



Al Ibtida: Jurnal Pendidikan Guru MI
ISSN: 2442-5133, e-ISSN: 2527-7227
Journal homepage: <http://syekhnurjati.ac.id/jurnal/index.php/ibtida>
Journal email: alibtida@syekhnurjati.ac.id

Al Ibtida

The Antecedents and Consequences of Using Online Learning in Elementary School During a Pandemic: A Systematic Literature Review

Atikah Syamsi*

*Department of Madrasah Ibtidaiyah Teacher Education, Faculty of Tarbiyah and Teacher Training,
Institut Agama Islam Negeri Syekh Nurjati Cirebon, Indonesia
E-mail: atikahpgmi@syekhnurjati.ac.id

Patimah**

**Department of Madrasah Ibtidaiyah Teacher Education, Faculty of Tarbiyah and Teacher Training,
Institut Agama Islam Negeri Syekh Nurjati Cirebon, Indonesia
E-mail: patimahwardono@gmail.com

Heru Mudiyanto***

***Department of Madrasah Ibtidaiyah Teacher Education, Faculty of Tarbiyah and Teacher Training,
Institut Agama Islam Negeri Syekh Nurjati Cirebon, Indonesia
E-mail: herumudiyanto@syekhnurjati.ac.id

Received: July 22nd, 2022. Accepted: October 10th, 2022. Published: October 30th, 2022.

Abstract

This study aims to trace and examine the antecedent perspectives and the consequences of online learning portraits in elementary schools during the pandemic by reviewing research articles published in reputable journals. Due to educators' efforts to reduce learning loss, it is hoped that it will be able to become an analytical force concerning driving causes and influencing factors. This research used a systematic literature review approach which uses published resources in the form of books, journals, and other scientific works. Analytical techniques are carried out through descriptive analysis techniques from online literature searches. In addition to using traceability, researchers also use biometric techniques with the *VosViewer Visualization* application. The goal is to biometrically map variables that are closely related to antecedents and consequences. After searching on Google Scholar, Ebsco, and Crossref using the keywords “Online Learning” AND “Pandemic Covid” AND “Learning Loss, researchers found 100 reputable journal articles (indexed by Scopus) that were relevant to the keyword. Of the 100 journal articles found, 22 journal articles were screened, while 22 journal articles were excluded because there were no full-text articles. As a result of the feasibility or compatibility examination of 78 full-text journals, 68 articles were found to be unfit due to duplications and/or failure to match the criteria, leaving 10 full-text journal articles that could be examined. The result obtained from the data analysis is that the factors of using online learning are the replacement of learning spaces in the classroom becoming classless and limitless. Besides that, the readiness in adapting online learning is also an important part of the expected changes because teachers are expected to also be able to accompany students in online learning. However, what is still found in some articles is the speed and ability of the school internet

network which is also a driver for optimizing the use of online learning. The consequence is that emergency online learning during the Covid-19 Pandemic makes teachers have to practice special skills in adapting to technological developments, so teachers at the elementary level also need special training, either in program preparation or in continuous professional development, to create online course content that can be used by all students.

Keywords: *online learning, learning loss, elementary school, antecedents, consequences.*

Abstrak

Penelitian ini bertujuan untuk menelusuri dan mengkaji dari perspektif anteseden dan konsekuensi potret pembelajaran online di Sekolah Dasar/Madrasah Ibtidaiyah (SD/MI) selama pandemi dengan strategi penelusuran terhadap artikel penelitian yang dipublikasikan dalam jurnal bereputasi. Sehingga diharapkan mampu menjadi daya analisa terkait faktor pendorong (*anteseden*) dan faktor pengaruh sebagai konsekuensi dari upaya pendidik dalam meminimalisir *learning loss*. Metode penelitian ini menggunakan pendekatan Sistematis Literatur Reviu dengan menggunakan kajian terhadap sumber, baik berupa buku ataupun jurnal serta karya ilmiah lainnya. Teknik analisis yang dilakukan melalui teknik analisa deskriptif dari penelusuran literatur secara online menggunakan *traceability* dan juga menggunakan teknik biometrik dengan aplikasi *VosViewer Visualization*. Tujuannya adalah untuk memetakan secara biometrik variabel yang terkait erat dengan anteseden dan konsekuensi. Adapun hasilnya berdasarkan hasil pencarian di *Google Scholar*, *Ebsco* dan *Crossref* menggunakan kata kunci “Online Learning” AND “Pandemic Covid” AND “Learning Loss, peneliti mendapatkan 100 artikel jurnal bereputasi (terindeks scopus) yang relevan dengan kata kunci. Dari 100 artikel jurnal yang ditemukan selanjutnya dilakukan screening, sedangkan 22 artikel jurnal dilakukan eksklusi karena tidak terdapat artikel *full text*. Dari hasil penilaian kelayakan atau kecocokan terhadap 78 jurnal *full text*, ada 68 artikel yang dinyatakan tidak layak karena ada duplikasi dan juga tidak sesuai dengan kriteria, sehingga diperoleh 10 artikel jurnal *full text* yang selanjutnya dapat direview. Hasilnya diperoleh anteseden (pendorong) pemanfaatan pembelajaran online yaitu adanya pengganti ruang belajar dalam kelas menjadi tanpa kelas dan tanpa batas, selain itu faktor kesiapan dalam melakukan adaptasi juga menjadi bagian penting dari perubahan yang diharapkan, karena guru sebagai pendamping siswa diharapkan juga mampu mendampingi siswa dalam pembelajaran online. Namun yang masih banyak ditemukan dalam sejumlah artikel ialah kecepatan dan kemampuan jaringan internet sekolah yang juga menjadi pendorong adanya optimalisasi pemanfaatan belajar online ini. Adapun konsekuensinya ialah pembelajaran online darurat selama pandemic Covid-19 membuat guru harus berlatih keterampilan khusus dalam melakukan adaptasi dengan perkembangan teknologi. Sehingga guru di tingkat SD/MI juga membutuhkan pelatihan khusus, baik dalam persiapan program atau dalam pengembangan profesional keberkelanjutan untuk menciptakan konten kursus online yang dapat digunakan oleh semua siswa.

