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INSTRUCTIONAL COMMUNICATION PROCESS IN DIFFERENTIATED INSTRUCTION-BASED LEARNING IN CAMBRIDGE CURRICULUM MATHEMATICS LESSONS FOR ELEMENTARY SCHOOLS

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Abstract

Curriculum chosen by the school will affect the teaching and learning approach. However, to get good learning results, good communication is needed between the teacher and the students, especially if the teacher differentiated the students based on the level (advanced, on level, and slow learner). The aim of this research is to analyses the communication process carried out by teachers in implementing Differentiated Instruction (DI) in Cambridge curriculum in mathematics lessons for grade 5 elementary school. The research method involves interviews with 3 teachers and 5 students, direct observation in class, and study of documents such as Lesson Plan, student projects, and evaluation results. The results show that the teacher be the main facilitator. It requires in-depth knowledge and effective communication skills. Messages are delivered directly using the context of daily and real examples. Students are divided into three levels. That all three levels of students can receive the lesson well, judging from the grades and feedback. This shows the success of the instructional communication process implemented. Instructional communication here involves complex interactions between the source and communicants. This research provides in-depth insight into how instructional communication in the context of DI can be implemented in supporting the effectiveness of Mathematics learning in elementary schools.

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A. INTRODUCTION

Communication is a very important part of human life. The function of communication in education is the delivery of information that encourages intellectual development, character formation, as well as the education of skills and professionals needed in all areas of life (Widjaja, 1997). In practice, teachers must find and prepare various ways so that learning material can be distributed and absorbed by students. The learning process carried out in social interaction or in social relationships is largely determined by how effective the teaching communication is. In this case, the teacher's ability to communicate is the key to success in building relationships and delivering learning material. Communication in education is also called instructional communication. Instructional communication is communication carried out by teachers or educators in determining educational goals, teaching methods and learning outcomes so that students can absorb the material provided well (Yusuf, 2010). McCroskey, Valencic, and Richmond (2004) explained that instructional communication consists of six components such as learning environment, student, teacher, teacher verbal and nonverbal behaviors, student perception of the teacher, and learning outcomes. Researchers believe that these aspects will have a special role in each learning method applied.

Apart from that, the curriculum also has a big influence on what teachers teach and how the material is taught. A well-designed curriculum will encourage and make it easier for teachers to teach better. Currently, the curriculum used in Indonesia is the Kurikulum Merdeka. Apart from the national curriculum, there are many international curricula in Indonesia which are used in many schools as well. Some schools choose this international curriculum to raise learning standards and help children acquire competent skills in the era of globalization. One of the international standard curricula that is widely used in Indonesia is the Cambridge International curriculum. In Indonesia, the Cambridge curriculum is applied to three subjects, such as English, Science and Mathematics. In learning mathematics, this curriculum focuses on principles, patterns, systems, functions and relationships so that students can apply their mathematical knowledge and develop a comprehensive understanding of the subject matter in everyday life. There are several differences in the topics taught in the Cambridge curriculum

and the national curriculum. This research will examine the perimeter and area of flat shapes, especially triangle.

The curriculum used will also influence several things, one of which is the teaching and learning approach. One of the lessons that has been implemented is Differentiated Instruction (DI). In differentiated learning, students can study subject matter according to their individual abilities, interests and needs. The goal is so that students do not experience frustration or feel like they have failed in their learning process (Breaux and Magee, 2010; Fox & Hoffman, 2011; Tomlinson, 2017). Communication in learning with the differentiated instruction method certainly plays an important role. This is because each student has different characteristics, so communication in giving instructions is also not the same for each student. Researchers saw this in one of the primary education institutions in West Surabaya, where researchers conducted this research. The school is one of the developing schools by implementing the Cambridge curriculum for math, science and English lessons. This research will focus on mathematics learning because based on the initial observations made by the researchers, mathematics learning is carried out more variedly using various experiments according to the material being taught. Learning math with the application of DI also has its own challenges.

