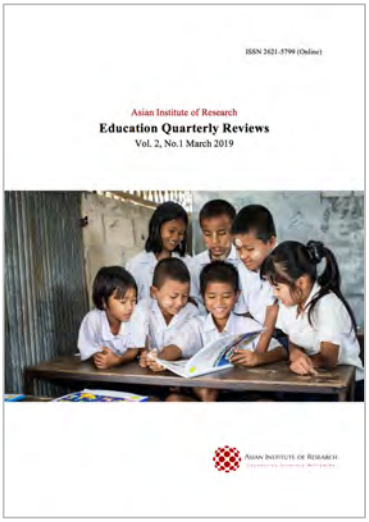

Education Quarterly Reviews

Paul, Arghadip, Maiti, Nimai Chand, and Nath, Indrani. (2019), Nonverbal Immediacy Behaviour and Teacher Effectiveness in Secondary Schools of West Bengal. In: *Education Quarterly Reviews*, Vol.2, No.1, 33-40.

ISSN 2621-5799

DOI: 10.31014/aior.1993.02.01.36

The online version of this article can be found at:
https://www.asianinstituteofresearch.org/

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The Asian Institute of Research
Education Quarterly Reviews
Vol.2, No.1, 2019: 33-40
ISSN 2621-5799

DOI: 10.31014/aior.1993.02.01.36

Nonverbal Immediacy Behaviour and Teacher Effectiveness in Secondary Schools of West Bengal

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Abstract
Teacher immediacy behaviour is the factor that have found strong association with students' learning outcomes. Although, both the verbal and nonverbal form of immediacy behaviour has been found association with students' learning, nonverbal immediacy behaviour is considered more important in students' learning than the verbal immediacy behaviour. The present study analysed the nonverbal immediacy behaviour of the mathematics teachers in secondary schools of West Bengal, and investigated its' impact on teachers' effectiveness. Necessary data were collected by using Nonverbal Immediacy Behaviour Scale and Teacher Effectiveness Scale. A total 1303 tenth graded students from 120 classes randomly selected to give response about their mathematics teachers. Results of the study indicate that there is no significant difference among the male and female teachers in their pattern on immediacy behaviour. The findings also indicate that nonverbal immediacy behaviour has a significant impact on mathematics teachers' effectiveness.

Keywords: Nonverbal Immediacy Behaviour, Teacher Effectiveness, Secondary Schools

Introduction

Last almost forty years of research in institutional communication has identified several interpersonal variables that are positively related to learning. According to DeVito (1986), teaching is a relational process that follows the developmental stages from initial contact, through intimacy to dissolution. Graham, West, and Schaller (1992) similarly describe that teaching involves a process of relational development and requires effective interpersonal communication skills to achieve satisfying outcomes. Interaction between teacher and learner is one of the key elements for teaching-learning process. Teaching-learning interaction like other interpersonal relationship, are characterised by both explicit and implicit communication. Researchers have found that the degree of immediacy between teacher and the students are crucial to the teaching-learning process.

During the past decade, immediacy behaviour has been primarily used to describe and understand the teacher student relationship. Research indicates that the use of verbal and non-verbal immediacy behaviours by teachers facilitate students' affective learning. The present study analyses the relationship between teachers' use of different immediacy behaviours and teachers' effectiveness as a whole of mathematics teachers in secondary schools of West Bengal.

Theoretical Perspective of Teacher Immediacy

Immediacy is the way of communication that enhances the closeness to and mutual interaction between two people. It acts like a facilitator in interpersonal communication. Originally, Albert Mehrabian (1969) first introduced the immediacy concept in the communication research. He defines immediacy as a communication behaviour that "enhances closeness and nonverbal interaction with another" (p. 203). The root of immediacy concept is grounded in "Approach-avoidance model" and "Implicit communication theory."

According to approach-avoidance model of teacher immediacy, "People approach things they like and that appeal to them, and avoid things that they dislike, do not appeal to them, or which induce fear". Mehrabian (1971) mentioned that "People are drawn forward persons and things they like, evaluate highly, and prefer; they avoid to move away from things they dislike, evaluate negatively, or do not prefer. Immediacy behaviour are a kind of approach behaviour that creates liking and interpersonal closeness in human communication. Andersen, Andersen and Jensen (1979) defined the term as the "Approach behaviour which increases sensory stimulation and produces interpersonal communication.

The second theory is implicit communication theory. Communication may be two types: implicit and explicit. In explicit communication, messages tend to carry the content in a verbal form, but in implicit communication, messages carry emotions, feelings, or affection primarily in nonverbal form. According to Mehrabian (1981), "People rarely transmit implicitly (non verbally) the kinds of complex information that they can convey with words; rather, implicit communication deals primarily with the transmission of information about feelings and like-dislike or attitudes" (P. 3). Immediacy is a kind of implicit communication where the positive feelings and emotions transmit which create greater liking and positive outlook and decrease distance towards communicator. Andersen, Andersen, and Jensen (1979) defined the construct in three complementary ways: (i) as approach behaviour that communicates availability or attentiveness, (ii) behaviour that increases overall sensory stimulation, and (iii) behaviour that produces interpersonal closeness by reducing psychological distance.

