

# Non-Verbal Communication of the Teacher in the Mathematical Learning Process

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Non-verbal communication consists of delivering ideas, emotions, feelings, and messages through actions and expressions that are not only sentence or words. Non-verbal communication is considered an important teaching technique that impacts students' understanding, which ultimately produces better learning and understanding of the concepts. The role of the teacher in teaching and learning activities is central, being a means of knowledge transfer, a guide to the process of behaviour change and a solver of various problems in the classroom. With respect to behaviour, a capable communicator can plan and choose between alternative courses of behaviour, monitor and change their behaviour, and translate the abstract conception of what to do and say to tangible and understandable verbal and nonverbal behaviour. The non-verbal communication from the teacher becomes very important in the teaching of mathematics subjects. Mathematics as a science has standard rules in its understanding, so the teacher uses a lot of non-verbal communication, as it is considered important as a delivery technique to create an impact on the understanding obtained by the students. Furthermore, it will produce a better understanding of the concept. The Dyatame study group was formed on the basis of the facilitator's concern, who was also a teacher in the village of Marenda Kalada, South-West of Sumba, East of Nusa Tenggara. As a place for informal learning, Dyatame frees cost for all children who are interested in participating in learning. Students attend Dyatame without coercion, so the environment that accumulates in learning becomes more relaxed, with the concept of learning while playing. The purpose of this study was to determine the teacher's communication skills in the delivery of mathematical subjects. This study supports the



communication of better quality teachers, in relation to communication in the classroom, communication activities, and teacher-student interaction. This study explores how non-verbal communication contributes to the explanation of the material in mathematics lessons in primary school-aged children. Non-verbal communication can be ambiguous and will influence the meaning of the message to be delivered. In this study, the researchers presented an analysis of teachers' non-verbal communication skills to teach mathematics in the Dyatame study group. The approach used to achieve the objectives of this study is a qualitative research approach that uses explorative case study projects. The data is collected through the experience of direct participation and includes documentation (photos and videos) and interviews. The results of this study indicate that teachers use non-verbal skills to develop and help students understand the concept in mathematical subjects. The non-verbal communication provided by the teachers for their students creates a relaxed learning atmosphere. The relaxing situation and the role of culture also affect teachers in the use of space, touch, time and artifacts; symbolism in dress; Use of physical and vocal signals. Non-verbal communication as a complement to the words of this class is more dominant and is as effective as the techniques of delivering materials to improve the understanding of the student. Some models of non-verbal communication applied by teachers include more eye contact, more smile, and more movement.

**Key words:** *Communication skill, non-verbal communication, teacher.*

## **Introduction**

The teacher's communication skills in teaching and learning activities in the classroom become crucial for successful learning. Communication is a psychosocial process in which at least two people exchange knowledge, feelings, opinions, and experiences through different channels. Communication aims to articulate ideas, feelings, emotions, and abilities. Classroom communications include face-to-face interactions between students and instructors to ensure that learning takes place (Kogut & Silver, 2009; Kazi et al, 2012; Yusof & Halima, 2014; Cockerill, Craig & Thurston 2018; Haseeb et al., 2019). Interactions that occur in the learning process are communicated not only with verbal methods but also with non-verbal methods. This is also very important in the teaching and learning process. Teachers can use a variety of verbal and non-verbal skills to help students understand difficult concepts. The use of non-verbal communication is more than verbal communication, which makes the acquisition of knowledge and effective use much more necessary.



Verbal communication is a form of face-to-face interaction that uses words or language. According to Mulyana (2008: 343) nonverbal communication is all signs that are not words. Both types of communication are required in a teaching and learning activities, but nonverbal communication is much more interesting to observe. Because non-verbal communication is considered an important teaching technique that affects the students' understanding, which ultimately results in better learning and understanding of the concepts.

The role of a teacher in teaching and learning activities is fundamental or very important, also as a means to transfer knowledge, guide the processes of behavior change and solve various problems in the classroom. According to Farrell (2009), teachers use classroom communication to solve three things: acquire relevant knowledge, respond to the things that students say and describe experiences in the classroom.

Non-verbal communication helps to emphasize the explicit meaning of the message and also to reinforce certain hypotheses in the interlocutor's mind. Non-verbal communication becomes unique and interesting when the teacher explains that something is reinforced by signals or, in this case, non-verbal communication will encourage the reinforcement of students to understand the material.

Non-verbal communication by teachers to students in the classroom is the core of this research but in the context of informal education. As established in Indonesia education system law No. 20 of 2003, article 27, paragraph 1, that informal education is an educational activity carried out by the family and the environment in the form of independent learning activities. One form of implementation of an informal education system is a community reading park (TBM). Currently, the largest number of TBM positions is still outperformed by the East Nusa Tenggara region, which has a good 321 TBM, registered by Pustaka Bergerak Indonesia in collaboration with PT POS Indonesia.<sup>1</sup> One of the TBM that is in the east of Nusa Tenggara, called Dyatame Learning Group. There are things that are different about this TBM, not just being a city library, but also undertaking learning activities for school-age children. Dyatame carried out the teaching and learning activities independently and free of charge, up to now, with capacity for more than 100 children from different villages: East Wewewa, Southwest Sumba, East Nusa Tenggara.

