

How to Cite:

Mahrani, M., Sari, S. M., & Siregar, S. D. (2022). Transformation of literacy program implementation based on digital learning platform in the era of disruption in Indonesia. *International Journal of Health Sciences*, 6(S2), 9728–9737.
<https://doi.org/10.53730/ijhs.v6nS2.7534>

Transformation of literacy program implementation based on digital learning platform in the era of disruption in Indonesia

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Abstract---The utilization of digital learning platforms is the real transformation of technology and information used in the era of disruption. This study aims to reveal how teachers and students respond to the use of digital learning platform-based literacy programs at the elementary in Padangsidempuan City, Indonesia. The research method applied was mix method with sequential exploratory approach which began qualitative and continued with quantitative research. The sampling technique used cluster random sampling method for quantitative and snowball sampling for qualitative research. Quantitative research data were taken from 5 schools with 150 students and 30 teachers. Techniques Data collection was carried out through the distribution of questionnaires for quantitative and in-depth interviews, documentation studies and observations for qualitative. The results shown that the results of quantitative research strengthen the results of qualitative research where the transformation of the use of online learning platforms gets good response from teachers and students. The use of online learning platforms consisting of whatsapp, drive, youtube, google classroom, and zoom via android could increase the effectiveness and efficiency of learning implementation. The results of this study indicated that it is important to carry out further research and development to produce effective, efficient, and innovative platform which can be used for literacy activity programs at the elementary school, especially in Padangsidempuan City, Indonesia.

Keywords---digital platform, implementation, literacy program.

Introduction

The era of disruption is the top of information and technology transformation which consists of combining automation technology with cyber technology (Blundell et al, 2016). The era of disruption has quickly built human connectivity with artificial intelligence, which has resulted in the development of science and technology growing rapidly, giving rise to competitive changes, threats, and opportunities (Hammond, 2013). The era of disruption caused the big and massive transformations and changes to various aspects of human life, one of the transformation is the implementation of education in Indonesia. Zheng et al., (2016) emphasize that the main support for dealing with changes caused by the era of disruption is quality human resources which produced by education. Human resources for those who relevant to the conditions of the era of disruption are someone who has the ability to think critically, think creatively, collaboratively, and communicatively. To achieve this goal, every one is required to have superior literacy skills (Dobrovolny et al, 2015).

The learning transformation caused by the disruption era is the face-to-face learning system in the classroom has changed into online learning and the use of digital learning platform from manual learning applications to digital-based learning platform. One of the learning activities has changed is literacy learning in schools, both at the elementary and high school levels. Chnage and development in technology make learning models also change. Most governments have invested in the development of digital based learning platforms (Lai et al, 2012). A hardware and digital soft learning platform has been developed and produced with the aim of improving student learning outcomes. Collaborative learning by utilizing resources to implement platforms on computers to reduce educational differences in rural and urban areas. This has become a trend globally (Lin et al, 2017). It is undeniable for teachers to integrate information technology in learning in various teaching materials, learning methods, and teaching media. This has become a shared responsibility for teachers and stakeholders to make learning more efficient, make students happy to learn, and grow students who are creative, rational, and think critically in this digital era. Digital-based learning aims for students to actively participate in learning activities to achieve predetermined learning outcomes (Pai & Tu, 2011).

Vargas and Christobel (2020) reveals that school literacy is an activity which aims to make school as a place for learning (learning to read and learning to write), and to build the students' motivation to read information which aims to improve their ability to use the information. The presence of the era of disruption changes the paradigm of organizing literacy activities in the school environment. The paradigm change that occurred in the era of disruption was not only a way of learning and teaching, but a change in the perspective of the concept of education it self (Anttila et al, 2012). Organizing literacy activities in the era of disruption using various digital applications such as google assistance, social media, and website-based where students can access easily, information obtained quickly, material presented in attractive manner, and cheaper (Yien et al, 2011).

Lestari et al (2021) which revealed that the implementation of literacy experienced obstacles not only in the school environment, but also at home due to internal family factors. Another finding revealed that the implementation of literacy activities both manually and digitally has encountered obstacles in Indonesia. The research findings above revealed that the problem of the implementation of literacy programs at the elementary school level was inadequate supporting facilities. Schools have not complete library with relevant reading sources both manually and digitally, sources of information for literacy activities were still very limited, and planning, implementation, and evaluation of literacy activities were not prioritized by schools properly. To support the effectiveness and efficiency of implementing literacy activities in schools, effective and efficient digital platform were needed so that students can easily access reading sources and information needed.