We can find some key sentences to define the teacher effectiveness. Firstly, immediacy is a kind of implicit behaviour. Secondly, immediacy is also a kind of approach behaviour. Thirdly, immediacy behaviour produces greater liking, physical and psychological closeness, and reciprocal sensory stimulation. Fourthly, it decreases psychological distance, fear towards communicator. Therefore, in definition it may be summarized that: immediacy behaviour is such kind of implicit and approach behaviour that smoothen the communication by decreasing psychological and emotional barriers, and increasing a feeling of closeness and sensory stimulation.

Nonverbal form of immediacy

Initially, the study of immediacy began with Mehrabian's (1969b) concept of nonverbal behaviors. Mehrabian (1969a, 1969b) categorized immediacy into five categories: touching, distance, leaning forward, eye contact, and body orientation. Later, Andersen, Andersen, and Jensen (1979) identified twelve nonverbal behaviours that comprise the immediacy construct. These are: (i) increase in touch, (ii) reduction of proximic distance, (iii) increase in eye contact and gazing, (iv) positive facial expression, (v) positive head nods, (vi) increase in gesture, (vii) bodily relaxation, (viii) use of purposeful body movements, (ix) spending time with other interactants, (x) informal dress, (xi) orientation of body and head towards the other interactants, (xii) vocal expressiveness.

Richmond (2002) defined nonverbal immediacy as those behaviours that improve and encourage interpersonal encounter and communication. He identified ten-nonverbal behaviours that may increase interpersonal closeness and proximity. These are: (i) Instructor's appearance, (ii) Gesture and Movement, (iii) Facial Behaviour, (iv) Eye Behaviour, (v) Vocal Behaviour, (vi) Space, (vii) Touch, (viii) Environment, (ix) Scent, (x) Time.

Richmond, Gorham, and McCorskey (1987) mentioned eight type of behaviours that may increase closeness between two people. According to them immediacy behaviour are those behaviours that create physical and psychological closeness, and perceptual stimulation. They classified immediacy behaviours into major two heads: behaviours create physical and psychological proximity, and behaviours create perceptual stimulation.

Four behaviours fall under the first category. These are: Proximic position, face students directly, interpersonal touch, and direct eye contact. On the other hand, facial expression, bodily movements/gesture, body posture, and vocal behaviour, these four behaviours fall under the perceptual stimulation head.

Review of related literature

After Mehrabian (1971) first introduced the concept of immediacy in the field of communication research, some researchers intended to study the factor in the field of teaching-learning situation.

Andersen (1979) perhaps is the early researcher who has attempted to measure teacher immediacy. Andersen and his colleagues introduced the instruments for measuring the construct. Anderson (1979) also examined teacher immediacy as a potential predictor of teaching effectiveness. Result of his study indicated that in a multiple regression model, teacher immediacy successfully predicted student affect towards the course instructor and the course content. Immediacy also predicted student behavioural commitment and cognitive learning. The study produced significant relationship between specific and generalized teacher immediacy and teaching effectiveness.

Richmond, Gorham and McCroskey (1987) investigated the relationship between selected immediacy behaviours of the teachers and cognitive learning of the students. They concluded that immediacy behaviours are substantially associated with cognitive learning.

Gorham (1988) identified a set of verbal teacher immediacy behaviours which can increase students' learning. The study indicated that differentiated use of various types of verbal immediacy massage between small and larger classes, and that the impact of teacher immediacy behaviours (both verbal and nonverbal) on learning coincidentally enhanced as class size increased.

Following the Andeson's way, Cristophel (1990) investigated the relationship between teacher immediacy and student state motivation and the combined impact of these factors on learning. He concluded that immediacy appears to modify motivation which leads to increased learning.

Similarly, Frymier and Houser (2000) examined the relationship between students' perception of teachers' use of communication skills, immediacy behaviours, motivation and learning. They found a strong positive relationship among the variables.

Velez and Cano (2008) examined the relationship between teacher immediacy and student motivation. Result indicated immediacy does have an association with motivation, specially nonverbal with expectancy value.

Özmen (2011) studied on the perception of nonverbal immediacy behaviour and its relation to effective teaching among student teachers of English language teaching (ELT) programs. The study revealed that teacher nonverbal immediacy behaviour has a significant positive impact on teaching effectiveness.

