



Learning Discipline and Learning Media Use on Numerical Literacy Skills

Ika Erisa Devi^(✉) and Utama

Faculty of Teacher Training and Education, Universitas Muhammadiyah
Surakarta, Surakarta, Indonesia
a510190059@student.ums.ac.id

Abstract. Today, all aspects of life require numerical abilities to make the right decisions. Therefore, numerical literacy must be taught to children from the elementary level. Learning numerical literacy needs to be improved from the basic education level, especially in the early grades. Therefore, an effort to improve students' numerical literacy skills is needed. This study aims to examine the effect of learning discipline and learning media on students' numerical literacy skills in basic arithmetic operations. This type of research is quantitative and conducted on 200 fourth graders from seven elementary schools in Gugus Kartika. Questionnaires and tests of numerical literacy skills were used to collect the data. Data were analyzed quantitatively through prerequisite tests (normality and homogeneity tests) and hypothesis tests (Two-way ANOVA test). Based on the results, learning discipline does not affect students' numerical literacy skills, while learning media effectively affects students' numerical literacy skills. There is no interaction between learning discipline and learning media. The results of this study are hoped to benefit educational practitioners in improving students' numerical literacy skills in basic arithmetic operations using learning media.

Keywords: learning discipline · numerical literacy · learning media

1 Introduction

Today, all aspects of life require numerical abilities within the family and the broader community. We must understand numerical literacy to make the right decisions [1, 2]. Numerical literacy is thinking mathematically to solve everyday problems [3]. Numerical literacy can also be interpreted as knowledge and skills in using various numbers and symbols related to basic mathematics to solve practical problems in everyday life, analyze information in various forms, and interpret analysis results to predict and make decisions [4]. In addition, numerical literacy is also a major prerequisite in acquiring knowledge and skills that can be used as lifelong learning [5]. Numerical literacy is also a prerequisite for 21st-century skills through integrated education from family, school, and society [6–8]. Therefore, everyday life is inseparable from mathematics, even in simple activities such as shopping. It aligns with [9]; specifically, numerical literacy can be said to be the thinking ability that every individual has to solve contextual problems in everyday life by using mathematical tools, procedures, facts, and concepts.

Not everyone can achieve a relatively good level of numerical literacy [10–12], so numerical literacy is critical to be taught to children from the elementary level. This statement is supported by [13] that numerical literacy will benefit life in the future, so learning numerical literacy needs to be improved from the basic education level, especially in the early grades [13]. Numerical literacy skills require knowledge of mathematics, but mathematics may not necessarily develop numerical literacy skills if not prepared beforehand [14]. Learning support tools are needed to improve students' numerical literacy skills. One effort that can be made is to use the help of learning media. In the current digital literacy era, using learning media is one of the efforts to increase numerical literacy [15]. It aligns with the opinion that appropriate learning media can provide solutions to improving numerical literacy skills [16].

The use of learning media to improve students' numerical literacy skills can be done using modern (software) or conventional (teaching aids) learning media [17]. Learning media can be used to convey learning messages [18]. The use of modern learning media is supported by electronic devices and internet networks, such as audio, audio-visual, and visual media, while conventional learning media does not need to be supported by electronic devices or internet networks [19]. In this study, researchers used Quiziz as the modern learning media and Jarimatika as the conventional learning media. Learning media is inseparable in teaching and learning to achieve learning objectives [20]. Especially in the 21st century, where everything is digital, modern media is an option for teachers to aid them in teaching and learning [21]. Just like the research by [22] related to Augmented Reality (AR) learning media using paint 3D software, [23] also developed TRACK-based learning tools and media, and [24] researched learning media with GeoGebra. Previous research shows that learning media can be developed from software [24]. Therefore, increasing numerical literacy skills can be assisted by learning media. In addition, numerical literacy skills are also related to students' learning discipline.

Learning discipline is an attitude of not procrastinating in doing school assignments so that no lesson is neglected [25, 26]. Discipline can arise by itself in oneself, but it can also be trained early or from basic education. Students are accustomed to being disciplined, so it indirectly instills the character of discipline in them. It aligns with [27] that one's discipline value will be created from the habit of discipline since childhood. Learning discipline is one of the internal factors that students must possess to complete tasks and obligations [28]. Therefore, students' learning discipline tends to be consistent in learning mathematics, so it relates to numerical literacy skills.