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<sup>1</sup> <http://www.posindonesia.co.id/wp-content/uploads/2018/10/Alamat-PB-15-Oktober-2018.pdf>, accessed October 20, 2018, at 2:03 p.m.



The existence of the Dyatame study group is a real change, based on the community's concern. The learning activities in Dyatame are considered more enjoyable because they incorporate the concept of learning while they play, so the atmosphere created in the classroom is more comfortable, fun and relaxing for both the instructor and the students. The Dyatame study group is open to all levels of school education and contains learning activities mathematics subjects, natural sciences and, English. Membership of the Dyatame study group is dominated by elementary students who are generally enthusiastic about mathematics subjects [Dampson, Havor & Laryea 2018].

Mathematics has become a point of reference in the Dyatame study group because the presence of students in this class has never been quiet. In addition, there are also unique things that the instructor does to teach mathematics through non-verbal communication. Mathematics is a subject that is not easy to express in gesture. For this reason, the nonverbal communicative behaviour of the teacher to emphasize the understanding of the material becomes very important in the teaching of the mathematical subject. So obviously this is a unique communication phenomenon and deserves to be highlighted. In this case, the teacher uses non-verbal communication skills in the teaching of mathematics in the classroom.

## **Literature Review**

### ***Non-verbal communication***

According to Larry A. Samovar and Richard E. Porter in Mulyana (2012: 343), nonverbal communication includes all stimuli (except verbal stimuli) in a communication environment, produced by individuals and by the use of the environment by of individuals, which has a potential message value for the sender or the recipient, so this definition includes intentional and unintentional behaviour as part of the general communication event, we send many non-verbal messages without realizing that the messages are significant for others. In relation to the process of teaching and learning in non-verbal communication classes, it becomes a skill that a teacher must possess.

In the vision of Mc Corsetta and McVetta in Iriantara (2014: 15) "For the success of teachers and students, it is very important for effective communication in the classroom." Richard, Wrench, and Gorham affirmed the same in Iriantara (2014: 15) "Effective teachers are effective communicators" because the teacher understands the importance of communication and learning, it also includes the relevance of knowledge and attitudes of selectively trained students (Marton, Bednar and Modrak, 2014).



### ***Symbolic interaction***

The term was first introduced by Herbert Blumer in the field of sociology, in fact, this idea was presented by George Herbert Mead (Blumer's teacher), who was later modified by Blumer for certain purposes. West and Turner (2014: 98) in their book affirm that symbolic interaction is based on ideas about oneself and the relationships with society. The symbolic interaction, according to Ralph Larossa and Donald C. Reitzes (1993) in West and Turner (2014: 96), is a point of reference to understand how humans together with others create a symbolic world and how the world, in turn, is formed by human behaviour. This theory tries to explore the relationship between oneself and the society in which one lives (West and Turner, 2014: 93). The fundamental characteristic of this idea is a relationship that occurs naturally between humans in society and community relations with individuals. The interactions between individuals develop in the symbols they create. In this theory, there are 3 (three) important concepts: Mind, I and society. The mind as the ability to use symbols that have the same social meaning, humans must develop their minds through interaction (Dura, Moraru and Isac, 2016; Wyslocka, 2015).

### **Methodology**

The purpose of this study was to analyse the nonverbal communication skills of the teacher in the teaching process, in the Dyatame study group. Meanwhile, the subject of this study was Dyatame's teacher, the mathematics instructor on the subject lessons for elementary students, in which the instructor has been chosen to become a research informant on nonverbal communication in the process of teaching and learning activities. In this study, a direct observation was made. Then an open interview session was conducted and the researchers collected the documentation [Deacon & Van Rensburg 2018]. This study uses an interpretative paradigm that focuses on the investigation of human beings to interpret social life and express understanding through language. In this study we can assume a perception and an interpretation of the meaning from the social construction.

This study uses qualitative methods with a case study approach. Case studies are a research method in the social sciences. In general, case studies are strategies that are more appropriate if the subject of an investigation is related to how or why; if the researchers have few opportunities to control the events to be investigated and when the focus of the research is on the phenomena (present time), contemporaries in the context of real life. The case study used



in this study is a case of exploratory study, that is, research to explore data, without making the concept operational or testing the concept in the reality that is being considered.

## **Discussion**

### ***The process of non-verbal communication in the classroom***

A teacher's nonverbal communication skills in classroom teaching and learning are basic skills to develop and help students understand the material concepts of mathematics. Through the non-verbal communication provided by the teacher to the students, a relaxed learning environment is created. Relaxing situations and cultural roles influence the instructor in the use of space, touch, time and artefacts; symbolism in dress; Use of physical and vocal signals. The nonverbal communication skills, as a complement to the words of this class, are mainly used by teachers who describe the material without problems, make fewer mistakes, and are more flexible and adaptable. Some forms of nonverbal communication applied by the teacher include more eye contact, more smiling, and more movement.

