

AN EXPLORATORY ANALYSIS OF
NONVERBAL COMMUNICATION IN THE
CLASSROOM

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Certificate

This is to certify that the dissertation titled “**An Exploratory Analysis of Nonverbal Communication in the Classroom**” submitted by **Gunjan Grover** in partial fulfillment of the requirement for the award of the degree of this university. This work is original and has not been submitted so far, in part or full, for any degree or diploma in this university or any other university.

We recommended that the dissertation may be placed before the examiners for evaluation.


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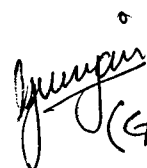
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(GUNJAN GROVER)

ABSTRACT

The present study is an attempt to explore the nonverbal communication between the teacher and the students in the classroom. Despite a lack of systematic investigation of this phenomenon, studies have indicated the functional significance of nonverbal communication. Based on an analysis of the different definitions and approaches of nonverbal communication this study takes a position that nonverbal communication is an inevitable and vital aspect of the communication process.

There are two broad objectives of the present study. Firstly, to identify the nature of interaction, specifically the nonverbal communication, between the teacher and the students in the classroom. An attempt is made to explore nonverbal communication in the total class period. Secondly, to identify the nature of nonverbal communication in two different types of class periods, that is, regular class period and extra-curricular class periods. Non-participant observation of a sixth standard classroom for an extended period of time was a method used to meet the objectives of the present study. Nonverbal behaviour was recorded by writing extensive notes on a notepad simultaneously while observing the behaviour. No prior coding sheet or devices were used for recording.

Different forms of nonverbal behaviours like hand movements, eye movements, voice intonation, posture and use of classroom space have been analyzed. It was found that the classroom communication, nonverbal communication in particular, is systematic, patterned and predictable. The functions of nonverbal communication during various activities occurring in different time phases of the class period were observed to be patterned. Routines or patterns were deciphered in three forms of nonverbal communication: hand movements, eye movement, and use of classroom space by the teacher and the students. Gestures regulated, illustrated and emphasized the words or speech. Eyes indicated expectations, intentions and served as a turn-yielding signal. The arrangement of the classroom space showed the beliefs of the teacher about the learning process and indicated the action zones of the classroom.

The nonverbal communication in the extra-curricular activities deviated from the regular class periods. During these class periods the nonverbal communication between the teacher and the students was observed to be more open, free, and uninhibited. The differences between the nonverbal communication of the regular and extra-curricular class periods were systematically related to the purposes of the class periods.

- Hand Movements
- Space
- Eye Movements
- Extra-curricular Activities: Moving Beyond the Classroom
- Informal Interaction with the Teachers

Chapter 5: Discussion

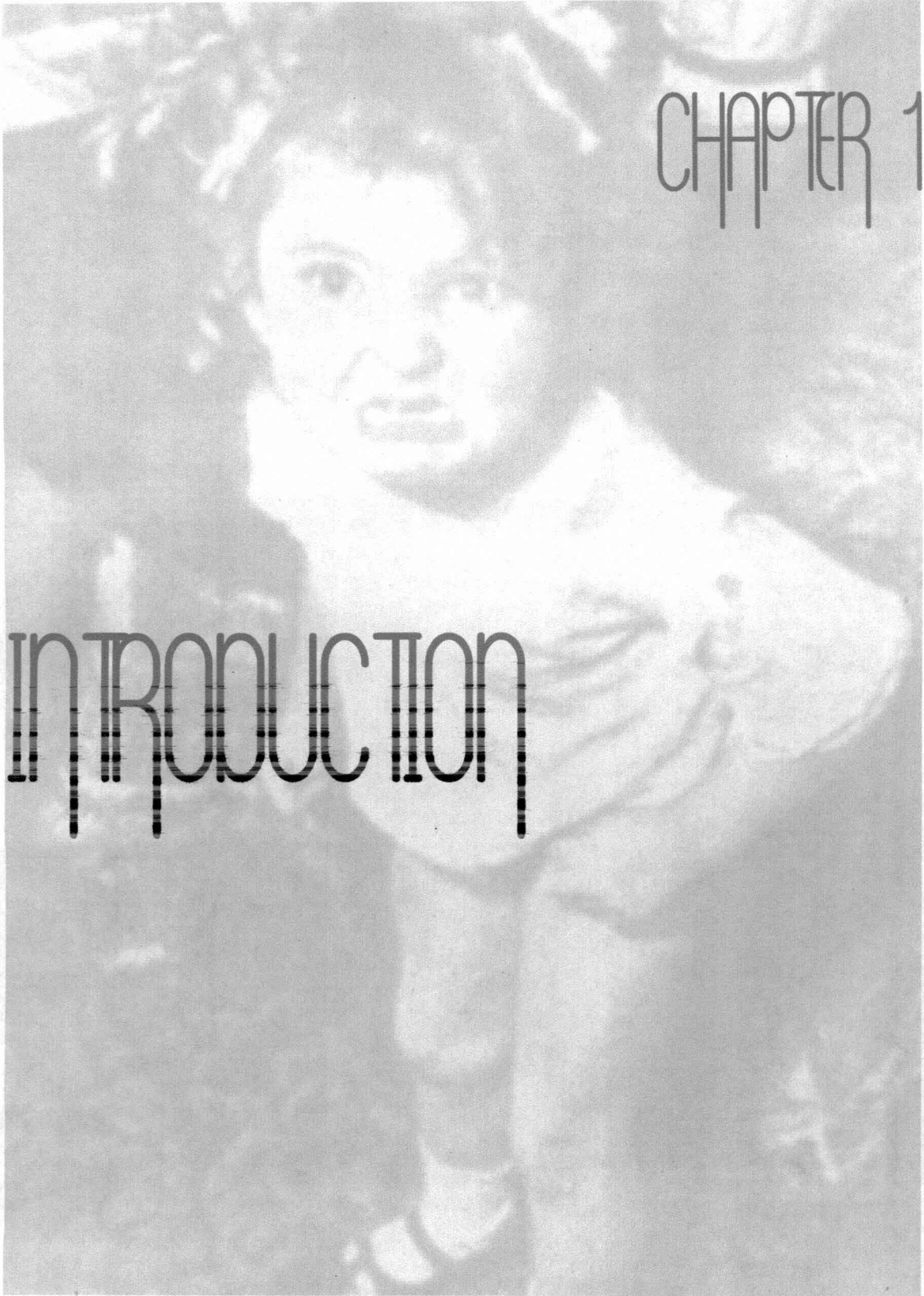
104-135

- Classroom Nonverbal Communication in Different Phases
- Patterns in Classroom Nonverbal Communication
 - Hands
 - Eye Movement
 - Classroom Space
- Nonverbal and Verbal Behaviour
- Nonverbal Communication in Extra-curricular Activities
- Suggestions for Further Research
- Conclusion

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CHAPTER 1

INTRODUCTION

Nonverbal communication is an aspect of communication which is inevitable and vital. It provides powerful insights into the dynamics of human communication process. During the earlier years of our lives we chiefly communicate nonverbally. It is only later in life that the vocal codes develop and verbal behaviour emerges and gains more conscious attention. But at the same time, nonverbal communication continues to be a major aspect of all our communicative behaviour.

Nonverbal messages are utilized by human beings to show what they cannot say. They are used when words are inadequate or inappropriate. They are also used to augment communicative value of verbal communication. Nonverbal messages display feelings, attitudes, and intentions when words are unable to address them. Critchley (1975) point out that "Gesture often proves an economical and reliable index of inner thought" (p.213). Pace and Faules (1989), (cited by Mehrabian, 1971) state that "a person's nonverbal behaviour has more bearing than his words on communicating feelings or attitudes to others" (p. 153). In other words, nonverbal communication plays a prominent role in social settings. While interacting with people in social settings individuals use nonverbal messages to form impressions. According to, Storey (1991) when we meet someone for the first time only 7% of our initial impact on others is the result of what we say and the other 93% of our message is made up of body language (55%) and the tone of our voice (38%). According to Burgoon and Saine (1978) "nonverbal messages have an impressive influence on every facet of communication" (p.2).

Systematic work to unravel the complexity of nonverbal communication is relatively recent. Argyle (1972) states that the research on gaze, head nods, hand movement and other nonverbal behaviour started in early 1960s. However, much has been written about expressions and gestures by many scholars including Darwin in a famous article entitled *The Expression of the Emotions in Man and Animals (1872)*. Even before Darwin much was written about the role of nonverbal communication in expression of emotions, but these studies were highly speculative in nature. Therefore, Darwin's theory has been considered as the first systematic investigation raising substantive theoretical issues

which still govern much of current research. Darwin's central issue was the evolution of human beings and the issue of innateness of nonverbal behaviour. Subsequently, linguists, anthropologist, sociologists, ethologist, communication specialists, as well as psychiatrist and psychologist have all contributed to the growing body of research in nonverbal communication.

Despite much attempts, the nature and processes of nonverbal communication is not fully understood. It has also not been understood in various social settings like classroom. Rosenthal et.al. (1979) state that nonverbal communication remains far from well understood and also discussed some reasons for such a lack in knowledge. According to them one of the reasons is the strong verbal orientation of the society. Bias towards verbal communication is quite evident in the widespread belief that in order to be good communicators, the most vital thing is to have good oral language skills. In addition, according to Rosenthal et.al. (1979), one usually uses nonverbal messages without being aware of them resulting in a lack of systematic knowledge about nonverbal communication.

One very significant reason for a lack in the systematic study of nonverbal communication has been the number of methodological barriers in analysis of such communication. Nonverbal communication has been very difficult to record and analyze (Rosenthal et.al., 1979). In the recent years some progress has been made in analyzing nonverbal behaviour by the use of films, still photographs and video recording; however a lot of methodological barriers in such analysis still exist. Prevalent methods have been challenged not only for its reliability and validity but also for high cost and ethical reasons. These methods no doubt are useful in investigating certain aspects of nonverbal communication but have not been used to unravel some very important areas like the interaction between the teacher and the students in the classroom. Such deficiency in research, however, does not undermine in anyway the essential nature of nonverbal communication. Infact research in the recent years, in Britain and USA in particular, has demonstrated that the nonverbal components of communication play a far more important role than was previously recognized (Storey, 1997). The methodological issue concerning the study of nonverbal communication is dealt with later in more detail.

The present study is an attempt to explore nonverbal communication between the teacher and the students in the classroom setting. Various nonverbal behaviours like gestures, eye movements, voice modulations etc. form an integral part of our communication behaviour. In a classroom setting, the present study attempts to understand the nature of nonverbal communication and the functional value of the nonverbal behaviours used by the teachers and students.

DEFINING NONVERBAL COMMUNICATION

Despite a large body of research findings which indicates the importance of nonverbal communication it has rather been difficult to define nonverbal communication. Scholars from diverse fields have different perspectives about nonverbal communication leading to divergent definitions and viewpoints. Some definitions of nonverbal communication are very broad and some are very specific. In the broad sense, it is usually defined as human actions that are not verbal. In the specific sense, it has been described in such terms as body language, gestural movement or paralanguage.

Verderber and Verderber (1977, p.95) state that nonverbal communication can be viewed from two different perspectives, namely:

1. Nonverbal communication refers to peoples actions and attributes *other than words*.
2. Nonverbal communication also refers to those elements that are not a part of people but leads to communication through *peoples' use of them*, for example, clothes, lighting and furniture.

Daniels and Spiker (1987) also cite two contrasting viewpoints: First viewpoint suggests that nonverbal behaviour is only “communicative” when the person who exhibits the behaviour is *aware* and has an intention to present it as a message for someone. Second viewpoint, on the other hand, is that any behaviour including nonverbal, whether intentional or unintentional is communicative if someone *perceives* and interprets the message.

A very interesting definition has been given by Burgoon and Saine (1978) who define nonverbal communication as “those attributes or actions of humans, other than the use of words themselves, which have socially shared meaning, are intentionally sent or interpreted as intentional, are consciously sent or consciously received, have the potential for feedback from the receiver” (p.5). This definition indicates some interesting features of nonverbal communication. Only meaning which are overt, shared and produces predictable response among interacting individuals is considered in this definition. The definition also raises the issue of intentionality and the authors’ state that if it is perceived by the receiver it is considered intentional. Nonverbal communication according to this definition considers the behaviour communicative if someone in the interaction is aware of it, be it the receiver, sender or an observer. A feedback to the behaviour makes the process of communication complete.

According to Harper, Weins and Matarazzo (1978) the lack of agreement on the definition of nonverbal communication has been due to an *undefined boundary between nonverbal communication and behaviour*. They cite Barker and Collins, who state that there is a tendency to use nonverbal communication and nonverbal behaviour synonymously, however, *nonverbal communication is much broader than nonverbal behaviour*. Nonverbal communication is a process of communication between two or more individuals, whereas nonverbal behaviour is physical acts that may or may not have a meaning. Burgoon and Saine (1978) also differentiate between information, communication and behaviour. According to them, information is any environmental stimulus that the individual might interpret to reduce uncertainty. Behaviours are actions performed by individuals that can take place without others interpreting, understanding or responding to it. Communication on the other hand is a cue or a message that is in a form of a recognizable code which is transmitted from one person to another. It might not be transmitted intentionally or consciously but the interpretation by other individuals during interaction makes it communication. Therefore, *nonverbal communication involves actions other than words interpretable and recognizable by others*.