Kata kunci: *online learning, learning loss, elementary school, antecedents, consequences.*

INTRODUCTION

The Covid-19 pandemic has hit students and educators. The implementation of distance learning which has been going on since March 2020 has been forced to be a solution so that the educational process continues to run (Gerlach et al., 2021; Serhan, 2020). However, distance learning which has been implemented for about a year and a half may have new and protracted problems, one of the problems is learning loss (Zimina, 2021).

Learning loss refers to a condition of loss of some parts of knowledge and impact on academic development which is generally the cause of the cessation of the learning process in education (Leech et al., 2022). Learning loss as explained in the Glossary of Education Reform is defined as the loss of knowledge and abilities that refer to academic progress, usually due to too much distance or interference in education. Given this trend, it is not surprising that some teachers send a lot of homework online so that students can continue and always study even at home (Permadi, 2020).

As a result of this learning loss, there will be a lot of students who experience a decline in their knowledge and skills compared to before the pandemic occurred (Hughes, 2013; Kuhfeld et al., 2020). Teachers as an important factor in minimizing the consequences of learning loss must conduct a diagnostic assessment to identify the abilities of their students before preparing teaching materials for the next semester. This is the greatest possibility for students in the condition of experiencing learning loss in the previous semester. If there are indeed students who experience a decrease in their ability, teachers must adjust the teaching materials that will be taught in the next semester. If students are immediately forced to learn second-semester material that they do not understand, then it is very likely that what will happen is that students will experience stress and as a result cannot accept the material studied.

As we know, as the pandemic took place, there have been many changes in the world of education in Indonesia, and even the whole world. The transition from face-to-face to online learning poses a variety of challenges for students, parents, and teachers (Joyce et al., 2017; Thille et al., 2014). All elements of education must be able to adjust to new situations, from learning methods to the technology used, to adaptive learning designs that are in accordance with pandemic conditions (Marshall & Taylor, 2016; Serhan, 2020).

What needs to be known and perhaps needs to be unfortunate, not everyone can adapt to changes in educational conditions during a pandemic. With the increasing poverty rate, many students from underprivileged families, living in remote areas, were forced to drop out of school due to great economic pressures (Kuhfeld et al., 2020; Purwanto et al., 2020). Many of them have had to work harder to help meet the economic needs of families amid the Covid-19 crisis. They chose to drop out of school because they already felt very hard if they had to study online. Because they had to meet many needs, such as smartphones and internet quotas.

In addition to economic factors, many parents do not see the role of schools when they do not directly carry out the teaching and learning process. When studying at home, the teacher cannot fully support the students. Materials, assignments, and exams are provided online so teachers can't monitor students' progress in person (Syamsi et al., 2021).

Distance education offered during the pandemic also has the potential to cause violence against children. Without a school environment, many children are involved in domestic violence (Maharani & Syamsi, 2018; Respaga, Maharani, & Laihat, 2021). For

instance, in connection with the inclusion of a schedule of activities that increasingly bombard even though they are not directly related to education, like extracurricular tutoring activities or other types of exploitation. It is even worse if students come from the lower middle class of economics, which sometimes children also help with household chores or even help with work. As well as other external risks that prevent children from attending school such as the marriage of minors and exploitation of children.

Various problems and changes interfere with a student's education and lead to academic decline. Students experience a decrease in ability in the learning process. This is the main concern of the Minister of Education, Culture, Research, and Technology of the Republic of Indonesia, Nadiem Makarim, when discussing how the teaching and learning system is during a pandemic. He said PTM must be implemented immediately so that students are not left behind in learning (Kemendikbudristek, 2021).

According to data from the Ministry of Education and Culture Survey 2022, most students agree that learning at home has the biggest obstacles, namely 51.6% of students cannot ask the teacher directly, so students have difficulty understanding learning and difficulty in concentrating, besides that the feeling of getting bored undergoing PJJ is also seen at 42.7%. This data is one of the pieces of evidence of the decline in the quality of education, which is due to the many obstacles for students to learn at home, including participating in learning and understanding the material during online learning, as shown in the following diagram.

