Improving Student Digital Literacy through Google Classroom-Based Lectures

Peningkatan Literasi Digital Mahasiswa melalui Perkuliahan Berbasis *Google Classroom*

[1]Lisanul Uswah Sadieda, [2]Sutini
[1,2,3]*Pendidikan Matematika, Fakultas, UIN Sunan Ampel*
Alamat: Jl. A. Yani 117, Surabaya, Jawa Timur, indoensia
Email: lisanuluswah@uinsby.ac.id

Abstract

Mathematics teacher candidates need to have good digital literacy so that they will be able to guide their students to use digital media wisely. Therefore this study aims to describe the increase in students' digital literacy after attending microteaching lectures (Introduction to Schooling Field 1) using Google Classroom. This type of research is quasi-experimental research with a quantitative approach. The research sample was 30 students in the 6th semester of the 2021/2022 academic year. Methods of collecting data using performance tests. Data analysis of students' digital literacy improvement used the Wilcoxon Signed-Rank Test. Digital literacy indicators used include aspects of technical skills, critical understanding, and communicative abilities. Based on the analysis of research data, it is concluded that there is an increase in student digital literacy after attending lectures using Google Classroom. Student digital literacy is included in the advanced category.

Keywords: Digital Literacy; Google Classroom; Microteaching.

Abstrak

Mahasiswa calon guru matematika perlu memiliki literasi digital yang baik agar nantinya mampu membimbing peserta didiknya menggunakan media digital dengan bijak. Oleh karena itu penelitian ini bertujuan mendeskripsikan peningkatan literasi digital mahasiswa sesudah mengikuti perkuliahan microteaching (Pengenalan Lapangan Persekolahan 1) menggunakan Google Classroom. Jenis penelitian adalah penelitian eksperimen semu dengan pendekatan kuantitatif. Sampel penelitian adalah 30 mahasiswa semester 6 tahun akademik 2021/2022. Metode pengumpul data menggunakan tes unjuk kerja. Analisis data peningkatan literasi digital mahasiswa menggunakan uji Wilcoxon Signed-Rank Test. Indikator literasi digital yang digunakan meliputi aspek technical skill, critical understanding dan communicative abilities. Berdasarkan analisis data penelitian diperoleh simpulan bahwa terdapat peningkatan literasi digital mahasiswa setelah mengikuti perkuliahan menggunakan Google Classroom, Literasi digital mahasiswa termasuk dalam kategori advance.

Kata Kunci: Google Classroom; Literasi Digital; Pengenalan Lapangan Persekolahan.

Introduction

The COVID-19 pandemic that hit Indonesia in early 2020 has had a significant impact, including implementing the lecture process in universities. During the pandemic, the government has established a policy of organizing the lecture process in higher education to be carried out online by the Circular Letter of the Minister of Education and Culture No. 4 of 2020. This has led to positive habits among the academic community to use digital applications and platforms to facilitate their activities in conducting lectures even after the pandemic. The platform that lecturers will use in the lecture process certainly depends on the ease of access and use of the features available on the platform. One platform that provides ease of use is Google Classroom. Sabran and Sabara stated that Google Classroom has efficient, easy-to-use features and helps educators create classes, distribute assignments, give grades, send feedback, and view everything in one application.[1] All devices, both laptops and smartphones, can also access Google Classroom. This is very helpful for the smooth learning process because teaching and learning can be done anywhere and anytime. Several studies have also proved the effectiveness of Google Classroom as a medium for learning mathematics. Ghofur, in his research, explained that using Google Classroom in learning is very effective because all learning objectives can be achieved optimally.[2] Northey et al. also stated that Google Classroom is very helpful and effective in presenting new educational challenges.[3]

The various conveniences offered make Google Classroom one of the media widely used by lecturers in online lectures in universities. This can be seen from research conducted by Ventayen, et al[4], Sabran & Sabara[5], Utami, et.al[6] also Hapsari & Pamungkas[7]. The results showed that using Google Classroom as a learning media is quite effective in delivering lecture

---

[1] Sabran, & Edy Sabara, "Keefektifan Google Classroom Sebagai Media Pembelajaran", *Seminar Nasional Lembaga Penelitian Universitas Negeri Makassar*, (2019): 122-125. Makassar.