Based on the explanation, the researcher wants to examine whether discipline and learning media affect students' numerical literacy skills. Previous studies were carried out by [29], which showed that digital and conventional learning media significantly affected the learning outcomes of third-grade students at SDN Babat Jerawat 1 Surabaya in the mathematics subject of mixed arithmetic operations. According to [30], Modern media (YouTube) affects numerical literacy skills. It aligns with [15], who state that using videos as learning media can increase the effectiveness of students' numerical literacy skills. In previous studies, researchers have not found the effect of discipline on numerical literacy skills. Therefore, researchers are increasingly confident about researching to examine the effect of disciplined learning and media use on students' numerical literacy skills.

2 Method

This type of research was a quantitative approach. The quantitative approach is data collection in the form of quantitative data or other data types that can be quantified and processed using statistical techniques [31]. This research was conducted at SDN Gugus Kartika for four months, from September 4, 2022, to December 18, 2022. The research was conducted on fourth graders from seven elementary schools in Gugus Kartika. The sample used was 200 respondents taken by simple random sampling technique. Simple random sampling takes samples from all populations without considering strata or levels because all populations have homogeneous variances [32]. Questionnaires and tests of numerical literacy skills were used to collect the data. Data analysis used SPSS assistance [33]. Data were analyzed quantitatively through prerequisite tests and hypothesis tests. The prerequisite test tests whether the data is normally distributed using the normality test, and the homogeneity test tests whether the data has a homogeneous variance [34]. After the prerequisite test had been carried out and proven that the data met the requirements, the hypothesis test was carried out using the Two-Way ANOVA Test. A hypothesis test was carried out to answer the hypotheses in this study:

H1: There is an effect of learning discipline on students' numerical literacy skills.

H2: There is an effect of media use on students' numerical literacy skills.

H3: There is an interaction between the discipline of learning and media use.

3 Results and Discussion

Based on the results of the questionnaire and the numerical literacy test given to all samples (200 respondents), it is found that there are different levels of students' learning discipline, from very good, good, average, and poor. The number of respondents from each level is shown in Table 1.

From Table 1, 18 students or 9% of all respondents, have a "Very Good" learning discipline. Students with "Good" learning discipline are 115 or 57% of all respondents, and students with "Average" learning discipline are 61 or 31%. Students with "Poor" learning discipline are six students or only 3% of all respondents. Figure 1 presents the data in a chart.

Apart from being given a questionnaire regarding discipline, the researcher also gave a questionnaire regarding modern learning media (Quizizz) and conventional learning media (Jarimatika), presented in Table 2.

Table 1. Level of Students' Learning Discipline

Level	Number of Respondents	Percentage
Very Good	18	9%
Good	115	57%
Average	61	31%
Poor	6	3%

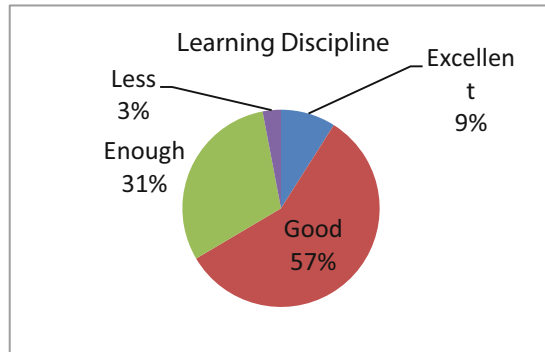


Fig. 1. The Gap in Students' Learning Discipline

Table 2. Learning Outcomes

Learning Media	Number of Respondents	Percentage (%)
Quizizz	104	52%
Jarimatika	96	48%

From Table 2, 104 students, or 52% of all respondents, chose modern learning media (Quizizz), and 96 students, or 48% of all respondents, chose conventional learning media (Jarimatika). Figure 2 presents the data in a chart.

In addition to being given disciplinary questionnaires and learning media, students were also given a numerical literacy ability test. After collecting all the data, prerequisite and hypothesis tests are carried out. The first thing to do is to test normality using Shapiro-Wilk and homogeneity using Levene as a prerequisite test, as presented in Table 3.

Based on Table 3, the Sig. value is 0.065, which is greater than 0.05. Therefore, it can be stated that all data used is normally distributed [35]. After the Shapiro-Wilk normality test, it is continued with the Levene homogeneity test presented in Table 4.