The explanation above illustrates that how literacy activities ran out at the elementary school education level before and after the era of disruption. The implementation of literacy activities in the era of disruption is identical to the use of digital platform to facilitate the implementation process. For this reason, research needs to set to obtain information on how the process of organizing literacy activities at the elementary school level in Padangsidempuan City, Indonesia? How do teachers respond to the use of digital learning platforms in the implementation of literacy activities at the elementary school level in Padangsidempuan City, Indonesia? And, how do students respond to the use of digital learning platforms in the implementation of literacy activities at the elementary school level in Padangsidempuan City, Indonesia?

Literature Review

Digital Learning Platform

The school literacy movement is a program which aims to make schools a place for learning (reading and writing activities) to improve critical thinking, creative thinking, collaborative and communicative thinking (Hattie & Yates, 2014). The level of student literacy affects psychological changes and adds insight to students so that they are more ready to take part in learning at school. Literacy skills affect thinking and writing skills because literacy activities can open one's horizons to know various things and master various things based on information obtained through various sources. Literacy skills can encourage students to be able to follow changes in science and technology that occur in the current information and communication era. Furthermore, Kahneman (2011) notes that literacy is the key to social change and a practical tool for empowerment in each of the three main pillars of sustainable development, namely: human resource development, economic development, and social development. With expertise and experience, teachers can develop the capacity to read quickly in various situations (Berliner, 2004). Schools can generate and develop patterns and behaviors with stimulation (Hattie & Yates, 2014). To integrate digital technology in classroom learning, many teachers feel disturbed by routines causing teachers to feel uncomfortable, and tired (Somekh, 2007).

Based on the theoretical explanation above, it can be concluded that literacy is a

person's ability to understand various information and situations critically through reading, writing, direct observation, listening to audio, and using information according to the rules. Literacy ability can also be interpreted as the ability of a person to find various information needed in communicating by using tools (Sun et al., 2012). The importance of having literacy skills as one of the competencies to face the era of disruption, so literacy programs must be implemented since elementary school education. This activity is carried out through the stages of habituation, development, and application in learning in order to foster students' interest and literacy skills. For this reason, formal and non-formal education interventions must be prioritized to improve student literacy competence since elementary school because this will be able to support the quality of education itself and the progress of a nation ((Jude et al., 2014). Sebastian et al. (2012) mentions digital learning as the fastest growing learning mode according to the mainstream of technology-based learning. In addition, digital learning is growing rapidly because it presents various advantages compared to conventional learning.

Digital learning platform is the platform which is used in the online learning in media are all forms used to convey messages or information from a source to a recipient. A combination composed of human elements, materials, facilities, and plans that influence each other to achieve a goal that contains a series of events that are designed, arranged in such a way as to influence and support the learning process of students (Chou and Jesness, 2012). Learning media are tools that are physically used to convey the contents of learning materials, which consist of books, tapes, cassettes, video cameras, recorders, films, slides, photos, pictures, graphics, television and computers. . In other words, the media is a component of learning resources or physical objects that contain instructional materials in the student environment that can stimulate students to learn (Tatat, 2016).

Based on the explanation above, it can be concluded that learning media or platform are learning devices used to increase the effectiveness of delivering information from information sources to recipients of information such as books, tapes, cassettes, video cameras, recorders, films, slides, photos, pictures, graphics, television and computers. While digital learning platform used in literacy learning activities are e-learning, website, Google Classroom, Edmodo, Learning House, Teacher Room, Your School, Smart Class, Zenius, Google Suite for Education, Microsoft Office 365 for Education, Whatsapp Group, Google Classroom, Edmodo, and Zoom. E-learning is learning that utilizes technology using electronic media in the form of computers, laptops and cellphones during learning. E-learning refers to the use of internet technology in delivering a series of solutions that are able to improve their knowledge and skills.

Research Methods

The research method used in this research was mixed method. The mixed method research is a research method which combines qualitative and quantitative research methods (Sugiyono, 2019). The approach applied was a sequential exploratory design. The combination method of the Sequential Explanatory model is characterized by the collection and analysis of qualitative data in the first stage,

followed by data collection and quantitative data analysis in the second stage, in order to strengthen the results of the two studies conducted. This research was conducted at the elementary school level in Padangsidempuan City, Indonesia for the 2021-2022 academic year.