Another significant aspect of nonverbal communication that needs attention and has been suggested by number of definitions is that nonverbal behaviour is largely *symbolic*.

Wood (1982) state three criteria for symbolism, (i) symbols are *arbitrary*, which implies that it is not instinctual but learned and mediated, (ii) they are *ambiguous*, which means that they have a potential to represent a variety of meanings, because they are interpreted and not automatic, and (iii) symbols are also *abstract* and thus *representative*. Burgoon and Saine (1978) mention that symbolic communication must involve a socially shared meaning, that is, a code, which is understandable by an encoder and interpreted by the decoder. At the same time, these authors also state that certain nonverbal behaviours like blushing are signals. Symbols are distinguished from signs as signs are considered a natural part of the object they represent and symbols are arbitrarily assigned representations. Both signs and symbols can be considered as nonverbal communication as long as they have *socially shared meaning* and are not behaviours unique to the individual.

The diversity in definition of nonverbal communication indicates on the one hand the interdisciplinary effort in this direction and certain level of confusion and misunderstandings of the phenomenon on the other. Much effort and time is needed to explore and define certain aspects of nonverbal communication. This does not mean to provide a narrow and rigid definition of this complex phenomenon but a definition which is a result of sufficient time and effort directed towards understanding its various features. In addition, one needs to question why communication where words are not used is referred to as *non verbal*. The use of body, hands, face, eyes, clothes, space, and time etc. is so vital and prominent in the process of interaction between human beings that it need not be defined as something that is only secondary to verbal behaviour or that *is not* verbal behaviour. Ruesch and Kees (1956) notes that the phrase “nonverbal communication” first appeared as a book title only in mid-1950s (cited by Wiemann and Harrison, 1983). Harrison and Wiemann (1983) have put it aptly when they state that ““Nonverbal” sounds like a residual category; it smacks of the same two-valued logic, the same mind-body dichotomy that many scholars are trying to jettison” (p.272). This also leads us to question our notion of *communication* and the way it has been defined. The current definitions of communication are not integrated enough to consider both nonverbal and verbal modalities as communication *itself*. We need to broaden the

definition of communication such that the nonverbal aspect of communication gets as much importance as the verbal aspect. The nonverbal aspects of communication duly deserve this position in the description and understanding of the process of communication. Hence the definition of communication needs to be more dynamic and encompassing.

At present for the purpose of this research the term nonverbal communication has been retained for a lack of a better term. The present research would be concerned with those aspects of nonverbal behaviour that are observable and emerge in the *process of interaction* between the teacher and the students in the classroom setting. Only those nonverbal communicative aspects that are a result of the interaction between the teacher and the students are taken into consideration. The nonverbal behaviours and acts are *not considered as a variable* that would describe the feelings, intentions and beliefs of the teacher and the students in the classroom. On the other hand, these behaviours have been placed in the *context* of face to face interaction between the teacher and the students during the teaching-learning process. Further, no attempts are made to indicate the inner state manifested in the nonverbal behaviour, rather what is relevant are the difference different nonverbal behaviour make to the *organization of interaction* between the teacher and the students in the classroom. In other words, attempt has been made to describe the significance nonverbal communication has in the daily process of interaction between the teacher and the students. The classroom interaction is used as a unit of analysis in its own right where nonverbal communication takes place.

Nonverbal communication has been defined as those aspects of behaviour and actions other than words that emerge in the process of classroom nonverbal communication. The forms of nonverbal behaviour that are observed then are behaviours such as hand movements, eye gaze, and posture. Other aspects like the use of space, furniture and seating arrangement is also considered as important aspects of nonverbal communication indicating vital aspects of classroom interaction. The definition rules out idiosyncratic behaviours which are limited to the use by and for a particular individual.

APPROACHES TO NONVERBAL COMMUNICATION

The diverse definitions above indicate that the study of nonverbal communication is interdisciplinary. This section discusses in some detail the main approaches or perspectives from which the concept of nonverbal communication is viewed. Four main approaches have been dealt with in some detail: the ethological approach, the linguistic approach, the symbolic interactionist perspective and the social psychological perspective. The physiological and psychoanalytic perspectives have not been discussed in this section as they are not directly relevant to the present research. However, much crucial investigations have been done in both these perspectives which in some way or the other have influenced the other approaches. The development, influence and significance of these perspectives are not denied here.

The Ethological Approach

Ethology is the comparative study of animal behaviour. The focus of the approach to the study of nonverbal communication is on the origin, development and functions of nonverbal behaviour. One of the main assumptions of ethological approach is that nonverbal behaviours are *innate*. In addition, the behaviours are not considered species-specific. This is because, for the ethologist, man is primarily a biological being the result of the biological evolution in the animal kingdom. Therefore, these behaviours are acquired because of their survival value and are shared by other species in the animal kingdom. Certain behaviours no doubt, do not fulfill a survival value anymore in the cultural world and therefore have acquired the status of social act.

The ethologists study the behaviour of animals in their *natural environment*. The approach suggests that the nonverbal behaviours of human beings should be studied in their natural environment. The approach also considers the human being as a *reactive being*. In this sense, nonverbal behaviours of human beings are a response to the environment. The ethologist studies these responses that occur in *patterns* in their natural environment. Another assumption stated by the ethologists is that “nonverbal behaviour predates verbal behaviour” (Burgoon & Saine, 19787, p.33). In other words, according to the ethological approach the communication by the body developed much before

language abilities. Therefore, nonverbal behaviours are considered more primitive form of communication than verbal behaviour.

Darwin was the first one to systematically study nonverbal behaviour and he pioneered some vital methods of research. One main aspect of Darwin's method was to compare the various nonverbal behaviours in different animal species. He meticulously recorded the specific behaviours of animals in their natural environment. Darwin was a pioneer and his methods continue to influence the theoretical and methodological aspects of modern ethology in the study of nonverbal behaviour.

Even though the ethological approach is an important approach in the study of nonverbal communication it has been *criticized* on a number of issues. The social scientists and behaviourists have questioned the innateness of nonverbal behaviour an assumption strongly held by the ethological approach. According to the behaviourists, nonverbal behaviours are *learned* and not innate. Social scientists believe that the nonverbal behaviours that form a part of the human repertoire do not have a survival value but these behaviours have cultural significance. Critics also believe that the transition of nonverbal behaviour from one generation to another is not biological but cultural. Another criticism that the ethological approach has been subjected to is the assumption that the data on animal nonverbal behaviours and human behaviours are interchangeable. Many feel that the humans are superior to animals due to their cognitive and language abilities and therefore animal behaviour cannot directly be extended to the humans. Lastly, ethologists have been criticized for considering nonverbal behaviour superior to the verbal behaviour. Burgoon and Saine (1978) have stated that nonverbal communication *assist* the act of speaking in human beings and is not superior to the verbal modality.

For the present study the ethological approach has been accepted for its methodological position of considering the natural environment as the only appropriate place for observation of the behaviour. In addition, the methodological position of meticulously recording the patterns of behaviours is relevant for the present study.

The Linguistic Approach

The linguistic approach is not an offshoot of the field of linguistics but is a perspective that parallels the study of language. The approach reveals the relationship between nonverbal and verbal behaviour. According to Burgoon and Saine (1978) the linguistic approach has legitimized the study of nonverbal communication within the behavioural and social sciences. The studies in this approach are not unified but divert at many points and thus have been given different labels.

Duncan (1969) distinguished between two broad research categories under this approach and termed them as: (1) the *structural approach*, (2) *the external variable approach*. Burgoon and Saine (1978) give another label to these two research categories. The structural approach is termed as the *structure-centered approach* and the external variable approach is termed as the *meaning-centered approach*. In the present research the terms given by Duncan (1969) would be retained because these terms were given prior to those given by Burgoon and Saine (1978). Very briefly, the structural approach provides rules, analogous to those of language, for the study of nonverbal behaviour. The external variable approach uses statistical methods to indicate the relationship between nonverbal behaviour and other variables such as personality, communication situation or other nonverbal behaviour like relationship between head nodes and eye gaze. Both these approaches are different in their orientations and yet interrelated, so as to provide a holistic understanding of nonverbal communication.

(i) The Structural Approach

The main focus of this approach is the detection of a *structure* in the body movement system. The approach attempts to determine the *hierarchical structure* in nonverbal behaviour, in which smaller units group together to make larger ones. The structure is seen parallel to the *rules* governing the structure and use of *language*. These rules provide a level of analysis and explanation similar to the study of language. However, the nature and pattern of the rules cannot be presupposed. The meaning of the

nonverbal behaviour, according to this approach, can be understood only when the *organization* of the various elements are unraveled.

The structural approach is largely influenced by the work of Mead, Scheflen (who developed context analyses to describe nonverbal behaviour), structural linguists (Birdwhistell), and ethology (watching patterns of action in context). The main assumptions of structural approach are described by Kendon (1982), as follows:

1. The structural approach assumes that the social interaction can be studied in its own right, as when people interact they participate in a *system* which consists of behavioural relations between the participants. The focus is the study of the *pattern of relations* rather than pattern of individual behaviour.
2. The interaction is an *ongoing process* as participants relate through many different aspects of their behaviour. One cannot predict and control the importance of certain behaviour of the participants in the interactional process.
3. The function of any element of behaviour in the interaction depends on the *context* of occurrence.
4. The various elements or units of behaviour have a characteristic *structure or organization* which is *predictable*.

One of the most systematic records of body motion has been provided by Birdwhistell (1970). In fact the structural approach is primarily based on the work of Birdwhistell. He was successful in demonstrating interdependence between body motion and linguistics. He also coined the term *kinesis* for the study of body motion, suggesting that it could be studied in parallel with linguistics. Birdwhistell's central idea is that bodily motion is *patterned* and it can be interpreted by analyzing the *recurrent elements* and how they occur in combinations according to the rules similar in spoken language. The approach assumes that the rules that govern the organization of the communication process are shared by the participants and are *shared rules like a code*. He terms those elements of body motions that are significant to the user in the communication process as *Kinemes*. And the combination or patterns of Kinemes are termed as *Kinemorphs*. Kinemorphs are further organized into complex combinations and are termed

Kinemorphic constructions. Birdwhistell also remarked on the *quality* of the nonverbal behaviour. For example, when we say a 'weak handshake' we refer to the quality of the nonverbal action. He termed these performances as *motion qualifiers*, which refers to the intensity, duration and the range of movement in an interaction.

The main focus of his approach is the pattern and structure in the interaction process. For Birdwhistell (1970) the order and pattern *is* communication, as has been indicated by this statement, "when we talk about communication...we discuss it as a complex and sustaining system through which various members of the society interrelate with more or less efficiency and facility (p.12)". In this sense then communication can be viewed as having its own structure which can be studied *independent* of the participants that form a part of the interaction. Communication becomes an *ongoing process* which occurs as long as there is interrelationship between the participants. The interrelatedness between the participants provides a *context* in which meaning of the nonverbal behaviour can be derived. The context can also provide a framework against which the significance of particular actions to the communication process can be obtained. By this Birdwhistell does not mean that some nonverbal behaviours are more important than the other or regard any one aspect of behaviour as more communicative than the other. But the focus is to establish what nonverbal behaviours people characteristically *engage in* when they communicate with others. Kendon (1972) reviewed Birdwhistell's *Kinesics and Context* (1970) and state that "For him (Birdwhistell), to ask what a given unit of body motion 'means' is to ask what its *use* is" (p.446).

The present research follows the structural approach as a methodological and theoretical position because it gives due importance to the system of communication in its own right. The significance of not only the structure but also the context in which the structure derives its meaning is stressed in this approach which helps to enrich the present research.

(ii) *The External Variable Approach*

The external variable approach *extends the psychological method* of experimentation to study nonverbal communication. The external variable approach is based on the investigations done by Ekman, Friesen and Dittmann. Kendon (1972) state that Ekman follows the “traditional approach”, only those nonverbal cues which provide information about the inner state of the organism to the receiver are important.

According to Ekman (1957) verbal behaviour is analyzable into units like words, sentences etc. but nonverbal behaviour has *no* apparent separations or divisions into smaller units. He has also investigated nonverbal behaviour especially facial expression, across different countries and specified the *universality* of certain facial expressions that indicate basic emotions. The external variable approach has also been used to indicate differential communication of affect by different nonverbal behaviours (Ekman, 1965). In a series of experiments, Ekman (1965) studied the different nonverbal cues provided by the head and the body. The results indicate that the head primarily provide cues about the kind of affect being experienced with little information about the intensity of the affect. The body on the other hand provides information about the degree of intensity and arousal level. Thus, there are only subtle differences in which the various emotions are expressed and certain specific behavioural cues can provide the needed information. Similar to this study, in all its investigations the external variable approach designs *experiments* to systematically study nonverbal behaviour.

