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Mathematics Curriculum Management of Distance Learning Program in Junior High School

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Abstrak

Penerapan pembelajaran jarak jauh atau pembelajaran tatap muka di era pendidikan normal baru memiliki implikasi psikologis bagi siswa termasuk pada pelajaran matematika. Penelitian ini bertujuan untuk menemukan model konseptual implementasi manajemen kurikulum dalam pembelajaran matematika jarak jauh di SMP. Penelitian ini merupakan kualitatif dengan pendekatan deskriptif dengan data berasal dari 10 SMP, data diperoleh secara kolektif berupa wawancara dari narasumber. Data diolah dengan aplikasi atlas.ti 8 kemudian divalidasi dan melakukan triangulasi sumber sehingga muncul hasil penelitian yakni (1) strategi pelaksanaan manajemen kurikulum dalam pembelajaran matematika jarak jauh yang diterapkan di pimpin langsung oleh kepala sekolah dengan bentuk brakedown peraturan, (2) pembelajaran yang dilakukan oleh guru berdasarkan perencanaan yang telah disusun oleh guru pada awal tahun ajaran, (3) sarana prasarana untuk pelaksanaan pembelajaran sudah terpenuhi, (4) pelatihan yang diberikan pada guru sudah di program oleh kepala sekolah dengan periodik, (5) pembentukan kelas yang dilakukan berfungsi untuk mengelompokan peserta didik sesuai dengan minat dan kemampuannya, (6) kendala yang dihadapi oleh guru adalah sulit mengetahui eksperesi peserta didik saat pembelajaran, (7) kendala yang dihadapi oleh peserta didik adalah jaringan dan kuota yang dimiliki oleh peserta didik sehingga sulit memahami materi yang disampaikan oleh guru
Kata Kunci: Implementasi; Kurikulum Matematika; Manajemen Kurikulum; Pembelajaran Jarak Jauh; Sekolah Menengah Pertama.

Abstract

The implementation of distance learning or face-to-face learning in the new normal education era has psychologically affected the students, including in mathematics learning. This study aimed to find a conceptual model to implement curriculum management of distance learning in mathematics in junior high schools. This qualitative descriptive study collected data from 10 junior high schools. The data were obtained collectively by using interviews. The data was processed using the atlas.ti 8 application and then validated and triangulated the sources so that the results of the research emerged, namely, the implementation strategy of curriculum management of the distance learning in was directed by the school principal in the form of regulatory breakdown, learning carried out by the teacher based on the plan prepared by the teacher at the beginning of the school year, the infrastructure of the learning process was provided, the training provided to teachers was programmed by the principal periodically, the class distribution was based on the student's interests and abilities, the obstacle faced by the teacher was that it was difficult to know the expressions of the students during learning, the obstacles faced by students was the internet quota and unstable network to such an extent that students were having difficulties to understand the materials delivered by the teacher.
Keywords: Curriculum Management; Distance Learning; Implementation; Junior High School; Mathematics Curriculum.

I. INTRODUCTION

Education is a whole process by which a person develops skills, attitudes and behaviour in a structured, step-by-step or unstructured manner (Adi, 2022; Basar, 2021; Kurniawan, 2015). However, the COVID-19 pandemic has affected a lot of areas of lives, including education, especially schools (Armstrong-Mensah et al., 2020; Darici et al., 2021; Napitupulu, 2020; Tomasik et al., 2021). Amid the pandemic, schools have to be able to manage the learning process in a way that ensured the quality. Tuwu (2020) and also Ali and Hasanah (2021) stated that the government issued guidelines in accordance with Presidential Regulation Number 21 of 2020 concerning Widespread Social Distancing Related to the Acceleration of Corona Virus Disease 2019 (COVID-19) Countermeasures.

Efforts to control and prevent COVID-19 transmission are carried out by limiting interactions and implementing group policies and maintaining physical distance from each other, including in school learning (Assidiqi & Sumarni, 2020; Seah et al., 2021; Syaputra & Hasanah, 2021; Permatasari & Afriansyah, 2022). COVID-19 pandemic has dynamically changed the learning pattern from classroom into distance learning (Fikri & Hasudungan, 2021; Garrote et al., 2021). The distance learning greatly influences certain school subjects such as mathematics as It is considered as one of the most difficult subject by the students (Aristovnik et al., 2020; Kuhfeld et al., 2020; Nugraha et al., 2020; Prawiyogi et al., 2021). Distance learning in mathematics still emerges unsettled problems such as the parents who unable to directly communicate with the children, technology and the network which are not stable and well distributed, and the teachers who are technologically illiterate (Ahmad, 2020; Zalsabela et al., 2020; Masfufah & Afriansyah, 2022).