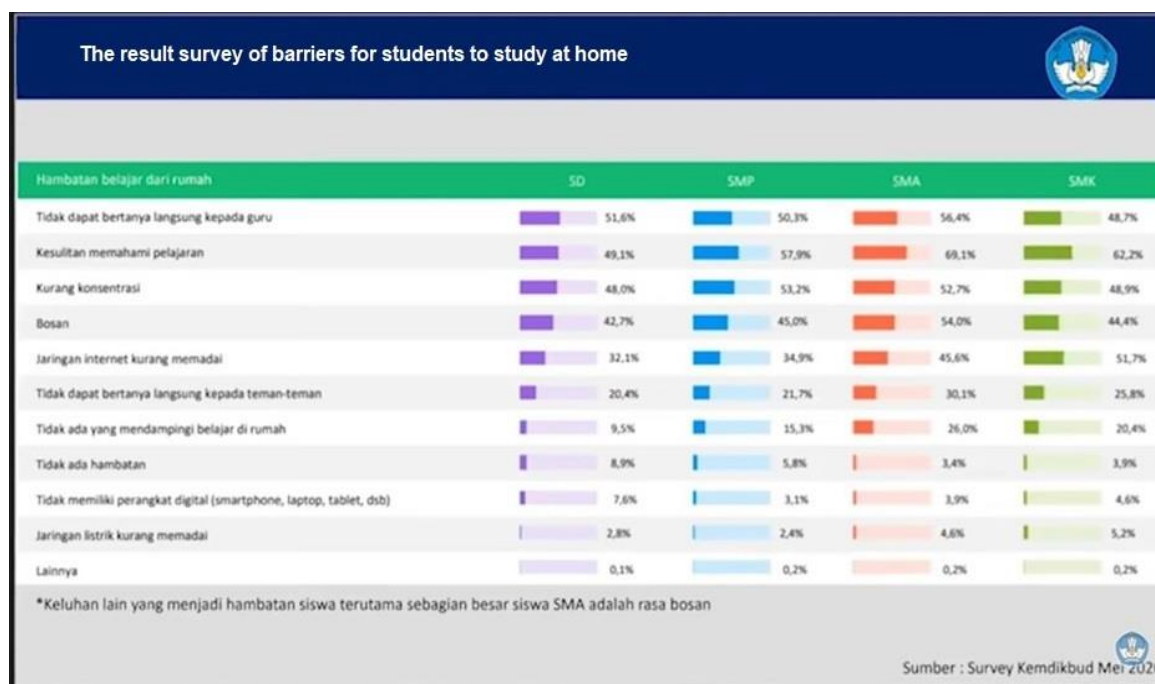


Diagram 1. The survey of barriers for students to studying at home

Based on diagram 1, it can be seen that the obstacle that is most complained about by elementary school students is related to the problem of guidance from teachers which is indeed needed by elementary school-age children related to the characteristics of children aged 7-12 years as well as concrete operational stages (Piaget, 1965). So, it is not surprising that as many as 42.7% of respondents of elementary age replied that they were getting bored. Because elementary school-age children (7-12 years old) are indeed close to the

world that is physically in contact and socializes directly, how Piaget (1965) explained that at this time they tend to be in groups and like to play with their peers.

In recent years, Indonesia has continued to strive to improve student learning outcomes. However, during the pandemic, various changes in policies and learning systems made students' achievements crowded. In these difficult times, the main focus of education is not only on the completion of the curriculum but also on the maintenance of the health and safety of all elements of education. The Covid-19 pandemic has had various negative impacts that have led to learning disabilities. Students lose the opportunity to learn optimally since, in this case, the right to education cannot be optimally implemented (Abidin et al., 2020).

As part of efforts to reduce learning loss, various parties have made several efforts including the Education Ministry which is in charge of Primary Schools, and also the Ministry of Religious Affairs which is in charge of the Madrasah Ibtidaiyah. This recovery effort is necessary so that children can catch up due to losing the long study period in case of emergency (Direktorat Pembelajaran dan Kemahasiswaan, 2021), one of the strategies is through reimplementing the face-to-face learning policy.

Given the Covid-19 pandemic that has not yet ended, the government is also trying to keep students in school in safe and comfortable conditions. In addition to opening face-to-face learning, the government also provides various forms of online learning strategies that can attract students' attention. The school also encourages teachers to adapt and make learning changes and start learning by using applications that support online learning, as depicted in the following diagram.