Burgoon and Saine (1978) state that the external variable approach is basically a “*receiver-oriented approach*” (p.40), as it studies how people *assign* meaning to nonverbal behaviour. In understanding the meaning of the nonverbal messages, this approach assumes that certain *specific channels* provide information to the receiver about the emotion, intention and attitudes of the other. Ekman and Friesen (1969) state that “...acts have fairly specific meaning; their frequency of occurrence varies with the psychological state of the sender; they can be related in a number of different ways to the associated speech, and they convey quite specific messages to observers” (p.59). The external variable approach also assumes that nonverbal behaviour is governed by specific rules, however, they are not considered similar to the rules governing language

as has been specified by the structural approach. The rules are also not considered as static governing all nonverbal behaviour in one way. Ekman and Friesen (1969) mention that “nonverbal behaviour is not a single unified phenomenon with but one type of usage, one origin and one form of coding” (p.70-71).

In a seminal article, Ekman and Friesen (1969) note the *source* of nonverbal behaviours, the circumstances of its *use*, and also the *code or rules* governing the information it carries. These repertoires of nonverbal behaviours proposed by Ekman and Friesen (1969) are described in detail below because they provide relevant understanding of the complex phenomenon of the nonverbal behaviours.

According to the authors, there are three sources of the person’s repertoire of nonverbal actions. Firstly, the nonverbal act is the result of the relationship it has with the stimulus event which is built into the nervous system for e.g. reflex. Secondly, certain nonverbal behaviours are common to all the members of the species as it is acquired by all the members while interacting with the environment, like regardless of the culture the hand are used to take the food to the mouth. Thirdly, certain nonverbal behaviours differ with culture, class, family and individual as they are learned behaviours.

The usage of nonverbal behaviours is governed by: (i) the external conditions or the settings which are found wherever the act occurs, (ii) the temporal, sequential and semantic interrelationship between the nonverbal and verbal behaviour, (iii) awareness of the person emitting the act, (iv) intentionality or deliberate use of the nonverbal act by a person, (v) feedback from the sender to the receiver, and (vi) whether the information conveyed is idiosyncratic or has shared meaning.

The rules governing the nonverbal act describes the relationship between the act itself and that which it signifies. This rule or code could be extrinsic or intrinsic in nature. In the words of the authors, an extrinsic code “is one in which the act signifies or stands for something else, and the coding may be arbitrary or iconic” (p.68). The intrinsic code has been defined as “no code in the sense that the act does not stand for but *IS* the significant...” (p.68). On the basis of these two broad codes, the authors have described five different (iconic and intrinsic) types of codes relevant for the present study. The iconic code consists of three types of relationship between the nonverbal acts

and the significant. The first one is *pictorial* relationship in which the movement shows the meaning by drawing a picture of an object, person or event like using hands to show the shape of an object. The second relationship is *spatial* in which the movement or the act indicates the distance between objects, people or ideas like hands held close to indicate intimacy. *Rhythmic* relationship is the third relationship described by the authors, in which movement traces the flow of an idea, emphasize a particular phase or describe the tempo of an activity but does not carry the content of the message. Fourthly, a relationship in which the movement carries out all or part of an action performance is a *Kinetic* relationship. A kinetic relationship can be either iconic (resembling the action) or intrinsic code (actual all or part of the action). The last code is always an intrinsic code and has been termed as *Pointing* by the authors. It is the relationship in which hands or fingers point at an object, person, and some part of the body, a place or some abstract aspect.

Approaches, the structural approach and the external variable approach, taken together would help to focus on the individual as well as the interaction. This would provide a comprehensive understanding of nonverbal communication. These approaches also have limitations. Briefly, the structural approach has been criticized for being vague and time-consuming. Kendon (1972) mention that, Birdwhistell's *Kinesics and Context* (1970) is often "dense, technical, and abstract" (p.441). The external variable approach has been heavily criticized for simply extending the statistical and the experimental psychological tradition for systematically studying nonverbal behaviour. Thus, it has been considered reductionist in its approach. The universality of facial expressions suggested by external variable approach has also been criticized by many scholars (like Birdwhistell). Burgoon and Saine (1978) question both the linguistic approaches for a lack of clarity regarding the extent to which the rules underlying the nonverbal cues are conscious or unconscious. According to them, the rules of the spoken language are largely conscious and so it is difficult to consider it as analogous to the unraveling of the rules or structure of nonverbal behaviour.

Besides these limitations, both the structural approach and the external variable approach attempt to unravel two important aspects of nonverbal communication: the individual and the process of interaction. Due to these reasons the approaches have been accepted for the present research work.

Symbolic Interactionism (*The Sociological Approach*)

Symbolic Interactionism has been considered as a significant approach for the present research as it has extensively studied the *meaning and use of symbols* which is an important characteristic of nonverbal behaviours. Blumer (1969), systematized the thought of G.H.Mead and stated three premises of Symbolic Interactionism: (1) human beings act toward things on the basis of the *meanings* that the things have for them, (2) meanings is the result of or arises out of *social interaction* between people and is *not intrinsic* to the thing, (3) people handle things by *interpreting* and *analyzing* their meaning. Blumer (1969) has laid specific importance on the creation of meaning in the process of interaction. He stated, "Symbolic Interactionism sees meanings as social products, as creations that are formed in and through the defining activities of people as they interact" (p.5). Thus, interaction between people is not a stimulus-response linear process. It involves a process whereby meaning is *jointly created* and *interpreted*.

Blumer (1969) mentioned two distinct steps in the process of interaction. The two steps in the process of interaction can be cited here briefly. In the first step, the actor engages in meaning-making by indicating to himself- the process of communication with himself or herself. Mead, who laid the foundation of symbolic interactionists approach, had elaborated on the creation of the self in this process of social interaction which not only enables a person to interact with others but also with himself/herself by being an object of the self. This *process of self-interaction* makes human beings "*social*". The second step involves interpretation of the meaning by placing the meaning in the light of the situation in which the actor is placed. Thus, meaning is not an automatic or predetermined application of already existing factors or psychological makeup but an ongoing, interactive, and formative process.

These steps indicate that for an interaction to occur the existence of other actors is important. Woods (1983) stated that “At the heart of symbolic interactionism is the notion of people as constructors of their actions and meanings (p.1).” The actor in interaction with others takes into account what the other is doing or is about to do. The meaning of the thing or situation comes from the interpretation of the actions of other people as much as that of interpretation of one’s own. If the meaning arrived by all the participants is the same then the interaction is effective and understandable. In this sense, *mutual role-taking* is the most significant for effective symbolic interaction. This role-taking leads to joint action between the participants. Woods (1983) focused on the interactionist perspective in his book which viewed the *school* as a centre of interaction and meaning making resulting in its own culture, perspectives, norms and roles. He described the school as a work place where the teachers and pupils interact with each other according to the way they define their situation and employ strategies to negotiate with each other.

Symbolic Interactionism also provides orientation to a *methodological position* which has been neglected by the social scientists and the psychologists. The initial attempt of social scientist to measure and control situations have been criticized by Symbolic Interactionists. Instead, they suggest “returning to the empirical social world” (Blumer, 1969). Shipman (1976) stated that in order to study what goes in the school the researcher or observer has to “get inside the school and the groups inside the school” such that the meaning created within can be seen. Blumer (1969) described two vital parts of the Symbolic Interactionists methodological perspective. *Exploration* requires the researcher to get closely acquainted to the social life and also to develop, evaluate and redirect his inquiry. This would narrow the focus of the research inquiry. *Inspection* follows the process of exploration and involves scientific analysis. Scientific analysis has been described by Blumer (1969) as requiring two things- “clear, discriminating analytic elements and the isolation of relations between these elements” (p.43). These elements do not exist as separate entities but in meaningful relationships. The two processes make clear the importance of *directly observing the field of study*, by being immersed in it, and directing the procedure and techniques according to the social world.

The theoretical and methodological positions of Symbolic Interactionists seem vital for the understanding of the phenomenon of nonverbal communication. By placing the nonverbal behaviour of individual in the process of interaction with other individuals, understanding the meaning and value of its existence seems possible.

The Social Psychological Approach

Argyle (1972) adds a social psychological dimension to the biological, sociological, and cultural approaches described above. According to this approach, systems of interaction occur in a particular social and cultural setting to fulfill a *communicational need*. In this sense the immediate social setting is significant in the building up of communication. This approach also states that when the communication system forms a part of the social and cultural setting, it has to be *learned* by its members. Imitation and reinforcement are some processes by which the communication pattern can be learned by the members.

This approach is some what similar to the *Functional Approach* proposed in Burgoon and Saine (1978). The main premise of this approach is that particular nonverbal behaviours are determined by specific *communication functions* or *goals*. These functions can be seen as similar to the communication needs described by the social psychological approach. According to the functional approach, these goals or series of goals *justify* the occurrence of that behaviour. Thus, the proponents of functional approach isolate certain goals or functions and then investigate the particular nonverbal behaviours utilized to achieve those goals or functions. Further, these functions are not isolated events but are *continuous* and occur in a situation or a *context*. The nonverbal behaviours that occur in this context are also patterned and have regularities. They also occur in a *cluster* or together to fulfill a certain function. That is, we use not just our face to express something but we use our face, hands, eyes and many other parts of our body and voice. Similarly a single nonverbal message may serve a number of functions.

The limitation of this approach is that it is relatively recent development and not much rigorous investigation has been undertaken in this approach. A significant

limitation with the functional approach is how to isolate the function undertaken in a communication system. This approach has been taken into consideration in the present research because the classroom setting has a structure where the teacher and the students undertake activities to fulfill certain pedagogical functions.

These various perspectives on nonverbal communication indicate two broad things. Firstly, all forms or messages which do not involve the use of spoken words can be considered nonverbal. These cues include a wide range of behaviours like gestures, facial expressions, voice tone, use of space and many other cues. These are usually termed as forms, categories or channels of nonverbal communication. Secondly, a neat and precise definition of nonverbal communication is not possible as it is a complex phenomenon which includes a wide variety of behaviours that can be studied in different situations and analyzed by different perspectives.

METHODOLOGICAL ASPECTS OF NONVERBAL COMMUNICATION

The different approaches and perspectives in the study of nonverbal communication not only indicate the vastness of the phenomenon but also the diverse methodologies used in its study. The different methodologies are reflective of the focus and research priorities of the different perspectives. The various approaches discussed above can be grouped into two broad categories: the study of nonverbal behaviour in the *individual* or in an *interaction*. In the first category lies the work of investigators like Ekman and Friesen and in the second category the work of Birdwhistell is most prominent. These two approaches also reflect the philosophical traditions that they belong to. The study of the individual has the main focus of the field of psychology and the method largely used has been experimentation. The study of interaction has been the focus of sociologists and anthropologists and natural observation has been the method of choice for investigation. The experimental approach is more amenable to the quantitative analysis of individual

behaviour whereas the observational method draws heavily on the qualitative analysis of the structure of the interaction under study.

Ekman (1957) state that the nature of nonverbal behaviour is different from verbal behaviour and therefore should be studied differently. According to him, even though nonverbal behaviour can be viewed as displaying movements and positions, it is only possible to study the positions and not movement. Movement cannot be studied because in that form it can neither be recorded nor analyzed. Therefore, for Ekman the study of nonverbal communication involves recording of those nonverbal positions that are discrete and that occur most frequently. He advocated the use of devices that would record the *rate* at which certain nonverbal behaviour occurs. Ekman (1957) consider the system of notation provided by Birdwhistell as uneconomic and irrelevant as it does not provide provision for sampling procedures to record only the most frequently occurring nonverbal behaviours. He also suggests various ways of analyzing the data obtained by rate measures like the use of statistical tests and cumulative frequency curves.

Even though these research categories come across as completely contradictory they are rather *complimentary* to each other. The choice of a particular research focus does not necessarily determine the methodological approach used by the investigator. Both the methods are legitimate and important and it is rather difficult to make a judgment about greater validity of anyone. There have been research endeavors that have attempted to look both at the individual and the nature of interaction. One such example is the study of the rules in the turn taking behaviour of individuals in the regulation of interaction by Duncan (1972). Duncan's study would be discussed later. Since such methods are time consuming they are rather rare in the study of nonverbal communication.

There are many methodological problems in the study of nonverbal communication. Such problems contribute to lack of understanding of the communication process. The choice of *where* to study the behaviour is usually between the field or natural observation and laboratory. Both these choices have some advantages as well as disadvantages. The field method allows the researcher to study the phenomenon in natural environment as it occurs, whereas in the laboratory method the investigator can exert greater control over the context of communication. The method of direct

observation has been criticized for being unstructured, unreliable, and uneconomical. On the other hand, the laboratory method has been criticized for being artificial.

The disadvantages of unreliable recording in the field have been avoided by filming in the field. However, even this method has its own disadvantages. As indicated by Exline and Fehr (1982) it “poses problems of illumination, scope, and obtrusiveness” (p.101). The use of camera for filming and later training investigators for recording has also been considered very expensive.

The barriers in the study of nonverbal communication also exist due to the diversity in perspectives and approaches attempting to understand nonverbal communication. Investigators waste much of their time in criticizing other approaches rather than integrating them. They rigidly stick to certain methods and procedures to study this vast phenomenon. Harrison and Wiemann (1983) mention that there “still tends to be a preference for either starting with the individual and moving up to interaction, or starting with social structure and moving down to interaction” (p.276). Till the time investigators don’t move beyond these divisions towards interdisciplinary approaches, the barriers would exist and the study of nonverbal communication would only remain incomplete.