Effective communication skills are what a teacher must have to interact well with students. Creating a relaxed and comfortable environment and enthusiasm in the minds of students about math subjects is the teacher's job. It is also the role of the teacher to eliminate fear and obstacles that a student may have towards learning a subject. In addition, effective non-verbal communication is the strongest and most necessary communication skill for the teacher. This can create a lasting impression in the minds of the students. Non-verbal communication includes the general body language of the person speaking, which will include body posture, hand movements, and general body movement. Even facial expressions play an important role in communication because someone's facial expressions say a lot about their state of mind. On the other hand, movements such as handshakes, smiles or hugs can transmit emotions freely.

### ***Eye contact***

Nonverbal communication in the form of visual contact or other terms is oculusics. It focuses on signals related to the eyes sent during communication. Ocular behaviour is more likely to be noticed than other bodily movements, so this is a sign of interaction that is much more important (Gregersen, 2007; Kaluska, 2013). As in this study, eye contact plays a very important role and is the first non-verbal signal that will be noticed during a conversation. Non-verbal behaviours, such as eye movements, are sometimes called the mental state of a person (Navaro and Marvin, 2008). When the teacher explains the material related to the concept of division, through acute eye contact and sight, the students become the most seen



part. Direct visual contact with a student is a form of declaration that the explanation is intended for the student. In addition, if the teacher asks a question to confirm the student's understanding, the ocular contact used will be more acute. The teacher asks the students for approval to understand the meaning between the two eyes wide open and the beating of the eyes quickly. The eye contact shows the instructor's attention to his students in the classroom. Eye contact is important not only in the school setting but also in daily communication (Gregersen, 2007).

### ***Body language***

Body language is the process of exchanging thoughts and ideas in the form of body movement signals that are intended to reinforce verbal explanations. Another term for body language is kinesics, which refers to body movements such as gestures and facial expressions. There are many body languages or body movements performed by the teacher that are ambiguous or not significant due to the spontaneity of the teacher. Even body movements or body language has been influenced by the culture in a teacher's social environment.

*The first* language of the body is the movement of the head. Teachers often use head movements to understand students. In terms of head movements, nods (Hans & Hans, 2015; Yusof & Halima, 2014; Samovar et al, 2007) are universal signs that signify agreement. As in this study, nodding as a form of agreement is a universal sign that many others understand. In this case, the movement of the head basically works like a shortened "chord".

*The second* is a smile. As a sign of friendship the teacher shows a smile. This is done to create a comfortable and familiar environment around the instructor and the students in the class. The atmosphere of the mathematics teaching class was made relaxing, so there was no tension in the students. Since the mathematics subjects require a concentration in the understanding of the material, the concept of learning during a game is done by Dyatame himself. Smiles are a simple form of nonverbal communication that is rarely forgotten by instructors. Giving a smile to students creates a comfortable environment and students find it easier to understand the material that is delivered. The happy facial expressions, according to Wainwright (2003), are expressed as smiling facial expressions. Referring to this explanation, it can be affirmed in this study that the facial expression of the smiling teacher indicates happiness.

*Third*, the movement of the hands is a movement of the body that always moves spontaneously when the teacher explains material in the classroom during the teaching



process that takes place in the Dyatame study group. Open hands extensively to emphasize the explanation of the material. The movement of the hand folded in front of the chest of the teacher is a threat for when students do not focus on the presentation that is being transmitted. Keeping the hands back is done while waiting for the students' answers. Movements of the hand in the form of touch, such as stroking the head, is done to the students who can answer the questions correctly, this is done as a form of appreciation. Indicating is a gesture of the hands that aims to underline something. In some of the related worldviews, it refers to very multiple interpretations; there are many meanings. For example, some hand movements are considered unfriendly in Western culture (Samovar et al., 2007, Dresser, 2005), but in Indonesia itself, this is very common and included in the category of courtesy.

### ***Proxemics***

In general, proxemics is related to space and distance in the communication process carried out by the communicator to the communicant. Space influences the way people communicate and behave (Hans & Hans, 2015). In the context of this study, space and distance created by the teacher are included in the space / social area. The communication that takes place in this area, which is four or twelve meters away from the body, is usually in the context of a professional or casual interaction (Hans & Hans, 2015). When the students approach the instructor a meter and a half, in this case, we often feel obliged to recognize their presence.. The area or space chosen by the teacher, in this case, is a social area. This situation is really useful because it helps teachers develop better relationships with their students. Where the instructor does not show the existence of zone specificity towards a student, but they are all in the same area (Jabarullah and Hussain, 2019).

### **Conclusions and suggestions**

It is important to demonstrate that teachers can create an active and effective learning environment through non-verbal communication between them and their students. Students participate in the learning process and this improves students' comprehension skills. The use of facial expressions, body movements, eye contact, the tone of voice and correct spatial distance helps the teacher to provide better communication to the students to achieve the learning outcomes. And, of course, it helps to minimize errors in the delivery of material, especially in mathematics. It is expected that the instructors in the equivalent education system, even in the formal and non-formal education systems, are able to apply and maximize the use of non-verbal communication skills in order to achieve learning objectives.



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