The Development of Guidebook for Implementing Online Learning through Google Classroom Assisted by Zoom as a WFH Solution for Elementary School Teachers

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Abstract

Education in Indonesia has been affected by the Covid-19, which was followed up by closing schools and replacing them with studying/ teaching online from home (WFH). Since its implementation in several provinces, many teachers have started to get confused about teaching their students because there is no online learning guide. A preliminary study conducted at the Drupadi Cluster shows that many teachers experience difficulties in implementing online learning. This research aims to develop an online learning guide book through Google Classroom assisted by Zoom that is valid, effective, and practical for elementary teachers. It is an R&D that refers to the 4-D model from Thiagarajan. The trial subjects were 40 teachers. Data collection techniques used tests, observations, questionnaires, interviews, and documentation. The data were analyzed by qualitative and quantitative descriptive analysis. The guidebook has met the valid criteria, with the average score obtained from three validators is 3.56. The guidebook is also effective for increasing teachers' knowledge of online learning as evidenced by the N-gain results amounted to 0.60, included in the moderate category. It is also effective in improving their online teaching skills, as proven by the average score of 20.3 (very high). It has also met the practical criteria indicated by all teachers' average response scores of 55.38 (very positive). The developed guidebook has met the criteria of being valid, effective, and practical to help elementary teachers deal with online learning during WFH.

Keywords: guide book, google classroom, zoom, teacher.

1. Introduction

The spread of the Covid-19 disease caused by the coronavirus, which is becoming an international epidemic, has an impact on social and economic life. However, it also has an impact on the world of education. Coronavirus disease 2019, which is abbreviated as COVID-19, is an infectious disease caused by SARS-CoV-2, a coronavirus type (Gorbalenya, 2020; BBC, 2020). This disease resulted in the 2019–2020 coronavirus pandemic (WHO, 2020; Hui DS et al., 2020). Not a few countries have issued lockdown or quarantine policies that have an impact on schools or universities. The United Nations organization in charge of education, and UNESCO says that 39 countries have implemented school closures with the total number of students affected reaching 421,388,462 children (Kompas: 2020). Education in various Indonesia regions has also been affected by the Covid-19 pandemic, followed by closing schools and replacing them with studying at home online.

As was done by the Governor of Central Java, Ganjar Pranowo, closed all schools in Central Java during the Covid-19 outbreak, starting Monday (16/3/2020). This decree applies to all levels of education, starting from kindergarten (TK), elementary school (SD), junior high school (SMP), and high school (SMA) or equivalent. Teaching and learning activities (KBM) in all schools are replaced online (Kompas, 2020). This policy was taken as a follow-up to Circular number 440/0005942 concerning Increased Awareness of the Risk of Corona Virus (Covid-19) Infection in Central Java. This policy impacts elementary teachers who must implement online learning by involving the use of technology in distance learning. That policy is following the expectations of Permendikbud no. 22 of 2016 concerning the standard process in which teachers are required to have qualified technological literacy. They are expected to utilize information and communication technology to increase the efficiency and effectiveness of

learning to create a learning process in academic units that are held interactively, inspiring, fun, challenging, motivating participants students to participate actively through the use of technology.

Furthermore, Online learning is the use of internet networks by teachers and students in the learning process. Through online learning, students have flexibility in learning time. Students can study anytime and anywhere. Students can interact with lecturers both synchronously - learning interactions simultaneously, such as using video conference, telephone or live chat, or asynchronously - learning interactions at different times through learning activities that have been provided electronically (Kaplan, 2016; Vaughan, 2010; Lever-Duffy, 2007). Nevertheless, in fact, the Chairperson of the Indonesian Teachers' Association (IGI) said that most teachers still stutter with online learning which is being implemented in many regions. Since the implementation of learning at home in several provinces, some teachers have started to become confused about how to teach their students at home. Online learning is not just students doing assignments at home but also in class but using technology (Rahim, 2020). In line with this, the online daily reports that teachers are deemed not ready with an online learning system because there is no online learning manual, teachers send more assignments using WhatsApp (WA), are done by students then photographed and sent back to the teacher (Republika, 2020), and some schools have not even implemented distance learning on the first day this policy was enforced. Students have to work on LKS (student activity sheets) as usual because there are no guidelines or instructions for implementing online learning (BBC Indonesia, 2020). The Minister of Education and Culture (Mendikbud), Makarim (2020) instructed the urgency of developing online learning guides for teachers in response to the many complaints of teachers who had misunderstood the concept of online learning when their students were studying at home.