FUNCTIONS OF NONVERBAL COMMUNICATION

Nonverbal communication is not only central to communication process but it also predominates when it comes to influencing people or judging other people (Ekman and Friesen, 1969). It would help to list down the various functions of nonverbal communication. This list is definitely not an exhaustive one.

1. The most important function of nonverbal behaviour is that it *expresses* what one feels. Most can manipulate words but very few can cover what one feels inside because it shows through ones’ facial expressions, body postures and other nonverbal behaviour.
2. Another very vital function of nonverbal communication is that it indicates how one *perceives ones’ relationship to* other people (Galanes & Brillhart, 1991) for instance; a warm hug can make someone feel liked by the other. Argyle (1980) state that one of the functions of nonverbal communication channels is to negotiate interpersonal attitudes.

3. Nonverbal behaviour can *supplement* or *accent* verbal behaviour by repeating, emphasizing or calling attention to verbal messages. For example, the teacher trying to control a noisy class would put emphasis on her words by increasing the pitch and loudness and say “*I want silence, now!*”
4. The nonverbal message can compliment the verbal message by *stressing* on it. For example, if a student is very sorry for not completing the homework, she would not only say sorry but may join her hands and almost beg the teacher!
5. The nonverbal behaviour can *substitute* or replace the spoken or written word (Argyle, 1980). There are times when we are unable to *say* things but find it easier to *express* them.
5. Sometimes nonverbal behaviour *contradicts* the words one utters. For example, in a classroom the students who claim to be attentive but might also yawn and slouch in their chairs (Verderber & Verderber, 1977).
7. Nonverbal behaviour can also be used to *regulate the flow* of verbal interaction among members (Galanes & Brillhart, 1991). Argyle (1980) mention that nonverbal signals like head nodes and shifts in gaze help in achieving a smooth pattern of synchronization between interactants.

These functions of nonverbal communication can be used to augment the level of social functioning of an individual. Even though there have been controversy about the awareness or intentionality of the sender of the nonverbal messages, it can be said that they can be used favourably by the sender. Honey (1988) states two important benefits of being aware of nonverbal behaviour both in ourselves and in others. According to her, nonverbal messages provide “extra information” which helps us understand “more completely what people are really thinking, feeling or meaning” (p.154). The nonverbal behaviour is relatively more difficult to control than the verbal behaviour, therefore, what the person thinks or feels ‘shows through’. Teachers can be trained to be sensitive to the nonverbal cues of children which indicate their feelings and thinking. Secondly, Honey (1988) also believes that even though nonverbal behaviour is difficult to bring under conscious control, it is possible to use it to create favourable impressions on others. This manipulation of which nonverbal behaviour to adopt and which to avoid is

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not similar to lying. In fact we do it all the time, for example, in a job interview the interviewee would wear his best formal clothes and his best smile even if he is irritated for traveling by a crowded bus. In a classroom setting the teacher can consciously make an effort to manipulate her nonverbal behaviour to avoid indicating authority or increasing anxiety in students.

FORMS OF NONVERBAL COMMUNICATION

For purpose of this study, the various channels of nonverbal communication have been classified into the following categories:

- Kinesis- body movements: posture, actions, gestures, facial expression, eye contact, appearance.
- Paralanguage- voice quality
- Proxemics- space (size, odour, colour) and distance
- Chronemics- determination and definition of time

The above given subdivision help one to realize the width and the depth of the topic. Keeping in mind the scope of the present study and the implications of the studies in the classroom or school settings only few relevant researches of the channels of nonverbal communication are discussed below.

A. Kinesis

Kinesis was the term given to body movement by Birdwhistell (1970). Body movements include head nods, gestures, posture change, eye gaze, facial expressions etc. In the published literature more attention has been given to the activities of the hand, then the head and then to other components of the body. The variety of gestures employed by individuals in social interaction would be described in detail in the next section.

According to Rosenfeld (1982) the study of body motion has been considered a separate area in the field of nonverbal communication because of structural and functional reasons. This aspect of nonverbal communication involves the *spatiotemporal* displacement of the skeletal system in order to accomplish certain tasks or functions. The body is involved in fulfilling two kinds of functions: *instrumental* and *referential*. In the instrumental usage the body directly leads to the performance of certain task like manipulation of external objects, orienting the body towards objects in the external world. More importantly the body is involved in referential functions which are more relevant to the study of nonverbal communication. In referential communication the body movement is a referent to other characteristics of the organism like personality, social status.

Rosenfeld (1982) also mention various methods used in measuring body motion. This list is definitely not exhaustive but provides a sort off overview of the methods. In one of the methods the *basic anatomical position* of the human body can provide a frame of reference. This position can be a baseline position along which the current position can be described. The basic anatomic position can be considered to be erect with arms at the sides and the palms of the hands facing forward. The other method is to *compare* the location of the body parts *relative* to a particular object in the environment. The spatial displacement of the body can also be complimented by adding a temporal aspect as all movements occur in a *time frame*. Rosenfeld suggest that the latter person's movement can serve as "clock" against which the movement of the first person can be measured. These movements might appear as a continuous function but sometimes it is better to view it as discrete parts that occur in different time intervals. When body motion is to be studied in social environments then it seems better to give a meaningful description of the body motion in comparison to the location of another person.

The *kinesics* system of Birdwhistell is probably the best-known methods in the study of not only the body movement but also as a method for studying other nonverbal behaviours. Birdwhistell's approach has been described in detail above under the section of the structural-linguistic approach. Ekman (1976) has divided the body movement into five main headings: emblems (substitute for verbal behaviour like the 'V' sign for

victory), illustrators (support verbal behaviour like hand movements to indicate direction), regulators (help to control the flow of conversation), affect displays (indicate emotional states like smile), and adapters (release of physical tension like stretching). These categories are also discussed in detail in a subsequent section under the subheading of nonverbal and verbal communication.

Another valuable level of analysis to the study of body movement provided by Rudolf Laban and his associates has been reported by Davis (1972). According to Davis, Laban's method proposes a systematic description and recording of movement which primarily describes the *process of movement* and not specific actions. In other words, what is important is the *form, process, rhythm, organization and sequencing* in movement and not the content. The Laban system includes 'Labanotation' and 'effort analysis' involving elaborate notation systems or codes to record the process. Davis (1972) suggests to the behavioural researchers to select and adapt the terms and concepts of Labanotation to the specific research context and not simply extend the shorthand notation system. The system of Labanotation, according to Davis (1972) includes *symbols* of various shapes and shades to represent *spatial direction*. Further, effort analysis captures the *qualitative* or dynamic aspects of movement. Effort analysis involves four pairs of variables: space (direct and indirect), force (strong and light), time (quick and slow), and effort flow (bound and free). Thus, *adjectives, verbs and adverbs* but not nouns are frequently used to describe body movement. These systems, Labanotation and effort analysis, are compatible and complementary aspects in the study of process, change and pattern of nonverbal behaviour.

There have been very few studies of body movements in the classroom setting. This is unfortunate because teachers as well as students need to be sensitive to these nonverbal cues. For example, head nodding and increased gestural activity indicates attentiveness and approval of what is being said in the discussion. Whereas, moving away from the speaker and looking away indicates disinterest and disapproval. If the teacher and students do not use these cues effectively they are at loss. Knapp (1977) reports that certain body movements suggest status like shoulder orientation seems to be more direct during interaction with high-status person. It would be interesting to study

the various body movements exhibiting status and power by teachers in the classroom. Mehrabian (1977) state that posture indicates both liking and status. For example, people relax when they like someone or when they belong to high status.

The face is one of the most researched parts of the human body because it is the best source of understanding ones' real feelings. Rosenthal et.al. (1979) stated that the best-known studies of the posed facial expressions have been that of Paul Ekman and his associates. However, most studies on facial expressions has been done using still photographs which has the disadvantage of not showing a series of expressions as it occurs in real life.

The decoding of facial expressions would be very helpful not only for teachers but also students. A student facing some problems at home might express it verbally but her face would show it. But a lot depends on how sensitive the teachers are to the facial expressions of the child. Knapp (1977) states that the teacher can use the facial expressions and the gestures of the students to know if what is being taught is understood or not. The students can also analyze the facial expressions of the teachers to understand their expectations. Verderber and Verderber (1977) notes that three sets of facial muscles are manipulated to express emotions- the brow and forehead, the eyes, eyelids and the root of the nose, the cheeks, mouth and the remainder of the nose and chin.

Looking and being looked at is another aspect of nonverbal communication that is researched extensively, however, only recently. Cook (1979) point out that psychologists have not taken much interest in this phenomenon as can be indicated by the fact that no research was undertaken until early 1960s. *Gaze* has been defined as looking at another person's eyes or between the eyes or generally in the upper half of the face. *Mutual gaze* is what is commonly referred to as 'eye contact'. Exline and Fehr (1982) report studies that indicate that duration serves to differentiate such terms as *glance*, *look*, *gaze*, *leer*, and *stare* in an increasing order. Cook (1979) cites research which indicates that "looking someone in the eye" is actually not quite literally that as it is actually a series of rapid and repeated scans of the others face.

The eyes play a central role in social behaviour as we use it to study the appearance and behaviour of the other. We also use it to provide a signal that the communication channel is open (Knapp, 1977). The way we look at people indicates our like, dislike, hostility and interpersonal attitudes (Cook, 1979). Kendon (1967) illustrates that on an average people look at each other about 60% of the time but the range depends on the individual differences. He also reports that people look *more when listening than while talking*. In listening to someone the gaze is continuous whereas while speaking gaze usually takes the form of frequent short glances. Kendon also remarks on the fact that people *look away when they start to speak, answer a question and when hesitating*. In another article, Kendon (1983) cites studies which argue that gaze is not always reciprocated by people. It was noted that in neutral or positive social encounters, gaze is reciprocated; however, negative or threatening situations evoke compensatory responses to gaze by looking away, moving away etc.

These findings have important implications in the classroom setting. In a classroom, a student who is looking away from the teacher when asked a question is probably indicating non-availability of answer. Eye contact can also be used to psychologically reduce the distance in an overcrowded classroom.

Storey (1997) stated that meaningful interpretation of all types of body movements can be made from clustering which involves taking together the posture, hands, arms, feet, head as well as facial expression.

B. Paralanguage

Paralanguage refers to the quality of voice used by the presenter, what it indicates and the influence it has on others. Knapp (1977) indicate that if a variety is used in volume, pitch, tone and rate there are more chances that the audience would understand what was presented. Changes in the vocal tones help one to realize that the meaning of words change by the way it is said or presented. Mehrabian (1977) state that the utterance timing and duration is also very crucial in the analyses of verbal information.

Lee (1990) states that “Shifts in intonation serve(d) pedagogic functions by highlighting important information, and marking other comments as ‘asides’, or as having different functions (p.106).”

C. Proxemics

Space and distance is included in the study of Proxemics. It is how one *perceives, structures and uses space* (Burgoon and Saine, 1978). There are two human needs, namely affiliative and private needs which are reflect in our proxemic behaviour. There are two categories of proxemic behaviour that arise out of the two needs. The first category is *territoriality* and the second category is *personal space*. The territoriality in human beings has parallels in the animal species. Territoriality can be defined as “claiming and defending a geographic territory as one’s own” (Burgoon & Saine, 1978, p.90). An example would be the way in a classroom a student selects a chair and sits on it for rest of the year. The territories that human beings mark are hardly noticeable and are usually intruded by others. The concept of territoriality can also be understood by looking at the perception and effects of overcrowding in people. The fact that crowding has diverse effects on humans indicates the importance of distance in communication.

Burgoon and Saine (1978) also mention four types of territories. *Public territories* like streets are open to all. *Interactional territory* is designed for social interaction but access is restricted to those who have a legitimate right to participate. Another territory is the *home territory* which consists of a home of any shape and sizes with those who live in it have access to. The last type of territory is *body territory* in which the human is the centre and it is the space surrounding the person. This category is closely related to the concept of personal space.

Personal space is defined by Sommer (1959) as “the distance that the organism customarily places between itself and other organisms” (p.247). The centre of this is the person itself about whom the personal world is oriented. It is the “invisible bubble of space that travels with the individual” (Burgoon & Saine, 1978, p.92). *Social norms* to a

large extent govern the distance that needs to be maintained among individuals and these norms are based on a combination of factors or characteristics. The characteristics of the person like status, liking etc. determine the distance that is maintained. Argyle (1980) mention that people sit or stand closer to people that they like. In addition, the interactional characteristics also influence the norms governing the distance between people. For example, a classroom has a different purpose of interaction than a picnic and therefore the people would tolerate different distances. In a classroom where the attention of students is towards the front of the classroom mostly, students tolerate closer intimacy but in competitive situations they increase the distance (Burgoon & Saine, 1978). The architecture of the room, the colour, the shape, the furniture and lighting are all environmental characteristics that determine what distance is comfortable.