[2] Abd Ghofur, "Using Google Classroom on Inquiry Based Learning To Improve Students' Learning Participation", *Jurnal Penelitian Pendidikan 10*, no.2 (2018): 1503-1509

[3] Gavin Northey, Tania Bucic, Mathew Chylinski, & Rahul Govind, (2015). Increasing Student Engagement Using Asynchronous Learning. *Journal of Marketing Education 37*, no.3 (2015): 1-10.

[4] Rady Joy Magno Ventayen, "Usability Evaluation of Google Classroom:Basis for the Adaptation of GSuite E-Learning Paltform", *Asia Pasific Journal of Education 5,* no.1 (2018): 47-51.

[5] Sabran, & Edy Sabara, Op.Cit.,

[6] Rini Utami, "Analisis Respon Mahasiswa Terhadap Penggunaan Google Classroom Pada Mata Kuliah Psikologi Pembelajaran Matematika", *PRISMA, Prosiding Seminar Nasional Matematika 2*, (2019): 498-502.

[7]Swita Amallia Hapsari, & Heri Pamungkas, "Pemanfaatan Google Classroom Sebagai Media Pembelajaran Online di Universitas Dian Nuswantoro", *WACANA 18*, no.2 (2019): 225-233.

materials, getting a positive response from students because it makes learning easier with flexible time and place, and can train students' independence in accessing materials and assignments. In addition, according to Daniati, Ismanto, and Luhsasi, using Google Classroom can increase student learning motivation.[8] The lecture process that utilizes technology makes students more enthusiastic about attending lectures. This is in line with the results of Nirfayanti & Nurbaeti's research, which shows that Google Classroom learning media significantly affects student learning motivation in the Maros Muslim University Mathematics Education Study Program.[9] Therefore, researchers are also interested in applying this Google Classroom media in lectures. However, unlike previous studies, this research utilizes Google Classroom media to improve students' digital literacy.

Google Classroom is the right media to improve students' digital literacy. This is in line with Sutrisna's opinion, who explains that one of the ways that can be used to improve student literacy through Google Classroom is by asking students to do reviews or look for definitions of concepts to be learned from various online sources and then uploading them to the task menu provided by lecturers in Google Classroom.[10] In addition to getting students used to reading, this method can also train students' ability to analyze and evaluate content available on the internet and improve students' writing skills. Lecturers can also measure students' reading comprehension by asking questions in the discussion forum in the Google Classroom class. However, the explanation written by Sutrisna in his article is still a scientific idea that only focuses on literacy in general, not specifically on digital literacy, and empirical research has yet to be conducted. Therefore, in this study, we tested the utilization of Google Classroom to improve students' digital literacy.

---

[8] Daniati, Bambang Ismanto and Dwi Iga Luhsasi, "Upaya Peningkatan Motivasi dan Hasil Belajar Mahasiswa dengan Penerapan Model Pembelajaran E-Learning Berbasis Google Classroom Pada Masa Pandemi Covid-19", *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran 6,* no.3 (2020): 601-608.

[9] Nirfayanti, & Nurbaeti, "Pengaruh Media Pembelajaran Google Classroom Dalam Pembelajaran Analisis Real Terhadap Motivasi Belajar Mahasiswa", *PROXIMAL: Jurnal Penelitian Matematika dan Pendidikan Matematika 2,* no.1 (2019): 50-59.

[10] Deden Sutrisna, "Meningkatkan Kemampuan Literasi Mahasiswa Menggunakan Google Classroom", *FON: Jurnal Pendidikan Bahasa dan Sastra Indonesia 13,* no. 2 (2018): 69-78.

Digital literacy is each individual's ability, interest, and attitude in using digital technology and communication tools such as smartphones and computers to access, manage, integrate, analyze, and evaluate information to build new knowledge and communicate with others to participate effectively in society.[11] Digital literacy is needed by students currently in the digital era, where all information can be easily found on websites, e-journals, e-books, or blogs with the help of search engines such as Google or Yahoo and spread quickly through social media such as Whatsapp Instagram, or Facebook.[12] Information media connected to the internet is often called digital media.

Digital media certainly helps students find learning resources, establish communication, and build relationships. However, the existence of this media has also changed the communication patterns of students to be more passive in communicating directly and more actively accessing information through digital media.[13] Students more often look for information and answers to every problem via the internet rather than searching or reading directly from books. Because they consider internet searches easier and faster to access. Students ultimately experience high dependence on digital media. Problems will arise when students need help to think critically and creatively in filtering information circulating in various media. That is why the Ministry of Education and Culture states that the development of the digital world can influence the form of challenges and opportunities depending on how a person reacts to it.[14] Anticipating this problem, students must have good digital literacy.[15] Digital literacy that is important for students to have today includes information literacy, media literacy, and Information and Communication Technology (ICT) literacy.[16]

---

[11] D. Bawden, "Information and Digital Literacies", *Journal of Documentation 57*, no.2 (2001): 218-259.

