable collects a total score of 8025 obtained from that total score. The maximum score that can be obtained by students from this variable is  $18 \times 4 = 72$ . It is known that the maximum value for the self-regulated learning variable is 67, meaning most students give a score of three or four on each indicator. The minimum score is 41, this means that most students score two or three on each of the available indicators. The standard deviation value explains the heterogeneity of a group with respect to the mean, this value is said to be good if the data is heterogeneous and the value is far from 0 the deviation value is 5.290, so it can be said to be heterogeneous. The average score of 54.22 indicates that the average student gives a score of three on each indicator.

**Table 3.** Self-Regulated Learning Indicator Achievement

No	Indicators	Achievement Indicator
1	Memory strategy	70.44%
2	Goal setting	71.79%
3	Self evaluation	74.66%
4	Seeking help	81.93%
5	Environmental arrangements	78.04%
6	Learning responsibilities	72.41%
7	Planning & organizing	77.42%

(Source: Processed primary data, 2021)

Based on Table 3, it can be seen that the role of each indicator has different magnitudes of influence. The most dominant indicator of the achievement of students' self-regulated learning lies in the indicator of seeking assistance with an indicator achievement of 81.93%. This indicator of seeking help contains various efforts that students can make to seek help when they do not understand the material or assignments given by the lecturer, either through the social environment, namely all people involved in the learning process including lecturers and friends, as well as non-social environments including learning facilities. and facilities used. (primary data, 2021)

### Hypothesis Testing

**Table 4.** Simple Correlation Test Results

Correlations	Self-Regulated Learning (Y)
Digital Literacy	,478
Pearson	
(X)	Correlation
	Sig. (2-tailed)
	,000
	N
	148

(Source: Processed primary data, 2021)

Based on Table 4, it is explained that the correlation coefficient (rcount) between digital literacy and learning independence is  $0.478 > r_{table} (0.1603)$ , then to see the level of relationship between the two variables, consult the correlation coefficient interval, a value of

0.478 is included in the moderate relationship level. The correlation coefficient value shows a positive relationship. The significance value is  $0.000 < 0.05$ , which means the relationship is significant. Based on these results, it can be concluded that  $H_0$  is rejected, and  $H_1$  is accepted so that the digital literacy variable has a positive and significant relationship with self-regulated learning during the COVID-19 pandemic for the Denpasar University of Hindu Indonesia students.

**Table 5.** Simple Regression Test Results

Unstandardized Coefficients		Standardized Coefficients		<i>t</i>	Sig.
<i>B</i>	<i>Std. Error</i>	<i>Beta</i>			
(Constant)	22.414	4,848		4,623	,000
Digital Literacy	,425	,065	,478	6.582	,000

Dependent Variable: Self-Regulated Learning  
(Source: Processed primary data, 2021)

Based on Table 5, the following regression model equation can be obtained:

$$Y = 22.414 + 0.425X$$

This equation can be interpreted as a constant 22,414 which means that if digital literacy (X) is 0, then the amount of self-regulated learning (Y) is 22.414. Digital literacy regression coefficient (X) is 0.425, meaning that for every 1% addition of digital literacy value, the value of self-study (Y) also increases by 0.425. The regression coefficient is positive, so it can be said that the direction of the influence of the digital literacy variable (X) on the Self-Regulated Learning variable (Y) is positive. From Table 4.9, a significance value of  $0.000 < 0.05$  is obtained, meaning that the digital literacy variable (X) has an effect on the self-regulated learning variable (Y). The *t*count value is  $6.582 > t_{table} 1.976$  so it can be concluded that the digital literacy variable (X) has an effect on the self-regulated learning variable (Y).

#### Discussion and Conclusion

The results of hypothesis testing using the correlation test show that there is a positive and significant relationship between digital literacy and independent learning during the Covid19 pandemic for students at the Hindu Indonesia University Denpasar. This is in accordance with the value indicated by the correlation coefficient (*r*count) of 0.478 and a meaning value of 0.000. The correlation coefficient value is 0.478, when consulted with the correlation coefficient interval table, it is included in the moderate level of relationship. It can be seen that the *r*count is positive, which means that when students' digital literacy increases, their independent learning will also increase. This is also in accordance with the results shown in the simple regression analysis, namely the regression value of digital literacy coefficient (X) of 0.425,

The results of hypothesis testing are in line with the research of Yang & Kim (2014) which shows a positive and significant correlation between digital literacy and Self-Regulated Learning in the university's e-learning environment. The results of other studies that support the testing of this hypothesis are the research of Atkins et al., (2013); Greene et al., (2014); Muthupoltotage & Gardner, (2018); Steiner et al., (2013) who concluded that there is a positive and significant relationship between digital literacy and independent learning. Independent learning is one of the important characters that students must have when carrying out the

learning process, this is in accordance with Presidential Regulation of the Republic of Indonesia No. 87 of 2017 concerning Strengthening Character Development.