This qualitative research aims to explore in depth the teachers and students' respond the using of digital learning platform at implementation school literacy program activities which has been applied at the elementary school education level in Padangsidempuan City, Indonesia. The technique of collecting data sources in this study was purposive sampling and snowball sampling. The source of data in this study were the teachers. Data was collected by using triangulation techniques consisting of direct observation, in-depth interviews, and documentation. There were two types of data in this study, namely primary data and secondary data. Primary data were collected through in-depth interviews with 30 teachers and direct observation to the research object. Secondary data was collected through a documentation study in elementary schools in Padangsidempuan City, Indonesia. The validity test of the data carried out in this study included internal credibility and confirmability tests (Holzberger et al, 2013). Data analysis of this research was using data processing steps based on Miles & Huberman (2014) which consists of data collection, data display, data condensation and conclusion drawing/verifying.

This quantitative research was conducted to identify teacher and student responses to the use of digital learning platforms in the implementation of literacy activities consisting of reading, science, and mathematical literacy at the elementary school level in Padangsidempuan City, Indonesia. The technique of collecting data in this research is by distributing online questionnaires via google form. The sample in this study was fourth grade elementary school students in Padangsidempuan City, Indonesia. The sampling technique used cluster random sampling method. The total sample in this study consisted of 30 teachers and 150 students. Data collection was carried out in 5 elementary schools in Padangsidempuan City, Indonesia. The instrument of this research is by giving a questionnaire of 10 questions to the teacher and 10 questions to the students. The answers presented in the questionnaire agree or disagree with the statements given. The data is processed by categorizing teacher and student responses to the use of digital learning platforms in the implementation of literacy activities consisting of reading, science, and mathematical literacy at the elementary school level in Padangsidempuan City, Indonesia.

Result and Discussion

Desription Data Research

Based on the results of interviews and documentation studies in the field, it shows that literacy activities are carried out using a digital learning platform at the elementary school level in Padangsidempuan City, Indonesia. The dominant platforms used by teachers in carrying out literacy activities are whatsapp, drive, youtube, google classroom, and zoom via android. The type of literacy carried out is basic literacy which consists of reading literacy, scientific literacy, and mathematical literacy. While the literacy stage that is implemented is the

habituation literacy stage through a learning process that is carried out online and offline. The results of this study are in line with the results of previous research conducted by Dhawan (2020) that the types of literacy applied at the elementary school level in Padangsidempuan City, Indonesia are reading literacy, scientific literacy, and mathematical literacy. In implementing reading literacy, scientific literacy, and mathematical literacy, the school involves parents of students to accompany their children from home. From the results of interviews conducted, it can be concluded that the implementation of literacy activities, both manually and digitally, has not been fully effective because of the many obstacles faced by teachers and students in the field. However, the results of a qualitative study show that the teacher's response to the use of the whatsapp, drive, youtube, google classroom, and zoom platforms via android can help teachers and students carry out literacy activities more effectively and efficiently in the era of the Covid-19 pandemic.

The results of the qualitative research above show that the use of digital learning platform can streamline the implementation of reading literacy activities, scientific literacy, and mathematical literacy at the elementary school level in Padangsidempuan City, Indonesia. The results of the research above need to be strengthened by the results of quantitative research conducted in the field to reveal whether the results of qualitative research are in line with the results of quantitative research. The results of this quantitative study were extracted from 30 teachers and 150 students from 5 elementary schools in Padangsidempuan City, Indonesia. Below is a table of the results of the distribution of the questionnaire as a result of quantitative research which serves to strengthen the data of qualitative research results.

Table 1. Results of the Questttonaire Distribution of Elementary School Teacher

No	Indicators	Teachers' Respond (%)	
		Agree	Disagree
1	Planning for using online learning platforms is easier and more efficient	88.9	11.1
2	The type of online learning platform used is simple and easy for teachers to understand	94.4	6.6
3	Online learning platforms make it easier for teachers to deliver subject matter	88.9	11.1
4	The learning materials presented by the teacher are more attractive through online learning platforms	77.8	22.2
5	Learning time management using online learning platforms is more effective and efficient	77.8	22.2
6	Variations of learning models are easier to apply by using online learning platforms	88.9	11.1
7	Teachers use more interesting learning media by using online learning platforms	94.4	6.6
8	It is easier for teachers to master the class and students are more active in learning through the use of online learning platforms	77.8	22.2
9	Learning evaluation can be carried out maximally	77.8	22.2

	by using an online learning platform		
10	The use of online learning platforms makes it easier for teachers to provide feedback on the results of student learning evaluations	83.8	16.7

The data in table 1 above shows that the teacher's response to the use of online learning platforms consisting of whatsapp, drive, youtube, google classroom, and zoom is effectively and efficiently used to carry out reading literacy activities, scientific literacy, and mathematical literacy at the elementary school level in Padangsidempuan City, Indonesia. This is evidenced by the teacher's response in the 10 question indicators showing a higher agree response than the disagree response. To strengthen the data obtained from 30 teachers in the field, a questionnaire was also distributed to 150 students at the elementary school level in Padangsidempuan City, Indonesia. The following is a table of the results of the distribution of the questionnaire as a result of quantitative research which serves to strengthen the data from qualitative research.

