The Role, Strategy, and Challenges of Instructional Supervision of The Covid-19 Pandemic Era: A Systematic Literature Review

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Abstract
Instructional supervision refers to the effort to develop teachers individually or in groups so that the teaching and learning process can be carried out optimally to achieve the teaching objectives. The model of instructional supervision by school instructional leaders was carried out using the face-to-face observation method, however, this method of supervision has changed to a virtual form due to the Covid-19 pandemic. This urgent shift in teaching and learning methods at home poses various problems, especially the skills of teachers to use the medium of technology in the teaching process, as well as students and parents. This is because teachers and students have implemented the teaching and learning process online to prevent the occurrence of Covid-19 infection which is working and studying from home. Therefore, this study aimed to identify: 1) the role that instructional leaders need to play; 2) instructional supervision strategies implemented, and 3) the challenges faced in implementing instructional supervision in the Covid-19 pandemic era. Guided by the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyzes) research highlighting method, the review highlights were systematically conducted in the Scopus and Google Scholar databases involving 15 related articles from 2019 to 2021. The findings of the study have identified the role played by school instructional leaders has changed from observation for evaluation purposes to forms of support and assistance in various aspects of improving the ability of instructional leaders, teachers, students, and communities by using various electronic mediums to communicate and the teaching and learning process, can be continued. Some suggestions for the improvement of this study are from the aspect of article search using more databases and various search strategies such as reference tracking, reference search, snowball, and contacting experts.
Keywords: Teaching and Learning, Instructional Leaders, Instructional Supervision, Covid-19.

Introduction

Beginning of 2020, the world has been shocked by the spread of a new virus namely coronavirus and it is known as Coronavirus disease 2019 (Covid-19). It was discovered at the end of December 2019 and has resulted in 65 countries being infected with the virus (WHO, 2020). The Covid-19 pandemic has caused many deaths and affected the world in all areas including education. Governments in a country take steps to curb the spread of Covid-19 through social incarceration, out of contact, wearing a face mask, and always maintaining personal hygiene. Therefore, the best measure to control the spread of this pandemic is to stay at home, work from home, and study from home.

The only alternative that can be done in the world of education is to use online learning. One of the ways to improve the quality of education is by continuing to implement teaching supervision. Previously, teaching supervision was conducted using the conventional method, namely the face-to-face method, so in the Covid-19 pandemic situation, supervision can still be conducted online (Fitria et al., 2021). The constraints of direct interaction between supervisors and teachers as well as the time and place for the implementation of supervision that has become obstacles will be easily overcome through this online method. The online-based supervisory model is very effective and efficient. This is because teaching leaders can monitor the progress of teacher activities without having to attend school, without limitations of time, place, and distance. This model can give more flexibility to teachers to deliver input related to the quality of teaching and learning without having to face the teaching leaders. (Fitria et al., 2021).

Digital technology -based teaching can help students increase their motivation and in turn show better performance. The findings of various studies have concluded that digital teaching and learning have a significant positive effect on student motivation and learning performance. Most researchers recommend taking advantage of digital teaching by developing practical teaching strategies (Hasin & Nasir, 2021; Lin et al., 2017; Quick, 2016; Mansor et al., 2018).

A study by Zhong (2016) also found that principals as instructional leaders need to use hybrid methods to support teacher communication and implementation of teacher standards, including digital teaching, meetings, collaboration groups, use of social media for administrative matters, online learning and professional development. Although schools have shifted to online teaching, the number of students who do not attend classes conducted by teachers is particularly alarming. Mette (2020) showed over 40% of students choose not to engage in teaching nowadays in America and similar findings by Barnum & Bryan (2020) that is, only 60% of students are involved in online learning for the rest of the 2019-2020 school year.

The challenge for teaching leaders is to expand opportunities for teachers by using an integrated approach to enhance professional competence (Zepeda, 2013). As instructional leaders, it is important to provide awareness and importance of supervision in education. The role that can be played by teaching leaders is to provide both theoretical and practical frameworks so that they can be applied in practice to improve student learning outcomes. Therefore, Mette (2020) suggested that teaching leaders refer to the Journal of

Educational Supervision related to this issue in detail and the information obtained can be used as a guide in the process of implementing supervision more appropriate and effective.

