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Mathematics Teacher's Response to Blended Learning Hyper content with Hyperlinks as a Limited Face-to-Face Learning Strategy

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Abstract. *The need for adaptive learning strategies during limited face-to-face learning inspires this study. The research intends to analyze the responses and implementation plans of mathematics teachers in implementing blended learning hyper content with hyperlinks on linear equation system with two variables (LESTV). The data collection was done through survey involving questionnaires and interview sheets. Data were then analyzed descriptively. The participants were 38 mathematics junior high teachers in Purwakarta, Indonesia. This study shows the enthusiasm and confidence of teachers in implementing blended learning hyper content with hyperlinks, which is undoubtedly a new insight. It is deemed flexible and easy to apply and becomes an alternative during limited face-to-face learning. Mathematics teachers can plan Blended Learning Hyper content with Hyperlinks through various media and topics. Various LESTV problem-solving strategies can give student interest in studying LESTV concepts and solving problems.*

Keywords*: blended learning, hyper content, hyperlinks, mathematics teachers.*

Introduction

Teachers are considered the cornerstone of education. They must position themselves as carriers of change in instilling noble values in students to become quality human beings who have faith in God Almighty (Putri, Andriningrum, Rofiah, & Gunawan, 2019). The previous statement means that teachers must manage their classes well. Managing the class intends to create and maintain a classroom atmosphere so that the learning process is effective (Gultom, Hutauruk, & Ginting, 2020). The class atmosphere in question should meet the psychological needs of students, one of which is competency needs. Every student must feel competent (Indira, Hermanto, & Pramono, 2020). Thus, the teacher must have the ability to manage learning that can meet the needs of students while studying.

For now, after the emergence of the COVID-19 pandemic, teachers are required to be able to adapt to existing conditions with policies that instruct learning at all levels, including junior high school to learn online at all levels at home, replacing the initial face-to-face learning. The policy refers to the Ministry of Education and Culture (Kemendikbud, 2020). With this policy, it is clear that teachers must adapt to learning conditions at home by seeking

various literacy and research related to distance learning (Nurdin, Chaerunnisa, & Santoso, 2021).

A new learning policy was implemented following the decrease in COVID-19, including junior high school levels. Areas within the moderately safe zone (yellow and green) have to do limited face-to-face learning. The policy is consistent with the implementation of Distance Learning, particularly in Purwakarta Regency (Widayanti, 2020). This policy implies that junior high school mathematics teachers must re-adapt from online learning to limited face-to-face learning.

Limited face-to-face learning is the most effective learning activity because learning occurs between educators and students face-to-face with health protocols (Sistiarini, Ishaq, & Sulthoni, 2021). The health protocol in question states that only 50% of students can study at school while the rest continue to study at home. Therefore, teachers must facilitate students' learning at school and at home. In addition, students also face obstacles in studying at home when their family only has one device (Widayanti, 2020).

Face-to-face learning is inseparable from digital technology. In addition, the instructors must be competent. Therefore, teachers must adapt to technological developments, which are also increasing rapidly (Situmorang, Hutasuhut, & Maipita, 2019). Technology can help mobile learning outside the classroom and take advantage of the learning opportunities environments, including at home (de Azevedo, Delgado, & Silva, 2017). Even in mathematics learning, extensive studies have found that technology can help in learning mathematics, providing students with some understanding without being able to do each step of calculation by hand (Timcenko, 2009).

However, actual findings show quite a contrast. Mathematics teachers in junior high schools still find it difficult to design learning and teaching materials adapted to limited face-to-face learning (Turmudi, Hidayat, & Widodo, 2018). The cause arises from mathematics teachers who still have difficulty using technology. Although technology is an essential part of learning and mathematics, technology affects the mathematics taught and improves learning (NCTM, 2000; National Research Council, 2001). In addition, utilizing technology can increase learning efficiency, improve memory by providing similar learning content, and involve students in Learning (Wang & Zhang, 2015).