Students are said to have self-regulated learning if they are able to complete various tasks given by the lecturer based on their efforts and abilities. The current pandemic condition shows the real urgency of SRL, one of the important markers that students must have in order to achieve self-regulated learning is digital literacy skills. Digital literacy as a form of business that is manifested in the form of the ability to access, browse, analyze, and use information digitally. The habit of reading learning resources both offline and online from the internet in the form of digital books, articles, national and international journals that affect knowledge, increase understanding, open insight and further develop mindset skills, thus forming and facilitating the achievement of SRL so that the decisions taken are right on target, both to solve problems and solve problems. problems being faced and to meet their learning needs. Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning.

Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning. Students have a lot of information that can be managed in such a way as to support success both in academics and in everyday life. In other words, digital literacy is a way or form of self-ability in finding information that is used to achieve self-regulation while learning.

Digital literacy also helps students to know the limits of internet use according to their needs and interests, for example preventing excessive use of social media. Literacy as the main basis in increasing knowledge. According to Sekarini (2019) digital literacy is one of the efforts that can foster self-regulated learning. The agreement by the 2015 World Economic Forum also obliges everyone, including students, to master six basic literacys that are very important in life, one of which is digital literacy (Umar et al., 2019).

Digital literacy has a positive influence on skills that are important to support successful student learning (Techataweewan & Prasertsin, 2018). Students who have self-regulated learning can manage their learning patterns optimally, supported by their ability to use digital technology to find learning resources and literature digitally to complete the material needed for certain courses, due to pandemic conditions that require online learning. it is possible for students to re-read the material obtained so that there are no misconceptions, reconfirm for the lecturer or his friends by discussing to reach understanding, and be able to support the work given by the lecturer.

The level of digital literacy and self-regulated learning at Hindu Indonesia University Denpasar students are in the medium category, meaning that students are quite able to regulate the learning process that is relevant to the current development of science and technology. There are seven indicators to measure self-regulated learning. Of the seven indicators, the indicator that has the highest achievement is the indicator of seeking assistance at 81.93%. The indicator of seeking help relates to the various efforts made by students to seek help when they feel they do not understand the material or assignments given by the lecturer, both through the social environment, namely all people involved in the learning process including lecturers and friends, as well as non-social environments including facility. or learning tools used.

The level of digital literacy and self-regulated learning at Hindu Indonesia University Denpasar students are in the medium category, meaning that students are quite able to regulate the learning process that is relevant to the current development of science and technology. There are seven indicators to measure self-regulated learning. Of the seven indicators, the indicator that has the highest achievement is the indicator of seeking assistance at 81.93%. The indicator of seeking help relates to the various efforts made by students to seek help when they feel they do not understand the material or task given. The achievement of a high indicator of seeking help indicates that students are able to use the ability to communicate with others to ask questions and discuss to complete a responsibility.

The lowest achievement indicator is the memory strategy indicator of 70.44%. The indicator of memory strategy is related to the memory ability shown by students towards the lecture material. With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used.

The indicator of memory strategy is related to the memory ability shown by students towards the lecture material. With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. The indicator of memory strategy is related to the memory ability shown by students towards the lecture material.

With low achievement on the memory strategy indicator among other indicators, reflecting that students have not been able to get used to reading back notes or lecture material before starting class, students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used. students sometimes also feel lazy to summarize themselves and tend to rely on their friends' notes. lecturers, both through the social environment, namely everyone involved in the learning process including lecturers and friends, as well as non-social environments including facilities. or learning tools used.

The level of self-regulated learning is also caused by the level of digital literacy that each student has. Digital literacy measurement uses three indicators. Of the three indicators, the indicator that has the highest achievement is the technical literacy indicator at 86.49%. Technical literacy indicators are related to basic operational mastery of digital technology. This is also related to the high level of seeking help in Self-Regulated Learning indicators, if students are able to demonstrate their basic skills when using digital tools, this can make it easier when seeking help to find suitable alternatives for satisfaction with their learning achievements, for example through the use of laptops, gadgets, internet, browsers, and others.