[12] Khairi Murdy, & Asri Neli Putri, "Kompetensi Literasi Digital Mahasiswa STKIP 'Aisyiyah Riau, *JIPE: Jurnal Inovasi Pendidikan Ekonomi 10,* no.1 (2020): 71-77.

[13] Juliana Kurniawati, & Siti Baroroh, "Literasi Media Digital Mahasiswa Universitas Muhammadiyah Bengkulu", *Jurnal Komunikator 8*, no.2 (2016): 51-66

[14] Kemdikbud. (2017). Retrieved Februari 19, 2020, from kemdikbud.go.id: https://gln.kemdikbud.go.id/glnsite/wp-content/uploads/2017/08/panduan-gln.pdf%5C

[15] A. Martin, "A European Framework For Digital Literacy", *Nordic Journal of Digital Literacy* 2, no.1 (2006): 151-161

[16] Atep Sujana, & Dewi Rachmatin, "Literasi Digital Abad 21 Bagi Mahasiswa PGSD: Apa, Mengapa dan Bagaimana", *Current Research in Education: Conference Series Journal 1,* no.1(2019): 1-7.

The digital literacy of students in Indonesia itself varies greatly. Based on research conducted by Murdy & Putri[17], Yanti[18], Nurrizqi & Rodin[19] shows that students' digital literacy is high. At the same time, the results of Amelia & Ulumu's research show that 62.98% are at a medium level.[20] This shows that the majority of students in Indonesia have good digital literacy in operating media, producing and evaluating content, and participating socially. However, in contrast to previous research, Kurniawati & Baroroh's results show that most Muhammadiyah Bengkulu University students' digital literacy is at a basic level, largely influenced by environmental factors.[21] The difference in environmental factors results in each university needing to analyze the digital literacy of its students and then develop methods to improve it. Therefore, this research is also important to be carried out in the Bachelor of Mathematics Education Study Program at UIN Sunan Ampel Surabaya, considering that there has never been a previous study aimed at uncovering this problem.

This research will reveal the digital literacy of Bachelor of Mathematics Education Study Program students who take microteaching / Introduction to School Field 1 course using Google Classroom media. In this course, students develop learning tools and then use them in guided and integrated teaching practice in front of peers (peer teaching). In this new normal era, prospective teacher students are required to be able to develop online learning tools. To produce good online learning tools, students must have digital literacy criteria: personal and social competence. Personal competence is the ability to use media and analyze content by the level of education and the material to be taught. Meanwhile, social competence is the ability to communicate and participate through media and create media content.[22]

Based on this background, this study aims to describe students' digital literacy after attending lectures using Google Classroom media and determine whether there is an increase in student digital literacy. This research was conducted as an initial step in mapping the digital literacy of PLP 1 students in the Bachelor of Mathematics Education of UIN Sunan Ampel Surabaya and is expected to contribute alternative lecture steps using

---

[17] Khairi Murdy, & Asri Neli Putri, Op.Cit.,

[18] Mery Yanti, "Determinan Literasi Digital Mahasiswa: Kasus Universitas Sriwijaya. *Buletin Pos dan Komunikasi 14*, no,2 (2016): 79-94

[19] Ade Dwi Nurrizqi, & Rhoni Rodin, "Tingkat Literasi Digital Mahasiswa Jurusan Ilmu Perpustakaan Dalam Pemanfaatan E-Resources UIN Raden Fatah Palembang", *Pustakaloka: Jurnal Kajian Informasi dan Perpustakaan 12*, no.1 (2020): 72-89.

[20] Delora Jantung Amelia, & Bahrul Ulumu, "Literasi Digital di Kalangan Mahasiswa PGSD Universitas Muhammadiyah Malang", *Edumaspul: Jurnal Pendidikan 3*, no.2 (2019):106-111

[21] Juliana Kurniawati, & Siti Baroroh, Op.Cit.,

[22] Juliana Kurniawati, & Siti Baroroh, Ibid.

Google Classroom to improve the digital literacy of these prospective teacher students because teachers who have good digital literacy will lead their students to be able to apply the media wisely.

