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Implementation of Science Education for Junior High School Students in Lampung Province During the Covid-19 Pandemic

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Abstract: Science education is one of the important subjects in the scientific structure studied in our world of education. During the Covid-19 pandemic by considering the condition of the readiness of supporting infrastructure for online learning implementation, IT-based teacher skills, and online learning evaluation, this science subject was transformed to students. The purpose of this study is to describe the planning, organizing, implementing, and monitoring of Science Education, especially in public junior high schools in Lampung Province. This research is a qualitative research with an educational ethnography study design, and the research participants are principals of MKKS junior high schools in Lampung Province. This study used interviews, observations and documentation to collect data, which were then evaluated using the interactive model analysis. The findings of this study are as follows: (1) Natural Science lesson plans are prepared by taking into account student characteristics, materials, and the use of applications for learning implementation; (2) the organization of Natural Science learning begins with the formation of Whatsapp groups, the direction of learning meetings using Google Classroom and Google Meet by sharing links through Whatsapp groups; and (3) optimization of learning implementation in this science subject is still limited: 50% of public junior high schools in Lampung Province have limited internet bandwidth; (4) monitoring, science subject teachers have difficulty in conducting learning assessment because they cannot organize students in a perfect setting.

Keywords: Covid-19 Pandemic; Education; Junior High School; Science

Introduction

The teaching of various subjects at school, in this context science subjects, has been disrupted due to the Covid 19 outbreak. Covid- 19 has moved the learning process away from direct classroom instruction to online learning through the use of the internet (Rizaldi & Fatimah, 2020). both of teaching and learning activities, as well as school management (Muhdi et al., 2020). To avoid the spread of the Covid-19 virus, teachers originally taught face-to-face directly in the classroom, however they quickly switched into virtual, which is frequently referred to as online learning. Online learning is defined as learning that takes place in a network without professors and students meeting face to face (Pohan, 2020). Four interacting fundamental dimensions such as attitude dimension, pedagogical dimension, social dimension and technical dimension are indispensable for student engagement and support meaningful inclusion of online learning in middle schools. Attitude dimension is the intention and perspective to understand, interact, and manage the emotional skills and abilities needed by technology users for the effective use of educational technology tools (Panisoara et al., 2020). The technical dimension intends to create computer and media literacy that enables learners and instructors to use online learning without technical difficulties (Yu, 2022). The social dimension is to create technological collaborations where learners connect with other learners and are willing to share their experiences with peers and/or with teachers to achieve their emotional, social, and cognitive engagement that keeps them motivated and even inspired (Yehya, 2020).

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This learning requires some applications to support the learning process such as WhatsApp, Google classroom, Google meet, Zoom, Microsoft meeting, and so on (Nuraini et al., 2023; Silky & Suryaman, 2022). This will notbe an issue if education providers are already prepared to carry out the online learning procedure. Education is, in fact, a system consisting of several components, including students, educators, tools, and an interconnected environment (Hartadi et al., 2019), but this is not the case. Indonesia is a highly diverse demographic and ethnic territory. Infrastructure and superstructure conditions vary greatly from region to region. The central education policy that does not accept this condition has caused some education providers to stutter. The same situation happened to education providers in Lampung Province.

The granting of authority, mandate, and responsible trust in the management of education from the central government to local governments, and or from local governments to education units, both in terms of funds, personnel, facilities and infrastructure, as well as management and curriculum are consequences of educational autonomy. Quality of education is analogous to customer needs. The product of educational institutions is in the form of services where customer satisfaction can have multiple meanings. First, satisfaction with service delivery in the educational process, in the form of various services to students, both inside and outside the classroom, as well as a variety of programs that are fun and exciting for learning and activities also services for parents in relating and communicating and collaborating with schools. Second, satisfaction with educational outcomes which refers to various competencies achieved by students, both during the process and after graduation (graduate competence) based on established standards or fulfilling customer expectations after graduation.

Since educational autonomy exists, every school must have management in charge of educational management. Management is the process of planning, organizing, directing, and supervising the organization via the use of empowerment as well as the use of organizational resources to achieve pre- determined goals (Pananrangi & SH, 2017). (1) Planning is the selection and decision of actions, then what to do, when, how, and by whom; (2) Organizing is the process of assembling an organizational structure in conformity with the organization's goals, resources, and surrounding environment. (3) Directing, specifically human relations in leadership that tie subordinates to be willing to comprehend and devote their energy effectively and efficiently in reaching an organization's goals. (4) Supervision is a process that ensures organizational and management that objectives are achieved.