Several studies say that students and teachers have difficulty using technology in this digital era, especially when collecting assignments (Zuyyinasyam, Nandiyanto, Kurniawan, Bilad, & Al Husaeni, 2022). The observations made at SDN Wulungsari found that most teachers had difficulty using technology to support the teaching and learning process because teachers' understanding of learning technology was still limited. Be that as it may, teachers

must always be up to date in science and technology, so there is a renewal of teaching methods (Purnasari & Sadewo, 2020). The reason technologies are challenging is because there has been no previous research, and teachers must use it directly for learning. Besides, students also have to adjust to learning online, which was previously rarely accomplished (Pujiasih, 2020).

Researchers have carried out several strategies to overcome the problem of the difficulty of using technology by teachers. One of the previous research strategies was through workshop activities explicitly employed for guidance and counselling teachers through lectures, questions and answers, and discussions, which resulted in teachers being very enthusiastic, serious, and able to practice directly (Triyono, Febriani, Hidayat, & Putri, 2019). In addition, there is also workshop on the use of Zoom for vocational teachers so that teachers can carry out synchronous learning or live streaming (Ihsan, Ramadhani, & Matahari, 2019). Another technology uses workshop for several English teachers using Computer Assisted Language Learning and Mobile Assisted Language Learning using Edpuzzle and Mentimeter. The implementation of worshop on technology in the class has increased pre-service teachers' confidence and proficiency regarding integrating technology into classroom instruction and learning environments (Lawrence, 2006). Based on several previous studies regarding efforts to disseminate the use of technology, it is still limited to using digital technology tools for online learning for non-mathematical teachers. It does not describe the development of technology-based teaching materials for face-to-face learning. Thus, there is a need for workshop in the use of technology and the preparation of digital teaching materials that can be accessed online and in print in learning mathematics, especially in junior high schools.

Blended learning packaged with Hypercontent with Hyperlinks is an alternative to problem-solving using technology and preparing digital teaching materials during limited face-to-face learning. Blended learning combines technology-supported self or distance study settings and face-to-face settings (Akkoyunlu & Soylu, 2006; Launer, 2010). Through Blended Learning, education can integrate technology and multimedia into the class. Multimedia and discussion have potential value as teaching techniques (Fleck, Beckman, Sterns, & Hussey, 2014). Blended learning can create and sustain productive conditions that will benefit Learning (Lakhal & Meyer, 2020) because the teaching and learning process can keep going even though the school is closed (Pape, 2010). The meaning of hyper content is adopted from how to read digitally, which is nonlinear. The Hypercontent module combines hypertext, hypermedia, and hyperlink into one part (Amin, Muslim, & Wirasti, 2020). Hypercontent is a concept that combines materials and other materials in specific digital

technology programs (Simbolon, Seragih, & Situmorang, 2021). Planning the information hypercontent of the hypertext requires adopting an algorithm able to structure the discourse in a coherent way inter and intra node (De Carolis, 1999). Meanwhile, hyperlinks represent the relationship between two or more objects and related objects (Gardarin & Yoon, 1994).

Through Blended Learning Hypercontent with Hyperlinks, teachers can design and insert digital mathematics teaching materials that students can access online using their gadgets or print by scanning the QR code provided by the teacher. Thus, students can easily access it anytime and anywhere. The problem in this study is to find out how junior high school mathematics teachers respond to Blended Learning Hypercontent with Hyperlinks and how the implementation plan of Blended Learning Hypercontent with Hyperlinks in their schools is.

Methods

The research design uses a survey method by applying Blended Learning Hypercontent with Hyperlink. This study aimed to obtain an overview of the responses and implementation plans of mathematics junior high school teachers in implementing blended learning hyper content with hyperlinks in their schools. The participants of this study was mathematics junior high school teachers in Purwakarta Regency. There were 38 teachers from different junior high schools involving Blended Learning Hypercontent with Hyperlinks workshop.