Previously, learning was carried out conventionally or the teacher explained theory to all students in general. Students only memorize formulas. However, in the last two years, teachers have started teaching with more innovative learning strategies such as using DI. In this study, researchers will look at learning in mathematics lessons in Grade 5 elementary school for geometry material (measuring the area and perimeter of flat triangular shapes). To be able to achieve success in the cognitive aspect, good communication is needed, especially in providing different instructions. From the learning activities carried out in this school, the researcher sees that learning mathematics by applying DI is not an easy thing. Teachers as communicators need to customize their instructional communication based on students' individual needs. Teachers also need to provide feedback that is appropriate to each student's progress and challenges. In addition, teachers need to structure how communication can be adjusted to meet students' individual needs. With the implementation of good instructional

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communication, the learning objectives of DI-based learning can also be achieved.

Therefore, this research will look at the communication process that occurs in learning, looking at the six components that the author mentioned above and also looking at the communication model offered by Richmond, Wrench, and Gorhan (2009). They offer a model for reading how the instructional communication process occurs in a learning context. The model describes the instructional communication process through five series in the learning context. 1) Source (teacher), related to the main source of learning, 2) Content, refers to something delivered and taught by the teacher, 3) Instructional Strategy/Channel, related to how the content and message is delivered, 4) Receiver (Student) related with the recipients in the instructional communication process, and 5) Feedback or Evaluation, related to feedback on the content or messages conveyed in learning.

Before this research was conducted, several studies had been conducted and had similar themes to this research. In research related to instructional communication, researchers found almost similar research conducted by Ningsih and Christiani (2015). This research is related to the role of lecturers as communicators in lectures, so that an overview or patterns of instructional communication in lectures can be obtained. From their research, it was found that lecturers act as sources of information and how lecturers communicate with students can be assessed from perceptions of attitudes, knowledge, communication skills, culture and social systems. The communication skills of library science lecturers are good and based on cultural indicators and social systems it can be concluded that the lecturer's culture or domicile does not influence communication.

The researcher found that there has been a lot of research on instructional communication. There are also many studies that focus on the DI teaching method itself. Many studies discuss the challenges associated with implementing DI in general, and some of them touch on aspects of instructional communication. However, there are not many studies that specifically link instructional communication with DI. In fact, DI-based learning has begun to be

implemented in Indonesia and requires good communication skills because it has different receiver characteristics. From this statement, the researcher wants to see more about the communication process both in terms of communicators, messages, channels, and also communicants applied so that the learning objectives of the Cambridge curriculum mathematics with the application of DI learning can be achieved.

B. METHODS

This research uses a descriptive qualitative approach because it is based on researchers who want to explain in depth about the communication carried out in DI-based learning in Mathematics lessons using the Cambridge curriculum. The data mining technique in this research was carried out in three ways, such as interviews, observation and documentation. In this research, semi-structured interviews were used. Esterberg (2002) explains that the type of semi-structured interview is an in-depth interview category. In practice, interview questions are prepared in advance by the researcher, but it can be developed along with the answers from research informants. In this research, semi-structured interviews were used to collect data from 3 teachers and 5 5th grade students at one of private elementary school in Surabaya City, East Java.

The researcher also made observations and made field notes to support data related to the communication process, seen from all the elements in it, namely the communicator, message, channel, communicant, and evaluation or feedback. This observation method will look more at the channel (learning media) and social aspects carried out in class. Document study or documentation is a method of collecting data using written, graphic or electronic objects such as books, magazines, documentation, regulations, meeting minutes, diaries and so on (Sukmadinata, 2007). Based on this understanding, the researcher used documentation techniques in collecting data. Documentation that will be used includes lesson plans, syllabus, assessments, student's works, student's score, and photos during learning. After obtaining the data, researchers carried out interactive data analysis according to Miles, Huberman, and Saldana (2014). This analysis includes collecting data, condensing data, presenting data, and drawing conclusions.