Then, the digital literacy indicator that has the lowest achievement is cognitive literacy at the 80% level. This is related to the low memory strategy, because cognitive literacy is related to students' ability to find and process information. Weak memory can be caused because students lack the initiative to seek information first, usually students tend to like things that are instant. One of the behaviors that reflect a lack of memory is that students are not accustomed to rereading notes or lecture material, even though students should be able to analyze in depth first any information obtained so that it is embedded in long-term memory.

Students need to enrich their digital literacy to enhance their independent learning. The results of this study have supported the theory of connectivism which explains the role of internet network technology in creating opportunities for individuals to learn and share information & learned skills. According to Sekarini (2019) digital literacy is included in environmental factors that can increase self-regulated learning. According to (Beetham et al., 2009) that digitally literate students are better at managing their learning activities through the use of technology. Digital literacy is an important provision to achieve student SRL because it is facilitated by the availability of technology (Latifah, 2020). Digital literacy has a positive influence on learner skills that are essential for successful learning (Techataweewan & Prasertsin, 2018). Utilization of technology is able to develop SRL. Daily interactions with technology have a positive impact on SRL, this shows the positive contribution made by the development of science and technology to the improvement of SRL (Yot-Dominguez & Marcelo, 2017).

**Commented [H4]:** You have no implication yet

Accordingly, you did not specify which one you define as your conclusion

## References

- Atkins, L., Fraser, J., & Hall, R. (2013). *DigiLit Leicester: Survey Results 2013*. Leicester: Leicester City Council (CC BY-NC 3.0).
- Badjeber, R. (2020). Independent learning of tadaris mathematics students, FTIK IAIN Palu, survived a brave learning period. *Coordinates of Journal of Mathematics and Science Learning*, 1(1), 1–9.
- Beetham, H., McGill, L., & Littlejohn, A. (2009). *Evolving in the 21st century: Report of the conclusions and recommendations of the LLiDA (Literacy for the Digital Age) project*. Glasgow, UK: Glasgow Caledonian University.
- Budiyono Saputro, (2017). *Management Research Development (Research & development) for Thesis and Dissertation Writers*. Aswaja Presindo.
- and Sunarto, R. (2007). *Introduction to Statistics. For Educational, Social, Economic, Communication and Business Research*. Bandung: Alfabeta.
- Elpira, B. (2018). The effect of applying digital literacy on improving learning students at SMP Negeri 6 Banda Aceh. *UIN Ar Raniry Banda Aceh*.
- Eshet, Y. (2004). Digital literacy: A conceptual framework for survival skills in a digital world era. *Journal of Educational Multimedia and Hypermedia*, 13(1), 93–106.
- Ghozali, I. (2016). *Multivariate Analysis Application with IBM SPSS Program for Windows*. Semarang: BP Undip.
- Greene, J.A., Seung, B.Y., & Copeland, D.Z. (2014). Measuring critical components of digital literacy and its relation to learning. *Computer & Education*, 76, 55–69.
- Hanik, E.U. (2020). Self-learning based on digital literacy during the COVID-19 pandemic 19 at madrasah ibtidaiyah. *BASIS: Journal of Islamic Teachers*, 8(1), 183.
- Harahap, ACP (2020). Covid 19: Student Self-Regulated Learning. *AL-IRSYAD*, 10(1). Hasanah, Law,