A preliminary study conducted in the Gunungpati Drupadi Cluster, Semarang City, which consists of 53 elementary school teachers, shows that approximately 75% of teachers (or about 40 teachers) still experience difficulties in applying technology in implementing online learning during work from home (WFH) as a consequence the outbreak of the covid-19 virus. Most of the teachers still stutter with online learning; in general, they still use WhatsApp (WA) to send assignments to students' parents. Then after they are done, it must be sent back to the teacher's WA without any explanation of the material related to the given assignment. As a result, students get confused in doing assignments and even ask their parents to accomplish them of the students who also impacts most of the parents complaining about the large number of tasks that students must do without any explanation from the teacher who ends up taking the parents' time to teach their children to do the task. Besides, some teachers still use worksheets as tasks that students have to do at home to be collected when they enter school later. These things are not under the concept of online learning which is expected by the Ministry of Education and Culture, which requires that there is still an interaction between teachers and students in virtual learning with the use of technology. These various things require the development of online learning guidebooks through Google Classroom assisted by Zoom for Teachers.

Many educational institutions worldwide are undergoing, expanding or planning to learn from home or work from home due to COVID-19, half of the world's student population cannot attend school. Educators face the challenge of teaching remotely on an unprecedented scale, and in some cases, for the first time. Google Classroom is a learning tool solution that teachers and students worldwide can use during the WFH period (Shah, 2020). The purpose of this research is to produce an online learning guide book through Google Classroom with Zoom assistance that is valid, effective, and practical for elementary teachers as a WFH solution amid the Covid-19 Pandemic.

2. Literature Review
Google Classroom is a free web service, developed by Google for schools, that aims to simplify creating, distributing and grading assignments in a paperless way. The main goal of Google Classroom is to streamline sharing files between teachers and students (Google, 2018). Google Classroom makes teaching more productive, collaborative and meaningful. With Classroom, educators can create virtual classes, distribute assignments, grade and send feedback, and see everything in one application (Google, 2019). Another advantage of google classrooms is that it can be accessed anywhere and anytime by using various devices (laptops, tablets, and androids). Google Classroom is the best online learning management application that can be used for free by teachers and students anywhere and anytime, teachers can track student progress, so they know where and when to provide additional feedback. With simplified workflows, more energy can be focused on providing students with constructive and personalized recommendations, with simple integration with G Suite for education, and Google classrooms can streamline repetitive (administrative) tasks and allow teachers to focus more on the teacher's main task: teaching (Google, 2018). Google Classroom ties Google Drive, Google Docs, Sheets and Slides, and Gmail to help educational institutions switch to online and paperless systems (Kerr, 2014). Google Calendar is then integrated to

help determine due dates for assignments, field visits, and class speakers (Hockenson, 2015). Students can be invited to classrooms via the institution database, or via a secret code which can then be added to the student user interface or automatically imported from the school domain (Google, 2017). Each class created with Google Classroom creates a separate folder in each user's Google Drive, where students can submit work to be graded by a teacher (Steele, 2017). Based on several studies regarding Google classroom, it can be concluded that google classroom is a suitable solution for use in today's online learning period.

Furthermore, in an effort to overcome the limitations of face-to-face learning directly, it is necessary to apply the Zoom platform which allows face-to-face activities and virtual communication between teachers and students. Zoom was developed by Zoom Video Communications, an American long-distance conference service company headquartered in San Jose, California. Zoom provides a remote conferencing service that combines video conferencing, online meetings, chat and mobile collaboration (Maldow, 2013). Zoom was founded in 2011 by Eric Yuan, principal engineer of Cisco Systems and its collaborative business unit WebEx. This service started in January 2013, and as of May 2013 it claims one million users (Pleasant, 2013). Zoom is one of the most popular virtual meeting solution platforms in many countries which is well known for its reliability and ease of use, especially when compared to competitors (Novet, 2020). In 2020, Zoom usage rose 67% from the beginning of the year to mid-March as schools and companies adopted platforms for remote work in response to the coronavirus pandemic (Vena, 2020). As the pandemic intensifies, thousands of educational institutions are turning to online classes using Zoom (Mervosh, 2020; Strauss, 2020). Zoom has also become a popular social platform during the Covid-19 pandemic (Lorenz, 2020; Parsons, 2020) because Zoom offers its services to schools for free in many countries in response to the covid-19 pandemic (Konrad, 2020).