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C. RESULTS AND DISCUSSION

The Teacher's Role as a Source in DI-based Mathematics Learning

The communicator is the person who conveys the message, in this case the teacher. The role of the source or teacher in the context of instructional communication is very important as they are responsible for the delivery of information, guidance and facilitation of learning. Being a teacher is not only about having knowledge and mastery of the material, but also requires superior professional qualifications to teach and guide using good and correct teaching techniques and methods based on the ethics of a professional teacher. The requirements that must be considered by a communicator according to Widjaja (1986) are reliable and have good communication skills, have extensive knowledge of attitudes, are interesting in the sense that they can influence the attitude of communicants or expand their knowledge.

The teacher as a communicator has a very broad role in the classroom. The roles of the teacher include: 1) Teachers as learning facilitators who provide the guidance and support students need (Brookfield, 2015). 2) Teachers as behavioral or ethical models who demonstrate expected attitudes and behaviors in the learning process and classroom interactions. (Bandura, 1977). 3) Teachers as instructors who provide learning materials to students through lectures, presentations, or demonstrations (Marzano, et al., 2001). 4) The teacher as an assessor who evaluates students' understanding and achievement, provides constructive feedback, and gives fair judgment on students' performance. (Popham, 2008). 5) The teacher as a supporter and counselor who provides emotional, academic, and social support to students, helping them overcome difficulties and reach their potential (Gysbers & Henderson, 2000). 6) Teachers as learning planners and designers who design curriculum, learning materials, and instructional strategies according to students' needs and characteristics (Smith & Ragan, 2005). 7) Teachers as classroom managers who manage time, space, and interaction in the classroom, creating an environment conducive to learning (Wong & Wong, 2009).

To be a good communicator or resource, the teacher must have the following characteristics: 1) The teacher must have high credibility in the subject

or topic. This credibility can be obtained through formal education, work experience, or relevant research (Merril, 2002). 2) Teachers should have good communication skills including the ability to speak clearly, write well, and choose the right words (Mitterer &Coon, 2012). 3) Teachers must have empathy, patience, and consistency to be able to understand and respond to feelings, needs, and create a structured learning environment (Schunk, 2011; Feldman, 2010; Gagne et al, 2012). 4) Teachers must have cultural awareness and diversity in the diverse cultures, backgrounds, and needs of learners (Banks, 2009)

From the results of interviews and observations, it can be seen that in this DI-based math lesson, the teacher as a communicator takes on all the roles mentioned above. However, it is done in different portions. The teacher is more of a facilitator, as expressed by Ms. M in the interview:

> *"It's more like a facilitator to them, yes, first we must give instructions, instructions first. But then it's more about them doing it".*

From the statement above, it can be seen that the teacher as a communicator only acts as a facilitator. The teacher only prepares the learning. This is reinforced by an interview with Ms R who said:

> *"It's more of a facilitator, like helping to spark questions, just concluding. They discuss themselves in the group".*

As a facilitator in teaching and learning activities, an effective teacher in instructional communication also needs to have several criteria. These criteria include having credibility. Teachers in this elementary school are credible. This is evidenced by the results of interviews with teachers who said that they have a long teaching experience of around 4-8 years, with an educational background that is also related to education. They have also mastered the material or message that they want to convey to communicators, as evidenced by the results of an interview with Ms. M who said:

> *"As for preparation, honestly this is my 5th year teaching Math, so I don't need to prepare for learning because it's already out of my head".*

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If the teacher as a source or communicator has good knowledge, it will affect the way the teacher communicates with students. Teachers become easier to convey information or material because they already understand what will be conveyed. Thus, teachers only focus on developing learning strategies and on how to communicate in class. As a communicator, it is also important to understand his communicants or interlocutors. Teachers as facilitators are also very important to know the characteristics or background of their students as communicants or recipients of messages. In this school, every teacher must know the students' initial abilities or background. This is because the school conducts a diagnostic test before the lesson takes place, as evidenced by the interview with Ms. R who said that:

> *"...we have conducted a diagnostic test and distributed google forms to the children so we can differentiate from there...".*