Method

This is pseudo-experimental research with a quantitative approach conducted in the Mathematics Education Study Program, Faculty of Tarbiyah and Keguruan UIN Sunan Ampel Surabaya. The study population was all 6th-semester students in the 2021/2022 academic year taking PLP 1 course, totaling 62 people. The research sample was 30 students from classes B, C, and F. The selection of sample classes used random sampling techniques.

This study used a one-group pretest-posttest design. The research began by taking initial data on student digital literacy: technical skills, critical understanding, and communicative abilities. Furthermore, the lecture treatment was given five times face-to-face in each class using Google Classroom, which was designed to improve students' digital literacy by providing appropriate materials and assignments. Assignments include making virtual classes, making technology-based learning media, practicing online learning, etc. The study ended with the final data collection of students' digital literacy after being treated.

The data collection method uses the performance test method to obtain data on student digital literacy. The lattice of the performance test refers to the digital literacy indicators shown in Table 1 below.

Table 1 Indicators of Student Digital Literacy

No	Aspect	Indicators of Digital Literacy
1	*Technical Skill*	a. Understanding and mastery of features in smartphones/gadgets/laptops/computers b. Understanding and skills in accessing certain sites, downloads, and uploads c. Skills in installing software d. Digital media application skills
2	*Critical Understanding*	a. Identification and selection of credible sources of information b. Knowledge of government regulations related to digital media
3	*Communicative Abilities*	a. Status updates on social media b. Ability to create learning content c. Ability to communicate through digital media

Data analysis of students' digital literacy using digital technology and communication tools is categorized with the following provisions [23]

Table 2. Digital Literacy Categories

Score	Category
$X \leq \bar{x} - SD$	*Basic*
$\bar{x} - SD < X < \bar{x} + SD$	*Medium*
$X \geq \bar{x} + SD$	*Advance*

With
X : Student digital literacy score
$\bar{x}$: Average student digital literacy score
SD : Standard Deviation

Data analysis on improving students' digital literacy using digital technology and communication tools uses the Wilcoxon Signed-Rank Test statistics because the data normality test shows that the data is not normally distributed. The data analysis process uses the help of SPSS Release 17 software with a confidence level of 95%. The research hypothesis proposed is that there is a significant difference between students' digital literacy scores for the pre-test and post-test, which means that there is an increase in students' digital literacy between before and after the Google Classroom-based microteaching lecture. The testing criteria of Asymp.Sig. < 0.05, then the hypothesis is accepted,d and if Asymp.Sig. > 0.05, then the hypothesis is rejected.

Result & Discussion

Data on digital literacy of microteaching students using digital technology and communication tools are obtained from practical performance tests on using electronic devices, learning media, and social media. Electronic devices used are laptops/computers and cell phones/smartphones. At the same time, the learning media and social media practiced include the application of the Google search engine, YouTube, Google Classroom/Edmodo, Zoom/Google Meet, WhatsApp, Instagram, Facebook, and other applications that can be used to assist the learning process. The performance test was conducted twice, namely before and after microteaching lectures using Google Classroom. Digital literacy data of microteaching students using digital technology and communication tools before and after attending Google Classroom-based lectures can be seen in Figure 1 below.

---

[23] Suharsimi Arikunto, *Dasar-Dasar Evaluasi Pendidikan (Edisi Revisi)* (Jakarta: PT. Bumi Aksara, 2009)
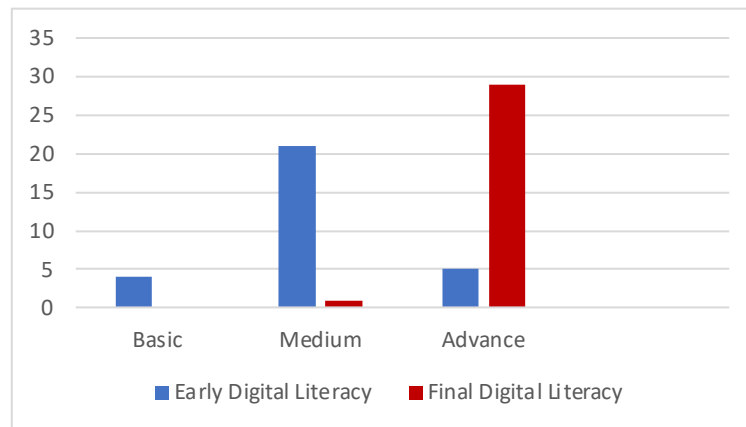
Figure 1: Digital Literacy of Microteaching Students

Figure 1 shows that most students' digital literacy is in the advanced category after attending microteaching lectures using Google Classroom. This shows an increase because most students were only in the medium category before attending the lecture. This result is reinforced by the conclusion of the Wilcoxon Signed Ranks Test, as shown in Table 3.

