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TEACHERS' NONVERBAL IMMEDIACY BEHAVIORS AND LEARNERS' ACADEMIC PERFORMANCE IN MATHEMATICS

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Abstract: This study aimed to determine teachers' nonverbal immediacy behaviors and learners' academic performance in Mathematics subject in the elementary schools of Calubian Districts, Calubian, Leyte. The study utilized retrospective research design with a survey questionnaire as the main data gathering tool to the Grade II teachers teaching Mathematics. Majority of the teachers belong to the age range 31-50 years old; as regard to their sex, 30 out of 34 are female; as for the civil status, majority of them are married; most of the teachers are receiving a salary ranging from 26,000-30.00; 16 of them holding a Teacher III position, and 23 of them are holder MA units. Result implies that teachers in Calubian North and South Districts possess qualities needed to actively perform the tasks expected from them. The highest mean of the teachers' nonverbal immediacy behaviour as to instructional context is 4.60 inferred as always and the lowest mean is 3.94 interpreted as highly observed. The average mean is 3.09 described as observed. As to instructional context, the highest mean of the teachers' nonverbal immediacy behaviour as to interpersonal context is 3.59 inferred as Highly Observed and the lowest mean is 1.97 interpreted as moderately observed. The average mean is 2.94 described as observed. As to mathematics teachers teaching practices, the highest mean of mathematics teachers teaching practices is 3.71 described as highly practiced and the lowest mean is 2.74 interpreted as practiced. The average mean is 3.42 inferred as practiced. There was no significant relationship between the profile of the teacher respondents and their nonverbal immediacy behaviors; the significant relationship only exist between sex and teachers' teaching practices in mathematics subject; and the hypothesis which states that there is no significant relationship between the profile of the teachers and their teaching practices" was rejected.

Keywords: teachers' nonverbal immediacy behavior, learners' academic performance, mathematics

Introduction

Mathematics is a fundamental part of human thought and logic, and integral to attempts at understanding the world and ourselves. Mathematics provides an effective way of building mental discipline and encourages logical reasoning and mental rigor. In addition, mathematical knowledge plays a crucial role in understanding the contents of other school subjects such as science, social studies, and even music and art.

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Verbal communication may be in the forefront of educators and students' minds when engaging in learning situations. However, the research cited previously indicates that the inclusion of nonverbal communication impacts teachers' abilities to clearly convey information and foster students' engagement in positive or negative ways. Burgoon and Hoobler (2002) contend a communicator's internal emotional state is revealed through nonverbal actions. Therefore, being aware of and voluntarily controlling immediacy behaviors may also impact feelings exhibited and experienced by teachers and students. Communicators who use nonverbal immediacy behaviors are more easily understood and thus, more engaging. Therefore, incorporating intentional, instructional nonverbal behaviors during math instruction can only lead to a heightened sense of engagement and awareness of the topic being learned.

Research has shown that words are principally used for communicating information, yet body-language signals disclose the true message being delivered (Pease & Pease, 2004). Burgoon and Hoobler (2002) state that the nonverbal information being relayed in social experiences is often the primary message. Andersen and Andersen (2005) write that immediacy is the core of nonverbal communication, which conveys multifaceted messages through interrelated behaviors. Immediacy produces feelings of warmth, sincerity, approachability, and availability regarding the communicator (Andersen & Andersen, 2005). Immediacy has been defined as the use of behaviors that increase closeness and nonverbal interactions between communicators (Mehrabian, 1969). For example, a communicator may use nonverbal behaviors that encourage the recipient to respond in a way that draws his or her attention to the message being conveyed.

In the real world of teaching, nonverbal actions are also necessary considering that we teachers are the noted living instructional material. It is indeed, that gestures of teachers is also a means of motivating learners to learn aside from other materials that we are utilizing to enhance learning.

Thus, with the aforementioned situations and realities, the researcher was motivated to conduct this study to find out the teachers nonverbal immediacy behaviors during mathematics instruction in Calubian Districts, Calubian, Leyte.

Objectives of the Study

This study generally aims to determine teachers' nonverbal immediacy behaviors and learners' academic performance in Mathematics subject.