Thus, mastery of Google Classroom assisted by Zoom which will be packaged in the form of a guidebook and it can be a solution for elementary school teachers in the Drupadi Cluster to answer existing problems, namely the implementation of technology in implementing online learning during the work from home (WFH) period as the consequences of the outbreak of the Covid-19 virus in accordance with process standards (Hardika et al., 2020; Kanto et al., 2020; Umanailo, 2020). The purpose of this research is to produce an online learning guide book through Google Classroom with Zoom assistance that is valid, effective, and practical for elementary teachers as a WFH solution in the midst of the Covid-19 Pandemic.

3. Methods

This research is development research that refers to the 4-D model (Four D model) from Thiagarajan, Semmel and Semmel (define, design, develop, and disseminate) but is limited to the developing stage. The subjects of this study were 40 teachers of Drupadi cluster, Gunungpati, Semarang. Data collection techniques used tests, observations, questionnaires, interviews, and documentation. Data analysis techniques used qualitative and quantitative descriptive analysis. The trial design used the One Group Pretest-Postest Design experimental design can be describes at table 1.

Table 1. *One Group Pretest-Postest Design*

O_1	X_1	O_2

(Sugiyono, 2013: 111)

4. Data Collection

Data collection techniques used tests, observations, questionnaires, interviews, and documentation. Data analysis techniques used qualitative and quantitative descriptive analysis. The validity of the manual is measured from the validation of three experts (validators). The practicality is derived from the teacher's questionnaire response to the guidebook with the criteria of at least 75% of teachers responding positively. The guidebook's effectiveness in this study was seen from the achievement of the posttest results, which included cognitive tests and observations of teacher skills.

5. Results and Discussion
5.1. Guide Book's Characteristic
An online learning guide book through the Zoom-Assisted Google Classroom for Elementary School Teachers was developed in response to teachers who are undergoing, expanding or planning to learn from home or work from home due to COVID-19, Educators face the challenge of teaching remotely on a scale that has not yet has happened

before, and in some cases, for the first time. This guidebook was developed according to the teacher's need to implement online learning in elementary schools. The characteristics of the manual can then be described as follows:

1. The first part of the manual consists of the title of the manual (cover), an introduction, a table of contents, and a manual for the book's use.
2. Introduction to the Online Learning Guide Book through Google Classroom with Zoom Assistance for Elementary School Teachers as a WFH Solution in the Middle of the Covid-19 Pandemic, contains a) the juridical foundation for guidebook development (Permendikbud, regulations), b) empirical foundation for developing online learning guidebook (Pandemic Covid-19, WFH), c) Reasons for using Google Classroom as a solution, d) Reasons for using Zoom as a solution.
3. Theoretical basis in the guidebook is described based on supporting theories regarding the Development of Online Learning Guidebooks through Zoom Assisted Google Classroom for Elementary School Teachers as WFH Solutions in the Middle of the Covid-19 Pandemic The theoretical foundation should contain theories about: the nature of the Handbook, the nature of Online Learning, Google Classroom, Zoom.

Data collection techniques used tests, observations, questionnaires, interviews, and documentation. Data analysis techniques used qualitative and quantitative descriptive analysis. The validity of the manual is measured from the validation of three experts (validators). The practicality is derived from the teacher's questionnaire response to the guidebook with the criteria of at least 75% of teachers responding positively. The guidebook's effectiveness in this study was seen from the achievement of the posttest results, which included cognitive tests and observations of teacher skills.

5.2. Guide Book's Validity

Three experts then validated the guide book that was developed at the design stage to get an assessment and input. Input from the validator is used to improve the media before it is implemented in the trial class. The determination of the validity refers to the criteria, which can be seen in Table 2.

Table 2. Guide book's Validity Criteria

Score	Category
$3{,}25 \leq S < 4{,}00$	Valid
$2{,}50 \leq S < 3{,}25$	Quite Valid
$1{,}75 \leq S < 2{,}50$	Less Valid
$1{,}00 \leq S < 1{,}75$	Invalid

The results of the validator's assessment of the developed guide book can be seen in Table 3.