For teachers and teaching leaders, the transition to new delivery of teaching and learning in a short period of time makes it more difficult, not only in the provision of learning activities and experiences, but in improving students 'understanding as well as lack of skills in the use of technology (Brock et al., 2021). While for students, some of the concerns that arise are involving the mental and physical health of students, access to technological devices, accountability associated with completing assignments, and the negative impact on academic achievement (Kuhfeld & Tarasawa, 2020).

This study is a systematic literature review that are guided by several research questions namely 1) what is the role that should be played by teaching leaders in the era of the Covid-19 pandemic?; 2) what were the teaching supervision strategies implemented in the Covid-19 pandemic era?; and 3) what are the challenges faced to implement teaching supervision in the era of the Covid-19 pandemic?. This study will use the findings of the latest studies related to teaching supervision in schools in the era of the Covid-19 pandemic. The second part is the research methodology which will explain in more detail related to the method of systematic literature review using the PRISMA approach (*Preferred Reporting Items for Systematic Reviews and Meta-Analyses*). The third part is related to the findings and discussion of studies systematically according to the objectives and research questions. The last part is suggestions and conclusions.

Methodology

In this section, the methods used to obtain articles related to the role, strategies and challenges of teaching supervision of the Covid-19 pandemic era will be discussed. Researchers use a method called PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyzes). It includes Scopus and Google Scholar databases used for systematic literature review, eligibility and exclusion criteria, the steps of the research highlighting process, namely identification, screening, eligibility and data analysis and abstraction process.

PRISMA

Systematic literature reviews are guided by PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyzes). According to Sierra-Correa & Kintz (2015), PRISMA has three advantages namely 1) defining clear research questions appropriate to systematic research, 2) identifying inclusion and exclusion criteria, and 3) involving a large scientific database within a specified time period. The PRISMA statement enables the search for terms related to instructional supervision in the Covid-19 pandemic era as well as information coded based on the objectives of the study.

Resources

The largest and most well -known databases to date are Scopus and the Web of Science. The researcher therefore chose the Scopus and Google Scholar databases as options to obtain relevant journal articles. The database has materials such as literature reviews, articles, conference proceedings and books. Scopus is a database containing 23,700 publications from 5000 publishers that contains various types of references or scholarly materials such as articles, abstracts, books and conference proceedings that are updated daily. Scopus has

special tools that allow researchers to go deep into the areas of research, data analysis and monitoring the frequency of link use. The researcher chose Scopus over WoS because it covers more modern material than WoS which focuses more on deeper search which was published since 1900. This is in line with the title of the researcher's study involving the latest issue of the Covid-19 pandemic which started in 2019. While Google Scholar is an easy -to -use database to find various materials such as in Scopus and WoS. A variety of article search methods either search in depth or can use the snowball method. Its interesting advantage is that it can see other articles that are related and exist in several styles.

Eligibility and Exclusion Criteria
Several inclusion and exclusion criteria of articles have been defined. First, based on the type of literature, the researcher selected journal articles that had empirical data. This means that literature reviews, book series, books, chapters in books and conference proceedings are not included in the selection of literature types. Second, to avoid misinterpretation and difficulties in translation, the selected articles were in English and did not select articles in languages not understood by the researcher. Third, regarding the timeline, the selected criteria are in the range of 2019-2021 as Covid-19 began to spread at the end of 2019 and became more serious in 2020. The overall inclusion and exclusion criteria of this article are shown in Table 1.

Table 1
The Inclusion *and* Exclusion Criteria

Criterion	Inclusion	Exclusion
Sources type	Journal	Book series, books, conference proceedings
Document type	Research articles	Literature review, books, chapters in books, conference proceedings
Language	English	Non English
Time line	Between 2019 and 2021	< 2019

Systematic Review Process
There are four phases in the systematic literature review process. The literature review process was conducted in July 2021. The first phase was to identify the keywords used in the article search. Referring to the keywords from the previous study and thesaurus, keywords that had similarities and were related to instructional supervision, implementation and Covid-19 were used as in Table 2.

The second phase is to make a screening, there are 553 articles that are eligible for analysis, but 465 articles have been removed. While in the third phase involves the qualification phase where all accessible full articles will be evaluated. After a thorough evaluation, it was found that 73 articles were released because they did not focus on teaching supervision, not in the form of empirical articles as well as articles in unrelated fields such as psychology and medicine or social work. The final phase is a literature review of articles that have been selected by qualitative analysis. It involves 15 articles as in Figure 1.