Specifically, this study answers the following:

1. Determine the profile of the teacher respondents in terms of:
1.1 age;
1.2 sex;
1.3 civil status;
1.4 monthly salary;
1.5 position; and
1.6 highest educational attainment.
2. nonverbal immediacy behaviors as to:
2.1 instructional context; and
2.2 interpersonal context.
3. Assess the Mathematics teachers teaching practices.

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4. Determine the learners' academic performance in Mathematics subject in 2021-2022.
5. Ascertain the relationship between profile of the teacher respondents and their nonverbal immediacy behaviors.
6. Ascertain the relationship between profile of the teacher respondents and their teaching practices.
7. Ascertain the relationship between teachers' nonverbal immediacy behaviors and their teaching practices.
8. Assess the effect of teachers' nonverbal immediacy behaviors to the learners' academic performance in Mathematics.

Research Design

This study utilized explanatory-retrospective research design by Johnson (2009). In a retrospective study, the outcome of interest has already occurred at the time the study is initiated. A retrospective study design allows the investigator to formulate ideas about possible associations and investigate potential relationships, although causal statements usually should not be made. The design is very much fitted to the current study because it focuses on the teachers' nonverbal immediacy behaviors in relation to learners' performance in mathematics.

The study was conducted in the elementary schools of Calubian South and North Districts, Calubian, Leyte. Majority of the schools in the districts are located along the national road accessible to all learners. The respondents were chosen through total enumeration. They were teachers teaching Grade 2 mathematicsof assigned in Calubian South and North Districts, Calubian, Leyte. They were purposively chosen to gather the needed data to answer the objectives of the study.

Results and Discussion

Profile of the Teachers

The succeeding tables show the profile of the teacher respondents in terms of: age, sex, civil status, monthly salary, position, and highest educational attainment.

Table 1

Profile of the Teachers

	f	%
Age		
51 years and above	7	20.6
41 – 50 years old	11	32.3
31 – 40 years old	11	32.3
20 – 30 years old	5	14.7
Total	34	100.0
Sex		
Male	4	11.8
Female	30	88.2
Total	34	100.0

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Civil Status		
Single	7	20.6
Married	23	67.6
Widow/er	2	05.9
Separated	2	05.9
Total	34	100.0
Monthly Salary		
P20,000-P25,000	3	08.8
P26,000-P30,000	21	61.8
P31,000-P35,000	10	29.4
P36,000-P40,000	0	00.0
P41,000-P45,000	0	00.0
Total	34	100.0
Position		
Teacher 1	13	38.2
Teacher II	4	11.8
Teacher III	16	47.1
Master Teacher I	0	00.0
Master Teacher II	1	02.9
Total	34	100.0
Highest Educational Attainment		
Baccalaureate Degree holder	5	14.8
With MA Units	23	67.7
MA Graduate	6	17.6
With Doctoral units	0	00.0
Doctorate Degree Holder	0	00.0
Total	34	100.0

As shown in Table 1, majority of the teachers belong to the age range 31-50 years old; as regard to their sex, 30 out of 34 are female; as for the civil status, majority of them are married; most of the teachers are receiving a salary ranging from 26,000-30.00; 16 of them holding a Teacher III position, and 23 of them are holder MA units. Result implies that teachers in Calubian North and South Districts possess qualities needed to actively perform the tasks expected from them.

Teachers' Nonverbal Immediacy Behaviors

Table 2-3 presents the teachers' nonverbal immediacy bahaviors in terms of instructional context and interpersonal context.

Teachers' nonverbal immediacy behaviors in terms of instructional context. Table 2 presents the teachers' nonverbal immediacy behaviors in terms of instructional context.

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Table 2

Teachers' Nonverbal Immediacy Behaviors in Terms of Instructional Context

	Mean	Description
Uses hands and arms to gesture while talking to the class	3.65	Highly Observed
Sits behind desk when teaching	1.56	Moderately Observed
Gestures when talking to the class	3.41	Observed
Uses monotone/dull voice when talking to the class	1.85	Moderately Observed
Looks at the class when talking	3.94	Highly Observed
Smiles at a class as a whole, not just individual learners	3.76	Highly Observed
Has a very tense body position when talking to the class	2.06	Moderately Observed
Moves around the classroom when teaching	3.41	Observed
Looks at board or notes when talking to the class	2.21	Moderately Observed
Has a very relaxed body position when talking to the class	3.38	Observed
Show a relaxed body posture when talking with another	3.44	Observed
Change pitch and tempo of voice when talking to another	3.21	Observed
Smiles when talking to another	3.71	Highly Observed
Use hands and arms to gesture when talking to another	3.32	Observed
Have short pauses when talking to another	3.29	Observed
Look in the general direction of another when talking to him/her	2.76	Observed
Have relaxed tones when talking to another	3.53	Observed
Average Mean	3.09	Observed