Table 2. Results of the Questionnaire Distribution of Elementary School Students

No	Indicators	Teachers' Respond (%)	
		Agree	Disagree
1	The online learning platform has an attractive design and is easy to use	86.66	13.33
2	Lesson materials are more accessible by using online learning platforms	53.33	46.66
3	The use of online learning platforms helps students more easily understand the concept of the subject matter	66.66	33.33
4	Students are more active with teachers in the learning process through online learning platforms	73.33	26.66
5	Students can understand the subject matter more easily through online learning platforms	26.66	73.66
6	Students can complete assignments on time by using online learning platforms	73.33	26.66
7	Students like flexible study times through online learning platforms	93.66	6.33
8	Students prefer to learn through online learning platforms rather than face-to-face learning in the classroom	33.33	66.66
9	Students are happy with the use of varied learning methods and media that are applied through online learning platforms	86.66	13.33
10	Students can take exams more effectively through online learning platforms	60.00	40.00

Discussion

The results of the research above indicate that the qualitative data reveals that teachers have a positive response in the use of digital learning platforms in carrying out literacy activities at the elementary school level of Padangsidempuan

City, Indonesia. This data is supported by quantitative research data explored through the distribution of questionnaires where the 10 item questionnaire shows the percentage of teachers who agree with the digital learning platform is higher than teachers who disagree. On indicators of effectiveness and efficiency of using digital learning platforms, teachers state that using digital learning platforms is easier and more interesting in presenting literacy activity materials to students. Consisting of 88.9% of teachers responded that the implementation of literacy and learning activities is easier to do and the material can be presented more attractively so that this can increase student motivation in participating in learning.

The response stated by the teacher is in line with the response expressed by students where 86.66% of students stated that online learning is more interesting and easy to use. 66.66% of students stated that online learning helps students more easily understand the concept of the subject matter. The findings above are in line with the results of previous studies where the use of the whatsapp, zoom and google classroom platforms can increase the effectiveness of learning (Nuriansyah, 2020). The same research was also conducted by reviewing 115 scientific articles that the use of digital learning platforms can improve student learning outcomes during the Covid-19 pandemic. In the aspect of the effectiveness of delivering material in the learning process, teachers are greatly helped by using digital learning platform. As many as 88.9% of teachers think that digital learning platforms make it easier for teachers to deliver subject matter to students. However, this finding is contrary to the students' responses. Where as many as 73.66% students find it difficult to understand the material presented by the teacher through the digital learning platform. Through the online learning process students have difficulty understanding the material because it is not explained in detail.

In the learning process, the use of this digital learning platform provides flexibility to students. Data shown 93.66% of students like flexible study time through digital learning platforms. Teachers also have the same response as the responses given by students during the digital learning platform in the learning process. The learning process through the digital learning platform does not bind the time the teacher has to provide learning in the classroom. The findings above are in line with the results of Nuriansyah's (2020) research that the use of digital learning platforms is very flexible for teachers where 51.3% stated strongly agree and 33.33% agreed that the use of digital learning platforms was effective. The results of the same study were also expressed by Salsabila et al., (2021) where the use of digital learning platforms was good enough to increase the effectiveness and flexibility of online learning in the Covid-19 pandemic era. In addition to the learning process that takes place online using digital platform, the measurement of student learning outcomes can be carried out more effectively and efficiently. This is evidenced with the responses given by the teacher where 83.8% of teachers agree that the use of digital learning platforms makes it easier for teachers to provide feedback on the results of student learning evaluations. The response given by the teacher is in line with the response given by students where 60% can take exams more effectively through online learning platforms.

Conclusion

Based on the results of the research and discussion above, the results of this study can be concluded that the results of quantitative research strengthen the results of qualitative research where the transformation of the use of digital learning platforms gets a good response from teachers and students. The use of digital learning platforms consisting of whatsapp, drive, youtube, google classroom, and zoom via android can increase the effectiveness and efficiency of learning implementation. The results of this study indicate that it is important to carry out further research and development to produce a more effective, efficient, and innovative platform that can be used to carry out literacy activity programs at the elementary school education level, especially the elementary school education level in Padangsidempuan City, Indonesia.

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