From the review of literature, it can be found that teacher immediacy behaviour is strongly associated with students' learning. However, the relation is not direct for all type of learning. The association between teacher immediacy and cognitive learning is mediated by students' state motivation and affective learning. The review of literature also revealed that teacher immediacy behaviour has an impact on teachers' effectiveness. The previous research that focused the impact of teacher immediacy behaviour on teacher effectiveness, conceptualised teacher effectiveness as teachers' ability to produce students' learning. Thus in the previous research, teacher effectiveness has been studied by assessing the students' cognitive and affective learning. Therefore, what contribution teachers immediacy behaviour have in overall teacher effectiveness, is an uncovered area of research. Moreover, the available studies on teacher immediacy construct is primarily conducted in foreign countries. There is a lack of research on the construct in Indian perspective.

Research Questions

From the review of related literature, two major research questions arise:

(i) Does the teacher nonverbal immediacy behaviour differ for male and female teachers?

(ii) Does the teacher nonverbal immediacy behaviour significantly influence teachers' effectiveness?

Hypotheses

To investigate the answer of the research questions two hypotheses was formulated.

$H_0$1: There is no significant difference between male and female mathematics teachers in their immediacy behaviours.

$H_0$2: There is no significant impact of teacher immediacy behaviour on mathematics teachers' effectiveness.

Sample

For the study, 120 mathematics teachers were selected randomly from secondary schools of West Bengal. Data were collected from 10^{th} graded students of these 120 teachers. At least 10 students were selected from each of 120 classes. All total 1303 students were participated in the research.

Tools for Data Collection:

For collecting the necessary data, following tools have been used:

1. For measuring the patterns of teacher nonverbal immediacy behaviour, "Nonverbal Immediacy Behaviour Scale is used.
2. For measuring effectiveness of mathematics teachers, self-constructed Teacher Effectiveness Scale has been used.

Both the tools are developed and standardized by the rsearchers.

Procedures for analysis of data

For analysing the data, four statistical procedures were used.

(i) Pearson coefficient of correlation was used to assess the association between the teacher nonverbal immediacy behaviour scores and teacher effectiveness sores.

(ii) Eta Squared (η^2) was used to estimate the effect of independent variable on the dependent variable.

(iii) t- test was used to study the significant difference between the two means.

(iv) Univariate ANOVA Test was used to study the significant difference of effectiveness for group of teachers with different level of immediacy.

Analysis of data

Collected data were analysed keeping in view the hypothesis of th study. Necessary statistical procedures were applied to test the null hypothesis.

1. Null-hypothesis 1

$H_0$1: There is no significant difference between male and female mathematics teachers in their immediacy behaviours.

To test this hypothesis t-test of significant difference between means of male and female teachers has been used.

Table 1: t-test of significant difference between the means of male and female teachers in their nonverbal immediacy behaviors.

Sex of Teachers	N	Mean	S.D.	Difference Between Mean	t- value	Remarks
Male	66	85.00	7.06	0.70	0.59	N.S. at .05 level of significance
Female	54	84.30	5.64			

The table 1 indicates that t-value for difference between the means of Male and Female Teachers on Teacher Non-verbal Immediacy Behaviours are not significant. Hence, the null hypothesis $H_0$1: "There is no significant difference between male and female mathematics teachers in their immediacy behaviours" is accepted. It can be concluded that the male and female Mathematics teachers do not differ in their nonverbal immediacy behaviours.

2. Null-hypothesis 2

$H_0$2: There is no significant impact of teacher immediacy behaviour on mathematics teachers' effectiveness.

To test the hypothesis, $H_0$2: "There is no significant impact of teacher immediacy behaviour on mathematics teachers' effectiveness" three types of statistical evidences were collected. (1) Bi-variate Correlation Analysis for studying the association between the two variables, (2) Univariate ANOVA test for studying the overall effect of teacher immediacy behaviour on teacher effectiveness, and (3) Regression coefficient for studying the effect of each part of the immediacy behaviour on teacher effectiveness.

1. Bi-variate Correlation analysis between Teacher Nonverbal Immediacy Behaviour and Teacher Effectiveness

Table 2: Association between Teacher Nonverbal Immediacy Behaviour and Teacher Effectiveness

Correlations		
Dimensions of Teacher Immediacy Behaviour	Teacher Effectiveness	
	Pearson r	R^2
Teacher Nonverbal Immediacy Behaviour	.515**	.27
**. Correlation is significant at the 0.01 level (2-tailed). N = 120		

It is evident from the table 2 that there is a positive associations between mathematics teachers' use of non-verbal immediacy behaviour and teacher effectiveness, r =.515. The R-square value is .27, which indicates that teacher nonverbal immediacy behaviour accounts for almost 27% variance in teacher effectiveness.