Curriculum management has to be implemented in the educational process to such an extent that curriculum planning, implementation, and evaluation run effectively, efficiently, and optimally in empowering various learning resources, learning experiences, and curriculum components (Nurhasanah, Syafari, & Nurfaidah, 2022). The functions of the curriculum management (Rusman, 2009; Abdullah, Maimunah, & Roza, 2021) are as follows: a. Improve the efficiency of curriculum resource; b. Improve equity and opportunities for students to achieve maximum results; c. Improve the relevance and effectiveness of the learning process to the students' needs and the environment; d. Improve the effectiveness of teacher and student performance in achieving learning objectives; e. Improve the efficiency and effectiveness of the teaching and learning process.

To ensure that the COVID-19 pandemic does not negatively affect the learning process, it is necessary to increase the student's learning independence, one of which is the use of online learning and the implementation of curriculum management (Berger et al., 2021; Kusuma, 2020). Therefore, the development of information technology nowadays introduced various learning platforms for both teachers and students that greatly affect students' comprehension towards the lesson (Ameliza, 2017; Junco et al., 2011; Pollock &

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Hauseman, 2018; Sarumaha & Kurniasih, 2022).

Based on studies (Armstrong-Mensah et al., 2020; Berger et al., 2021; Maulidyawati et al., 2021), COVID-19 pandemic has disrupted conventional learning processes and, thus, it requires an appropriate conceptual learning model. (Christiana, 2021) argued that the conceptual learning model used by teachers possibly encouraged scientific behaviors, spiritual attitude, social mental attitudes and fostered curiosity. Accordingly, other studies (Helm et al., 2021; Huber & Helm, 2020) pointed out that most of students could understand the assignments well through distance learning amidst 2020.

It is expected that the conceptual model determined by the teachers is able to facilitate the distance learning in mathematics effectively, and improve students' comprehension and the school quality. There were few studies that explored a detail conceptual model of distance learning in mathematics in junior high school level. The aimed of this study was to reveal the conceptual model for curriculum management of the distance learning in mathematics in junior high school. The basis of the study was the reinforcement and development of studies in education especially in education management and technology, and the exploration of distance learning model in mathematics as an alternative solution to the distance learning implementation.

II. METHOD

This study employed qualitative methods that aimed to investigate facts empirically and objectively. Qualitative study is a process of understanding and interpreting the meaning of human interaction events and therefore depends on the social environment (Revita & Fitri, 2019). The researcher applied an interpretive approach providing explanations regarding the individual's background and experiences on a particular topic (Rahmadhani, 2019; Setyosari, 2015). This study consists of 10 stages: preliminary research, literature study, observation, and narrowing down the research problems, data collection (interview, observation, documentation), data processing, data analysis, discussion (data reliability), conceptual model discovery, conclusions and suggestions.

Prior to this study, the researcher gathered various information about the problems of distance learning, especially in mathematics. There were 10 high secondary schools selected by the researcher based on above-average maths scores. After sufficient information and insight was formed, the researcher began to observe the settings to determine the focus problem. The focus of this study was to collect information on how to apply the conceptual model of distance learning in mathematics among 10 private secondary schools.

To obtain the data using an interpretive approach, this study conducted interviews, observations, and documentation review (Creswell, 2017; Revita & Fitri, 2019). The data collected during the interview process was obtained from the principal, vice principal, mathematics teachers, and several students from each batch.

The interview questions dealt with the availability of facilities, socialization, coordination, supervision, teacher training, curriculum applied, teaching materials and the learning topics, interaction and preparation.

The observation process was carried amidst distance learning in mathematics using the Zoom or Google Meet application, and documentation data was obtained from the learning device (lesson plan) used by the teacher. Based on the data collection method, researchers used the atlas.ti 8 application to process the data and facilitate the coding process. After the coding process, the researcher analyzed the data, verified the validity of the data, and conducted the triangulation test of sources, methods, and time.

In the next step, the researcher presented the discussion of the data obtained from interpretative data analysis using atlas t.i application. The data analysis consisted of organizing, transcribing, and analyzing the implementation of the conceptual model for secondary school distance learning in mathematics.