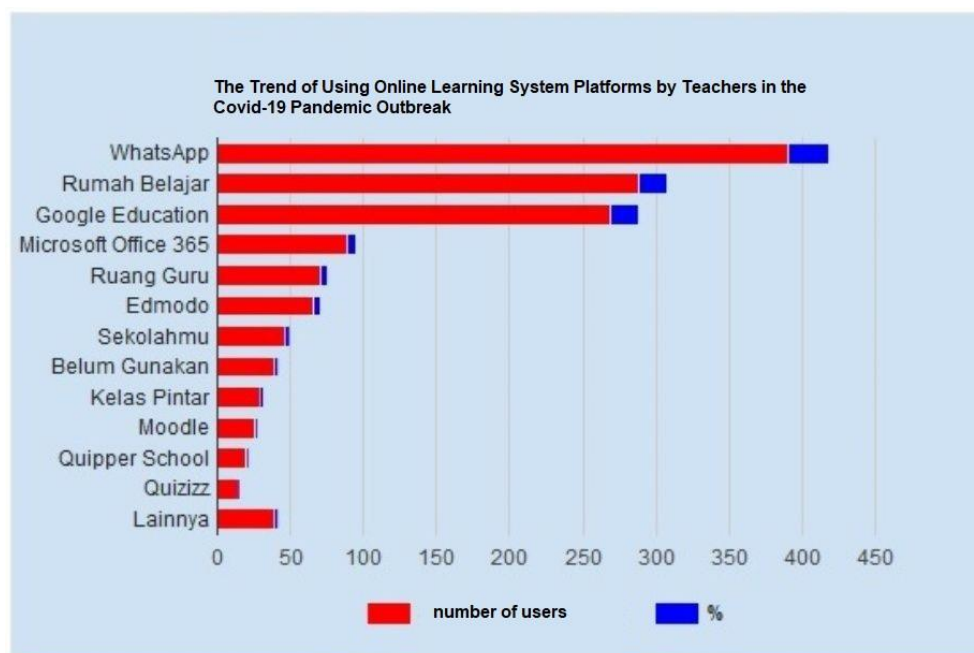


Diagram 2. trend of using online learning system platform

Based on diagram 2, the most widely used platform in online learning during the pandemic was Whats app as much as 28.14% of 1386 respondents. Interestingly, the enthusiasm of respondents who used the Ministry of Education and Culture's platform, called the Rumah Belajar takes the second-ranked, this application was launched in line with the government's program on Driving Schools which is a form of the implication of the

independent learning curriculum. In addition, observing the large distribution of other applications used which include privately owned online learning platforms, namely Google Suite For Education, Smart Classroom, Ruang Guru, Microsoft Office 365, Quipper School, Sekolahmu, Zenius, indicates that respondents are starting to adapt quickly and massively in getting around learning during this Covid pandemic.

By seeing the interestingness of this data, the author wants to explore how the portrait of various online learning platforms in SD/MI during the pandemic from an antecedent point of view and its consequences through searching for research articles published in reputable journals, and this is the focus of the study in this article, so that it is expected to be able to become an analytical force related to driving factors (antecedents) and influence factors as a consequence of educators' efforts to minimize learning loss both when a face-to-face meeting is carried out or when online learning is re-implemented. Related to the limitations of this research is located in the location of the study area is limited to elementary schools and only in the time from the beginning of the pandemic, namely 2020 to the end of 2021.

METHODS

This research uses a systematic literature review approach which uses a study of article sources in the form of books or journals and other scientific works (Elani et al., 2014; Hodgson & Pyle, 2010; Sugiyono, 2017). The analysis technique carried out is related to the analysis of antecedents and consequences, namely conducting an assessment of research variables related to the use of online learning in overcoming learning loss during a pandemic through descriptive analysis techniques from online literature searches.

For this reason, researchers conducted a systematic review of the literature through online searches of some journal articles that analyzed the causes and consequences of efforts to emanate online learning during the pandemic. In addition to using traceability, researchers also use biometric techniques with the Vos Viewer Visualization application. The goal is to biometrically map variables that are closely related to antecedents and consequences.

In the initial stage, researchers conducted a reference search in the form of a literature study of previous research through an online database. But first, researchers apply some predetermined criteria to produce more detailed research, especially on School Dasar. In this study, the author carried out the process of reviewing documents through the following steps:

1. The first stage establishes reference criteria;
2. The second stage selects articles based on the relationship between variables that are the purpose of the study;
3. The third stage is to review the articles that have been obtained;
4. Stage four concludes data based on findings.

In addition to the division of stages of labor above, researchers also divide the criteria used in bibliometrics as follows:

1. Using keywords "Online Learning" AND "Pandemic Covid" AND "Learning Loss"
2. Sourced from International scientific journals (not books or other scientific works)
3. Publication period 2020-2022 (the beginning of the covid pandemic).

RESULTS AND DISCUSSION

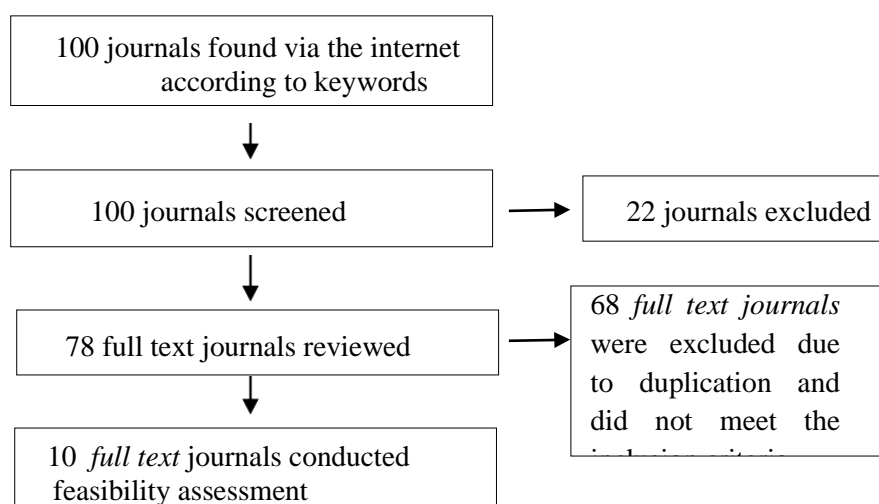
Results from PRISMA (Preferred Reporting Items for Systematic Review and Meta-Analysis) Integrating with VOS Viewer Visualization

a. Selection Criteria

Selection criteria are obtained by determining two criteria. *First*, inclusion criteria, which consist of discussing the concept of online learning in elementary schools; reaching for primary school teachers and students; there are appropriate dimensions/indicator variables; timeline: 2020-2022; and article type: Journals and books. *Second*, exclusion criteria included not following the concept of online learning in Elementary Schools; reaching for subjects outside of primary school, and not following the pandemic period. To obtain the Ebsco, Crossref, and Google scholar databases for this descriptive analysis, the keywords use are “Online Learning” AND “Pandemic Covid” AND “Learning Loss”.