Table 3. The Results of the Guide Book Validation

Validator	Score	Category	Follow-up
Validator 1	3,50	valid	It can be used with minor revisions
Validator 2	3,67	valid	It can be used with minor revisions
Validator 3	3,50	valid	It can be used with minor revisions
Average	3,56	valid	

Table 2 shows the results of the guide book validation carried out by three validators. The average score obtained from the assessment of the three validators was 3.56 in the valid category. All validators stated that the manual could be used with a few revisions before being used in the trial class. The following are suggestions given by the validator and improvements made to the online learning guide book through Google Classroom assisted by Zoom for Elementary School Teachers, as shown in Table 4 below.

Table 4. Revisions made to the Guide Book

Component	Suggestions	After revision
The beginning	1. In the manual for using the book, there are letters that appear small and unclear.	1. Font's style and size has been changed.

Component	Suggestions	After revision
Content	1. Pay attention on citation writing 2. There are still some misspelled/ typo words	1. Several misquotations have been corrected. 2. Correction of misspelled / typed words
Use of language	1. pay attention to use standard words. 2. Every foreign word needs to be translated into Indonesian	1. Editors have paid attention to using standard words 2. Foreign words have been translated into Indonesian
Guide book graphic	1. Make the cover more attractive with the clear Google Classroom and Flipgrid logos 2. There are still some unclear pictures	1. The cover has been made more attractive with a clearer logo 2. The image has been replaced with a higher resolution and better quality

5.3. Learning tools Effectiveness

Indicators of the guidebook's effectiveness in this study were determined based on the results of the teacher's cognitive tests and the observation of the teacher's skills in implementing zoom-assisted google classroom for online teaching.

5.3.1 Cognitive Test Results

The cognitive test's completeness is calculated from the number of teachers who get a post-test score more significant than the KKM, 70 or the complete category. Guidebooks are said to be effective in increasing the knowledge of elementary school teachers if ≥ 75% of teachers who score above the KKM or there are at least 30 teachers who get a score of ≥ 70. Learning outcomes are obtained from pre-test and post-test data. The teacher's cognitive tests were obtained from the pre-test and post-test results in multiple-choice questions totalling 20 items with four answer choices. The pre-test was given to teachers before being given a manual to get a picture of the teachers' initial abilities. Post-tests are given to students after reading and practising the steps of teaching online with the zoom-assisted google classroom guide book to compare the pre-test results to get an idea of whether or not there is an increase in the knowledge of elementary teachers. Teachers' cognitive knowledge is said to increase if the post-test results are better than the pre-test results. Recapitulation of the results of the pre-test and post-test of 40 teachers can be seen in Table 5.

Table 5. Recapitulation of Pretest and Posttest Results

No	Variable	Score	
		Pretest	Posttest
1	The lowest score	25	50
2	The highest scrore	85	100
3	Average score	54.3	81.8
4	Number of acchomplished teachers (score ≥ 70)	10	34
5	Number of failed teachers (score < 70)	30	6
6.	Accomplishment percentage (%)	25	85

The lowest pretest score was 25, and the lowest post-test score was 50. The highest pretest score was 85, while the post-test score was 100. The average pretest score was 54.3, while the post-test score was 81.8. Only ten teachers had completed the KKM at the time of the pretest, while the post-test results showed that 34 teachers had completed the KKM and only six teachers had not yet completed the KKM. The percentage of classical completeness at the time of the pretest was 25% while the percentage of classical completeness at the post-test was 85%.

Furthermore, the result of the N-gain calculation showed an increase in the average cognitive test results of the teachers, namely 0.60 which was included in the moderate category because it was located in the range 0.30-0.70 so that it could be seen that the application of the manual developed was effective. To increase the (cognitive) knowledge of elementary school teachers regarding online learning application using zoom-assisted google classrooms. This result is following research conducted by Bhat et al. (2018) shows that teachers and students respond to the need to migrate from traditional learning to E-learning to improve the quality of learning. Another research conducted by Hikmat et al. (2020) shows that learning from home policy by implementing online learning using the Zoom application is effective for theoretical and practical subjects.