In the final stage, the researcher presented the conclusions from the findings and discussions, and revealed nine results in the implementation of distance learning in mathematics. A detail process of the study is presented in Figure 1.

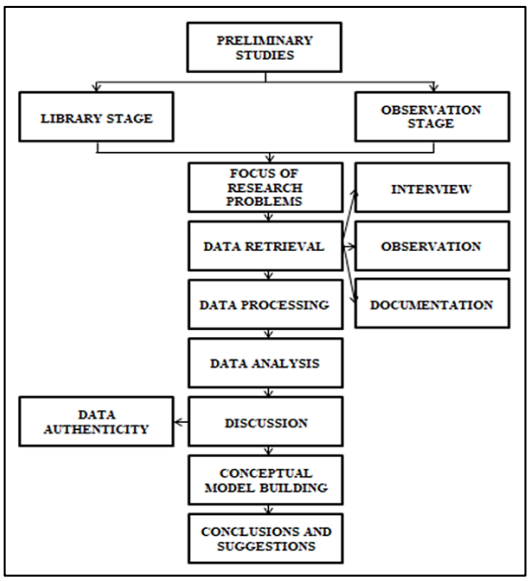

Figure 1. The Research Procedure.

III. RESULTS AND DISCUSSION

From the 10 junior high schools, the data on distance learning in mathematics were obtained exposing three important points, namely strategies, carrying capacity, and obstacles encountered, which are presented in Figure 2.

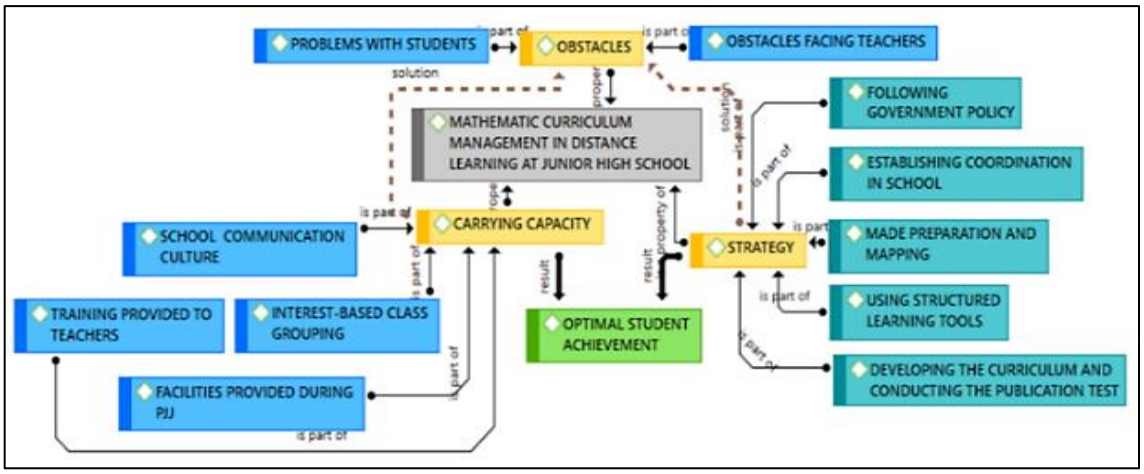

Figure 2. The Conceptual Model of Mathematics Learning.

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A. Strategies

Various strategies of implementing distance learning mathematics curriculum management were implemented by each school due to different school backgrounds. The implementation of distance learning in junior high schools was subject to the regulations issued by the central and local governments, namely the Minister of Education and Culture Regulations, Governor Regulations, City Education Department Regulations and Institutional Regulations.

Based on the interviews with several school principals, this study found that schools followed instruction letters from the central and regional government and then break them down into school rules.

The source said: "(the regulation was) based on the instruction letter from the ministry or ministerial decree, then it is broken down to the province, it's called a circular letter from the mayor or governor and then down to the provincial level of dispora or city level dispora. Junior high school is under the city command, so we follow their instructions".

Amidst COVID-19 pandemic, it was suggested that the academic community, especially schools, should follow the government's recommendations in providing learning processes to students, including the curriculum design (Pearce et al., 2020; Seah et al., 2021)

One of the sources from the curriculum department stated that the design and development of the school curriculum were conducted by the team at school adapting the learning matrix and pre-determined materials at the beginning of the semester.

The source said: "Usually it is proceed when a work meeting begins preceded by an announcement first, then later the vice-principals present their programs and then the class coordinators present their programs. Now later there will be input and then we will revise it. After revising, the ACC supervisor will ask the head of the city education department for approval".