Table 3. Wilcoxon Signed Ranks Test Data Analysis of Student Digital Literacy

	Final Digital Literacy – Early Digital Literacy
Z	-4.785[a]
Asymp. Sig. (2-tailed)	<.001

a. Based on negative ranks.

Based on Table 3, the Asymp.Sig (2-tailed) value is 0.001 <0.05, which means the hypothesis is accepted. Therefore, there is an increase in students' digital literacy using digital technology and communication tools after attending microteaching lectures using Google Classroom.

Students' abilities in each digital literacy component, including technical skills, critical understanding, and communicative abilities, can be seen in Table 4.

Table 4. Student's Ability Based on Digital Literacy Component

No	Component	Ability Indicator	Early Score	Finale Score
1	Technical skill	Download videos from YouTube/website/social media	80	83,33
		Upload video to YouTube/website/social media accounts	77,5	97,5
		Download articles from the internet	80,83	90
		Create a virtual classroom (Google Classroom, Edmodo, etc.)	66,67	100
		Invite learners to the virtual classroom that has been created	68,33	100
		Prepare teaching materials/assignments in the virtual classroom that have been made	46,67	99,17
		Set up and conduct virtual learning through Zoom/Gmeet	85	99,17
		Creating virtual forms (Google Forms, Zoho, etc)	53,33	65,83
		Make a learning video	81,67	98,33
		Editing learning videos	80	97,5
		Using learning media such as Quizizz/Kahoot/Wordwall etc.	47,5	95
		Installing Maple/Matlab/Geogebra software etc.	49,17	94,17
	Average		68,05	93,33
2	Critical understanding	Using trusted sites	68,33	86,67
	Average		68,33	86,67
3	Communicative abilities	Create a class group via WhatsApp Group (WAG)	99,17	100
		Make a video call via WA	98,33	100
		Updating status on social media	95,83	97,5
	Average		97,78	99,17
	Total average		78,05	93,06

Table 4 shows that before attending microteaching lectures using Google Classroom, the average score obtained by students on the technical skill component was 68.05, and the critical understanding component was 68.33, which means both are included in the medium category. However, the communicative abilities component received an average score of 97.78, included in the advanced category. After using Google Classroom, all components are included in the advanced category, with the average technical skill component being 93.33, the critical understanding component being 86.67, and the communicative abilities component being 99.17.

A significant increase can be seen in the technical skill component, especially in activities related to managing digital platforms in learning, such as creating and managing virtual classes in Google Classroom, using learning media such as Quizizz/Kahoot/Wordwall and installing Maple/Matlab/Geogebra software, etc. This is because Google Classroom, managed by lecturers, has provided teaching materials intended for students in videos and guides on applying various digital platforms. Figure 2 below will show the display of teaching materials presented in Google Classroom.

Figure 2. Display of teaching materials

In this study, prospective teachers were trained to develop a virtual classroom using the Google Classroom platform that is interactive and innovative. Students develop their menus in Google Classroom, including attendance lists, teaching materials or modules, power points, learning videos, discussion activities, and assignments. Most teaching modules have been arranged as interesting as possible using the Canva application, so students will be interested in learning it. Meanwhile, most learning video development uses screen recording techniques with editing processes using various applications such as CapCut, KineMaster, InShot, etc. Based on the performance test results, students are already at an advanced level in video

editing. They are accustomed to using these applications because they are very easy to use through Android owned by students. The learning media produced by students have also been shared through each student's YouTube account to be utilized in a wider scope.

Based on research conducted by Mardhiyah[24] regarding giving assignments, students also use various interactive and interesting applications to feel energized during the learning evaluation process. The applications used include Quizizz and Wordwall.[25] At the end of the lecture, students are at an advanced level in mastering applications that support the learning process. This certainly gives a positive signal that Bachelor of Mathematics Education Study Program students have the awareness to always develop their abilities and creativity in planning and implementing synchronous and asynchronous learning that is innovative and responsive to all situations, especially in education.

Although the majority of student's abilities in the technical skills component are already in the advanced category, there is still the ability to create forms for assignments, learning outcomes evaluation tests, or questionnaires using Google Form / Zoho or similar applications that must be improved because they are still at the basic level. This is because most students need to remember how to use it. Students use Quizizz as a medium for evaluations because it feels more attractive and applicable.