5.3.2 The results of the observation of teachers' online teaching skills
Elementary school teachers' online teaching skills were observed using the teacher's skill observation sheet to apply zoom-assisted google classroom for online learning. The skills observed include three main things: 1) skills in using google classrooms, 2) skills using Zoom, and 3) skills in integrating zoom-assisted google classrooms. When the primary skills are further translated into six skills, namely: 1) skills in making virtual classes; 2) student management skills; 3) skills in managing material/content in class; 4) assessment skills; 5) zoom skills; and 6) zoom-assisted google classroom integration skills. Observations were made during book review activities and practised applying the steps in the manual. The following are the criteria for scoring teacher online teaching skills, as shown in Table 6 and table 7.

Table 6. Online Teaching Skills Scoring Criteria

Score	Category
$20 \leq S \leq 24$	Very High
$15 \leq S \leq 19$	High
$10 \leq S \leq 14$	Low
$6 \leq S \leq 9$	Very Low

Table 7. Recapitulation of the Observation Results of Online Teaching Skills

Valriabel	Achievement
The number of teachers with a very high category skill score	26
The number of teachers with high category skill scores	9
The number of teachers with low category skill scores	5
Average skill score of all teachers	20.3
Category of average score	Very High

Table 6 shows that the steps for implementing online learning using zoom-assisted google classrooms contained in the guidebook can generally be practised by most of the teachers as indicated by 26 teachers getting very high category skill scores and nine people with high categories so that the average score Teacher skills are 20.3 with a very high category. However, there are still five teachers who still have low skill scores because they are still not familiar with Android cellphones, they still experience confusion in operating Android cellphone applications so during practice they often ask questions and ask for help to other teachers to be able to access google classroom and zoom. This proves that manuals effectively facilitate teachers to improve their online teaching skills through zoom-assisted google classrooms. These results indicate that most teachers easily understand google classroom and zoom. It is in line with Google's statement (2018), the advantages of google classrooms are that they can be accessed anywhere and anytime using various devices (laptop, tablet, and android), google classroom is the best online learning management application that can be used for free by teachers and students wherever and whenever. In line with Google, Zoom is one of the most popular virtual meeting solution platforms in many countries known for their reliability and ease of use (Novet, 2020). In addition, Bondarenko, Mantulenko, and Pikilnyak (2018) state that the learning process using Google Classroom ensures a unity of learning in the classroom and outside the classroom; designed to realize effective interaction of lessons learned in real-time; Furthermore, a research conducted by Suhada et al. (2020) shows that the use of google classrooms in online learning during the Covid-19 outbreak is quite fair and effective, it is just that it would be better if combined with other online platforms such as Zoom meeting.

5.4. Practicality of the Guide Book
The guidebook's practicality in this study was determined from the results of the teachers' responses to the manuals developed. The results of the teacher's responses were obtained from filling out the questionnaire sheet of the teacher's response to the online learning guide book through Google Classroom with Zoom assistance for elementary school teachers, which consisted of four indicators, namely: 1) display aspects, 2) material presentation aspects, 3) language aspects, and 4) benefit aspects. The four indicators are further translated into 16 statements.

Twenty-five teachers responded very positively to the developed guidebook, namely with a total response score between 53 and 64. The number of teachers who responded positively to the lecture kit was 15 people with a total response score between 41 to 52 so that no teacher responded negatively. The average response score of all teachers is 55.38 which is in the very positive category, so it can be seen that the online learning guide book through Google

Classroom assisted by Zoom for Elementary School Teachers has been responded very positively by elementary teachers in the Drupadi cluster.

6. CONCLUSION

An online learning guide book through the Zoom Assisted Google Classroom for Elementary School Teachers was developed in response to teachers who are undergoing, expanding or planning to learn from home or work from home due to COVID-19. This handbook was developed according to the teacher's need to implement online learning in elementary schools. The guidebook has met the valid criteria with the average score obtained from the assessment of the three validators is 3.56 with the valid category. Guidebooks are also effective in increasing teachers' knowledge of online learning as evidenced by the N-gain calculation results showing an increase in the average pretest and posttest cognitive results of teachers, namely 0.60 which is included in the moderate category. The guidebook effectively facilitates teachers to improve their online teaching skills through zoom-assisted google classrooms as proven by the average score of teacher skills of 20.3, which is a very high category. The guidebook has also met the practical criteria indicated by all teachers' average response score of 55.38, which is very positive. It can be seen that online learning manuals through Google Classroom assisted by Zoom for Elementary School Teachers have been responded very positively by teachers- elementary school teacher in the Drupadi cluster. The need for more comprehensive trials and dissemination so that the developed guidebook can be more useful and get input to be better.

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