As portrayed in Table 2, the highest mean of the teachers' nonverbal immediacy behaviour as to instructional context is 4.60 inferred as always and the lowest mean is 3.94 interpreted as highly observed. The average mean is 3.09 described as observed. Results imply that teachers observed nonverbal immediacy behaviour in instructional context. According to one of the school heads, such behaviors often contribute to a positive classroom environment and enhance learners' engagement and understanding of the subject matter. Ultimately, the observation may vary depending on the student's perception and can range from positive reinforcement to a sense of attentiveness and connection with the teacher.

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Teachers' nonverbal immediacy behaviors in terms of interpersonal context. Table 3 shows the teachers' nonverbal immediacy behaviors in terms of interpersonal context.

Table 3

Teachers' Nonverbal Immediacy Behaviors in Terms of Interpersonal Context

	Mean	Description
Touches students on the shoulder or arm while talking to them	2.79	Observed
Stands behind podium or desk when teaching	1.97	Moderately Observed
Smiles at individual learners' in the class	3.59	Highly Observed
Move closer when talking to another	3.26	Observed
Lean forward when talking with another	2.71	Observed
Maintain eye contact with the group as a whole when talking to them	3.71	Highly Observed
Have an animated face when talking to another	2.53	Moderately Observed
Nod head when talking with another	2.88	Observed
Stand closer to a person when talking to them	3.00	Observed
Pat the shoulder of another when talking to them	2.79	Observed
Calmly move body around when talking with another	3.06	Observed
Average Mean	2.94	Observed

As shown in Table 3, the highest mean of the teachers' nonverbal immediacy behaviour as to interpersonal context is 3.59 inferred as Highly Observed and the lowest mean is 1.97 interpreted as moderately observed. The average mean is 2.94 described as observed. Results imply that teachers portrayed interpersonal context during the discharge of their teaching duties and responsibilities.

As rated by the school heads, teachers teaching mathematics managed learner behaviour constructively by applying positive and non-violent discipline to ensure learning-focused environments.

Mathematics Teachers Teaching Practices

Table 4 reflects the mathematics teaching practices.

Table 4

Mathematics Teachers Teaching Practices

	Mean	Description
Diagnose students' learning problems	3.65	Highly Practiced
Ask students to explain their answers	3.29	Practiced
Bring interesting materials to class	3.29	Practiced
Ask students to complete challenging exercises that require them to go beyond the instruction	3.21	Practiced
Encourage classroom discussions among students	3.50	Practiced

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Link new content to students' prior knowledge	3.41	Practiced
Ask students to decide their own problem solving procedures	2.82	Practiced
Encourage students to express their ideas in class	3.47	Practiced
Provide feedback to students	3.44	Practiced
Inspiring learners' to learn mathematics	3.71	Highly Practiced
Showing learners' a variety of problem solving strategies	3.44	Practiced
Providing challenging tasks for the highest achieving learners	3.32	Practiced
Adapting my teaching to engage learners' interest	3.50	Practiced
Helping learners' appreciate the value of learning mathematics	3.76	Highly Practiced
Assessing learner comprehension of mathematics	3.65	Highly Practiced
Improving the understanding of struggling learners	3.38	Practiced
Making mathematics relevant to learners	3.47	Practiced
Developing learners' higher-order thinking skills	3.29	Practiced
Monitor learners' whether or not the seatwork was completed	3.62	Highly Practiced
Correct seatwork and then give feedback to learners	3.65	Highly Practiced
Let the learners' practice adding, subtracting, multiplying, and dividing	3.76	Highly Practiced
Work on problems for which there is no immediately obvious method of solution	3.76	Highly Practiced
Learners' relate what they are learning in mathematics to their daily lives	3.09	Practiced
Learners' decide on their own procedures for solving complex problems	2.74	Practiced
Integrating information technology into mathematics	3.29	Practiced
Teacher-made short answer or essay tests that require students to describe or explain their reasoning	3.09	Practiced
Report performance of learners to parents regularly	3.59	Highly Practiced
Listen to the feedback of parents for further plan of actions	3.68	Highly Practiced
Average Mean	3.42	Practiced

As reflected in Table 4, the highest mean of mathematics teachers teaching practices is 3.71 described as highly practiced and the lowest mean is 2.74 interpreted as practiced. The average mean is 3.42 inferred as practiced. The result was evident based on the observation results that teachers used a range of teaching strategies that enhance learner achievement in literacy and numeracy skills.