The data were collected through questionnaires with the help of Google Forms and direct interviews with each participant with an interview sheet. The implementation of blended learning hyper content with hyperlinked material for teachers consists of three stages: preparation, implementation, and evaluation. The preparation stage was conducted in coordination with the Head of the Education Officer and the Head of the Ministry of Religious Affairs of Purwakarta Regency to recommend several teachers as participants in this worshop and research. The implementation stage is by providing Blended Learning Hypercontent with Hyperlinks material with the help of a QR Code delivered by partner members, namely a supervisor from the Ministry of Religious Affairs of Purwakarta Regency who knew mathematics. In addition, the strengthening of the materials in the hyperlinks was presented by a Professor of Mathematics Education, Universitas Pendidikan Indonesia. The implementation of this activity was done face-to-face at the New Building of the Universitas Pendidikan Indonesia Campus in Purwakarta with strict health protocols for one day from 07.00 to 15.30 WIB. The participants in the implementation got material modules and various mathematical problem-solving strategies, especially the System of Two-Variable Linear Equation. Furthermore, the participants were allowed to practice designing their digital teaching materials with the guidance

of the presenters. In the evaluation stage, participants were given questionnaires and direct interviews, which were analyzed descriptively for each response to get a comprehensive figure of the research results in participant responses and participants' implementation plans in implementing Blended Learning Hypercontent with Hyperlinks assisted by QR Code in their own schools.

Results and Discussion

Overview of blended learning hypercontent with hyperlink implementation guidance for teachers

This study explains the implementation of Blended Learning Hypercontent with Hyperlinks in mathematics learning for junior high school teachers in Purwakarta, teachers' responses, and further implementation plans of teachers in their schools in implementing Blended Learning Hypercontent with these Hyperlinks learning. In practice, teachers understood digital teaching materials that students could access anytime and anywhere by adding elements such as images, videos, and easy printability. Studies say teachers can use digital teaching materials to make learning more interesting by adding videos and animations (Hakim, Kustijono, & Wiwin, 2019). The following is an explanation of how to prepare the digital teaching materials by the teacher in hyper content with hyperlinks:

In the first activity, the teachers got two modules, namely Module 1, which related to the System of two-variable linear equations, and Module 2, which is about problem-solving strategies for the System of two-variable linear equations. The modules as shown in Figure 1.

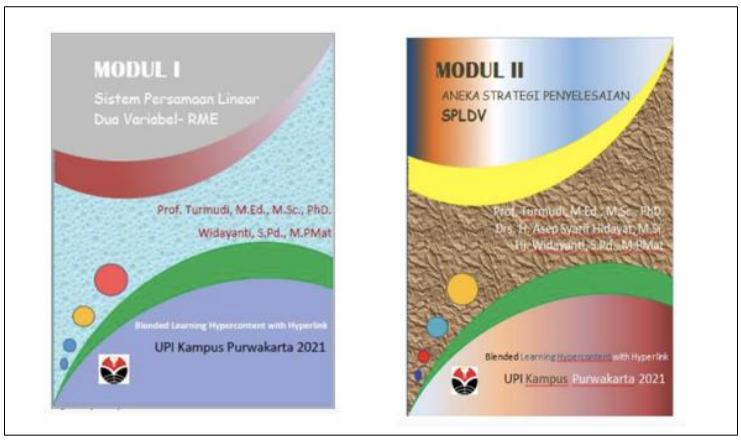

Figure 1. Module cover view

In Module 1, concepts related to the System of the two-variable linear equation are explained through the Realistic Mathematics Education (RME) approach. The RME approach was used because studying the System of the two-variable linear equation requires learning with real situations and the stimulus of everyday math problems. It refers to three principles of RME

namely guided reinvention and progressive mathematizing, didactical phenomenology, and self-developed models (Gravemeijer, 1994). Furthermore, Module 2 contains various problem-solving strategies for the system of two-variable linear equations developed by the researchers, including 1) trial error method; 2) Using the Combination Model; 3) Using Restaurant Menu Strategy; 4) Substitution Method; 5) Solution Method Using Elimination; 6) Mixed Elimination and Substitution Methods; 7) Graphic Method; 8) Matrix Method; and 9) Determinants. The strategy offered is relatively new for participants. Some strategies of the System of the two-variable linear equation that students commonly use are the graph, substitution, and elimination methods (Zulkarnaen, Kusumawati, & Mawaddah, 2021). The following is an example of a Restaurant Menu Strategy:

In the restaurant menu strategy, the food names, the number of each order, and the price are usually already available. For example, Zaki ordered 4 kilograms of mango and 2 kilograms of salak for IDR 32,000.00. Hani ordered 5 kilograms of mango and 7 kilograms of salak. The price was IDR 58,000.00, presented in the form of a menu. It will look like this in Table 1 below:

Table 1. Restaurant menu strategy

Order No	Mango (kg)	Salak (kg)	Price (IDR)	Explanation
1	4	2	32	Already Known
2	5	7	58	Already Known
3	2	1	16	Half of order 1
4	9	9	90	Total of orders 1 and 2
5	1	1	10	1/9 of order 4
6	1	0	6	Difference between orders 3 and 5
7	4	4	40	Four times of order 5
8	0	2	8	Difference between orders 1 and 7
9	0	1	4	Half of order 8
				Until here, it turns out that 1 kg of salak is worth 4 thousand (Order 9) and 1 kilogram of mango is worth 6 thousand (Order 6)

Thus, 1 kilogram of mango costs IDR 6,000.00, and 1 kilogram of salak costs IDR 4,000.00. The restaurant menu method is like playing games because it requires adding up all the items, and the price is also the sum of each item. Subtracting between two weights (kilograms) must also subtract between two prices. Multiplying a real number by an order means multiplying each component of that order until it finds the value of each variable.

After the teacher gets the concept and several strategies for solving the System of two-variable linear equation problems, the delivery of digital teaching materials that students can access or print boldly is called hyper content with hyperlinks assisted by QR codes. Using QR codes is part of mobile Learning (Zainil, 2021). The use of QR codes is quite effective in learning. Students who got treatment with the help of QR codes in learning became more

interested because they used smartphones to impact better mathematical problem-solving abilities than students taught using direct instruction learning (Santoso, Ulya, & Rahayu, 2019). First, the teacher should compile their teaching materials on the System of two-variable linear equations topic through a laptop device with the Microsoft Office Word application. Second, the teacher should upload the teaching materials that he or she had compiled to Google Drive. Third, the teacher should create a link for each teaching material they uploaded on Google Drive. Fourth, the material uploaded to Google Drive should have its link created and converted into a QR code through the free QR Code provider website. Fifth, the QR code had to be embedded in the Google Classroom of every online class owned by teachers and students to access the modules together. Thus, when students scan the QR code with their devices using the QR code scanner application from the Google Play store, students can access digital teaching materials via their devices or print them at home in an easy, fun, independent, and flexible way. Studies on junior high school students in Yogyakarta show that learning using gadgets is indeed fun. One of the things that students find enjoyable when using advanced technology is that learning to use advanced technology is more interesting than just listening to lectures (Supardi & Hasanah, 2020). Students who study independently can involve various sources and activities such as self-reading, group study, exercises, and correspondence activities (Chou & Chen, 2008). Here is the integration of the Google Drive link with the QR Code:

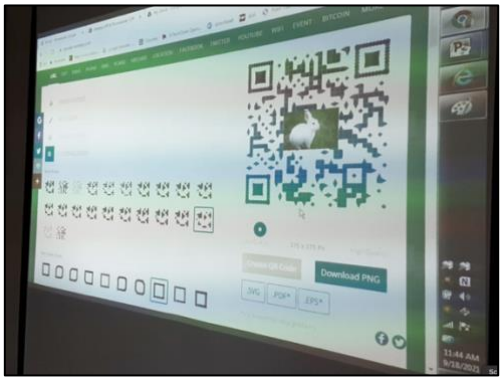

Figure 2. Link module integration with QR code

Based on the material presented to the teacher, their response was very positive. They were considered very helpful in the mathematics learning process and implement the limited face-to-face Learning in Purwakarta, especially at the junior high school levels.

Teacher's Response to the Implementation of Blended Learning Hypercontent with Hyperlink Guidance

The following describes some of the responses of junior high school mathematics teachers during interviews after preparing their own digital teaching materials. R represents a researcher and T represent a teacher.