Students' ability in the critical understanding component also experienced a considerable increase. After attending lectures using Google Classroom, students have a very good ability to select and download material from reliable sources as material for their learning materials, with an average score of 86.67, which is included in the advanced category. This is a very important ability for students to master, considering the amount of invalid information circulating in cyberspace. The ability to select and find trusted sources is an antidote to the spread of unsubstantiated hoax information. This result aligns with Amelia and Ulumu's research, which explains that 88% of students always try to find accurate sources and data before making judgments and conclusions according to their beliefs and points of view. In addition, 60% of students always try to read in detail the information obtained from digital media, not only the title but also the content conveyed, to get complete information. Amelia and Ulumu generally categorized students' ability to analyze and evaluate media content or critical

---

[24] Mardhiyah, A "Pemanfaatan Media Pembelajaran Wordwall Sebagai Evaluasi Pembelajaran Pada Mahasiswa Pendidikan Agama Islam", *Muta'allim: Jurnal Pendidikan Agama Islam*, (2023), *1*(4), 481-488.

[25] Mardhiyah, A "Pemanfaatan Media Pembelajaran Wordwall Sebagai Evaluasi Pembelajaran Pada Mahasiswa Pendidikan Agama Islam", *Muta'allim: Jurnal Pendidikan Agama Islam*, (2023), *1*(4), 481-488.

understanding in the medium category.[26] The same condition also occurs in Nurrizqi and Rodin's research, which states that students have a high level of digital literacy in utilizing e-resources to get information to complete lecture assignments well.[27] Students have mastered the competencies of internet searching, hypertext direction, information content evaluation, and knowledge assembly. This is corroborated by research conducted by Murdy and Putri, which shows that for the components of internet searching, evaluating information content, and knowledge assembly, students' abilities are included in the high category.[28]

However, this result differs from the results of research from Kurniawati and Baroroh, which show that student's ability in the use skill component is in the medium category. Most students can operate the media and access and utilize the internet but need a better ability to identify credible sites. According to them, students' critical understanding ability is in the basic category.[29] Students need to improve their ability to evaluate content. This is partly due to environmental factors.

The environment does have a big influence on students' mastery of digital literacy. This condition can be seen in the communicative abilities of students included in the advanced category from before the treatment is given. This is because every day, students use social media and communication such as WhatsApp, Instagram, Facebook, and Twitter to communicate with others. So they already know its features and are used to applying it.

In this study, it is proven that students can practice microteaching, including developing learning tools using Google Classroom very well. This is in line with the results of research from Nafiah and Hartatik, which show that online-based learning using the Google Classroom application can improve students' ability to make learning tools in the form of Prota, Prosem, syllabus, and lesson plans.[30] As prospective teachers, Mathematics Education students need to improve their competence in mastering digital technology and communication tools because they must be able to develop learning tools that help students master 21st-century skills. Teachers must have and instill six important skills in students to achieve success in school and their future careers: creativity and innovation, communication and collaboration, research and information fluency, critical thinking in making decisions to

---

[26] Delora Jantung Amelia, & Bahrul Ulumu, Op.Cit.,

[27] Ade Dwi Nurrizqi, & Rhoni Rodin, Op.Cit.,

[28] Khairi Murdy, & Asri Neli Putri, Op.Cit.,

[29] Juliana Kurniawati, & Siti Baroroh, Op.Cit.,

[30] Nafiah, & Sri Hartatik, S, "Penerapan Manajemen Pembelajaran Berbasis Daring Dengan Menggunakan Aplikasi Google Classroom Untuk Meningkatkan Kemampuan Mahasiswa Dalam Membuat Perangkat Pembelajaran", *EHDJ: Education and Human Development Journal*, (2020): 9-23

solve problems, and digital citizenship.[31] Using digital technology and communication tools in learning will help students master aspects of research and information fluency, as well as digital citizenship.

The excellent implementation of microteaching lectures using Google Classroom also proves that this platform is easy to use by lecturers and educators in general. This condition is to the opinion of Shaharanee et al., who said that Google Classroom is very helpful in implementing the teaching and learning process because of its ease of use and can activate students.[32] This is in line with the results of research from Hapsari and Pamungkas, which explain that Google Classroom is one of the platforms that is easy to use by smartphone and laptop users.[33] Students and lecturers also get free access to the features in Google Classroom. Users can use features such as assignments, communication, grading, mobile applications, archive courses, etc.[34] In addition, they can also create questions, make announcements, and provide multimedia services (video streaming) that can help explore the material presented.