b. Strategy for Searching Articles

Based on searches on Google Scholar, Ebsco, and Crossref using these keywords, researchers found 100 journal articles relevant to the keyword. Of the 100 journal articles found, 22 journal articles were screened, while 22 journal articles were excluded because there were no full-text articles. Feasibility assessment or match of 78 full-text journals, journals that were found to be duplicative and also did not match the criteria Inclusion next in the exclusion, namely as many as 68 articles, so that 68 articles were obtained, so that 68 articles were obtained, so that 68 articles were obtained, so that 68 articles were obtained 10 full-text journal articles that are further reviewed and of stronger relevance, this Looks like the following chart with the PRISMA (Preferred Reporting Items for Systematic review and Meta-analysis) version:



Source: (Page et al., 2021)

c. Visualization of Article Search Results

After searching according to keywords and relevance, the next step is to see the visualization results bibliometrically using the Vos Viewer application, employing the database results that have been obtained, the initial screening is carried out manually using the Mendeley reference manager application, then the initial data is screening and reviewed with the Vos Viewer application which helps the initial search for articles, and

to see the accuracy and suitability of the scope and research questions. Based on the frequency of keywords discussed in the article, the visualization is as follows.

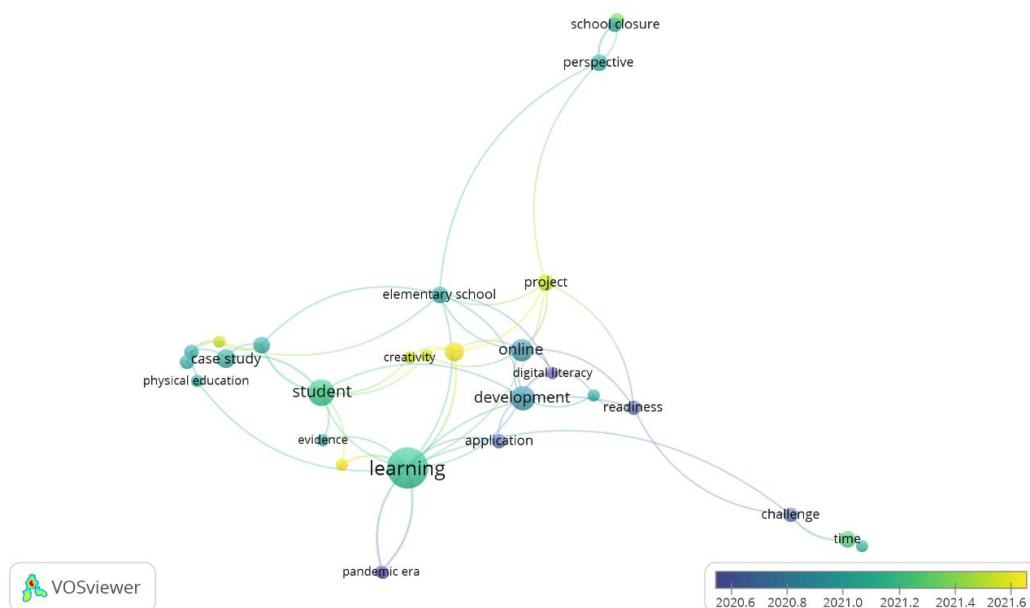


Figure 1. The visualization of overlay

Based on figure 1, it can be seen during the study and also how the relationships between variables represented by nodes, look at the associations and strengths of relationships between variables. So the purpose of this bibliometric search is to find out other topics that are closely connected to the Antecedents and the consequences of Online Learning During the pandemic in primary schools. The next step is to look at how some clusters are formed based on the strength of the relationship and the frequency of discussions that correspond to the keywords “Online Learning” AND “Pandemic Covid” AND “Learning Loss”, as shown below:

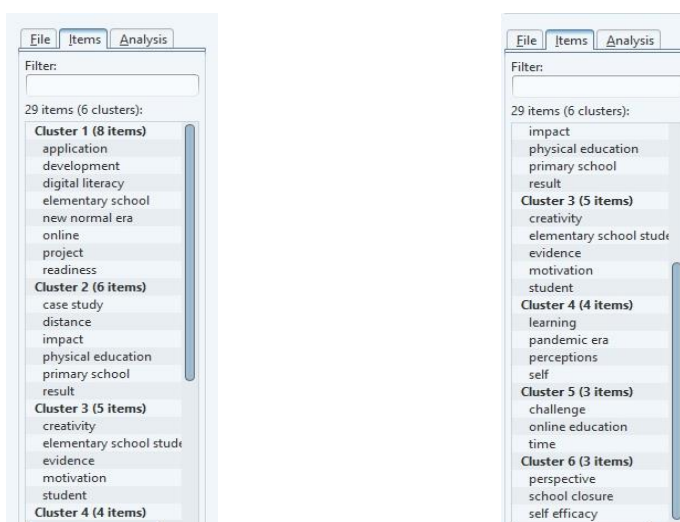


Figure 2. The density of visualization

Based on figure 2, it is known that research on the variables of online learnings utilization for a long time pandemic in elementary school occurred in early 2020-2021, but it can be seen that in 2020 at the beginning of the pandemic, the discourse of a