Table 2
The search string used for the systematic review process

| Databases	Keywords used
Scopus	(("instructional supervision" OR "teaching supervision" OR "classroom supervision" OR "instructional inspection" OR "clinical supervision" OR "educational supervision" OR "direct supervision" OR "lesson delivery supervision" OR "lesson planning supervision") AND ("implementation" OR"application" OR"running" OR"operation" OR"practice") AND("COVID-19" OR"coronavirus" OR"epidemic" OR"pandemic"))
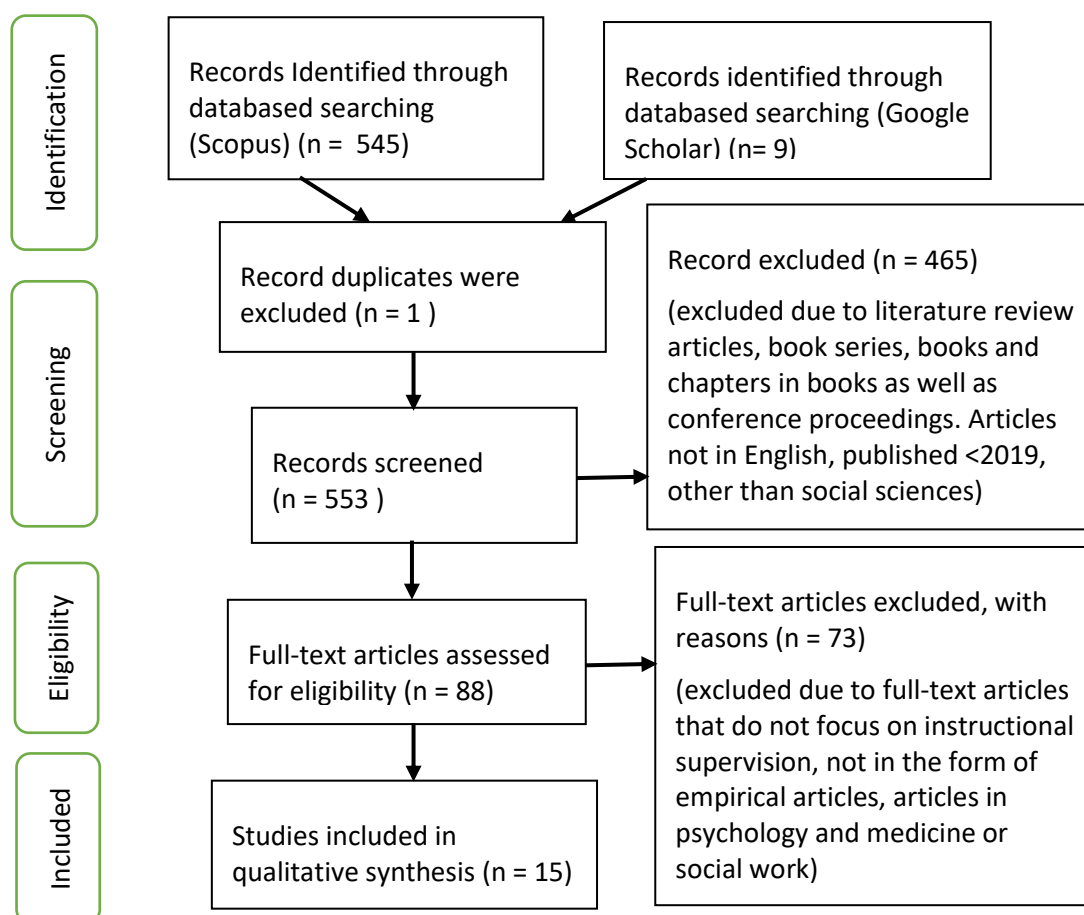
Figure 1. The flow diagram of the study
(Adapted from Moher et al., 2009)

Results

To identify the role that instructional leaders need to play in the Covid-19 pandemic era
The main focus of teaching supervision is to build the capacity of teachers to use new teaching and learning models. Collaboration can be established through dialogue between district leaders, schools, and teachers to see their views, concerns, and proposed solutions in the transition to an online learning model (Brock et al., 2021; Hakim, 2021). While Mette (2020) in his study found that teaching leaders play a role towards empowering teachers and students of different backgrounds and needs by providing equal opportunities for all students

to gain knowledge and guidance. Thus teaching leaders no longer play the role of observers, investigators, critics and evaluators but are able to identify teaching and learning issues that arise, create a good learning environment, reduce errors and propose solutions fairly by focusing on feedback between teachers. and supervisors (Garman, 2020; Rusdiana et al., 2020).