Education management is defined as the process of planning, organizing, directing, and overseeing education in order to attain educational goals. Achieving educational objectives through a well-managed learning process, evaluation is required to determine whether or not educational goals have been met. An evaluation is an assessment. Educational evaluation is a type of assessment that occurs during educational activities (Malawi & Maruti, 2016).

The concept of evaluation includes three crucial terms: systematic, data, and decision making. Systematic activity implies that program assessment is carried out in a systematic and scientific manner. Data is collected, processed, evaluated, and presented utilizing scientific approaches, models, methods, and procedures as the emphasis of program assessment. This information will be useful if it is used to make judgments about the software being reviewed. As a result, program assessment is carried out on a regular and ongoing basis using scientific techniques to acquire data for decision making.

The following decisions can be made based on the results of a program evaluation: discontinuing the program because it is regarded to have no benefits or cannot be implemented as expected; revise the program since some elements do not meet expectations; Continuing the program because the implementation of the program reveals that everything has gone as planned; Because the program was successful, it is particularly beneficial if it is repeated at a later date (Mahmudi, 2011).

Learning encompasses all efforts to regulate the teaching and learning process in order to create an effective and efficient teaching and learning process through the implementation of activities such as planning, organizing, implementing, and monitoring aimed at determining and completing predetermined goals using human and other resources within the organization (Manullang, 2016). The teacher's duty as a learning manager included leading pupils to carry out learning activities while modifying cognitive, emotional, and psychomotor behavior (Manullang, 2016).

It is critical to be prepared to arrange education during the COVID-19 epidemic in Lampung Province. Education implementation at this time involves not only the school, but parents and guardians of students must also be prepared so that online learning may work smoothly. The school supplies computers or smartphones as well as the appropriate internet packages for instructors. Meanwhile, the parents are

preparing devices and internet bundles, as well as help for their children (Ayuni et al., 2020).

To make online learning using ICT media more successful and efficient, it should be done in an interactive format. Teachers can prepare for online learning by looking for web resources or websites that offer learning plans and activities, carrying out learning activities using apps, communicating to parents that learning is done online, reviewing assessment data for each child, developing aspects of child development, the teacher understands the This preparation is critical for teachers to ensure that online learning runs well.

Teachers who are already prepared to learn by establishing plans for executing the learning process, implementing, assessing, and following up on numerous aspects that each teacher considers significant (Hanifa, 2017). Based on several statements that the readiness for the provision of education is critical in conducting online learning during the COVID-19 pandemic, the purpose of this study is to describe the planning, organization, implementation, and supervision of the readiness for the implementation of education, especially at State Junior High Schools in Lampung Province during the COVID-19 pandemic by considering the state of readiness of infrastructure supporting the implementation, IT abilities of teachers, students, and parents, as well as online learning evaluation. Curriculum and learning materials to be implemented, and asking children to carry out routines at home during online learning.

Method

The research method used is qualitative. The study was conducted at public junior high schools in the Lampung province. Ethnography was used as the research design. Researchers have a direct interaction with the participants of their studies. The ethnography under consideration is educational ethnography. Educational ethnography is more concerned with a portion or all of the educational process. The research subject is the head of MKKS for junior high schools in Lampung Province. The selection of these informants attempts to provide information regarding Lampung Province's readiness to deliver education at the junior high school level, particularly public junior high schools during the COVID-19 outbreak. The methods of collecting research data are interviews, observation, and documentation. There are several techniques that can be used to improve and determine the validity of the data in this study, including extended observations, using reference materials, triangulation, and member checks. The research data analysis used was an interactive model analysis developed by Miles and Huberman which consisted of data collection, data reduction, data presentation, and conclusion (Miles & Huberman, 2009).

Result and Discussion

Science Education Curriculum in Junior High School (SMP)

Starting from the 2022/2023 academic year, SMP's science materials already use a new curriculum called the Independent Curriculum. However, the implementation of this new curriculum took place in stages. This means that the Merdeka Curriculum mainly applies to grade 7 only. Meanwhile, junior high school students in grades 8 and 9 still use the 2013 revised 2018 curriculum.

The science material in junior high school belongs to various categories. In addition, science lessons for the junior high school level still combine material for Biology, Physics and Chemistry lessons. Broadly speaking, there are four categories of science material in junior high schools which include science material for grades 7, 8 and grade 9. There is also science material for junior high schools with an international curriculum.

Junior High School Science Learning Concept

Here are some concepts of learning science in junior high school that are important to know. Junior High school science learning is no longer an independent discipline. But science learning in junior high school becomes an integrated science. For example, in IPA there are earth and space sciences, physics and biology.