2. Univariate ANOVA test for level of mathematics Teachers' use of Non-verbal Immediacy Behaviour and Teacher Effectiveness

Table 3: ANOVA test and Effect Size of mathematics teachers' use of non-verbal immediacy behaviour on teacher effectiveness

ANOVA					
Teacher Effectiveness					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	13906.325	2	6953.163	17.837	.000
Within Groups	45607.744	117	389.810		
Total	59514.069	119			
Eta^2 or η^2= .23					

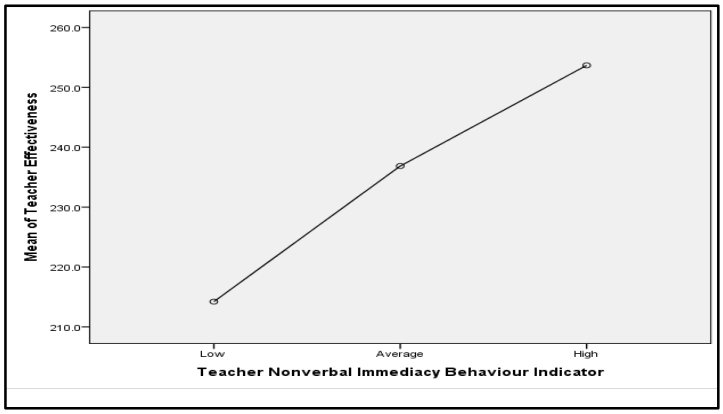

Fig 1: Impact of Teacher Non-verbal Immediacy Behaviour on Teacher Effectiveness

Fig 1 showing the impact of mathematics teachers' use of non-verbal immediacy behaviour on teacher effectiveness indicates that when teacher nonverbal immediacy behaviour increases, teacher effectiveness increases proportionately. The ANOVA table (table 3) indicates about the overall effect of mathematics teachers' use of non-verbal immediacy behaviour on teacher effectiveness. Here the F-ratio (17.84) is significant (P<0.05), which indicates that mathematics teachers' effectiveness differs significantly for three groups of teachers: using high, moderate and low level of immediacy behaviour. Moreover the effect sizes (η^2= .23) indicate a significant large size effect of mathematics teachers' use of non-verbal immediacy behaviour on teacher effectiveness.

3. Regression Coefficient for mathematics teachers' use of immediacy behaviour and teacher effectiveness

Table 3 Regression Coefficient for mathematics teachers' use of immediacy behaviour and teacher effectiveness

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	Teacher Nonverbal Immediacy Behaviour	1.344	.276	.387	4.876	.000

a. Dependent Variable: Teacher Effectiveness

The Regression Analysis shows that non-verbal immediacy behaviour can successfully predict the teacher effectiveness scores, t = 4.876, P = .000. The unstandardized Beta-value (presented in table 4) for Teacher Nonverbal Immediacy Behaviour is 1.34. This value indicates that as Teacher Nonverbal Immediacy Behaviour increases one unit, teacher effectiveness will increase 1.34 units. The t-statistics associated with *b*- values are significant (p<.05). Therefore, we can say that Teacher Nonverbal Immediacy Behaviour can successfully predict teacher effectiveness score. The standardized beta weighting reveals the teacher nonverbal immediacy behaviour (β = .387) has strong effect on teacher effectiveness.

From the above results, it can be concluded that teacher nonverbal immediacy behaviour has a significant impact on teacher effectiveness. Hence the null hypothesis $H_0$2: "There is no significant impact of teacher immediacy behaviour on mathematics teachers' effectiveness" cannot be accepted.

Discussion of the results

Previous researches on teacher immediacy behaviour indicate that teacher nonverbal immediacy behaviour has a significant impact on teacher effectiveness. Richmond, Gorham and McCroskey (1987), Mottet et al. (2008) have found positive relationship between teacher nonverbal immediacy behaviour and students' cognitive and affective outcomes. Andersen (1979) mentioned that teacher nonverbal immediacy behaviour was positively correlated with teaching effectiveness, and it accounts for 46% variance in student affect toward the course instructor and about 20% of the variance in student affect towards the course content. Similarly, Özmen (2011) established that nonverbal immediacy behaviour as an indispensable part of effective teaching.

It is evident from the present study that teacher nonverbal immediacy behaviour not only has a positive association with teacher effectiveness, but also account for almost 27% variance in the teacher effectiveness. Moreover, the effect size eta squared value indicates that teacher nonverbal immediacy behaviour has a significant effect on teacher effectiveness.

Conclusion:

The relationship between teacher immediacy behaviour and students' cognitive and affective learning has been studied in details over the past decades. The present study supports these research findings. It can be concluded that the nonverbal immediacy behaviour is more important than the gesture, proper touch, eye contact, facial expression, distance and closeness between students and the teachers, matters much for students' learning, and these behaviours are one of the key elements for increasing teacher effectiveness.

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