Sommer (1959) conducted experiments to study the way people arrange themselves when they interact. The experiments indicate that people interact more with those sitting in the neighboring chairs than in distant chairs. In addition, people in *corner chairs interact more* than people alongside one another or facing each other. In another similar study, Mehrabian and Diamond (1971) studied the effect of seating choice on conversation. It was found that the *immediacy* of the seating is a correlate to the amount of conversation between strangers. That is, the closer the proximity between people the more the conversation between them. The results also indicated that individual differences contribute to seating choice primarily in terms of preference for proximity and not that much in terms of preference for orientation.

The way the standard classroom is arranged across the globe indicates the role expectations, status and power of teachers. The classrooms are usually rectangle in shape with tables and chairs in straight rows facing the teachers sitting in the front and facing the class. School rooms are also in dull colours different from home environment showing the children the roles they are expected to perform in the school. Knapp (1977) believed that such surroundings are barriers to effective communication. Thus, the use of space is a significant aspect of communication.

One of the most important contributors to the study of space is Edward Hall (1959). According to him, “Spatial changes give a tone to a communication, accent it, and at times even override the spoken word (p.204)”. Hall’s significant contribution is the identification of three types of space: *fixed-feature* (stable boundaries like walls, defining territory), *semifixed-feature* (positioning of desks and chairs), and *informal* (intimate zone, personal zone, social zone and public zone). The description of four informal distance zones is based on Hall’s observation of middle-class Americans and he has stated that there are cultural differences in the perception and organisation of space. These research findings can be used to explore the values and beliefs behind the allocation of space for various activities in the classroom and beyond that in the schools.

D. Chronemics

Chronemics is the study of the *use and allocation of time* by people. According to Burgoon and Saine (1978) chronemics is “the study of how we perceive, structure and react to time and the messages we interpret from such usage (p.99)”. This form of nonverbal communication is the least studied of all. However, its significance cannot be neglected. Our concept of time is core to the way we view the world. All of us allocate time not only according to our convenience but also according to certain beliefs and likings. For example, we wouldn’t mind if the person we don’t like has to wait for us if we get a little late! Culture also plays an important part in establishment of norms for using time and interpreting it. Edward Hall is considered as most responsible in creating attention to the communicative power of time.

In the school setting it would be interesting to study the division of time in specific periods which come across as very disjointed like Math class after English. The allocation of school time into a rigid time-table communicates the role expectations of all those who form a part of the school.

NONVERBAL AND VERBAL COMMUNICATION: REGULATING INTERACTION

The true essence of nonverbal communication, verbal communication and the relationship between the two can be best obtained by placing them in the context of social interaction, where the communication process actually occurs. Nonverbal communication cannot occur in a vacuum. The verbal communication is as important for interaction as the nonverbal communication. There is a relationship between verbal and nonverbal communication and its nature and properties has been debated on for a long time by different theoreticians. The nonverbal behaviour most studied in relation with verbal behaviour is gesture. *Gestures* involve the use of arms and hands in order to communicate. The relationship between gestures and speech is complex and has no definite features. Some scholars believe that gestures are a precursor to speech. Some also believe that gesture is a component of language. Therefore, the discussion centers on the origin of language and gestures in particular and nonverbal behaviour in general.

Critchley (1975) cites attempts of some philologists and phoneticists to trace an intimate bond between the sound of a word and its meaning (like Plato, Diodorus). These studies found that the gestures were connected with the meaning of the word in a number of languages spoken all over the world. Research also point out that speech began from gestures (study by Davis cited in Critchley, 1975). After a lot of discussion and citing of various research surrounding this debate, Critchley (1975) state that gesture and speech seem to have developed side by side. He further states, "...gestures should be regarded as a very important modality of language, with origins at least as remote as speech and with great powers of enriching and enhancing our utterances" (p.221). It seems that this debate has no end and it is like the story of the chicken or the egg: one still wonders which came first.

The relationship between the verbal and the nonverbal modality has been undertaken by a number of theoreticians without particularly addressing the debate about their origin. One such formulation was made by David McNeil (1985) who states that gestures and speech are parts of the same *psychological structure* and also share a

computational stage. This means that both speech and gestures connect *internally*. This approach has been supported by Ekman and Friesen, and Kendon. Kendon (1983) state that there is a complimentary relationship between gesture and speech as gesture is neither a by-product of speech nor is it independent. But the different aspects of the task undertaken are divided and expressed by the two modalities. McNeil (1985) has criticized the linguists for treating gestures and speech as two separate entities and extending the rules of the spoken language to analyze gestures. The gestures that the author refers to in this article are *referential* and *discourse* oriented gestures and not emblems (described by Ekman and Friesen). The author points out that gesture and linguistic channels exhibit the same *meaning* as they present a single cognitive representation. Further, gestures serve as a channel through which one can understand another's mental processes and representations. In other words, gestures share the *semantic and pragmatic functions* with speech.

McNeil (1985) cites a variety of gestures that occur along with speech and represent the semantic and pragmatic function that they share. *Iconic gestures* are semantically parallel to speech. In the authors own words, "An iconic gesture is one that in form and manner of execution exhibits a meaning relevant to the simultaneously expressed linguistic meaning (p. 354)". Another referential gesture closely related to iconic gestures is *metaphoric gestures*. They have been defined by the author as "semantically parallel to sentences with abstract meanings (p.356)". Under the category of metaphoric gestures, the author cites three other types of gestures. First are the *mathematical gestures* which deal with mathematical concepts e.g. gestures that exhibit concept of limits. Second are gestures that are termed as *conduit gestures*, which symbolize abstract concepts about language and communication. Third kind of gestures is termed as '*Beats*' and has pragmatic functions more specifically. These gestures do not have propositional content but is an abstract visual indicator. Beats, as has been reported by the author, are small simple and rapid movements that occur at significant points of discontinuity in the discourse structure like during silences.

According to McNeil (1985) the development of gesture together with speech in children indicates the strong interrelationship between the two modalities of

communication. This perspective has important implications for the classroom settings, where the teacher can observe the understanding or acquisition of a concept of the student by observing his/her speech as well as gestures.

The variety of gestures described by Ekman and Friesen (1981) are very interesting and reveal a lot about their relationship with speech. Earlier in the chapter where the approaches to the study of nonverbal communication were mentioned, some kinds of gestures that are cited by Ekman were also mentioned. In addition, to those types of gestures, Ekman and Friesen (1981) have classified gestures according to the *functions* that they perform. There are five categories:

- a. *Emblems*: The authors state that emblems “differ from most other nonverbal behaviours primarily in their usage, and in particular in their relationship to verbal behaviour, awareness and intentionality” (p.71). These gestures have a *direct verbal translation* usually consisting of a word or two or a phrase. The precise meaning of the emblem is known by all the members of the group, culture or class because it is the result of *culture-specific learning*. In addition, the sender is almost always *aware* of his/her use of the emblem and the receiver not only knows the meaning but also that it is sent intentionally. Emblems also occur most frequently in situations where verbal exchange is prevented by external circumstances like noise. They are the most easily understood nonverbal behaviour as it has a specific and agreed upon meaning. An example given by the authors is the tracing of the figure of a woman to indicate sexual attractiveness.
- b. *Illustrators*: They are gestures which occur *along with speech* and *illustrate* it. In the words of Ekman and Friesen (1981), all illustrators are “intimately interrelated with the concomitant verbal behaviour on a moment-to-moment basis; they are directly tied to content, inflection, loudness etc.” (p.77). Like emblems illustrators are also *socially learned* but they differ as unlike emblems, illustrators always occur with speech (Ekman, 1976). The person using illustrators is slightly *less aware* that he is using them but they have a *shared decoded meaning*. Further, the authors’ note that the illustrators are either iconically coded or intrinsically code but most usually the former. The *deitic illustrator* refers to a *pointing movement* which is intrinsically coded. *Batons* and *Ideographs* do not have independent meaning and cannot be understood without the speech as they do

not convey any content if they occur without speech. Both batons and ideographs are rhythmic and iconically coded. Illustrators also include the spatial and kinetic gestures described earlier in the chapter. Kinetographs are kinetic movements and can be both iconic and intrinsically coded.

- c. *Affect Displays*: These movements *reveal emotions*. The face is considered as the main part of the body where affect or emotions are displayed. The affect displays may be intentional or unintentionally but mostly the expressions of feelings occur *without the awareness and intention* of the sender. The authors also point out that the displays rules are *socially learned* and mostly early in life. The affect displays are different from illustrators and emblems as they carry more personal information than the other two. Affect displays are related to verbal behaviour in a lot of ways. They can repeat or contradict a verbally stated affect or it may occur as a different channel.
- d. *Regulators*: According to Ekman and Friesen, regulators are acts that “maintain and regulate the back-and-forth nature of speaking and listening between two or more interactants” (p.90). Just like illustrators, the regulators also occur with speech but illustrators are closely intertwined with the speech whereas the regulators are *related to the conversational flow and the pacing* of the exchange. Some common regulators that are pointed out by the authors are: head nods, eye contacts, slightly forward movement, small postural shifts etc. These movements do not carry any message content but are necessary for the flow in conversation. They convey a lot of messages about the pace of the conversation to the speaker as well as the listener. The regulators are only at the *periphery of awareness* as the person can undertake the act without much deliberate effort but when asked about it can recall the act. The authors say about the regulators, “They are usually not deliberate, but almost involuntary, highly over-learned habits” (p.91).
- e. *Adaptors*: These movements form the last category of the movements. Adaptors are behaviours that are *designed to satisfy physical or emotional needs*, like acts usually carried out in private such as scratching. They are *learned acts* that are maintained by habits and therefore are not intended to transmit a message, usually without awareness. The authors mention three types of adaptors and can be very briefly described here: *self-adaptor*, *alter-adaptor*, and *object-adaptor*. Self adaptor are learned to manage anxiety,

problems or need. These acts facilitate in blocking or reducing sensory input like covering of the face by hands. They are also not intrinsically related to speech but they may be triggered or related to the motives or needs which are verbalized. The alter-adaptors are learned early in interpersonal contacts. These movements involve give or take from the other, attacking or protecting oneself and also to establish intimacy and affection. They can be identified as total postural change, spatial change, and restless movements. The object-adaptors are movements originally learned as a task like driving and later triggered by some emotional or attitudinal component during conversation.

These categories have been mentioned in relative detail as they encompass a vast variety of nonverbal behaviours that occur in social interaction along with speech. The categories are not mutually exclusive but rather few acts form a part of more than one classification. A lot of studies have been conducted to further reveal more features about the acts but have not been referred to here as they are not directly relevant to the present research.

All these classification of the various gestures that have been illustrated above can be summed up by dividing them into two broad categories. Kendon (1983) propose that two sorts of classifications of gestures are offered by all the researches: *semiotic* classification and *functional* classification. The first classification is related to speech with respect to the *meaning* that they depict. The second classification is mainly concerned with the *way* the gestures *relate* to speech. In the first category, “emblems” proposed by Ekman and Friesen and the gestures like “iconic” gestures stated by McNeil are included. In the second category, “beats” proposed by McNeil are included.

The above description attempts to portray the nature and functions of the nonverbal modality and its interrelationship with the verbal modalities in social encounters. Certain features of social encounters are very fascinating and also further indicate the way individual communicate with each other relying on both the modalities. Nonverbal behaviour is very vital in the regulating of interaction between individuals. It not only plays a significant role in initiating interaction but also in sustaining and terminating it.

In initiating conversation individuals take the help of nonverbal behaviours like physical attractiveness, eye contact, and proximity (Burgoon & Saine, 1978).

While the interactants are conversing with each other then also the nonverbal faculties of individuals provide signals in order to sequence and sustain interaction. Sacks (1992) described two features of conversation between individuals. The first feature is that *one person talks* at a time. The second feature is that *speaker change occurs*, which involves *turn-taking behaviour*. Therefore, the speaker uses nonverbal cues to *continue* his turn or to *terminate* his turn (Burgoon & Saine, 1978). Nonverbal behaviours like looking away from the listener and continuation of gesture is used by the speaker to continue. In case of terminating the floor the speaker engages in nonverbal behaviours like looking or facing the listener or terminating movement. Similarly, the listener engages in nonverbal cues to indicate a desire to speak by nodding, leaning forward and similar such behaviour (Burgoon & Saine, 1978). The listener also behave in ways to provide feedback to the speaker, known as the *backchannel*. The backchannel does more than providing the feedback to the speaker; it also confirms his role as an auditor (Burgoon & Saine, 1978).

The nature of turn-taking in speaking and listening by the participants during an interaction has also been studied by Duncan (1972). He states that this phenomenon is governed by rules or *communication mechanism* and also behavioural cues which provide signals of turn yielding by the speaker and back-channel signals by the auditor. These signals were found in all communication modalities examined by Duncan including intonation, paralanguage and body motion. Kendon (1970) studied the pattern of *interactional synchrony* between the speaker and the listener. That is, when the flow of movements of the listener is *coordinated* with the movement and the speech of the speaker. He described a pattern in the interactional synchrony where the listener coordinated his movement with the speaker simply by hearing the speech of the speaker. The speaker also needs information from the listener to regulate his movement for him. According to Kendon (1970) this synchrony is important because it makes possible the *coordination of expectancies* among participants which is vital to the smooth running of an interaction.