Science learning in junior high schools provides students with in-depth knowledge about the actual situation of the natural surroundings (Kuang-Chao et al., 2020). So that students are able to find solutions to the natural environment problems they face. Junior High school science learning is carried out systematically, logically, scientifically and makes sense. All science material is given conceptually and in practice in the field. So that students' understanding of natural science is increasing. For learning science subjects in junior high schools, it is necessary to do group work with practice and evaluation. The active role of all students is needed, especially in group work carried out together.

Experience in the form of experimental practice becomes part of the science learning process (Russell & Martin, 2023). Periodically, after finishing science material, teachers can give experimental and research assignments to junior high school students. But all of that is attempted at the level of the task is still in its simple nature. If there is science subject matter that students cannot understand, the students can be immediately active. One of them is by asking the science

teacher directly in front of the class about material he does not understand.

That is the concept of learning natural sciences for junior high schools based on the 2013 curriculum. All of this is done to make it easier for students and class teachers to learn science in the classroom. Often in order to make it easier for junior high school students in science learning matters, teachers often prepare science learning modules in junior high schools.

The Importance of Junior High School Science Learning

Do you know the importance of learning science in junior high school? The function and role of science learning for junior high school students is very important. For more details, here are some of the reasons for the importance of learning science subjects in junior high schools which include: arouse a high school student's curiosity about natural conditions and living or dead things around him and increase knowledge of natural conditions and laws (Salimi et al., 2021); maintain and preserve the natural surroundings. It knows the importance of keeping nature sustainable. Because the bad effects of damaged and unsustainable nature can cause floods, landslides and so on; provide solutions to natural damage. Having a junior high school student studying science means being able to provide solutions to current environmental problems. For example, if there is a landslide in the area, one of the efforts that can be done is to give direction to the community not to cut down trees. But diligently doing greenery in areas prone to landslides; the urgency of studying science at the junior high school level is to awaken a sense of love for the surrounding natural environment. So always maintain the cleanliness and preservation of nature around it; and increasing junior high school students' understanding of the importance of nature for humans.

The Planning of Online Learning

Perceptual lesson planning is characterized by engaging the senses and creativity of teachers and students, as an artistic activity that is enjoyable in and of itself, as consisting of a variety of stylish products, and as leading to meaningful learning for both students and teachers in an environment open to elements of surprise and innovation (Uhrmacher et al., 2013).

The first lesson plan can be created using the following six steps: (1) Outline learning objectives; (2) Develop the introduction; (3) Plan the specific learning activities (the lesson's main body); (4) Plan to check for understanding; (5) Develop a conclusion and a preview; and (6) Create a realistic timeline (Milkova, 2012). The areas of attitudes, knowledge, and skills are included in the goals of national education. t is essential to have a qualification profile of graduates' skills, as described in graduate competence standards, in order to meet the objectives of national education.

Organizing Online Learning

One of the primary reasons for seeking to create learning organizations in academia is the convergence of disciplines, along with a significant amount of interdisciplinary and multidisciplinary activities, both scientific and curricular (Manlow, 2010). Distance learning is another name for online education. Three key components make up distance learning: the design of the educational process based on information technology and telecommunications (multimedia courses in the field), the Internet, and the technical side of things (computers, gadgets, etc.).

A learning organization is one that develops a facilitative structure through a process of self-development and knowledge sharing by empowering employees in order to learn from its members both individually and collectively to get a competitive advantage (Nurhidayat & Arquisola, 2022). A learning company requires a number of essential components, including innovation, facilitative leadership, self-development, employment, knowledge exchange, and group (Farrukh & Waheed, 2015). Any of the recommended context-adjusted models that suit a teacher's specific organizational setting might be used as a starting point when thinking about implementing a learning organization.

Any of recommended context-adjusted models that suit a teacher's specific organizational setting can be used as a starting point when thinking about implementing a learning organization (Örtenblad, 2015) By creating a WhatsApp group, junior high schools across Lampung Province were able to organize online learning. By sharing the link, WhatsApp groups are utilized to disseminate information about learning activities conducted on Google Classroom and Google Meet. Teachers can also utilize WhatsApp for educational purposes. Teachers that use WhatsApp for learning can discuss and share assignments, exercises, and assessments as well as share and explain materials using voice notes. Students need to practice autonomous learning in this situation.

Self-directed learning can support the development and dissemination of a common vision in learning organizations (Hutasuhut et al., 2021), as well as collaboration, interaction, and group work. It can also empower participatory learning practices, encourage and present opportunities for continuous learning, and make use of pertinent technology (Rana et al., 2016). Because of this, in the current epidemic period, whatever the teacher employs in the implementation of learning is

a method of arranging learning that, in the teacher's opinion, is consistent with the circumstances and circumstances in the school.