R : *How do you feel about workshop today?*
T1 : *Very satisfying because workshop like this adds to our knowledge, add to our knowledge, especially materials and methods that have not been obtained from the school so that we gain knowledge and (experience).*
R : *How about the material about Hypercontent with hyperlinks?*
T1 : *Blended learning adds to our experience because until now, I only knew how to combine multiple links and create a barcode (QR-code)*
R : *So, is this workshop felt new?*
T1 : *Yes sir. I feel new to this kind of workshop.*

Based on interview transcript, teacher satisfaction because the activities provided are insightful for teachers. After all, mathematics teachers at Junior High School in Purwakata have never received a strategy to develop digital teaching materials using several links and QR Codes that are practically accessible to students for face-to-face learning. Thus, the existence of activities that add insight to the teacher can upgrade the knowledge and skills of teachers in teaching in their classes. New insights for teachers are considered very important. Therefore, teachers must continue to improve their performance and work by finding innovative methods and practical techniques in teaching (Naraliyeva, Mukhanbekkyzy, Toiganvekova, Dosanov, & Sultanova, 2015).

R : *How do you feel about the implementation of workshop today?*
T2 : *I am delighted with this workshop because I got and found new materials to understand hyperlinks. So that I can create and convert some teaching materials into QR codes, hopefully, UPI will be able to hold such an event in the future. Because it is excellent for us to be able to explain again to students*
R : *How about the material on various problem-solving strategies for the System of two-variable linear equations?*
T2 : *The problem-solving strategy material for the System of two-variable linear equations that I have done and conveyed to students is only in 4 different ways. Earlier I got some other additions, which are very interesting, so I think children will enjoy solving the System of two-variable linear equations in these various ways.*

Based on interview transcript, the teacher's enthusiasm with the material provided to help the teacher make some teaching materials in a QR Code for students to access. With several teaching materials presented at once, it will be easier for students to convey the material thoroughly and easily understand, even in a limited time during the COVID-19 pandemic. In line with this description, digital teaching materials can make it easier for students to understand the subject matter (Mudiartana, Margunayasa, & Divayana, 2021) and improve students' academic achievement in Learning (Chiou, Lee, & Liu, 2012; Kiriana, 2021). In addition, the material on the problem-solving strategy of the System of two-variable linear equations seems to renew teachers' understanding of various strategies and make students more interested in studying and solving problems of the System of two-variable linear equations. Through various

learning strategies, students with increased enthusiasm will benefit from this enthusiasm (Ramesh & Kumar, 2018).

R : *What is your impression of this Workshop?*
T3 : *Alhamdulillah, I am grateful for today's workshop at UPI. Even though I do not have enough time, there is enlightenment. Even though I was online yesterday, I was often pessimistic because of my age. "Udag-udagan" because students' IT skills are more competent than mine. Alhamdulillah, I am grateful to be able to participate in this activity.*
R : *Earlier, were you able to upload?*
T3 : *Yes, but using my friend's cell phone.*
R : *Ok, fine, does that mean you will be able to do the following task regarding the hyperlinks?*
T3 : *Yes, I will be able to do it.*

Based on interview transcript, teachers can participate in workshop activities well and seem to show the confidence and persistence of a senior teacher who previously had difficulty using technology in the classroom after receiving material related to Blended Learning Hypercontent with hyperlinks to be able to develop effective digital teaching materials in the classroom. Research says a confident teacher will have the will and skills for productive results and will not make up for the lack of infrastructure and resources (Kant & Shukla, 2021). Other opinions say that teachers with high self-efficacy but lack knowledge and skills can manage the education and workshop process well (Kaşci & Selçuk, 2021).

R : *What is your impression of this Workshop?*
T4 : *I am delighted because as a teacher who tries to learn and is required to be innovative, especially in a pandemic season like this, where learning, apart from face-to-face, must also be online, more material learning is needed, such as with Hyperlinks that are applied related to Hypercontent. I want to thank the workshop organizers, especially The Professor as the chairperson of the organizer and as the director of the UPI Purwakarta Campus.*
R : *What do you think are the challenges of implementing this for students?*
T4 : *The challenge is the signal of a limited quota so that it is not only Google Classrooms presentation pattern but also must be delivered and printed, and then students collect it to schools.*

Based on interview transcript, the teacher's assessment that considers Blended Learning Hypercontent with Hyperlinks learning as an alternative to solving learning problems during a pandemic. Teachers can reproduce and integrate material to be delivered with Hypercontent with Hyperlinks within a limited time. The statement is in line with the concept of Hypercontent itself, which interweaves one material and another simultaneously in one particular digital technology program (Handayani & Marsida, 2018). Table 5 shows the teacher's assessment that considers Blended Learning Hypercontent with Hyperlinks learning as an alternative to solving learning problems during a pandemic. Teachers can reproduce and integrate materials to be delivered with Hypercontent with Hyperlinks within a limited time. The argument is in line with

the concept of Hypercontent, which is to interweave one material and another simultaneously in one particular digital technology program (Harisman, Lubis, & Lubis, 2021).