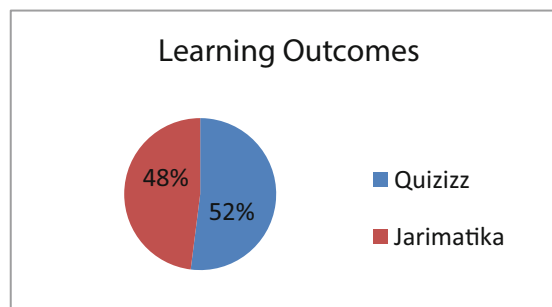


Fig. 2. Learning Outcomes

Table 3. Shapiro-Wilk Normality Test Results

	Shapiro-Wilk			Criteria
	Statistic	df	Sig.	
Standardized Residual for Value_KLN	0.987	200	0.065	Normal

Table 4. Levene Homogeneity Test Results

F	df1	df2	Sig.	Criteria
1.466	7	192	0.181	Homogeneous

From Table 4, the value of Sig. is 0.181, so it is more than 0.05. Therefore, it can be stated that the data used has a homogeneous variance [36]. That way, all the data used meets the prerequisite tests for normality and homogeneity and can proceed to the hypothesis test with the Two Way ANOVA Test. The test results are presented in Table 5.

Table 5 shows that if the Sig. value is more than 0.05 (Sig. > 0.05), then H0 is accepted, and there is no significant effect. However, if the Sig. value is less than 0.05 (Sig. < 0.05), then H0 is rejected, and there is a significant effect.

This study examines the effect of learning discipline and media on students’ numerical literacy skills. The effect is seen from the hypothesis test results of the effect of learning discipline and modern and conventional learning media on students’ numerical literacy skills in multiplication and the interaction between learning discipline and learning media. This section will explain the hypothesis of this study.

Table 5. Two-Way ANOVA Test Results

Source	Type III Sum of Square	Df	Mean Square	F	Sig.	Conclusion	Information
Corrected Model	282.144	7	40.306	2.827	0.008	H ₀ Rejected	Significant
Intercept	423217.327	1	423217.327	29681.981	0.000	H ₀ Rejected	Significant
Level of_Discipline	20.003	3	6.668	0.468	0.705	H ₀ Accepted	Insignificant
Media_Learning	67.040	1	67.040	4.702	0.031	H ₀ Rejected	Significant
Level of_Discipline * Media_Learning	10.879	3	3.626	0.254	0.858	H ₀ Accepted	Insignificant
Error	2737.611	192	14.258				
Total	1387967.000	200					
Corrected Total	3019.755	199					

Hypothesis 1 (H1) looks at the effect of learning discipline on students' numerical literacy skills in mathematical arithmetic operations. Based on Table 5, the Sig. value of learning discipline level is 0.705 or greater than 0.05 (>0.05). Therefore, the null hypothesis is accepted, and H1 is rejected, so there is no significant effect. Therefore, it can be concluded that learning discipline does not effectively affect students' numerical literacy skills in basic arithmetic operations.

Hypothesis 2 (H2) looks at the effect of learning media on students' numerical literacy skills in mathematical arithmetic operations. Based on Table 5, the Sig. value of learning discipline level is 0.031 or less than 0.05 (<0.05). Therefore, the null hypothesis is rejected, and H1 is accepted, so there is a significant effect. Therefore, it can be concluded that learning media effectively affect students' numerical literacy skills in basic arithmetic operations.

Hipotesis 3 (H3) menguji apakah terdapat interaksi antara kedisiplinan belajar dengan media pembelajaran terhadap kemampuan literasi numerasi siswa. Based on Table 5, the Sig. value of learning discipline level is 0.858 or greater than 0.05 (>0.05). Therefore, the null hypothesis is accepted, and H1 is rejected, so there is no significant effect. Therefore, it can be concluded that there is no interaction between learning discipline and media in affecting students' numerical literacy skills in basic arithmetic operations.

After testing the three hypotheses, it was found that learning media affected students' numerical literacy abilities, but learning discipline did not. Therefore, the authors recommend increasing students' literacy skills by developing modern learning media (Quizizz) and conventional learning media (Jarimatika). Providing variations in learning media will create learning that is not monotonous. It is expected to improve students' numerical literacy skills, especially in basic arithmetic operations.

The researchers are increasingly convinced that learning media can significantly affect students' numerical literacy skills because it is supported by previous studies that state that Quizizz learning media is very effective for learning in lower and higher grades, especially in students' mathematical literacy learning [37]. It aligns with [38] that Quizizz learning media can improve numerical literacy skills. Besides improving numerical literacy skills, Quizizz also improves students' focus, cognitive abilities, and creative thinking [39, 40]. In addition, [41] found that using video animation learning media properly supported students' numerical literacy skills. That way, the researchers contribute to improving numerical literacy skills using modern and conventional learning media.