The Implementation of Online Learning

The teacher's lesson plan serves as the basis for how learning is implemented (Elliott, 2019). The creation of lesson plans serves as a guide for teachers throughout the teaching process. Online learning is instruction that is provided electronically through the use of computer-based media and network resources, such as websites, intranets, CDs, and DVDs. It assists students in achieving specific outcomes (such as goals), and while it is being implemented, it also monitors student performance and provides reports on student progress (Yuhanna et al., 2020).

In Lampung Province, a public junior high school offers online courses using Google Classroom, Google Meet, and the WhatsApp group application. Requesting assistance from school administrators will allow you to share resources or instructional video links on YouTube using a school account. The students are then reminded of the link via Google Classroom and WhatsApp groups. The Google Meet is used by the teacher to explain things. Students can approach the teacher via chat in Google Classroom and in the WhatsApp group if they have any questions about the content. Online learning is not being implemented as smoothly as teachers had hoped. According to student responses in online learning, the importance of teacher maintaining an active online presence as well as the availability of a team meeting platform (Salmi, 2013).

Its implementation faces numerous challenges, including signal quality at the student's home, students' lack of readiness for class participation, parents' financial situation, which leaves some students without devices or unable to afford internet quota packages, and teachers' lack of expertise in integrating technology. One flaw in online education is the inability to effectively monitor pupils during the process. Other weaknesses include a poor internet signal and costly quota fees (Saputra et al., 2021).

The study's findings suggest that there are challenges to implementing educational learning, which have an effect on implementing learning that is not carried out optimally. These challenges are: (1) The bandwidth is constrained at 50% of the public junior high schools in Lampung Province. The capacity that can be utilized on an Ethernet cable in order to transfer a given amount of data packet traffic is known as bandwidth. Bits per second (bps) are the units used to measure how much data is transferred over the internet; (2) The internet service provider and the internet connection provider are not properly received due to the differences in the demographics of the students' place of residence. In the province of Lampung, not every public junior high school is situated in an area with a strong internet connection.

Many junior high school pupils live in areas with either no internet connection or a subpar internet connection. As a result, certain pupils may take longer to accept the teacher's lesson material. (3) A 25% of teachers, particularly those who are nearing retirement age, do not understand IT as the primary tool for implementing online instruction. Making instructional videos for this online learning involves proficiency with information technology tools like bandicam, kinemaster, animaker, and others. To make the information more intriguing, make the most of power point apps. To make it lighter and preserve the writing position when it is transmitted to students, create content that is then converted into PDF or JPEG. Then, all materials are provided to students in the form of links that are posted to the disk in the form of PDF and JPEG files, making learning easier for them.

Additionally, since YouTube videos don't need to be downloaded, teachers should be able to publish them there for students to access instantly. It all takes expertise, as well as strong communication between subject matter experts and IT professionals. One of the challenges in implementing online learning is the teacher shortage. Additionally, teachers who are close to retiring have a tendency to be less interested in learning IT. Even if they are eager, they are not as adept at understanding IT as they were when they were younger. (4) Fifty percent of students do not have access devices that allows them to do independent internet learning. A device or gadget is a tool or set of tools that can facilitate communication and work. Not every student has a gadget of their own. This is the because their parents do not believe in their kids to use technology. Junior high school students have a terrible tendency to spend more time playing games on their devices than finishing their assignments. As a result, many students make use of their parents' technology. Students without smartphones are another group. As a result, some students get knowledge from professors earlier than others. (5) The prevalence of economic inequalities, education, and parental work has an impact on the implementation of online learning, which cannot be separated from parental assistance at all.

Conclusion

In any circumstance, the readiness of education providers, particularly public junior high schools, to teach is critical. This readiness influences the learning process of students. Taking into account the condition of

the supporting infrastructure's readiness for the implementation of online learning for schools-students, the IT capabilities of teachers-students-parents, and the evaluation of online learning, it is discovered that: (1) beginning with the planning stage, the learning is prepared by taking into account the characteristics of students, materials, and the use of applications for learning implementation. (2) Setting up a WhatsApp group is the first step in organizing learning, and sharing the link for Google Classroom and Google Meet with the group is the second. (3) The optimization stage of education implementation faces a number of challenges, including: (a) limited bandwidth in 50% of public junior high schools in Lampung Province; (b) the disparity in the demographics of students' homes prevents internet service providers from being responsive; (c) 25% of teachers do not understand IT, particularly those nearing retirement age; (d) 50% of students do not yet have a device for independent online learning; (e) economic disparities, education, and parents' jobs all have an impact on the implementation of online learning; (4) In the final stage of supervision, teachers struggle to conduct learning evaluations because they are unable to control students under ideal conditions due to bias Recency Error, Similar to Me Error, Hallo Effect Error, and Leniency Error..

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Conflicts of Interest
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