The district and school leadership chose to implement the changes in stages namely: phase 1 was driven by student choice and aimed to build the capacity of teachers and students in the online learning platform; phase 2 is driven by standards -based instruction and aims to improve essential skills for students while supporting teachers through teaching modules. During phase 1, students were provided with options that included both digital and non - digital activities. Learning assignments are developed according to grade level, subject, and difficulty level. Students are encouraged to choose activities that are poorly understood and need to be focused on. Currently, teachers are engaged in professional learning activities to build capacity as online learning educators. All teacher complete modules that cover a learning management system (LMS), instructional design for online learning, and video conferencing tools. A resource website has also been created to provide staff with additional support, and teaching leaders meet with teachers individually as needed (Brock et al., 2021).

During phase 2, specially assigned education staff work closely with the education team as a whole to implement changes in the education delivery system. Teachers also build online timetables for students who need help. During this time, teachers meet with students in small groups or individually to repeat teaching, remedial activities, and interventions. Teaching leaders have also prepared themselves to learn new teaching and learning methods that need to be applied by teachers so that students can learn effectively. They acted to establish an online community with teachers and parents (Brock et al., 2021).

Instructional leaders meet with teachers individually to discuss their needs, strengths, and weaknesses and work together to identify professional learning planning and support to ensure successful online instructional delivery (Brock et al., 2021; Hakim, 2021). As a teaching leader, the principal makes personal contact with his staff through phone calls or text messages to ensure tasks are performed well and expresses appreciation for the dedication and commitment given to the school (Brock et al., 2021). In addition, online weekly meetings were created as a medium of sharing good practices, updates and feedback from teachers. Teaching leaders will also hold special sessions or consultations with teachers to provide training and guidance if needed because training has a significant and positive impact on teacher performance (Brock et al., 2021; Maritasari et al., 2020).

The Collaborative Team Model has been applied as a method of Professional Learning Community. Collaborative teams meet at least once a week to plan, analyze data, design interventions and create new groups, or perform other necessary tasks. Teachers are encouraged to build collaborative teams informally with teachers in other schools or districts who teach similar subjects. Teaching supervision has been strengthened by a collaborative approach in providing support so that teachers are not left behind and isolated (Brock et al., 2021).

School and district leadership categorizes the support needed as technology support, professional learning support, and instructional support. School leaders work with instructional technology staff to provide technical support and with instructional leaders and instructional coaches to design and provide professional learning and support. In addition, instructional leaders used technological support to teachers, academic support to students, psychosocial support, and parental communication in solving problems they faced during the Covid-19 pandemic (Brock et al., 2021; Keleş et al., 2020).

To identify the instructional supervision strategies implemented in the Covid-19 pandemic era

Instructional leaders should find ways to communicate effectively using online social networks and need to be prepared to return to face-to-face learning with various restrictions or continuous online learning or a combination of both face-to-face and online learning (Brock et al., 2021). Therefore, teaching supervision has been implemented through teleconferencing channels.

Individual teaching supervision strategy is to use applications such as WhatsApp, Telegram, e-mail, phone, SMS, Google Form, Microsoft Teams, Zoom, Google Meet, WebEx and others. While group supervision is done by using applications such as WhatsApp (video call), Google Form, Microsoft Teams, Zoom, Google Meet, WebEx and more (Rusdiana et al., 2020).

Principals in Hulu Langat district, Selangor have adopted the characteristics of digital leadership, namely visionary leadership, digital age learning culture, excellence in professional practice, systemic improvement and digital citizenship in school management and administration throughout Covid-19 (Hamzah et al., 2021), while the findings of the study from Keleş et al (2020) stated that school principals primarily focus on hybrid education models, teacher education, and students 'skills for coping with post-epidemic education.