Learning media can be further developed to be more effective in improving students' numerical literacy skills. This research only involved subjects in elementary schools. Future research can be carried out on different subjects, such as junior high schools, high schools, to universities, so that the scope of the impact of instructional media in influencing numerical literacy skills is broader. The results of this study are hoped to benefit educational practitioners in improving students' numerical literacy skills using learning media. The results of this study can also assist teachers in developing learning media so that they are even more varied.

4 Conclusion

This study aims to examine the effect of learning discipline and learning media on students' numerical literacy skills in basic arithmetic operations. Based on the Two-Way ANOVA test, learning discipline does not affect students' numerical literacy skills, while learning media effectively affects students' numerical literacy skills. There is no interaction between learning discipline and learning media. The results of this study are hoped to benefit educational practitioners in improving students' numerical literacy skills in basic arithmetic operations using learning media.

Acknowledgement. The authors would like to thank Universitas Muhammadiyah Surakarta for funding the publication and all parties from SDN Gugus Kartika who assisted in the research.

Author's Contribution. All authors contributed well in writing this article. Author 1 contributed to collecting data and writing a draft, and author 2 contributed to reviewing the manuscript.

References

1. M. R. Mahmud and I. M. Pratiwi, "Literasi Numerasi Siswa dalam Pemecahan Masalah Tidak Terstruktur", *KALAMATIKA J. Pendidik. Mat.*, vol. 4, no. 1, pp. 69–88, 2019.
2. D. Z. Rahmayanti and Sutama, "Pembudayaan Literasi Numerasi dalam Kegiatan Inti Pembelajaran Matematika di Sekolah Menengah Pertama", *JRPMS (Jurnal Ris. Pembelajaran Mat. Sekolah)*, vol. 6, no. 2, pp. 19–24, 2022.
3. A. Mumpuni *et al.*, "Pemanfaatan Barang Bekas sebagai Media Pembelajaran untuk Meningkatkan Literasi Numerasi Peserta Didik di Sekolah Dasar", *JAMU J. Abdi Masy. UMUS*, vol. 3, no. 01, pp. 8–14, 2022.
4. Kemendikbud, "Gerakan Literasi Nasional", 2017.
5. C. M. Lechner, B. Gauly, A. Miyamoto, and A. Wicht, "Stability and Change in Adult's Literacy and Numerical Skills: Evidence from Two Large-Scale Panel Studies", *Pers. Individ. Dif.*, vol. 180, no. May, p. 110990, 2021, doi: <https://doi.org/10.1016/j.paid.2021.110990>.
6. W. D. Patriana, Sutama, and M. dewi Wulandari, "Pembudayaan Literasi Numerasi untuk Asesmen Kompetensi Minimum dalam Kegiatan Kurikuler pada Sekolah Dasar Muhammadiyah", *J. BASICEDU*, vol. 5, no. 5, pp. 3413–3429, 2021.
7. W. D. Patriana, M. dewi Wulandari, and Sutama, "Pengelolaan Pembelajaran Berorientasi Literasi Numerasi di Sekolah Dasar dalam Kegiatan Kurikuler dan Ekstrakurikuler", *JP2SD (Jurnal Pemikir. dan Pengemb. Sekol. Dasar)*, vol. 9, no. 2, pp. 116–131, 2021.
8. M. Novitasari, "Pengembangan Lembar Kerja Peserta Didik: Membudayakan Kemampuan Literasi Numerasi Siswa Sekolah Dasar", in *Pembelajaran Kolaboratif Matematika Berbasis Lesson Study di SMP: Mewujudkan Siswa Mandiri dan Bermartabat*, 2022, pp. 74–86.
9. N. E. Priyani, "Pengembangan Literasi Numerasi Berbantuan Aplikasi Etnomatematik Puzzle Game pada Pembelajaran Matematika di Sekolah Perbatasan", *J. Didakt. Pendidik. Dasar*, vol. 6, no. 1, pp. 267–280, 2022, doi: <https://doi.org/10.26811/didaktika.v6i1.536>.
10. T. Durda, B. Gauly, K. Buddeberg, C. M. Lechner, and C. Artelt, "On the Comparability of Adults with Low Literacy Across LEO, PIAAC, and NEPS. Methodological Considerations and Empirical Evidence", *Large-scale Assessments Educ.*, vol. 8, no. 13, pp. 1–34, 2020, doi: <https://doi.org/10.1186/s40536-020-00091-0>.