number of these studies still revolved around online learning as a substitute for face-to-face classes or what is known as "mortar schooling" (conventional method), however, the focus of the discussion has begun to shift towards creative applications that can be used in supporting school projects from online learning as shown by the yellow node, and this discourse has not done much of its study, especially there has not been much discussion regarding antecedents and the consequences of using online learning during the pandemic as an effort to overcome learning loss in elementary schools. For this reason, we then found a research gap in the study area of the use of online learning, and we were interested in conducting antecedent studies and these consequences due to the lack of related research.

Antecedents and Consequences of Utilizing Online Learning

Based on data from the search results of several articles, some variables were found that are the drivers and consequences of overcoming learning loss during the pandemic as follows:

Table 1. The results of the drivers and consequences in overcoming learning

No	Authors/ Years	Title	Variable Antecedent	Consequence Variables
1	G.D.S. Rahayu (Rahayu, 2020)	Analysis of elementary school students' mathematical resilience during learning during the Covid-19 Pandemic	Student constraints and resilience in learning Mathematics in the time of Covid	
2	Y. Murai (Murai, 2020)	Application of creative learning principles within blended teacher professional development on the integration of computer programming education into elementary and middle school classrooms		creative learning that supports online learning
3	A.A. Oloyede (Oloyede, 2021)	Covid-19 lockdown and remote attendance teaching in developing countries: A review of some online pedagogical resources	The suitability of the applications for online teaching is analyzed based on: their capacity for instant messaging, voice calls, conference groups, screen sharing, allowing instructors to mute users to minimize interference and background noise, operating system compatibility, capacity for audio-visual recording, and data speed needs.	criteria that include features that allow students to perform homework and assignments, the ability to manage several classes at the same time, provisions for students to raise their hands and ask questions

4	M.A. Riwanto (Riwanto, 2020)	Development of digital science comics for elementary schools as a support for digital literacy in online learning	creativity in reading the intonation of each dialogue, and changing the type of voice in each character also gives rise to creativity in producing images by imitating digital comics that students see	Students' creativity can develop with the help of this digital comic medium
5	D.G. Hendra Divayana (Divayan, 2020)	Development of e-learning content based on Kelase-Tat Twam Asi in supporting learning during the Covid-19 pandemic	Provide information on the existence of e-learning content design	Teachers challenges by creating creative tasks and communicating with students and parents through multiple platforms
6	T. Shamir-Inbal (Shamir-Inbal, 2021)	Facilitating Emergency Remote K-12 Teaching in Computing-Enhanced Virtual Learning Environments During Covid-19 Pandemic - Blessing or Curse?	Emergency Remote Teaching (ERT) through synchronous and asynchronous instruction during the Covid-19 pandemic. The goal is to understand the pedagogical, technological, and organizational challenges and benefits of a computing-enhanced digital learning environment	
7	A.K. Kansal (Kansal, 2021)	Google trend analysis and paradigm shift of online education platforms during the COVID-19 pandemic	there is a substitute for learning in the classroom	The use of effective online teaching tools such as Microsoft Teams, Zoom, Google Meet, and WebEx is the most widely used online platform for classroom conduction, and whiteboard software and learning applications such as Vedantu, Udemy, Byju's, and Whitehat Junior are widely used in the education system during the pandemic
8	S. Russ (Russ, 2021)	Online learning accessibility during the Covid-19 pandemic	projections of Covid-19 related learning loss based on (a) estimates from the attendance literature and (b) analysis of summer learning patterns	Emergency online learning during the Covid-19 Pandemic Teachers in elementary and high school level also need special training, either in program preparation or in continuous professional development, to create online course content that can be used by all students

9	N. Diana (Diana, 2020)	Teachers' difficulties in implementing distance learning during the Covid-19 pandemic	The difficulties faced by teachers when PJJ is classified into four categories, namely difficulties influenced by the level of familiarity with technological devices, parental involvement, insufficiency of facilities, and internal difficulties of teachers
10	D.A. Rahma (Rahma, 2020)	The challenges and readiness of elementary school teachers in facing society 5.0 through online learning during the Covid-19 pandemic	Online learning utilizes platforms such as Quizizz, TVRI broadcasts, YouTube, and WhatsApp Groups. There are several obstacles in online learning such as limited internet access, some teachers are not used to facilitating student learning online, decreased student learning motivation, and elementary school students who still need assistance in using learning technology

Based on table 1, it can be seen that the antecedent (driver) of the use of online learning is the replacement of learning spaces in the classroom to be classroom-less and without limits. Besides that, the readiness factor in adapting is also an important part of the expected changes, because teachers as student companions are expected to also be able to accompany students in online learning. However, what is still found in some articles is the speed and ability of the school internet network which is also a driver for optimizing the use of online learning.

The consequences of the use of online learning during the pandemic based on the data above are that emergency online learning during the Covid-19 Pandemic makes teachers have to practice special skills in adapting to technological developments, so that both teachers at the elementary and high school levels also require specialized training, either in the preparation of the program or in continuous professional development, to create online course content that can be used by all students.