Race (2020) in his study listed the advantages of teaching implemented online that it can be implemented flexibly (20.87%), can ensure continuity of teaching and learning (18.26%), efficiency (14.78%) and comfort (12.17%) in managing teaching and learning. The advantages of using this online channel are also suitable for use by teaching leaders to carry out ongoing teaching supervision.

To identify the challenges faced in implementing instructional supervision in the Covid-19 pandemic era

The change in the medium of online teaching delivery using new technology i.e. online classes is a new thing and has become a fear to certain groups without adequate training and skills. Teaching leaders found that there was a technological knowledge gap among teachers who were less vulnerable in the development of online learning and there were also a number of teachers who were comfortable with the changes in the online delivery system (Brock et al., 2021; Fitria et al., 2021).

There is a gap in online teaching skills and teachers need a lot of support and training to successfully implement online teaching and learning (Brock et al., 2021; Race, 2020). The ability of teachers is still weak in the use of digital technology. Many applications are not used to conduct teaching and learning activities. This is also due to the limitations of student

technology devices. Only 50% of teachers already use digital devices, while another 50% use manual learning media designed according to the needs of students (Hakim, 2021). While 60% of school principals stated that there are still many teachers who cannot use online learning facilities such as Google Classroom, Google Meet, and Zoom. Therefore, teachers only give assignments to students via WhatsApp (Fendi et al., 2021).

Online-based supervision is highly ineffective to implement, as there are often obstacles, especially from signal interference, but the implementation of supervision must be carried out even in the event of a Covid-19 pandemic. Therefore, hotspots and internet boosters should be provided to staff in need (Brock et al., 2021; Fitria et al., 2021).

Instructional leaders know that online learning models may be effective for some students and affect others, based on personal preferences, technological reliability, or personal learning characteristics. Teachers, on the other hand, must find learning media solutions that students can follow. This is because not all students have electronic facilities in the form of androids or laptops. While this online learning produces technology -savvy teachers and students, face -to -face learning is more fun and engaging (Brock et al., 2021; Fitria et al., 2021).

Principals who establish professional improvement practices among teachers can increase teachers' confidence to integrate digital teaching and learning. However, Yusof et al. (2019) found that the function of digital learning space has not yet reached the minimum requirements which indicates that, in Malaysia, principals have not been able to fully implement digital leadership development in their management and administration.

A study by Race (2020) found that the percentage of school readiness to conduct online classes was minimal, namely less willing to conduct online classes (52.2%), followed by those who were not ready to conduct online classes at 30.4%. This factor of lack of teacher readiness is explained by Fendi et al (2021) In his study, 80% of school principals stated that teachers could not streamline the teaching and learning process through online media due to various constraints such as lack of ability in mastering information technology, large number of students, network constraints, and difficulty in explaining information especially in math and physics lessons that require a whiteboard so that the descriptions given are clearer and more detailed.

Teachers know the tasks in teaching preparation, presentations, discussions and post-teaching activities but have never done them before online. As a result, the level of competence and confidence of teachers is minimal, namely 45.2% of teachers are less efficient and less confident to conduct online classes. This problem also exists among teaching leaders who have no experience and exposure related to online teaching supervision. Therefore, they need adequate training to perform the task well. This situation has created weaknesses in online class management which recorded the highest percentage of 52.63% decrease in participation rate due to lack of internet connection and lack of necessary equipment, followed by 15.04% ineffective due to lack of adequate training and learning materials, and 11.28% limitations in interaction and socialization among students & students with teachers (Race, 2020).

Discussion

The role of teaching leaders of the Covid-19 era

Prior to the advent of Covid-19, the role of the teaching leader focused on making observations, investigations, criticizing and evaluating teaching and learning in the classroom face-to-face. However, in the Covid-19 era, the teaching and learning process of teachers was not only online but also teachers conducted teaching and learning at home. Accordingly, the supervision process also had to be changed to online taking into account the safety factors of teachers and students. Therefore, teaching leaders have focused their teaching supervision in this Covid-19 era on identifying problems that arise in the teaching and learning process, creating a conducive learning environment, reducing errors and proposing solutions fairly through feedback between teachers and teaching leaders.