11. A. Wicht, T. Feseker, K. Luise, and C. Artelt, "Low Literacy is not set in Stone: Longitudinal Evidence on the Development of Low Literacy During Adulthood", *Zeitschrift für Pädag.*, vol. 1, no. 109, 2021.
12. A. Wolf and A. Jenkins, "Do 'Learner' A'ways Lea'n? The Impact of Workplace Adult Literacy Courses on Participants Literacy Skills", *Br. Educ. Res. J.*, vol. 40, no. 4, pp. 585–609, 2014, doi: <https://doi.org/10.1002/berj.3110>.
13. D. N. Ashri and H. Pujiastuti, "Literasi Numerasi Pada Pembelajaran Tematik Terpadu di Kelas Rendah Sekolah Dasar", *J. Karya Pendidik. Mat. Vol.*, vol. 8, no. 2, pp. 1–7, 2021.
14. D. C. Rohim, S. Rahmawati, and I. D. Ganestri, "Konsep Asesmen Kompetensi Minimum Meningkatkan Kemampuan Literasi Numerasi Sekolah Dasar untuk Siswa", *J. VARIDIKA*, vol. 33, no. 1, pp. 54–62, 2021, doi: <https://doi.org/10.23917/varidika.v33i1.14993>.
15. S. Winarni, A. Kumalasari, Marlina, and Rohati, "Efektivitas Video Pembelajaran Matematika untuk Mendukung Kemampuan Literasi Numerasi dan Digital Siswa", *AKSIOMA J. Progr. Stud. Pendidik. Mat.*, vol. 0, no. 2, pp. 574–583, 2021.
16. E. Yulianti, I. Jaya, and D. Eliza, "Pengaruh Role Playing terhadap Pengenalan Literasi Numerasi di Taman Kanak-kanak Twin Course Pasaman Barat", *Aulad J. Early Child.*, vol. 2, no. 2, pp. 41–50, 2019.
17. E. R. Widiastuti and M. D. Kurniasih, "Pengaruh Model Problem Based Learning Berbantuan Software Cabri 3D V2 terhadap Kemampuan Literasi Numerasi Siswa", *J. Cendekia J. Pendidik. Mat.*, vol. 05, no. 02, pp. 1687–1699, 2021.
18. Utama and I. N. Fajriani, "Media Pembelajaran E - Learning Berbasis WEB di Tingkat Sekolah Menengah Kejuruan", *J. VARIDIKA*, vol. 33, no. 2, pp. 129–140, 2021, doi: <https://doi.org/10.23917/varidika.v33i2.15330>.
19. T. H. Nurgiansah, "Meningkatkan Minat Belajar Siswa dengan Media Pembelajaran Konvensional dalam Pembelajaran Pendidikan Kewarganegaraan", *J. Pendidik. dan Konseling*, vol. 4, no. 3, pp. 1529–1534, 2022.
20. M. Huda, "Pembelajaran" Berbasis Multimedia dan Pembelajaran Konvensional: (Studi Komparasi di mts. al-muttaqin Plemahan Kediri)", *J. Peneli.*, vol. 10, no. 1, pp. 125–146, 2016.
21. E. Herawan, "Literasi Numerasi di Era Digital bagi Pendidik Abad ke-21", in *Prosiding Seminar Nasional Pendidikan Sultan Agung (SENDIKSA-3)*, 2015, pp. 23–32.
22. A. Nurcahyo, N. Ishartono, M. Waluyo, Utama, and F. I. Sari, "Pelatihan Pembuatan Media Pembelajaran Augmented Reality (AR) Dengan Software Paint 3D Bagi Guru Matematika SMP", *J. Terap. Abdimas*, vol. 7, no. 2, pp. 154–162, 2021.
23. S. N. Hayani and Utama, "Pengembangan Perangkat dan Model Pembelajaran Berbasis TPACK terhadap Kualitas Pembelajaran Daring", *J. BASICEDU*, vol. 6, no. 2, pp. 2871–2882, 2022.
24. L. Hakim, Markhamah, and Utama, "Peningkatan Pemahaman Konsep Siswa Kelas V dengan Pemanfaatan Media Pembelajaran Geogebra", *A s - S A B I Q U N*, vol. 4, no. 3, pp. 564–574, 2022.
25. Rusni and Agustan, "Pengaruh Kedisiplinan Belajar terhadap Hasil Belajar Matematika Siswa di Sekolah Dasar", *J. Ris. Pendidik. Dasar*, vol. 1, no. 1, pp. 1–9, 2018.
26. L. E. Prasetyo and Utama, "Kedisiplinan dalam Pembelajaran Matematika Daring pada Siswa SMA Negeri 8 Surakarta", *J. Cendekia J. Pendidik. Mat.*, vol. 06, no. 03, pp. 2569–2583, 2022.
27. Y. Ernawanto, Utama, Minsih, and Y. Prastiwi, "Internalisasi Pendidikan Karakter Disiplin Siswa pada Masa Pembelajaran Tatap Muka Terbatas di Sekolah Dasar", *J. BASICEDU*, vol. 6, no. 3, pp. 3398–3404, 2022.
28. H. M. Puspitasari and Sutriyono, "Hubungan Kemandirian Belajar dan Kedisiplinan Belajar terhadap Prestasi Belajar Matematika", *J. Mitra Pendidik. (JMP Online)*, vol. 1, no. 10, pp. 1007–1020, 2017.