Learners' Academic Performance in Mathematics

The learners' academic performance in Mathematics for the school year 2021-2022 is shown in Table 5.

Table 5

Learners' Academic Performance in Math

	MSP	Description
Caubian North District	86.04	Very Satisfactory
Calubian South District	84.54	Very Satisfactory
Average MPS	**85.29**	**Very Satisfactory**

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As manifested in Table 5, the MPS of Calubian North District is 86.04 interpreted as very satisfactory and the MPS of Calubian South District is 84.54 described as very satisfactory. The average MPS reached 85.29 labelled as very satisfactory. This means that learners are performing in mathematics subject.

Relationship of Variables

This section shows the relationship of variables between the profile of the teacher respondents and their nonverbal immediacy behaviour, profile of the teacher respondents and their teaching practices, and teachers' nonverbal immediacy behaviour and their teaching practices.

Table 6

Relationship between the Profile of the Teachers and their nonverbal immediacy behaviors

Variables		r-value	p-value	Interpretation
Age	Teachers' nonverbal Immediacy Behavior	.085	.633	Failed to Reject H_{01}
Sex		-.112	.529	Failed to Reject H_{01}
Civil Status		.326	.060	Failed to Reject H_{01}
Monthly Salary		.099	.576	Failed to Reject H_{01}
Position		.242	.169	Failed to Reject H_{01}
Highest Educational Attainment		.252	.150	Failed to Reject H_{01}

As shown in the table, using spearman rho's statistical test at p-value of .05, no significant relationship exists between profile of the teacher respondents and their nonverbal immediacy behaviors. This implies that the hypothesis which states that "there is no significant relationship between the profile of the teacher respondents and their nonverbal immediacy behaviors" was accepted.

Table 7

Relationship between the Profile of the Teachers and their Teaching Practices

Variables		r-value	p-value	Interpretation
Age	Mathematic Teachers' Teaching Practices	.096	.588	Failed to Reject H_{02}
Sex		.518	.002	Reject H_{02}
Civil Status		-.063	.722	Failed to Reject H_{02}
Monthly Salary		.043	.810	Failed to Reject H_{02}
Position		-.022	.900	Failed to Reject H_{02}
Highest Educational Attainment		-.127	.473	Failed to Reject H_{02}

As reflected in Table 7, profile of the teachers was paired with the teaching practices of mathematics teachers. As shown in the table significant relationship exist only between sex and teachers' teaching practices in mathematics subject. This indicates that teachers profile as to age, civil status, monthly salary, position, and highest educational attainment has no significant relationship on their teaching practices in mathematics subject.

Table 8

Relationship between the Profile of the Teachers and their Teaching Practices

Variables		r-value	p-value	Interpretation
Instructional Context	Learners' Academic Performance	.052	.769	Failed to Reject H_{03}
Interpersonal Context		.249	.156	Failed to Reject H_{03}

As portrayed in Table 8, the hypothesis which states that there is no significant relationship between the profile of the teachers and their teaching practices" was rejected. This would mean that the profile of the teachers have no bearing to their teaching practices The researcher did not further investigate the effect of the teacher's nonverbal immediacy behavior to the learners' academic performance as there is no correlation found between the variables studied.

Recommendations

Based on the results of the study, the following recommendations are suggested:

1. The school heads may explore other actuations of teachers in teaching mathematics that might affect learners' academic achievement in Mathematics subject.
2. School heads may continue regular monitoring and supervision of classes to sustain the good performance of learners in Mathematics subject in the elementary grades.
3. Teachers may utilize varied teaching strategies in teaching mathematics subject to find out what other aspects that may contribute to the academic success of the learners.
4. Further studies may be undertaken to find out what are the other factors that can affect the learners performance in Mathematics subject.

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