According to DeLong (1981), the kinetic activity is *not* uniformly distributed throughout the utterances. In a study with pre-school children, DeLong found that kinetic activity *increases as the end of utterance* was approached. The major finding of this research is that there is a predictable *patterning* and *clustering* of leftward and downward kinesic activity to signal an intention to terminate verbalization. These signals may occur successively (movement in same body part: down and left several times) or simultaneously (movement in the head accompanied by simultaneous movement in other part), at any of the *three positions*: next to last word, at final word or post verbally.

Burgoon and Saine (1978) point out that *silence* is as important a part of conversation as when people are talking. It is the time when verbal channel is not used and so the nonverbal channel becomes the “sole mechanism for communicating meaning (p.231)”. They also state that there are *different types of silences*. Silence for a short period of time is called a *hesitation* or pause and might occur in the speaking turn when the speaker is engaged in unfamiliar or complex ideas. *Intentional* or imposed silence on the part of either the speaker or auditor is limited to specific environments or roles like that of a teacher in a classroom. The imposed silence may function to dramatize a point or prompt a favorable back channel from the speaker.

The above description indicates a very close relationship between nonverbal and verbal communication and the significance of both the modalities in communication. However, when verbal communication is not clear or contradicts the nonverbal message individuals rely more on the nonverbal message to understand the real meaning and feelings of the sender (Verderber & Verderber, 1977). The verbal and nonverbal communication contrasts with each other in a number of other ways. They can be listed as follows:

- 1) Nonverbal communication is more ambiguous than verbal communication as the messages could be either intentional or unintentional. For example, the reason why a person squint his eyes might be intentional or by chance (Verderber & Verderber, 1977).
- 2) Nonverbal communication is continuous whereas verbal communication is discrete. Verbal communication consists of words and sentences which have a specified, rule-

bound beginning and ending. Nonverbal communication has no such fixed rules and therefore it is continuous (Wood, 1982).

- 3) Nonverbal communication is multichanneled and multilevel unlike verbal communication. We communicate feelings through eye contact, body posture and facial expression all at the same time.
- 4) As has been stated above that nonverbal communication is more trusted than the verbal communication when they are in conflict because changes or manipulations on verbal messages are done more consciously and purposely.
- 5) Nonverbal messages provide more accurate insight about a person's emotional state than the verbal behaviour (Verderber & Verderber, 1977).
- 6) Many forms of nonverbal behaviour are recognized across cultures unlike language which has its boundaries. This point involves controversies around it as research has indicated that nonverbal communication varies not only across cultures but also within cultures (Gudykunst et.al., 1988). One needs to keep in mind that even though certain emotions portrayed by the face like anger or happiness can be recognized across cultures their meaning, significance and use would be different in different cultures.

Up till now, this section has indicated studies that propose a close relationship between speech and gestures and state that they occur together. However, there also exists a viewpoint which contradicts this supposition. And this viewpoint primarily contrasts with the formulation of McNeil (1985) stated above. Broadly, McNeil state that "gestures only occur during speech" (p.353). Butterworth and Hadar (1989) criticized McNeil by indicating contradictory statements made by him in his formulations. They cited a number of naturalistic studies which indicate gestures also occur in the absence of speech. According to them, McNeil did not record certain kinds of hand movements because they did not satisfy his criteria for "iconic" or "batonic" gestures which have been defined only in relation to the accompanying speech. In response to McNeil (1985), Butterworth and Hadar (1989) suggested a model which included number of steps. These steps lead to the formulation of two properties they attach to gesture and speech. They stated, firstly, that gesture and speech are *globally autonomous* and occur without the other. Secondly, speech production processes *dominate* gesture production during speech

and the two gestures, iconic and beats are present in two different stages. According to them, the stages in which word meanings are available dominate the iconic gestures and beats dominate the stage in which stress on sentence position is present.

Thus, all these formulations stated above help understand properties of the relationship between verbal and nonverbal behaviour and also provide an understanding of the process of interaction where speech and gestures occur together in order to provide meaning to the process. However, there are studies which reveal that gesture and speech do not always occur together. Therefore, much needs to be explored about the interaction or integration of verbal and nonverbal communication. According to Duncan (1969) the relation between language and nonverbal communication would become clear “when more is understood about how synchronous and sequential nonverbal elements are organized (p.134).”

NONVERBAL COMMUNICATION IN THE CLASSROOM

There are various characteristics of a classroom which differentiates it from other social organizations or social contexts. A classroom is usually *structured* with respect to time and ecology. It is formally conducted by the teacher and takes a *specified direction*. Unlike a get-together or gossip session, classroom has certain organization which is *predictable* to a large extent. The class is conducted by the teacher with a specific objective and content in view. The power, status and role differentiation are clear cut and defined in the classroom. The classroom behaviour is largely governed by these characteristics of the classroom structure. If the context and the content of the class changes, the characteristic of the class also changes. For instance, the content of a drama class would be different from the content of a science class. Also the place or environment in which these two types of classes would be conducted would be different. This change in content and context would change the structure and organization of the classroom behaviour and interaction.

There is some *pre-determined pattern* in the interaction between the teacher and students. The class has a beginning which progresses towards a middle and then towards

conclusion or the end. The teacher follows some pattern to carry out the lesson. This pattern or process is *systematic* such that there is some interactional routine. The everyday classroom would begin with the teacher settling down the students for the initial few minutes, followed by some introduction of the lesson, then the main crux of the lesson towards the conclusion. Thus, classroom interaction is *directive* and *purposive*. Communication plays an important role to help teachers and students reach this purpose.

Teachers largely have a communicative task. However, they are only trained to 'talk' about the subject, rules and regulations of the school. They mostly lecture continuously during the class period only stopping once in a while to question students. Communication is mostly one-way linear process marked by words. Put simply, most of the teachers' intentional communication is through words. And this linear communication process restricts interaction between the teacher and students to teacher telling and students responding. According to Barnes (1976), this kind of linear communication in the classroom "ignores and rejects the function of speech and writing as an instrument for reshaping experience, that is, as a means of learning" (p.84). Thus, verbal communication needs to be two-way in the classroom such that it can benefit the effective learning of students as well as communication process needs to be broadened to include nonverbal communication.

There is need not only to use verbal communication differently but also to give due importance to nonverbal communication. It is not that nonverbal communication does not occur in a class. The expectations, intentions and beliefs of the teachers and students show through their nonverbal behaviour. A head nod by the teacher probably means approval whereas looking away or a long period of eye contact indicates disapproval or disinterest. Shifts in voice tone also help the teacher to mark important information from not so relevant information. Sometimes teachers intentionally use nonverbal cues to make their point clear, lesson understood and presence felt to the students in the classroom. Students also use nonverbal communication to indicate attentiveness, interest and boredom. Looking towards the teacher and maintaining an eye contact would indicate attentiveness whereas turning pages of the book and covering ones' face with the hands would indicate boredom. The teachers and students use different nonverbal

behaviour in different situations in order to communicate with each other. The nonverbal behaviour of teachers and students, thus, forms an important aspect of classroom communication. But it needs to be recorded and analyzed systematically. The present study is an attempt in this direction.

Efforts have been made to systematically investigate classroom communication. Unfortunately, they have largely been restricted to oral and written communication. Despite the prominent role that nonverbal behaviour plays in the process of communication it has been largely ignored by investigators. There have been recent efforts made in the direction of exploring this phenomenon. However, very few studies have considered the nonverbal communication in the classroom. Further, there are no studies conducted in the Indian classroom setting.

There are studies which have investigated nonverbal communication in children and have also traced its *developmental pattern*. However, there is still a paucity of research in nonverbal communication among school-aged children (Evans & Rubin, 1979). The literature of child development reveals that most kinetic cues appear at an early age and follow distinct patterns (Burgoon & Saine, 1978). Wolff (1972) (cited in Burgoon & Saine, 1978) proposes three stages in the development of kinesic behaviour. The first stage is termed *instinctive phase* which occurs immediately after birth during which babies have instinctive behaviours like crying, smiling and even use gestures to maintain their balance. Children in this phase also develop autistic gestures which are directed towards the self. They imitate the behaviours of others at the age of two months. In the next phase, the *emotional phase*, the child develops differentiated emotional gestures and body language to display emotions. The third stage is the *objective stage* which occurs at the age of six years. In this phase, the child finally develops illustrators, regulators and emblems, the gestures that are related to thought. A fourth stage which overlaps the emotional phase has been added to these stages by Burgoon and Saine (1978). This fourth phase called the *social-interactional phase* suggests that children in the first three years develop different behaviours those are *interactive* in nature as children are observed to interact with other children and adults.

In one of the rare studies on nonverbal communication in school aged children, Evans and Rubin (1979) investigate the hand gestures of school aged children while

verbally explaining game rules to the experimenter. The study reveals that all children in the experiment expressed the rules of the games with accompanying gestures. More specifically the experiment points out that the kindergarten children rely considerably on hand gestures to convey the game rules whereas the older children form more verbalizations which were adequate in themselves. The findings in general indicate that hand gestures are facilitators of communication as they supplement the verbal communication. Kendon (1983) cites four studies that give consistent results regarding the use of hands by different age groups of children. All the studies indicate an *increase in gesticulation with age*. These studies contradict the investigations of Evans and Rubin (1979). However, the studies cited by Kendon (1983), show that there are important changes in the *kinds* of gesticulations used by people at different ages and their relationship with speech. The studies noticed a shift from gestures being used for elaborate enactments towards more precise coordination with speech as gestures are used selectively with increasing age. The studies also showed that there is an increase in the use of abstract, discourse-related gestures with age and iconic gestures become more symbolic and restricted in the meaning it is used to display.

Gestures have been studied in the classroom setting to understand their implications for *conceptual learning* by children. Roth and Lawless (2002) propose a perspective having essential implications for learning of children. They state that students enact metaphorical gestures in the presence of material objects which give meaning to the abstract nature of these objects. The metaphorical gestures, thus, constitute a bridge between the experience in the physical world and abstract conceptual language. The relationship between speech and gestures also form an important part of Roth and Lawless (2002) investigation, indicating its importance in conceptual development of scientific language. They state that metaphorical gestures occurred more frequently in the beginning of the explanation of a concept but decreased in frequency as students' competency to verbally articulate the concept increased. This suggests a developmental sequence. It also suggests that speech and gestures are generated by one underlying semantic model also proposed by McNeil (1985).

Also agreeing with McNeil's (1985) formulations, Goldin-Meadow, Alibali, and Church (1993) state that gestures are a sensitive index of the child's conceptual

knowledge and provides the adults with a mechanism by which they can regulate their inputs to the child's level of conceptual understanding. They argue that the thoughts conveyed through gestures are not always the same as those conveyed by speech and this leads to *gesture-speech mismatches*. These gesture-speech mismatches are caused by the *transitional knowledge state* whereby two beliefs, one in gesture and the other in speech, are simultaneously expressed on the same problem. They also note that the gesture-speech mismatches caused by the transitional state indicate that the child is ready to learn. The authors conducted extensive experiments that show that the mismatches between the gestures and the speech of a child not only indicates the transitional state but also provides a measure of the zone of proximal development as formulated by Vygotsky. The results of Goldin-Meadow, Alibali, and Church (1993) experiments suggest that the children who are in the transitional state are likely to simultaneously produce multiple hypothesis on a concept.

Both the studies cited above have special relevance for the present study of nonverbal communication in the classroom setting. The nonverbal behaviour of students in the classroom, if noticed and analyzed by teachers, can provide a vital yardstick of the students' conceptual understanding.

In the past few years studies in the field of ecological psychology have attempted to unravel the influence of the school environment on participation, learning and adaptation of the student. In the present study emphasis has been laid on understanding the physical environment and the layout of the classroom.

Environment has such an impact on the humans that it affects the way they feel and act. The school environment all over the globe has been criticized for being "traditional", "dull" and "prison-like". Burgoon and Saine (1978) cite studies regarding the way environment influences social interaction and participation. The results of all the studies were consistent: that *people performed better in attractive environments*. Burgoon and Saine argue that most people tire of schools easily because "classrooms we have seen would clearly qualify as ugly environments" (p.106). Tanner and Langford (2001) report that 95% of those interviewed believed that school interior design is important for creating a good learning environment.

According to Jones (1995) the size and shape of classroom, halls, and playground can facilitate or inhibit the scope of activities in the school. Certain activities not only require space but also specific topography or layout. Therefore, it is important to determine the space requirements of the classroom. The author state that even if the physical environment does not determine the children's play or social preferences but it can lead to frustration and boredom on the one hand or a richer childhood experiences on the other. Further, the author mentions that the way the teacher organizes the classroom indicates what she wants to achieve and her *beliefs* about the learning process. A study by Getzels (cited in Jones, 1995) notes the expectations from the learner that are implied in different classroom arrangement. In the traditional classroom with chairs in rows and columns with teacher's desk in the front, according to Getzels gives the notion of the learner as an empty organism who must be taught. In the seating arrangement where the chairs are moveable and the teacher's desk is in one corner conveys that the learner is an active collaborator in the learning process. In the classroom where the chairs are placed in a circle and the teacher's desk is absent indicates the image of a social learner, who learners from peers. The last arrangement described by Getzels is the open classroom which comprises of several activities and resource centers reflecting an idea of an organism which learns from exploration.