The socialization related to Blended Learning Hypercontent with Hyperlinks was responded to very positively by the teachers. All teachers considered this activity very useful, especially in carrying out limited face-to-face learning. These findings can be seen in Figure 3 below:

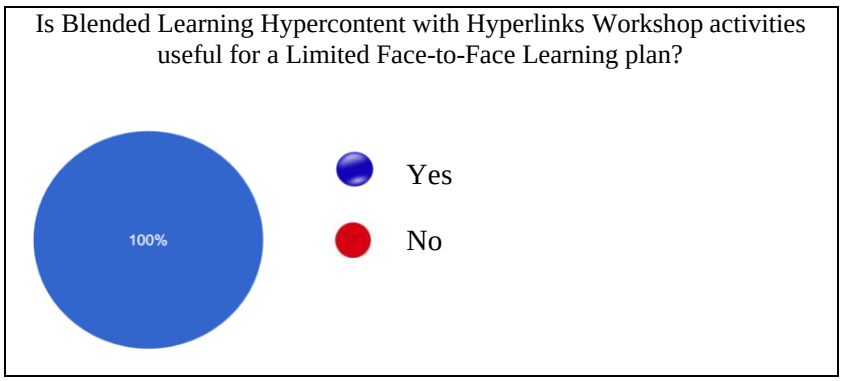

Figure 3. Participants' responses to blended learning hypercontent with hyperlinks activities

From Figure 3, the workshop results by practitioners at the university say that the benefits of the workshop program at the university are proven and suitable for all subjects, competencies, and fields (Higueras-Rodriguez, del Mar Garcia-Vita, & Medina-Garcia, 2020). Some of the benefits that teachers felt when participating in activities are described by several teachers in Table 6 below:

R : *Write down the benefits of implementing this Blended Learning Hypercontent with Hyperlinks Learning!*
T1 : *Can provide flexibility in choosing the time and place to access lessons*
T2 : *Improve learning outcomes, simplify teaching and learning activities, improve literacy, and lower learning costs.*
T3 : *One of them is doing digital learning modules, so they are paperless.*

The participants' responses in interview transcript show that Blended Learning Hypercontent with Hyperlinks could create more flexible learning for students. In line with this, Blended Learning can create flexibility for students, utilize infrastructure more efficiently, and provide high-quality learning on a large scale (Clark & Post, 2021). In addition, student achievement and skills increased. From this opinion, digital learning could encourage other skills for students. Therefore appropriate digital media is needed (Chiou et al., 2012; Jamali, Shiratuddin, Wong, & Oskam, 2015; Kiriana, 2021). The preparation of digital teaching materials was also considered very paperless. It was not surprising that digital learning used technology to strengthen the student learning experience through various tools and practices such as online and formative assessments. It can also increase the focus and quality of teaching resources and time, online content and courses, and technology in the course curriculum (Sousa

& Rocha, 2018). Therefore, digital learning focuses on web-based systems via the Internet or Intranet (Qadir, Bagram, Alam, & Farid, 2021). Regarding the ease of implementing Blended Learning Hypercontent with Hyperlinks, it can be seen in Figure 4 below:

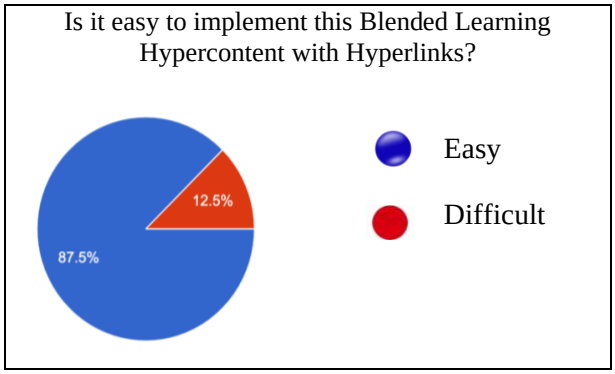

Figure 4. Response ease of applying blended learning hypercontent with hyperlinks

Figure 4 shows that more than 80% of teachers found it easy to apply Blended Learning Hypercontent with Hyperlinks in their own classes. However, many teachers still find it challenging to implement this Blended Learning Hypercontent with hyperlinks. In line with these findings, research related to Blended Learning in physics found the same thing. The study revealed that more than 80% of teachers felt Blended Learning was easy to use and flexible in terms of time and place. The benefits of Blended Learning are almost 80% useful but have a high constraint for all students on internet connection problems (Suana, Ningsih, Maharta, & Putri, 2020). The following interview transcript shows the teacher's response:

R : *What difficulties do you predict in implementing the Blended Learning Hypercontent with Hyperlinks?*
T5 : *Not all students can use Smartphone*
T6 : *Making the app, sir*

Table 7 shows the obstacles faced in terms of students' readiness to use gadgets and the ability of the teacher to integrate digital teaching materials in a QR Code so that students can access them. This obstacle occurred because blended learning, part of digital learning, required a set of skills that involved a sophisticated level of digital literacy. Failure to achieve competence in these skills will hinder student learning progress (Newcombe, 2018). Teachers who have predicted obstacles had shown solutions to their problems, such as the results of the interviews in below:

R : *How did you overcome these difficulties?*
T5 : *When at school, it could be used in turns*
T6 : *By asking other teachers who already understood how to make this application*

Overview of Teacher Implementation Plans in Applying Blended Learning Hypercontent with Hyperlink for Teaching Math

After considering some of the benefits, conveniences, and solutions in overcoming the obstacles to implementing Blended Learning Hypercontent with Hyperlinks, here are some implementation plans prepared by the teacher as set out in Table 2 below:

Table 2. The implementation of blended learning hypercontent with hyperlinks

Teacher	Title	Class	Learning objectives	Topics	Media	Implementation Step
1	Improving Learning Understanding of Two-Variable Linear Equations with Blended Learning Hypercontent with Hyperlinks	VIII	The goal is to make it more attractive for students to learn linear equation system with two variables (LESTV) with much content and by using links	Linear equation system with two variables (LESTV)	Using Smartphone	1. The teacher creates exciting content for two-variable linear equations 2. The teacher links the material content 3. The teacher shares the link with students 4. Students excitingly learn the material and can open the link at any time
2	Topic about the Circle	VIII	1. Determining the formula for the circumference and area of a circle 2. Proving the formula for the circumference and area of a circle	Explaining central angle, circumference angle, arc length, and area of a circle and their relationship	Student Worksheets, circle learning videos	Preparing circle materials and worksheet and making the link
3	Topic about the set	VII	Students can understand the meaning of set	Definition of set	Collection of pictures of objects, animals	Creating material, uploading it to Google Drive, and creating a barcode

Table 2 shows that teachers had made good plans to carry out Blended Learning Hypercontent with Hyperlinks on various materials, such as a linear equation system with two variables, circles, and sets, complete with learning media in the form of videos, pictures, and devices. Some of the teachers' plans were follow-up efforts from workshop activities on applying Blended Learning Hypercontent with Hyperlinks to teachers. Providing workshop and follow-up to teachers to create authentic experiences is the key to fully implementing the model workshop or Learning (Mâsse, McKay, Valente, Brant, & Naylor, 2012). After the implementation of Blended Learning Hypercontent with Hyperlinks by the teacher in each class, the following is the teacher's initiative in planning to socialize Blended Learning Hypercontent with Hyperlinks to other teachers, as shown in Figure 5.