From the results of the diagnostic test, the teacher knows who he is talking to (what are the characteristics of the communicant). From the results of this test, the teacher can adjust the language and strategies that are appropriate and acceptable to the communicator. Based on the results of the interview with Ms. M, it is said that:

> *"The use of words that are not wordy. So when communicated to the children, the way of delivery is not long-winded. Use sentences that are easily accepted by them. Because this is in English too".*

By knowing the background or characteristics of the communicator, it can also cause teacher empathy. From this empathy there is an attitude or behavior of the communicator to the communicator. Based on the results of an interview with Ms. M, who said:

> *"children say I'm good hahaa. What yes, like if there is a problem it is resolved. Caring. Attention".*

It can be concluded that when the teacher knows the student's background, the teacher will provide a different attitude. For example, by giving persuasive words or words that strengthen students. This is also evidenced by

the results of interviews with students as communicants who feel the impact of persuasive sentences or words spoken by the teacher.

> *"Communication with the teacher, I feel free to talk to my teacher. Ms also often speaks with words that motivate me. Ms. said "Be confident with your answer", "It's okay if it's wrong".*

From the student's statement, it can be concluded that by using persuasive words, the teacher becomes a facilitator with good communication skills with students. The teacher also has a good relationship with the students. So, we can conclude that in this DI-based learning, the teacher acts as a facilitator. As a facilitator, the teacher provides a little information or message to students, then students will explore on their own. Teachers as facilitators in this school have good knowledge related to the message to be conveyed. In addition, teachers in this school also have good communication skills and good relationships with their students because they know the background or abilities of their interlocutors (in this case students) so that the delivery of material or messages can be well received by students as communicants.

Message modeling (content) in Differentiated Mathematics Learning

In terms of learning, communication content refers to learning modeling or message modeling. The content conveyed refers to the material and information conveyed to learners. Some types of content used in learning include: 1) Facts and concepts, 2) Procedures or steps, 3) Principles or theories, 4) Skill or ability development, 5) Introduction to different opinions and perspectives, 6) Case studies or examples, and 7) Experiments and demonstrations. The types of content used in the classroom can be as diverse as the seven points mentioned above. However, not all of them are used. Teachers can select and design content that suits the learning objectives and learners' needs.

In delivering learning content or modeling, there are criteria that must be considered so that the message can reach the recipient clearly. These criteria include: 1) The message should be written or delivered in a way that is easily understood by learners. This can be done by using language that is appropriate to the learners' level of understanding, avoiding language or parables that are

difficult to understand (Bly, 2020). 2) The message must be relevant to the learning objectives and learners' needs in order to be important to students and help them understand the relevance of the material to their previous experience and knowledge (Anderson & Krathwol, 2001). 3) Messages should be formulated clearly and precisely to avoid confusion or misinterpretation. The use of concrete examples, illustrations, or analogies can help clarify the message (Merril, 2002).

From the results of interviews and observations, it can be seen that in this DI-based mathematics lesson, the message in this case the material is delivered by paying attention to the above criteria. Messages are given to communicants mostly using concrete examples, illustrations, or analogies. This is known from the results of the researcher's observations and interviews with Ms. R who said that

> *"Yes, it is more about bringing real examples in math learning with activities that students also participate in".*

By providing real examples in learning, students will be more active and the message will be more easily accepted. Before starting learning, the teacher also conveys the learning objectives or conveys the reason why they are learning this. From the side of students A, SP, CN, EZ, they stated that they understood what they learned. So that they can feel that the material they learn is also important for them.

Not only is that, in conveying messages or materials, language that can be adapted to students needed. The language used must also be language that is not wordy. Teachers can also use the same terms or sentence patterns so that students are familiar with the teacher's language or sentence patterns. In DI learning, although the instructions given are different. However, the message or material delivered remains the same. It's just that the teacher uses a system of working in groups. From the groups, the teacher maps the students based on their levels, then the students can interact in their groups to explain to each other. By modelling learning through group work, students will be able to understand from other friends because sometimes students can understand better if explained by their friends.