Google Classroom is designed as a medium that can interact directly so that learners understand the material more easily. It is an easily accessible and innovative media platform that is one of the best online platforms for teaching and learning. The ease of access to Google Classroom is also one of the advantages revealed by Sukmawati & Nensia in their research. Students are free to access the material anytime and anywhere.[35] Of course, these conveniences will help students follow the lecture process and encourage them to learn more about digital literacy.

Implementing learning with Google Classroom is effective in planning, preparing, and delivering materials, interaction in learning, and learning evaluation.[36] Therefore, lectures using Google Classroom must be carried out consistently and continuously so that students have better awareness and attitudes in the digitalization era.

---

[31] Sharon E. Smaldino, Deborah L. Lowther, Clif Mims, & James D. Russell, *Instructional Technology and Media For Learning* (USA: Pearson, 2015).

[32] Izwan Nizal Mohd Shaharanee, & Sarah Syamimi Mohamad Rodzi Jastini Mohd Jamil, "Google Classroom as A Tool for Active Learning", *Proceedings of The International Conference On Applied Science And technology 2016 (ICAST'16),* (2016)*.* AIP Publishing

[33] Swita Amallia Hapsari, & Heri Pamungkas, Op.Cit.,

[34] Fransiskus Ivan Gunawan, & Stevani Geima Sunarman, "Pengembangan Kelas Virtual Dengan Google Classroom dalam Keterampilan Pemecahan Masalah (Problem Solving) Topik Vektor Pada Siswa SMK Untuk Mendukung Pembelajaran", *Prosiding Seminar Nasional Etnomatnesia* (2018): 340-348

[35] Sukmawati, & Nensia, "The Role of Google Classroom in ELT", *IJEVS: International Journal for Educational And Vocational Studies 1,* No.2 (2019): 142-145

[36] Sabran, & Edy Sabara, Op.Cit.,

Conclusion

The results of data analysis also show that the Asymp.The Sig (2-tailed) value is 0.001 <0.05, which means there is an increase in students' digital literacy in using digital technology and communication tools after attending microteaching lectures using Google Classroom.

The results of this study show that students' digital literacy after attending online lectures using Google Classroom in microteaching courses (Introduction to School Field 1) is included in the advanced category. This means that students have skills in using media, know their functions, and can carry out certain complex operations extensively. Students also can obtain, process, and evaluate the information obtained. In the social environment, students can activate their groups in problem-solving.

Bibliography

Amelia, Delora Jantung, and Bahrul Ulumu. "Literasi Digital di Kalangan Mahasiswa PGSD Universitas Muhammadiyah Malang." *Edumaspul: Jurnal Pendidikan* 3, no. 2 (2019): 106-111.

Arikunto, Suharsimi. *Dasar-Dasar Evaluasi Pendidikan (Edisi Revisi).* Jakarta: PT. Bumi Aksara, 2009.

Bawden, D. "Information and Digital Literacies." *Journal of Documentation* 57, no.2 (2001): 218-259.

Daniati, Bambang Ismanto, and Dwi Iga Luhsasi. "Upaya Peningkatan Motivasi dan Hasil Belajar Mahasiswa dengan Penerapan Model Pembelajaran E-Learning Berbasis *Google Classroom* Pada Masa Pandemi Covid-19." *Jurnal Kependidikan: Jurnal Hasil Penelitian dan Kajian Kepustakaan di Bidang Pendidikan, Pengajaran dan Pembelajaran* 6, no.3 (2020): 601-608.

Ghofur, Abd. "Using *Google Classroom* on Inquiry-Based Learning To Improve Students' Learning Participation." *Jurnal Penelitian Pendidikan* 10, no. 2 (2018): 1503-1509.

Gunawan, Fransiskus Ivan, and Stefani Geima Sunarman. "Pengembangan Kelas Virtual Dengan *Google Classroom* dalam Keterampilan Pemecahan Masalah (Problem Solving) Topik Vektor Pada Siswa SMK Untuk Mendukung Pembelajaran." *Prosiding Seminar Nasional Etnomatnesia,* (2018):340-348.

Hapsari, Swita Amallia, and Heri Pamungkas. "Pemanfaatan *Google Classroom* Sebagai Media Pembelajaran Online di Universitas Dian Nuswantoro." *WACANA* 18, no.2 (2019): 225-233.