- & Setiaji, K. (2019). Effect of Digital Literacy, Self-Efficacy, Environment on Student Entrepreneurial Intentions in E-Business. *Journal of Economic Education Analysis*, 8(3), 1198–1215.  
Bung Hatta University Mathematics Education Student. *Jurnal Physics: Series Conference*, 1429(1), 12003.
- Christian, T. (2020). *Self-Regulated Learning: Concepts, Implications and Challenges for Students in Indonesia*. Sanata Dharma University Press.
- Kurniawan, B. (2012). *Research Methodology*. Explore Nusa. South Tangerang.
- Latifah, K. (2020). Digital Literacy and Self Directed Learning in Learning Student PBI IAIN Surakarta. *Academica: Journal of Multidisciplinary Studies*, 2(1), 159–167.
- Latip, A. (2020). The role of information and communication technology literacy in distance learning during the Covid-19 pandemic. *EduTeach: Journal of Education and Learning Technology*, 1(2), 108–116.
- Muthupoltotage, UP, & Gardner, L. (2018). Analyzing the relationship between digital literacy and student self-study-preliminary investigation. In *Progress in the development of information systems* (pp. 1–16). Jumper.
- Pintrich, PR (2000). The role of goal orientation in independent learning. In *The Handbook of self-regulation* (p. 451–502). other.
- Prayitno, D. (2016). *SPSS Handbook; Data Analysis, Data Processing, and Settlement of Statistical Cases*. Yogyakarta: Mediakom.
- Previously, DD, Mazanov, J., Meacheam, D., Heaslip, G., & Hanson, J. (2016). Attitudes, digital literacy and self-efficacy: Flow-on effects for online learning behavior. *The Internet and Higher Education*, 29, 91–97.
- Risdianto, E. (2019). *Analysis of Indonesian education in the era of the industrial revolution 4.0*. Bengkulu: Bengkulu University.
- Rohaeti, E., & Suwardi, JI (2013). Improving Student Achievement and Independent Learning through Reciprocal Teaching and Cooperative Learning Approaches. *Journal of Education Cakrawala*, 5(1).
- Rohmah, N. (2019). Digital Literacy to Improve Teacher Competence in the Revolutionary Era Industry 4.0. *Awwaliyah: Journal of Madrasah Ibtidaiyah Teacher Education*, 2(2), 128–134.
- Sarjono, H., & Julianita, W. (2011). *SPSS vs LISREL: an introduction, application to research*. Jakarta: Salemba Empat, 5(2), 23–34.
- Schunk, DH, & Zimmerman, BJ (1998). *Independent learning: From teaching to being independent practice reflective*. Guilford Press.
- Today, DA (2019). *The Relationship Between Technological Literacy and Learning Independence of Class IX Students at SMP Negeri 5 Cilacap for the 2018/2019 Academic Year*. Semarang State University.
- Sobri, M., Nursaptini, N., & Novitasari, S. (2020). Realizing independent learning through courage-based learning in higher education in the industrial era 4.0. *Glasser Education Journal*, 4(1), 64–71.
- stats, A., & Torres, KM (2020). Digital literacy: The need for technology integration and its impact on learning and engagement in community school settings. *Peabody Journal of Education*, 95(1), 90–100.
- Steiner, CM, Wesiak, G., Moore, A., Conlan, O., Dagger, D., Donohoe, G., & Albert, D.

- (2013). Investigation of successful independent learning in a technology-enhanced learning environment. *Proceedings of the 2013 AIED Workshop Volume 10*, 19. Sugiyono, D.
- (2010). *Quantitative research methods and R&D*. Bandung: Alfabeta. Sulisworo, D., Fatimah, N., & Sunaryati, SS (2020). A Brief Study of the SRL Profile of Online Learning Participants in the Anticipation Period for the Spread of COVID-19. *Journal International Evaluation and Research in Education*, 9(3), 723–730. Techataweewan, W., & Prasertsin, U. (2018). Development of digital literacy indicators for Thai undergraduate students use mixed methods research. *Journal Social Sciences Kasetsart*, 39(2), 215–221.
- Omar, U., Hendra, H., & Jayanti, MI (2019). Literacy Level of Digital Teacher Students in Facing the Industrial Revolution Era 4.0. *TAJDID: Journal of Islamic and Humanitarian Thought*, 3(2), 188–202. Wijaya, R., Lukman, M., & Yadewani, D. (2020). The Impact of the Covid19 Pandemic on Utilization E Learning. *Journal of Dimensions*, 9(2), 307–322.
- Yang, M., & Kim, J. (2014). Correlation between digital literacy and self-learning skills of learners in university e-learning environments. *Advanced Science and Technology Letters*, 71, 80–83.
- Yasdar, M., & Mulyadi, M. (2018). Application of Self-Regulatory Techniques for improvement of Student Learning Independence Program Study Guidance and Counseling STKIP Muhammadiyah Enrekang. *Edumaspul: Journal of Education*, 2(2), 50–60. Yot-Dominguez, C., & Marcelo, C. (2017). Self-study of university students using digital technology. *International Journal Educational Technology in Higher Education*, 14(1), 1–18.