Instructional Strategies Used in Differentiated Math Lessons

Communication in this context involves the selection of appropriate channels. When a communicator designs instructional activities, the strategies chosen are strongly influenced by the situation and environmental conditions. The strategy is not just a method, but a comprehensive plan to achieve learning objectives, although it does not guarantee success (Yusuf, 1990). Instructional strategies include various activities such as assigning tasks to participants to study predetermined reference materials, as well as other activities related to formal instructional tasks given by the teacher (Zakiah & Umar, 2006).

Channel in the instructional communication element refers to instructional strategies or learning media and methods used to convey messages or material to students. In determining learning media, there are several things that need to be considered or considered for use in the classroom, including: 1) The effectiveness of the media used in achieving learning objectives. This effectiveness can be measured by the ability of students to understand and remember the information presented (Marzano, 2001). 2) The media used needs to increase learner involvement in the learning process as seen from the level of student participation, interest, and motivation (Fredricks, et al., 2004). There are also several types of media or learning channels that are commonly used such as direct teaching (lectures, presentations, demonstrations), class discussions, group/collaborative work, case studies, projects, and games.

Channels, in this case learning strategies or media used in learning, are very important in teaching and learning activities. By selecting and using channels or strategies that are appropriate to the learning objectives and needs of the learners, teachers can create a more meaningful and effective learning experience. From the results of interviews and observations, it can be seen that the learning media used in DI-based math lessons vary. The teacher as a source can use PPT (material exposure) and books (used for students to work or practice problems together) as a tool to provide material to students in a formal (serious) manner.

In addition, teachers utilize the surrounding environment. Teachers use existing items to be used as examples. Not only that, teachers also involve

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students in classroom activities because in this-based learning activity, students as communicants are also involved. Not only do they receive material or messages from the communicator but the communicator also tries to understand the message by participating actively in class. This can be seen from the interview with Ms R who said "Yes, it is more about bringing real examples in mathematics learning with activities that students also participate in doing". By being actively involved, students will be able to understand more because they remember what they have done and things that are directly related to them. This is evidenced by an interview with student S who expressed his hope for future math learning. He said "More games and actions because I will understand more easily if I use them". The most recent message modelling done by the communicator is by giving a direct example of what the communicant should do. In this case, the teacher as a communicator gives a direct example of working on the area of triangle project so that students as communicators already have an idea of how to do it. The example can be seen in the picture below:

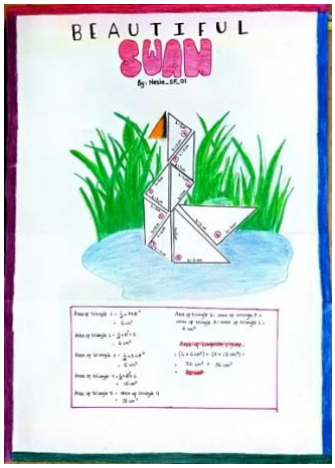

Figure 1: Example from the communicator of what the communicant should do.
Source: Research Documentation (2024)

Students' Response as Communicants in Differentiated Mathematics Learning

In differentiation-based learning, communicants which in this case are students are divided into 3 levels. Based on the interview results, students are differentiated based on levels above average (advanced), average (on level), and

below average (slow learner). This is done because the core purpose of differentiated learning is to create an equal learning process for all students with their different ability levels so that it will reduce the learning gap that often occurs between students who excel and those who do not. This differentiation process includes content, process and product differentiation. The focus is on differentiating materials, learning methods and task variations according to each student's needs and interests. Differentiated learning will be declared successful if there is an increase in student skills and a conducive learning environment.

Differentiation in this learning is done based on students' learning readiness, interests, and learning styles. These types or distinctions are determined through diagnostic tests and google forms distributed by teachers to students. From the results of the test and the form, teachers can map students into several categories. In addition, according to the material, teachers can differentiate based on content, process, and product.