In addition, Online learning should develop curriculum and lesson models that free students from the pursuit of grades, as this makes students more individualistic and socially insensitive (Syamsi & Saleh, 2021). Schools must be able to develop the abilities of each student and teacher so that online learning is more optimal (Putria et al., 2020), for the skills trained are essential skills and are useful not only in the understanding of the material but also in the meaning (Joyce et al., 2017).

CONCLUSION

Restoring learning during the Covid-19 pandemic is important to reduce the impact of students' learning loss. Effective learning becomes an achievable learning goal. Ideally, distance learning has some advantages of being flexible, accessible, and effective if it is designed and prepared properly. But in fact, all of that is not an advantage for teachers or students if online learning is not planned properly, causing failure of achieving the desired goals. This study brings some important cautions for the government and schools to improve school infrastructure for online learning teachers' understanding of the learning management system needs to be improved by upgrading teachers' knowledge through training and webinars and maximizing the use of digital platforms owned by the government or private parties. The results of this study certainly still have limitations, especially on the focus of studies at the primary education level, for the study of antecedent analysis and the consequences that researchers carry out can be used as a literature reference and alternative discourse for researchers who want to conduct research studies related to the use of online learning during the pandemic at the elementary schools.

REFERENCES

- Abidin, C., Lee, J., Barbetta, T., & Miao, W. S. (2020). Influencers and COVID-19: reviewing key issues in press coverage across Australia, China, Japan, and South Korea. In *Media International Australia* (Vol. 178, Issue 1, pp. 114–135). SAGE Publications. <https://doi.org/10.1177/1329878x20959838>
- Al-Obaydi, L. H. (2021). Humanistic learning elements in a blended learning environment: a study in an EFL teaching context. *Interactive Learning Environments*, 1-14. <https://doi.org/10.1080/10494820.2021.1919717>
- Diana, N. (2020). Teachers' difficulties in implementing distance learning during Covid-19 pandemic. In *ACM International Conference Proceeding Series* (pp. 105–109). <https://doi.org/10.1145/3436756.3437029>
- Direktorat Pembelajaran dan Kemahasiswaan. (2021). *Program bantuan kerja sama kurikulum dan implementasi merdeka belajar-kampus merdeka*. 1–4.
- Divayana, D. G. H. (2020). Development of e-learning content based on kelase-Tat twam asi in supporting learning during the Covid-19 pandemic. In *4th International Conference on Vocational Education and Training, ICOVET 2020* (pp. 41–46). <https://doi.org/10.1109/ICOVET50258.2020.9230263>
- Elani, H. W., Allison, P. J., Kumar, R. A., Mancini, L., Lambrou, A., & Bedos, C. (2014). A systematic review of stress in dental students. *Journal of dental education*, 78(2), 226-242. <https://doi.org/10.1002/j.0022-0337.2014.78.2.tb05673.x>
- Gerlach, T., Schauer, L., Rademacher, M., Heiden, W., & Kirschner, K. (2021). Customized Software Environment for Remote Learning: Providing Students a Specialized Learning Experience. *American Chemical Society (ACS)*. <https://doi.org/10.26434/chemrxiv.14356970>
- Henderson, M. J. (2007). *Investigating the role of community in sustaining teacher participation in blended professional development*. James Cook University. <https://researchonline.jcu.edu.au/26327/>
- Hodgson, C., & Pyle, K. (2010). A literature review of Assessment for Learning in science. Citeseer. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.471.3251&rep=rep1&type=pdf>
- Hughes, T. (2013). Lectures-no-more: An aid to students' in transition??. In *Proceedings of*