29. Z. Komariyah and Soeparno, “Pengaruh Pemanfaatan Media Permainan Kartu hitung Terhadap Hasil Belajar Siswa Materi Ajar Operasi Hitung Campuran Mata Pelajaran Matematika Kelas III SDN Babat Jerawat 1 Surabaya”, *J. Teknol. Pendidik.*, vol. 10, no. 1, pp. 63–75, 2010.
30. D. Ambarwati and M. D. Kurniasih, “Pengaruh Problem Based Learning Berbantuan Media Youtube terhadap Kemampuan Literasi Numerasi Siswa”, *J. Cendekia J. Pendidik. Mat.*, vol. 05, no. 3, pp. 2857–2868, 2021.
31. M. Yusuf, *Metode Penelitian: Kuantitatif, Kualitatif, dan Penelitian Gabungan*, 2014.
32. Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*, Bandung: PT Alfabet, 2016.
33. A. P. Field, *Repeated Measures ANOVA*, London: Sage, 2005.
34. C. M. Jarque and A. K. Bera, “Efficient Tests For Normality, Homoscedasticity, And Serial Independence of Regression Residuals”, *Econ. Lett.*, vol. 6, pp. 255–259, 1980.
35. N. M. Razali and Y. B. Wah, “Power Comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling Tests”, *J. Stat. “odel. Anal.*, vol. 2, no. 1, pp. 21–33, 2011.
36. M. E. O’Neill and O’Neillathews, “Levene Test” of Homogeneity of Variance for General Block and Treatment Designs”, *Biometric*”, vol. 58, no. 1, pp. 216–224, 2002, doi: <https://doi.org/10.1111/j.0006-341X.2002.00216.x>.
37. W. Utari *et al.*, “Pelatihan Pemanfaatan Aplikasi Quizizz bagi Guru SDN 9 Nagrikaler untuk Meningkatkan Kemampuan Literasi Numerasi Matematis Siswa”, *Indones. J. Community Serv. Eng. Educ.*, vol. 1, no. 2, pp. 142–152, 2021.
38. S. Saefurohman, R. Maryanti, N. N. Azizah, D. Fitria, A. Husaeni, and V. Wulandary, “ASEAN Journal of Science and Efforts to Increasing Numerical Literacy of Elementary School Students Through Quiz Learning Media”, *ASEAN J. “ci. Eng. Educ.*, vol. 3, no. 1, pp. 11–18, 2021.
39. Y. I. Aini, “Pemanfaatan Media Pembelajaran Quizizz untuk Pembelajaran Jenjang Pendidikan Dasar dan Menengah di Bengkulu”, *Kependidikan*, vol. 2, no. 25, pp. 65–82, 2019.
40. I. D. Hidayati and Aslam, “Efektivitas Media Pembelajaran Aplikasi Quizizz Secara Daring terhadap Perkembangan Kognitif Siswa”, *J. Pedagog. dan Pembelajaran*, vol. 4, no. 2, pp. 251–257, 2021.
41. N. Himmah, “Pengembangan Video Pembelajaran dengan Adobe Premiere Pro yang Mendukung Kemampuan Literasi Numerasi Siswa Kelas VIII SMP pada ateri Sistem Persamaan Linear Dua Variabel”, 2020, pp. 135–137.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter’s Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter’s Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