Studies have revealed that classroom arrangement can enhance or depress classroom interaction (Burgoon & Saine, 1978). Becker et.al. (1973) indicate a relationship between seating arrangement and learning. They found that course grades decreased as students distance from the teacher increased. According to Jones (1995) such findings indicate that the classroom space is divided into different zones in which people behave differently. Observations have shown that in the row and column arrangement students who sit in the front centre seats participate more and get better grades than the students in the side and back seats. Sommer (1969) (cited in Jones, 1995), also explored the various qualities of different seating positions. In brief, he noticed that, in the traditional seating arrangement, the front centre seems to be the action-zone in which teacher and students' interaction is concentrated. This he attributes to the *eye-contact hypothesis* according to which the occupants of the front row and sides have a clear view of the teacher and therefore they interact more. However, Jones (1995) also cites studies which

reveal that when students are allocated seats the relationship between participation and location is not there.

These findings help to understand a number of issues relevant to the communication process. Firstly, nonverbal communication by the use of body, voice, space and other channels occurs in the classroom. Therefore, it is very important to systematically study the phenomenon. Secondly, and related to the first point, the seating arrangement, furniture and other artifacts in the classroom influences activities of the classroom. This has important implications for the administrators, planners, teachers and researchers.

SUMMING UP:


Theoretical perspectives and the findings of empirical investigations on nonverbal communication are synthesized below.

- Firstly, nonverbal communication has a significant functional value in interaction as it leads to a process or flow in the interaction. Nonverbal behaviour is symbolic and members of a particular culture share these symbolic codes. Different forms or “channels” of nonverbal behaviour like body movement; gestures are simultaneously used by individuals to communicate with each other. In addition, the interactional synchrony or the rhythmic movement and speech of the participants in conversation are an important characteristic of all human interaction.
- Secondly, the meaning or the interpretation of the nonverbal cues arises in the process of interaction between the individuals. Thus, nonverbal communication is a process that is ongoing, continuous and non-linear. It is also patterned, systematic, organized and structured. There are some rules and signals governing the turn-taking pattern in a conversation. During this process certain nonverbal cues are used intentionally but largely they are unintentional and automatic. This process of interaction occurs in a context and is sustained in a context. Therefore it is important to the nature of the context and its relationship with communication. Further, in face of a problem or a barrier in communication which leads to disruption in interaction, participants rely more on the nonverbal cues than words, in order to negotiate or proceed with communication.

- Thirdly, nonverbal communication is related to verbal communication and the nature of relationship between these components of communication is complex and requires further investigation.
- Finally, nonverbal behaviour of the students can be used by teachers as an essential indicator of conceptual understanding. Although very few studies have been done in the classroom setting, they have important implications in understanding the nonverbal communication in the classroom. The nonverbal behaviour of students can be used to understand their intentions and expectations, especially when words or verbal behaviour is restricted or cannot be used. The relation between speech and gestures (and other nonverbal cues) that has been investigated by few can be utilized to know the students' current understanding of a particular concept as well as its developmental understanding. The nonverbal behaviour can also be a vital indicator of expectations, instructions and liking of the teacher towards the students. Along with this the inputs provided by ecological psychologists in understanding the classroom environment have significant implications.

This current state of research points out lack of sufficient studies of nonverbal communication in general and nonverbal communication in the classroom setting in particular. The current researches are limited in a number of ways. They lack methodological rigor as investigators emphasize either on the individual nonverbal acts or the interaction in which they occur. Both these aspects have rarely been looked at together. The studies are also restricted to certain specific social interactions and investigators till date have almost completely missed out an in-depth analysis of classroom nonverbal communication.

CHAPTER 2

A grayscale image of a handprint, showing the fingers spread out, serving as a background for the chapter title.

RATIONALE and OBJECTIVES

The present study is an attempt to understand the process of nonverbal communication between the teacher and the students in the classroom setting. The theoretical perspectives and the review of literature discussed in the previous chapter indicate the communicative significance of nonverbal interaction. Nonverbal communication provides important insights into the process of communication. When words are unable to express ones feelings, intentions or expectations, the nonverbal modality is able to address them. The importance of nonverbal communication in an interaction has also been reported by researchers. It provides a flow or a rhythm to the interaction process. Thus, nonverbal communication has been reported to be as significant as the verbal communication in interactional processes.

However, the review of literature also indicates a lack of systematic research to understand this complex phenomenon. The efforts to unravel nonverbal communication have been relatively recent. The field of study also faces varying methodological challenges. It has been difficult to record nonverbal behaviours and to analyze it systematically. The two major research categories in which the studies on nonverbal communication have been divided into either focus on the *individual* or the *interaction*. These two categories are considered distinct and exclusive of each other. This has lead to a major scarcity of research endeavors which would understand the value of nonverbal communication for the individual *in the* interaction process itself. The study of nonverbal communication has been relegated to the boundaries of systematic investigation due to which a complete understanding of communication process is lost.

The recent efforts have also been unsuccessful in defining nonverbal communication in a manner that encompasses it as an integral aspect of the communication process and not secondary to verbal communication. Many scholars have indicated their dissatisfaction with the term *non-verbal* communication, as being referred to as a residual category to the verbal modality, particularly since the significance of nonverbal communication is well established in research. Attempts should therefore be directed towards not only defining nonverbal communication but also in formulating a definition of communication which encompasses and integrates the nonverbal and the verbal modalities of individuals.

Further nonverbal communication has rarely been studied in the classroom setting. The most important task of the teacher is to communicate with the students, and still the nonverbal aspect of classroom communication is completely ignored by investigators. The classrooms in the Indian school settings are the least studied. I did not come across a single research devoted to understanding this phenomenon in the Indian classroom. Thus, it is necessary to understand and analyze systematically the process of nonverbal communication in the Indian classrooms. Analysis of the process of nonverbal communication in classrooms is essential for effective classroom management and to accelerate the process of learning of students in the classroom.

Keeping in view the dearth in research of this valuable aspect of communication process, the present research is an attempt to explore nonverbal communication in an Indian classroom setting. The study attempts to explore the nature of nonverbal interaction between the teacher and student during the teaching-learning process. The pattern of nonverbal communication and its functions in the beginning, middle and end of the class period are identified.

The pedagogical activities in each class period are different because the class periods differ in content, context and structure. The difference in content or the subject matter require different teaching practices, therefore, the nature of nonverbal communication is also different in classroom settings. Each individual teacher has a different way of teaching which is identified in different class periods. The various class periods also have different environmental settings like the physical education class periods take place in the playground whereas the science class periods take place in a classroom. The functional value of nonverbal communication between the teacher and students in these different structural layouts are explored in the present study. By observing the nonverbal communication in different class periods an attempt is made to identify the ways in which the nonverbal behaviours vary in different contexts.

The objectives of the present study are discussed below.

OBJECTIVES

There are two broad objectives of the present study. They are as follows:

- 1) To explore the nature of interaction between the teacher and students in a classroom and the kind of nonverbal signs or cues they use during this interaction. More specifically, this study seeks to:
 - Identify the broad patterns in nonverbal communication between the teacher and students in the classroom interaction,
 - Identify different patterns and functions of nonverbal behaviours of the teachers and students in the beginning, middle, and end of the class period,
 - Explore the functional significance of different nonverbal behaviours in the *context* of their occurrence,
 - Identify the nonverbal signs that are used intentionally and also unintentionally by teachers and students to convey information, meaning, expectations etc.
 - Observe the nonverbal signs used by the teacher and students in the process of turn-taking in speaking and listening,
 - Identify the disruptions and barriers in classroom communication and the teacher-student nonverbal communication during these disruptions.
 - Attempt to describe the nature of the relationship between the verbal and nonverbal components of communication in the classroom. The relationship is explored during interactional synchrony between the teacher and students, that is when the flow of movement of the listener is rhythmically coordinated with the speech and movement of the speaker (e.g. during a classroom discussion or when students are completely attentive).
 - Analyze the conceptual understanding of the students' by exploring their gesture-speech mismatches and if the teachers use these nonverbal signs as an index of the students' understanding during a class.

- 2) To explore the nature of nonverbal communication in different class periods e.g. in the academic classes and the extra-curricular classes. An attempt is made to identify the various

nonverbal behaviours used by the teachers and students in these different contexts and how the context augments various nonverbal behaviours.

In the present study the emphasis is on observing, describing and understanding the functional significance of various forms of nonverbal communication in classrooms. Therefore, there are no *apriori* expectations or hypothesis as to the nature of nonverbal communication. The functional value of nonverbal communication is explored in the context of classroom interaction. The study is an exploratory attempt to develop and systematize the techniques of analysis of nonverbal communication in the classroom and use the data-base for understanding the pattern of classroom interaction and communication between students and teachers.

CHAPTER 3

METHOD

The present study was conducted in a classroom of a co-educational public school in South Delhi. A number of schools were approached and this school was open to the idea of a researcher being present in the class for observations. The low student-teacher ratio of the classroom also made it easier to record details of the nonverbal communication in the classroom. Given below is an elaborate description of the class observed for the present study.

SAMPLE

The class (VI B) consisted of thirty students both boys (19) and girls (11). Out of the nineteen boys, two boys were handicapped. One boy had a hearing impairment and the other had speech impairment due to mild mental retardation. The school believed in the inclusive system of school education. In most of the class periods both these students were not present as they were taking independent guidance from their special educator outside the classroom. Whenever they were present in the class they were assisted by special educators. These two students, however, sat amongst the other students when they were in the class.

The students were taught different subjects by different teachers. There was one class teacher who was also assisted by a co-class teacher. For this particular class both these teachers were females. The shape of the classroom was not a square or rectangle but an octagon. This resulted in a very different set-up from the regular or traditional classroom. The structure of the classroom is shown diagrammatically (Figure.1). The figure also gives the details about the fixed and semi-fixed features like the blackboard, lockers, windows etc.

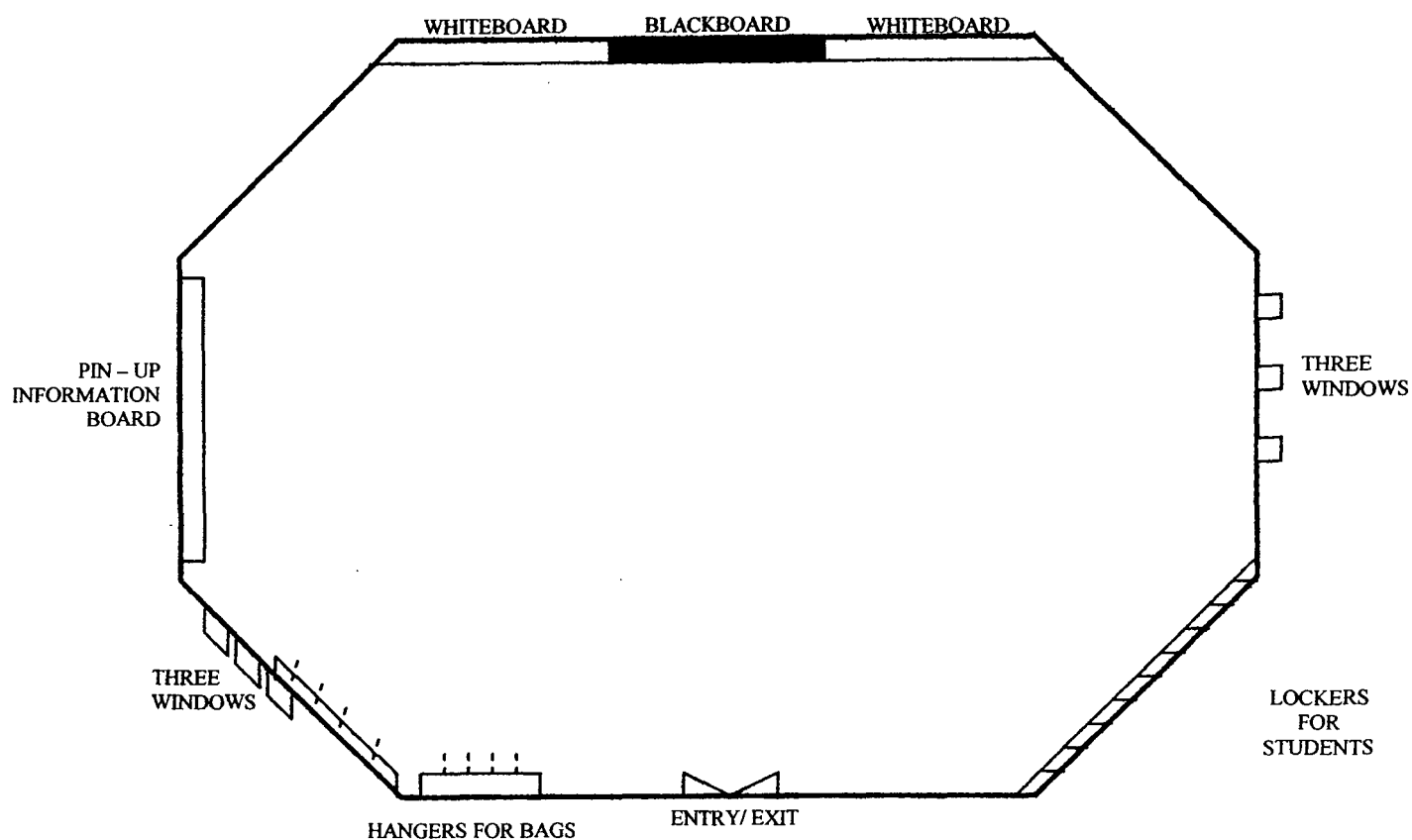


Figure 1: The Shape and Structure of VI B Classroom

For the purpose of the present research the classroom is divided into zones or segments. First, it is divided into three zones, namely: *front*, *middle* and *down* (horizontally) (Figure 2a). Each horizontal zone is further divided into three zones (vertically) (Figure 2b). They are *left corner*, *centre* and *right corner*. Therefore, there are *nine zones* in all (Figure 2c). These nine zonal differentiations of the classroom helped in the analysis of a number of aspects of interaction between the teachers and students.