- The Australian Conference on Science and Mathematics Education (formerly UniServe Science Conference).
<https://openjournals.library.sydney.edu.au/index.php/IISME/article/view/6964>
- Joyce, B. (Booksend L., Weil, M. (ETR A., & Calhoun, E. (The P. A. (2017). Model of Teaching. In BMC Public Health.
- Kansal, A. K. (2021). Google trend analysis and paradigm shift of online education platforms during the COVID-19 pandemic. *Infectious Disease Reports*, 13(2), 418–428. <https://doi.org/10.3390/idr13020040>
- Kemendikbudristek. (2021). Regulation of the Minister of Education, Culture, Reserach, and Technology of the Republic of Indonesia number 17 year 2021 on national assessment (pp. 1–10).
- Kuhfeld, M., Soland, J., Tarasawa, B., Johnson, A., Ruzek, E., & Liu, J. (2020). Projecting the Potential Impact of COVID-19 School Closures on Academic Achievement. *Educational Researcher*, 49(8), 549–565. <https://doi.org/10.3102/0013189X20965918>
- Leech, N. L., Gullett, S., Howland Cummings, M., & Haug, C. A. (2022). The Challenges of Remote K–12 Education During the COVID-19 Pandemic: Differences by Grade Level. *Online Learning*, 26(1), 245–267. <https://doi.org/10.24059/olj.v26i1.2609>
- Li, F., Jin, T., Edirisingha, P., & Zhang, X. (2021). School-aged students’ sustainable online learning engagement during covid-19: community of inquiry in a chinese secondary education context. *Sustainability*, 13(18), 10147. <https://doi.org/10.3390/SU131810147>
- Maharani, S. D., & Syamsi, A. (2018, November). Internalization Of Character Education For Children through Environment Learning Approach: The Value Of Religious, Social Care For And Care For The Environment. In *Annual Civic Education Conference (ACEC 2018)* (pp. 624-629). Atlantis Press. <https://doi.org/10.2991/acec-18.2018.140>
- Marshall, S., Taylor, W., McGowan, V. F., Kisanga, D. H., Ireson, G., Pima, J. M., & Mugoniwa, B. (2016). Adoption, integration and use of ICT in teaching. *International Journal of Education and Development using ICT*, 12(1).
- Murai, Y. (2020). Application of creative learning principles within blended teacher professional development on integration of computer programming education into elementary and middle school classrooms. *Information and Learning Science*, 121(7), 665–675. <https://doi.org/10.1108/ILS-04-2020-0122>
- Oloyede, A. A. (2021). COVID-19 lockdown and remote attendance teaching in developing countries: A review of some online pedagogical resources. *African Journal of Science, Technology, Innovation and Development*. <https://doi.org/10.1080/20421338.2021.1889768>
- Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *Systematic reviews*, 10(1), 1-11.
- Permadi, A. (2020). Virtual Classrom Design-for Blended Learning Environment. Center for Open Science. <https://doi.org/10.31219/osf.io/6kx8y>
- Piaget, J. (1965). *The moral development*. In New York: Free Press. [thereaderwiki.com. https://thereaderwiki.com/en/Moral_development](https://thereaderwiki.com/en/Moral_development)
- Purwanto, A., Asbari, M., Fahlevi, M., Mufid, A., Agistiawati, E., Cahyono, Y., & Suryani, P. (2020). Impact of work from home (WFH) on Indonesian teachers performance during the Covid-19 pandemic: An exploratory study. *International Journal of Advanced Science and Technology*, 29(5), 6235-6244.
- Putria, H., Maula, L. H., & Uswatun, D. A. (2020). Analisis Proses Pembelajaran dalam Jaringan (DARING) Masa Pandemi Covid- 19 Pada Guru Sekolah Dasar. *Jurnal*

- Basicedu*, 4(4), 861–870. <https://doi.org/10.31004/basicedu.v4i4.460>
- Rahayu, G. D. S. (2020). Analysis of elementary school students' mathematical resilience during learning during the COVID 19 Pandemic. In *Journal of Physics: Conference Series* (Vol. 1657, Issue 1). <https://doi.org/10.1088/1742-6596/1657/1/012001>
- Rahma, D. A. (2020). The challenges and readiness of elementary school teachers in facing society 5.0 through online learning during the Covid-19 pandemic. In *ACM International Conference Proceeding Series*. <https://doi.org/10.1145/3452144.3453743>
- Respaga, N., Maharani, S. D., & Laihat, L. (2021). *Analisis Peran Orang Tua dalam Mendampingi Anak Belajar di Masa Pandemi Covid-19 SD Negeri 10 Payaraman Kabupaten Ogan Ilir* (Doctoral dissertation, Sriwijaya University).
- Riwanto, M. A. (2020). Development of digital science comics for elementary school as a support for digital literacy in online learning. In *ACM International Conference Proceeding Series*. <https://doi.org/10.1145/3452144.3452221>
- Russ, S. (2021). Online learning accessibility during the COVID-19 pandemic. In *Proceedings of the 18th International Web for All Conference*, W4A 2021. <https://doi.org/10.1145/3430263.3452445>
- Serhan, D. (2020). Transitioning from Face-to-Face to Remote Learning: Students' Attitudes and Perceptions of Using Zoom during COVID-19 Pandemic. *International Journal of Technology in Education and Science*, 4(4), 335–342.
- Shamir-Inbal, T. (2021). Facilitating Emergency Remote K-12 Teaching in Computing-Enhanced Virtual Learning Environments During COVID-19 Pandemic - Blessing or Curse? *Journal of Educational Computing Research*, 59(7), 1243–1271. <https://doi.org/10.1177/0735633121992781>
- Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif dan R&D*. Bandung: PT Alfabet.
- Syamsi, A., Andriani, V., & Masnun, M. (2021). Identifikasi Penyebab Rendahnya Dan Upaya Menumbuhkan Motivasi Belajar Daring Selama Masa Pandemi Dalam Mata Pelajaran Matematika Siswa Kelas V Di Mi Al-Wahdah Kab. Cirebon Tahun 2020. *UNIEDU: Universal Journal of Educational Research*, 2(1), 274–291. <https://doi.org/10.1234/uniedu.v2i1.58>
- Syamsi, A., & Saleh, Z. (2021). Modification of a Learning Cycle Model Based on Positive Learning Environment to Improve Primary School Students Scientific Literacy. 58, 1056–1069. <https://doi.org/10.17762/pae.v58i3.3100>
- Thille, C., Schneider, E., Kizilcec, R. F., Piech, C., Halawa, S. A., & Greene, D. K. (2014). The future of data-enriched assessment. *Research & Practice in Assessment*, 9, 5–16. <https://eric.ed.gov/?id=EJ1062812>
- Zimina, N. A. (2021). Dynamics of Students' Intellectual and Personal Development during their Transition from Primary to Secondary School. *Sibirskiy Psikhologicheskii Zhurnal*, 81, 166–186. <https://doi.org/10.17223/17267081/81/8>