From the interview, the researcher can see students' responses from motivation, level of understanding, involvement in learning, and also from students' characteristics and cognitive abilities. The researcher can see that students' responses in this differentiation-based learning also vary depending on the students' ability level. This can be concluded from the results of the interview with teacher R who said "*children who master it really take part in the scramble to answer. But children who are still struggling just stay quiet*". However, as a communicator, the teacher does not remain silent seeing students who do not understand, so the teacher also provides practice questions and additional time.

Teachers also use methods that can be applied to differentiated learning so that all students can understand. So that in the end, students can receive the message well. This can be seen from the results of their work (shown in point 5.5) and from the results of interviews with students. As communicants, students also have their motivations or expectations of learning. If seen from the results of interviews and observations, students who have motivation and expectations of the learning that will occur in the classroom will be more enthusiastic in learning. This can be seen from the results of the interview with student SP who said "*Yes. I like games anyway so I hope Ms will teach me with games*". Based on observation, this SP student was also more active in answering questions and asking questions in class than other students.

Evaluation of the Instructional **Communication Process that Has Been Conducted**

In the instructional communication process, feedback or evaluation plays a very important role. With evaluation or feedback, the instructional communication process can be assessed whether it is successful or not. From this evaluation, it can also be known to what extent the effects of the communication strategy are carried out. In other words, the essence of feedback

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or evaluation is to control the ongoing instructional communication process (Zakiah & Umar, 2006).

Feedback as a response indicates a two-party, two-way communication - from teacher to student and vice versa from student to teacher. The types of feedback or evaluation can vary depending on the context, including in the context of instructional communication. The most visible evaluation tool is whether the communication in the learning process can help students to achieve the learning objectives. This evaluation can be seen from student grades and student responses as well. This evaluation can be formative or summative, or an assessment done by the teacher to the students, depending on the purpose. Formative and summative evaluation can be assessed by students' test scores. However, evaluation not only provides a final assessment, but also provides important information to students and teachers about student progress and learning success (Stiggins, et al., 2006).

Feedback in instructional communication in this study is done in many ways. Researchers looked at four things, namely from the interaction of teachers to students, students with teachers, between students, as well as from student scores whether they achieved learning objectives or not. First, from teachers to students, researchers saw that the teacher's ability to provide feedback to students was quite good by providing opportunities for students to ask questions. Teachers also use words that strengthen students when students cannot work or do not understand. This was concluded from the results of observations and interviews with Ms. M who said "*Yes. For example "you can do it, do not overthinking". Because they can already overthink. Oh my gosh, they just look at the problems and immediately complain. So sometimes I say "Try your best*". So, the teacher understands the condition of the students and provides feedback to students by giving words that can encourage students. The same thing was also conveyed by student EZ "*Yes, Ms. likes to encourage me when I am confused. Sometimes there is anger too. But if I can do it, Ms. definitely says "good job", "you can do it*". With teachers like that, as communicants, students also provide good feedback, namely feeling able to freely interact and ask questions to the teacher. This can be seen from the results of observations in the classroom that many students ask questions freely to the teacher. They are not afraid to ask questions to the teacher.

Not only teacher to student or student to teacher, but the relationship between students also has development with students giving words that support their friends. In this case, the teacher gave a project assignment. After the students have worked on the project, the project is displayed simultaneously, and students can do a gallery walk. There students can comment on their friend's project and give heart-shaped stickers as an appreciation or a form of feeling like their friend's project. This is very good because the author can conclude that not only cognitive changes occur, but affective changes also occur. Students who previously did not know how to give evaluations, now

know how to give good comments and critics to their friends even though their friends have made mistakes. For example "*It's really nice .... the answer is actually 53 cm, but still good job*".