Teaching supervision is not only conducted online such as using Microsoft Teams, Zoom, Google Meet and WebEx, but also teacher supervision is implemented through WhatsApp groups or telegrams that have been set up to facilitate the delivery of information and immediate feedback from teachers. Learning modules are produced as a guide for students to learn as well as provide support to students who do not have internet facilities or face problems with poor internet access.

Teaching leaders have taken proactive steps in teaching supervision through professional learning communities i.e. sharing of expertise either from teaching leaders in schools or by information technology officers or any external expertise. Information sharing is carried out in groups or individual guidance related to online application facilities and methods of developing interesting electronic modules or learning videos. Teaching leaders also have a role in encouraging teachers to collaborate informally either in the same school or involving other schools.

Teaching Supervision Strategies of the Covid-19 era

The findings of this study indicate that the appropriate method of teaching supervision in this Covid-19 era is to use online channels. Teaching supervision can be done individually or in groups. Applications that are often used in the process of teaching supervision are through WhatsApp, phone, SMS, Google Form, Microsoft Teams, Zoom, Google Meet and WebEx. The use of online teaching supervision has provided many benefits namely flexibility, increasing efficiency, providing continuity in the efficient teaching and learning process and creating comfort to teachers and students.

However, not all teaching leaders are ready to implement virtual teaching supervision. They need adequate training in the use of applications to perform teaching supervision effectively. Collaborative among teaching leaders alongside teachers can also develop the curriculum through online methods. technology support staff are assigned to the organization to create, share, and update online teaching-related training with teachers individually or in groups to provide confidence and success to the transition of face-to-face teaching methods to online (Brock et al., 2021).

The Challenges of Teaching Supervision of the Covid-19 era

The role of teaching leaders in ensuring the quality of teaching and learning can be delivered to all students is a challenge in the Covid-19 era. The process of teaching supervision is also undergoing changes, namely online so that the supervised teachers benefit from the supervisory services provided. The change in the medium of supervision and teaching in the Covid-19 era affected the ability of teaching leaders in implementing supervision, as well as the ability of teachers in the process of teaching delivery.

There are several challenges that have been identified to contribute to the inability in the implementation of teaching supervision, namely first, the lack of knowledge in technology, especially educational technology due to lack of training and skills related to information technology. Second, Limitations in device equipment such as desktop computers, laptops or smartphones. Although teaching leaders and teachers have this equipment, there are some students who do not have the device or have to share the device with siblings or working parents. This situation makes the teaching supervision process cannot be implemented effectively.

The next challenge is the poor internet coverage causing the teaching supervision process to be disrupted due to weather factors, the location of the home or school and the type of internet chosen. Therefore, most schools are less prepared in implementing online classes due to lack in mastery of information technology, there are many students, internet access constraints and there are subjects that are difficult to teach without using whiteboards. This situation poses challenges in the supervisory process to ensure that teachers receive training support and guidance towards quality teaching delivery. It also aims to prevent students from falling behind in lessons.

Recommendations
Standards of understanding of teacher performance as cited by Dimanchetra & Wisaprom (2019) in the handbook of teacher performance appraisal by teaching leaders explains that: "Teacher performance standards are related to the quality of teachers in carrying out tasks such as: (1) working with students exclusively, (2) learning planning, (3) use of teaching media, (4) connecting students in a variety of learning experiences, and (5) active leadership of teachers.

Accordingly, to ensure the quality of teachers in the delivery of teaching and learning online is not affected, then teaching leaders need to implement teaching supervision as recommended by Race (2020) namely: (1) ensuring internet connection infrastructure and resources, equipment, gadgets and learning materials are available, (2) providing training or orientation to teaching leaders, teachers, parents and students (3) providing alternative learning delivery methods for those who cannot participate in online classes and (4) develop guidelines for the implementation of online classes.

Conclusion
Teachers have carried out teaching and learning activities well and according to the needs of the context. Yet there are a number of teachers who lack mastery of digital technology to support online classroom learning activities. Therefore, teachers are required to have an in-depth knowledge of the implementation of the educational process at the time of the Covid-19 pandemic. Therefore, the role of teaching leaders in implementing Covid-19 era teaching

supervision should be continued online so that the quality of teaching and learning can be maintained by providing various forms of support namely training support, collaborative according to expertise and educational resource support. Constraints and challenges faced need to be addressed positively so that the direction of national education is achieved and students do not face the problem of dropouts.

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