Kemdikbud. 2017. Accessed February 19, 2020. https://gln.kemdikbud.go.id/glnsite/wp-content/uploads/2017/08/panduan-gln.pdf%5C.

Kurniawati, Juliana, and Siti Baroroh. "Literasi Media Digital Mahasiswa Universitas Muhammadiyah Bengkulu." *Jurnal Komunikator* 8, no.2 (2016): 51-66.

Mardhiyah, A "Pemanfaatan Media Pembelajaran Wordwall Sebagai Evaluasi Pembelajaran Pada Mahasiswa Pendidikan Agama Islam", *Muta'allim: Jurnal Pendidikan Agama Islam*, (2023), *1*(4), 481-488.

Martin, A. "A European Framework For Digital Literacy." *Nordic Journal of Digital Literacy* 2, no.1(2006): 151-161.

Murdy, Khairi, and Asri Neli Putri. 2020. "Kompetensi Literasi Digital Mahasiswa STKIP 'Aisyiyah Riau." *JIPE: Jurnal Inovasi Pendidikan Ekonomi* 10, no.1 (2020): 71-77.

Nafiah, and Sri Hartatik. "Penerapan Manajemen Pembelajaran Berbasis Daring Dengan Menggunakan Aplikasi *Google Classroom* Untuk Meningkatkan Kemampuan Mahasiswa Dalam Membuat Perangkat Pembelajaran." *EHDJ: Education and Human Development Journal*, (2020):9-23.

Nirfayanti, and Nurbaeti. "Pengaruh Media Pembelajaran *Google Classroom* Dalam Pembelajaran Analisis Real Terhadap Motivasi Belajar Mahasiswa." *PROXIMAL: Jurnal penelitian Matematika dan Pendidikan Matematika* 2, no.1(2019): 50-59.

Northey, Gavin, Tania Bucic, Mathew Chylinski, and Rahul Govind. "Increasing Student Engagement Using Asynchronous Learning." *Journal of Marketing Education* 37, no.3 (2015): 1-10.

Nurrizqi, Ade Dwi, and Rhoni Rodin. "Tingkat Literasi Digital Mahasiswa Jurusan Ilmu Perpustakaan Dalam Pemanfaatan E-Resources UIN Raden Fatah Palembang." *Pustakaloka: Jurnal Kajian Informasi dan Perpustakaan* 12, no.1(2020): 72-89.

Sabran, and Edy Sabara. "Keefektifan *Google Classroom* Sebagai Media Pembelajaran." *Seminar Nasional Lembaga Penelitian Universitas Negeri Makassar.* (2019)Makassar :122-125.

Shaharanee, Izwan Nizal Mohd, and Sarah Syamimi Mohamad Rodzi Jastini Mohd Jamil. "*Google Classroom* as A Tool for Active Learning." *Proceedings of The International Conference On Applied Science And Technology 2016 (ICAST'16),* (2016)*.* AIP Publishing.

Smaldino, Sharon E., Deborah L. Lowther, Clif Mims, and James D. Russell. *Instructional Technology and Media For Learning.* USA: Pearson, 2015.

Sujana, Atep, and Dewi Rachmatin. "Literasi Digital Abad 21 Bagi Mahasiswa PGSD: Apa, Mengapa dan Bagaimana." *Current Research in Education: Conference Series Journal* 1, no.1(2019): 1-7.

Sukmawati, and Nensia. "The Role of *Google Classroom* in ELT." *IJEVS: International Journal for Educational And Vocational Studies* 1, no. 2 (2019): 142-145.

Sutrisna, Deden. "Meningkatkan Kemampuan Literasi Mahasiswa Menggunakan *Google Classroom*." *FON: Jurnal Pendidikan Bahasa dan Sastra Indonesia* 13, no.2 (2018): 69-78.

Utami, Rini. "Analisis Respon Mahasiswa Terhadap Penggunaan *Google Classroom* Pada Mata Kuliah Psikologi Pembelajaran Matematika." *PRISMA, Prosiding Seminar Nasional Matematika 2*, (2019): 498-502.

Ventayen, Rady Joy Magno. "Usability Evaluation of *Google Classroom*: Basis for the Adaptation of GSuite E-Learning Platform." *Asia Pasific Journal of Education* 5, no. 1(2018): 47-51.

Yanti, Mery. "Determinan Literasi Digital Mahasiswa: Kasus Universitas Sriwijaya." *Buletin Pos dan Komunikasi* 14, no.2 (2016): 79-94.