Figure 5 shows that all participants had the initiative to socialize Blended Learning Hypercontent with Hyperlinks to other teachers in their own schools. The desire of teachers to

disseminate their experiences and understandings to other people, especially teachers, can improve one's understanding of the material given (Nurmey, 2016), although most of the participants expressed their doubts due to the limited time given. Limited time will not be enough to prepare a successful teacher (Van Vuuren, 2018). Therefore, there was a need for encouragement to carry out next workshop activities to enrich insight into the usefulness of information technology through Blended Learning Hypercontent with Hyperlinks. The material to be delivered can be stored and received both face-to-face and online.

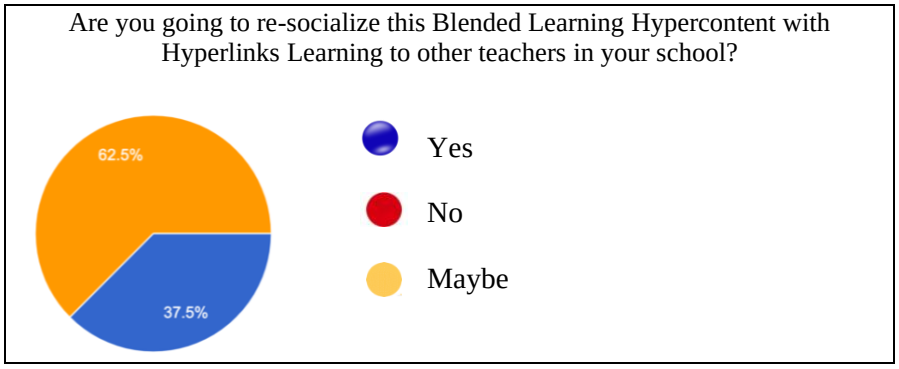

Figure 5. Blended learning hypercontent with hyperlinks socialization plan in each school

Based on the responses given by the teacher in workshop on blended learning hyper content with the hyperlink shows a positive response, and blended learning hyper content with hyperlinks is considered to be helpful in limited face-to-face learning and learning in the future era. In addition, blended learning hyper content with hyperlinks can support teachers' pedagogical competence through technology-assisted learning innovations, creating varied learning strategies to facilitate each student's characteristics, potential, and creativity. Blended learning hyper content with the hyperlink allows the integration of learning theory and learning principles and technology-based curriculum and creates communicative learning and interactive evaluation with blended learning hyper content with a hyperlink. A research project demonstrated that increased levels of educator confidence led to developing interdisciplinary blended learning opportunities with peers from related disciplines based on their experience using a common pedagogical framework (Cooner, 2011).

Conclusion

Based on the results and discussion, it is possible to conclude that the teachers expressed satisfaction, enthusiasm, and confidence in confronting challenges during the blended Learning Hypercontent with Hyperlinks learning workshop and gained insight for mathematics teachers in Purwakarta junior high school in designing learning materials. QR code-assisted digital instruction and various problem-solving techniques related to the System of two-variable linear equations stimulated student interest in learning ideas and problem-solving. According to

several teachers, Learning Hypercontent with Hyperlinks is easy to implement and has become an alternative to solve learning problems during the COVID-19 pandemic because it could create more flexible learning, paperless, and easily integrate teaching materials during limited face-to-face learning so that students' achievement and skills are increased. In terms of planning the implementation of Blended Learning Hypercontent with Hyperlinks, the teachers planned to have a good preparation with various materials and media and had an effort to share their experience in applying this learning to other teachers in their schools. However, teachers faced the obstacles in implementing Blended Learning Hypercontent with Hyperlinks, including the ability to use devices between teachers or students, the availability of internet networks, and the ability of teachers to design digital teaching materials. Applying Blended Learning Hypercontent with Hyperlinks during limited face-to-face learning could create varied learning and easy integration of teaching materials in a limited time.

This study is still limited to learning development during the COVID-19 pandemic, especially during limited face-to-face Learning through Blended Learning Hypercontent with Hyperlinks and problem-solving strategies for the System of two-variable linear equations. There is a need for further studies related to adaptive learning strategies and other topics. In applying Blended Learning Hypercontent with Hyperlinks, teachers must have the ability to use digital technology and design and integrate several teaching materials into a single unit so that students can easily understand them in a limited time. Therefore, education practitioners and teachers should collaborate to develop effective learning strategies in the digital era.

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