Figure 2: Students evaluations for their peers.
Source: Research Documentation (2024)

In the end, all look at the results of students' work or grades about the material that has been taught. The implementation of taking this value will provide an assessment to the teacher as a communicator regarding the percentage of understanding of students as communicants whether they have received the message or material delivered or not. Judging from the results of the interview, students have largely succeeded in capturing the message or learning objectives given by the teacher. This was conveyed by Ms. F, "*.... if the success is measured from our measuring instruments, on average they can achieve. But, there must be 1 or 2 children who are classified as slow learners, so it takes our effort. ..... But at the end they can achieve their learning goals*". Reinforced by Ms. M's statement "*For learning objectives in the class itself, I make a lesson plan, when I make the lesson plan, our learning objectives are adjusted per level, must be adjusted for differentiation. So the learning objectives for struggling children and the learning objectives for advanced children are different. So I can achieve the learning objectives because I adjust them*".

Not only through interviews, but the author also sees through student work. The author studied student work documents and student grades. The results of student grades can be seen in the appendix section of this research writing. From the existing score data, it can be seen that the average student score is 91.325 in taking the area of triangle material. This proves that the majority of students have achieved the learning objectives. In other words, the communication strategy carried out by the teacher in learning has succeeded in achieving learning objectives

E. CONCLUSION

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Based on the discussion that has been described regarding instructional communication in differentiation-based mathematics learning, there are several conclusions that can be drawn. First, in terms of sources, in this context teachers are the main source of information and learning for students. They are responsible not only for delivering the material, but also for creating a conducive and supportive learning environment. The role of the source as facilitator, model, teacher, assessor, supporter, planner and classroom manager shows the complexity of their role in the learning process. The second element is the message. The message or material delivered to students is designed by considering the diversity of students' abilities and characteristics. Teachers use various strategies such as providing concrete examples, illustrations, or analogies to facilitate students' understanding of the material taught. It is also important to pay attention to the use of language that is appropriate to the students' level of understanding so that the message can be received well by the communicator.

The third element is instructional strategies. Differentiated learning strategies are used to meet the needs of students with different ability levels, such as through direct teaching, discussions, group work, and games. In addition, teachers also use learning media such as presentations, books, PPT, and involve the surrounding environment or classroom conditions to support the learning process. The fourth element is the receiver or communicator in this case students. Communicants are grouped into three levels based on their abilities (advanced, on level, slow learner) to facilitate equal learning for all students. Communicants' responses to learning also vary depending on their abilities and interests. Students who are active and engaged in the learning process tend to achieve better results. The last element of instructional communication is evaluation or feedback. Feedback or evaluation is essential to be able to assess the effectiveness of the instructional communication process. This includes formative and summative evaluation, as well as assessment of student progress in achieving learning objectives. The teacher as a resource provides feedback to students through words of encouragement and positive reinforcement. The teacher also provides opportunities for students to ask questions and interact freely with the teacher.

Looking at the evaluation results, it can be said that the instructional communication process that occurs in differentiated instruction-based mathematics learning has successfully achieved the learning objectives. From this conclusion, it can be seen that instructional communication in differentiated mathematics learning involves complex interactions between teachers (sources) and students (communicants) using varied instructional strategies to ensure the message or material is conveyed effectively. Feedback or evaluation plays an important role in ensuring the learning process goes well and achieves the desired goals.

Based on the results of the discussion, there are several suggestions that can be given to improve the effectiveness of instructional communication in

differentiation-based mathematics learning. First, teachers as the source of communication should improve their credibility by keeping up with the latest education and engaging in mathematics research. This is important so that the information conveyed remains accurate and relevant to the latest developments. Teachers also need to practice their communication skills, including how to convey material clearly and effectively. A personalized approach and attention to students, with an in-depth understanding of their backgrounds, is also necessary to increase emotional engagement.

Second, in the use of instructional strategies, teachers can more actively use information technology, visual presentations and relevant online resources to diversify learning. This will increase student engagement and facilitate better understanding. The integration of learning media with student activities, such as interactive games or simulations, can also strengthen their understanding of mathematical concepts. By applying these principles, teachers can improve the effectiveness of their instructional communication, help students understand math better, and create a supportive and engaging learning environment.

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