The finding was supported by previous studies (Jowsey et al., 2020; Seah et al., 2021) pointing out that the curriculum was revised to adjust the pandemic status. According to the planning matrix, the teachers construct the learning instruments consisting of semester programs, curriculum, and lesson plan as guidelines of the learning process.

From the interview with the sources, the study found that "preparing the learning instrument is an usual activity at the beginning of the new school year as we have made curriculum book 1, then book 2 so we encourage teachers to design the instruments".

The achievement of learning objectives was determined by the teacher's ability to plan, implement and evaluate the lessons (Mudrikah et al., 2021; Putrianingsih et al., 2021; Saitya, 2022).

The teachers were introduced to the distance learning curriculum development to test the release of the prepared curriculum with committee representatives. The main challenge in testing the distance learning maths curriculum was the students' learning pace (Abid et al., 2021; Al-Mawee et al., 2021).

B. Facilities

An effective distance learning requires sophisticated facilities that might be available in high school level. The source said this was due to the principal's excellent communication culture (Hibbi et al., 2021; Jebbour, 2022). In addition, the school's support also comes in the form of educational videos for teachers, especially regarding Math and Technological Development. Creating educational videos for teachers was one of the technology benefit and considered an important element of e-learning, which contribute to teachers' skills. (Maatuk et al., 2021; Onye & Du, 2016).

A further school support for distance learning to the maths teachers in secondary schools was training. From the interview, the study found that: "the school really facilitates how to make learning videos, how to make interesting presentation, we always provide it [training] to the teachers".

Teachers conducted various types of training from the school and MGMP. It aimed to improve teacher performance. In line with previous studies on the distance learning (Allen, 2017; Burns, 2013; Cankaya & Yunkul, 2018), the distance learning training was necessary for the teachers to improve their performance and motivation in teaching. According to studies, teachers would no be able to utilize the technology without the IT knowledge (El Firdoussi et al., 2020; Khaoula & Jalal, 2021; Owusu-Ansah, 2018).

C. Challenges

The challenges encountered by each school on the distance learning in mathematics were generally similar due to the same regional conditions. The were many challenges encountered by teachers and students.

From the observation results, the sources stated "The obstacles that teachers get are unstable network and insufficient internet quota, so that the teacher cannot provide a summary at the end of the lesson". The finding was in line with the previous studies (Hibbi et al., 2021; Jebbour, 2022; Paepe et al., 2017) stating that the students were feeling withdrawn from the learning process and having difficulties to get feedback from the teacher.

The source said that the obstacle faced by teachers in the learning process was that it was difficult to understand and observe the expressions of students because of the unstable network. As a result of not knowing the condition of the students in the learning process, teachers did not know whether or not all students were available in the learning process as it was easy for the students to leave the class without the teacher’s knowing.

The teacher said that: "Yes, it is similar problem but yes, there are still difficulties because we cannot directly see the student's expression, for example, if it is face-to-face, we can see that the child is in a bad mood, in a good mood, but if we look at the screen like this online, we will not see. Even when the camera is on, what we see is unclear, yes, you can act or whatever but the truth is still unknown".

In addition to the problems faced by teachers, students also experienced various problems. It was not easy for them to adapt at the beginning of the implementation of distance learning in mathematics. The most frequent obstacle for students was dealing with the learning experience by facing the

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screen or camera and the amount of the quota needed during the distance learning (Jebbour, 2022; White, 2003). The students also did not have an appropriate room to study at home that constrained them to get the opportunities provided by the convetional learning (Abid et al., 2021; Fauzi, 2022; Gonzales et al., 2018; Xu & Jaggars, 2014).

The source said that one of the solutions in anticipating students' obstacles during the distance learning was to choose media and learning platforms that were appropriate with the students' conditions. A study implied that a distance learning from one school to another would require a different curriculum design to improve the students' performance and ability (Al-Mawee et al., 2021).

IV. CONCLUSION

Based on the results and discussions, the study concluded that the strategies implementation of curriculum management in distance learning in mathematics directed by the school administration was a rule violation. The learning was carried out by the teachers according to the plans developed by the teachers at school. The obstacles encountered by the teachers were the communication to the students in the learning process. The curriculum management played a role in creating continuity of learning mathematics in unusual conditions, and was able to adjust its implementation to the students and teachers' backgrounds with the result that the learning objectives were achieved.

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