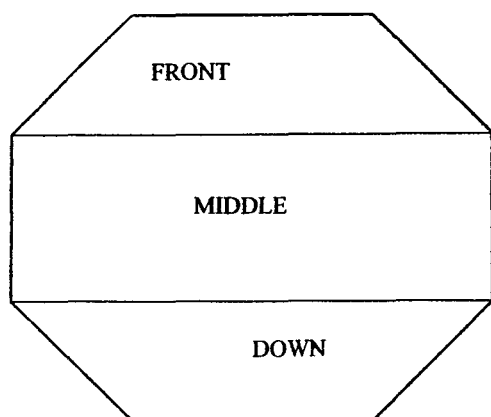


Fig 2(a)

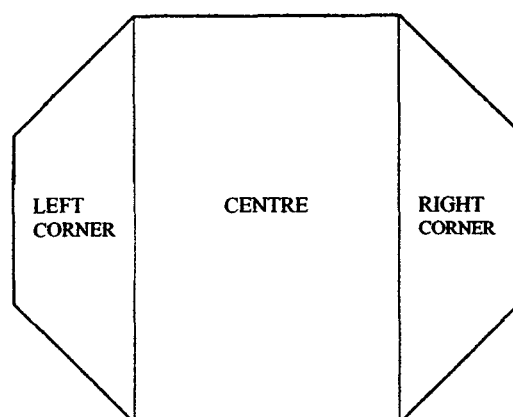


Fig 2(b)

- 1 – LEFT FRONT CORNER
- 2 – FRONT CENTRE
- 3 – RIGHT FRONT CORNER
- 4 – LEFT MIDDLE CORNER
- 5 – MIDDLE CENTRE
- 6 – RIGHT MIDDLE CORNER
- 7 – LEFT DOWN CORNER
- 8 – DOWN CENTRE
- 9 – RIGHT DOWN CORNER

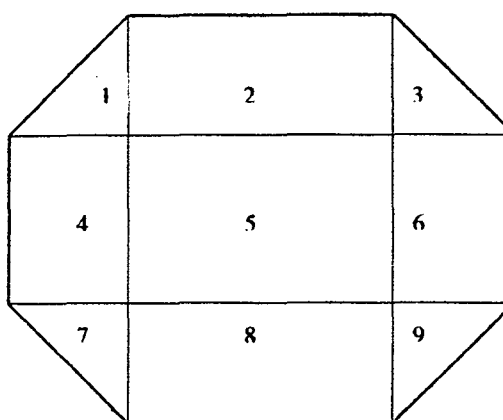


Fig 2(c)

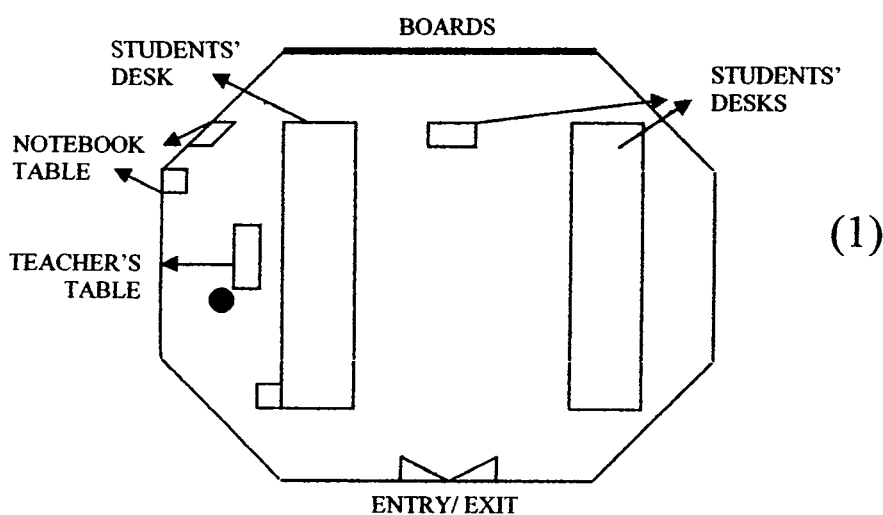
Figure 2: Indicating (a) Three Horizontal Zones, (b) Three Vertical Zones, and (c) Nine Zones of the Classroom.

The class teacher and the co-teacher assigned the seats to the students in the classroom. The seating arrangement was changed every two to three weeks by the class teacher or on the request of some other subject teacher and also on the request of the students. The furniture used in the classroom was easy to move. The tables or desks were made of light wood and were cream in colour. Each student had one desk to himself/herself and the desk had an inbuilt storage space like a drawer without a cover. The chairs were yellow plastic chairs. All the chairs and desks were same so that there was uniformity. Besides the furniture for the students, there was a desk for the teachers.

The desk that the teacher used was similar to the ones the students used in colour and material; however, it was bigger in size and had an inbuilt side storage space. The teacher's chair was also the same plastic chair as used by the students; however, it was red in colour. The room also consisted of two slightly bigger desks which were used by the students to submit their note books and worksheets. There were also small wooden steps that could be used by the teacher or the students to write something high up on the black board or white board. The lockers for the students were built in the wall and matched in colour with the desks. Thus, the room was carefully colour coordinated and was also well equipped.

I made sure that my seating position in the classroom did not disturb the process of teaching. An attempt was made to make myself as less conspicuous as possible. I sat near the teachers' table which was placed in the corner zones; therefore, I was out of direct sight and interaction of the teacher and students. The diagrams below also indicate where I placed myself in the classroom.

The classroom arrangement was changed thrice during the data gathering process during which the students and teachers desks and chairs were moved to form a different seating arrangement. These three arrangements are indicated in Figure 3 given below.



(Figure 3 continued...)

(Figure 3 continues)

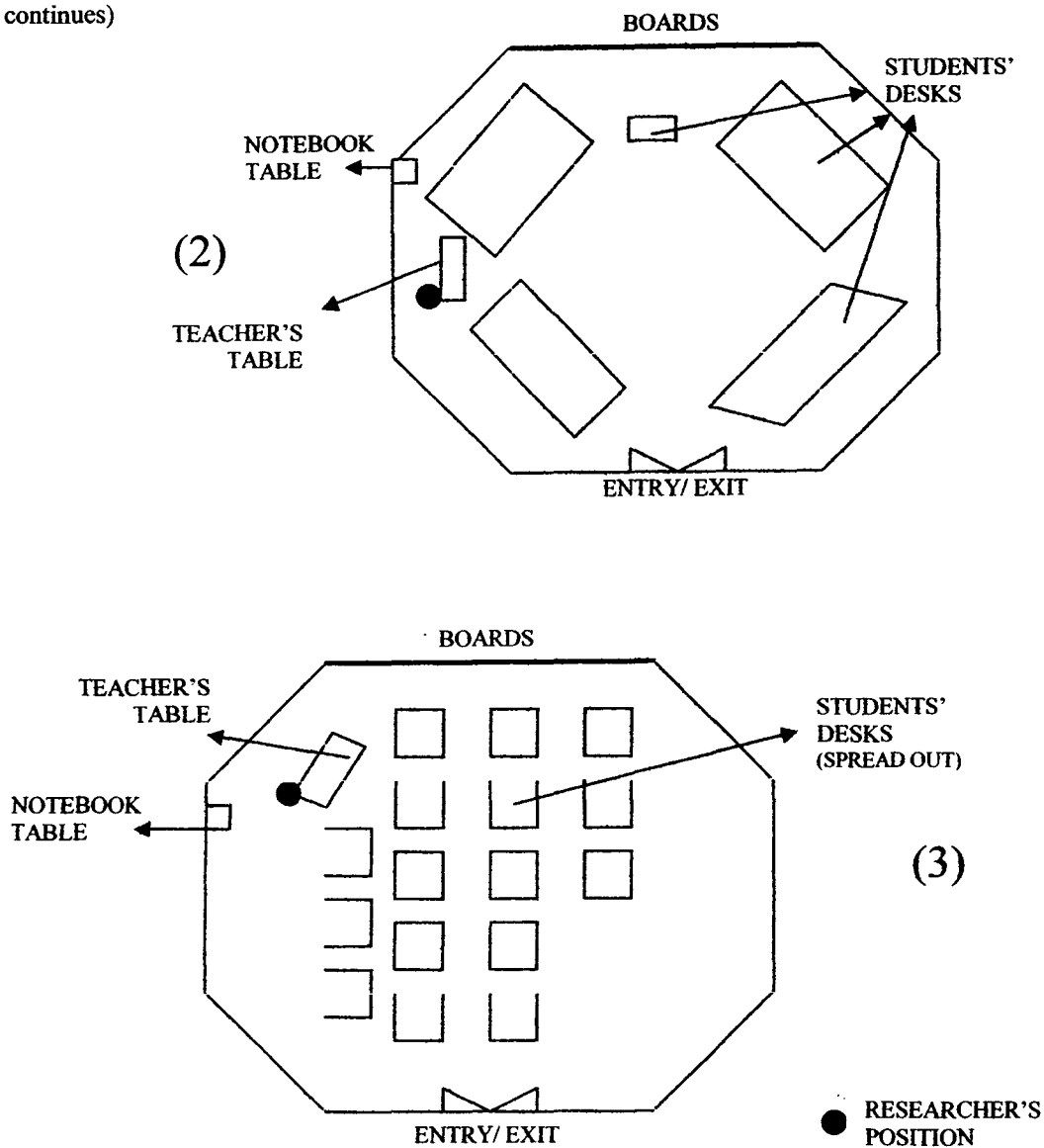


Figure 3: The Three Different Seating Arrangements Changed During the Span of Observation.

The particular classroom that was studied existed close to the other sections of the sixth standard. All together the different sections (three sections: A, B, C) formed an alcove. The class teachers of the entire sixth standard had their lunch in the alcove

during the lunch break. This created an informal environment of interaction between teachers and students of different sections. This also made it easy for the students to see their teachers as facilitators, friends and also their guides. The teacher got the opportunity to know the students outside the constraints of the classroom.

TOOLS

Non- participant observation of the sixth standard classroom for an extended period of time was used as a method to meet the objectives of the present study. This involved being in the classroom and recording nonverbal communication through taking extensive notes. I took a notepad to the classroom to record the interaction and notes were taken simultaneously. I used my wrist watch to time the beginning, middle and the end of the class periods. No other device, video or audio was used for recording. For the purpose of the research, two types of class settings were selected. These class settings are different with respect to the content, context, and structure. The first type can be termed as academic, and I observed Math, Science and Social Studies class periods. The second type included the extra-curricular class periods: Drama, Sculpture, Physical Education, and Literature in Action. The academic classes that were observed took place everyday and few other extra-curricular class periods were also allotted in the daily timetable. I sat in only those class periods that are specified above. Few class periods took place one after the other but sometimes there were gaps and then I sat outside the classroom. I attended ten math class periods, ten science periods, and six social studies period for the entire observation time period. Ten class periods of the extra-curricular periods were also attended. The entire observation period in the school lasted for one and a half months. More time period was not granted by the school as the students were required to prepare for the term examinations.

During observation and simultaneous recording I used drawings, figures and diagrams to record the nonverbal communication of the teachers and the students. Diagrams were made of the classroom space and the movement of the teachers and the students in the classroom during the initial, middle and end of the classroom was marked on the diagram by different colour pens. Figures of the teachers' and students' posture,

body orientation and hand movements were also made during recording. Short forms for few words like teacher (t), blackboard (bb), students (Ss), teacher table (tt) were used.

On my first day in the school I was introduced to the class teacher by the psychology teacher of the school. She told the class teacher that I was interested in understanding the classroom interaction and would be present in the classroom for observation during few class periods. I was introduced to all the students by the social studies teacher during her class period. She mentioned to the students that I was there to observe what happens in classrooms. Specific details of the study were not provided to them.

I also informally interacted with the teachers and students in order to understand their beliefs and strategies of being in and conducting a class period. During these informal interactions I spoke casually with the participants and asked questions in the most non-threatening way. The questions were not pre-determined but followed from discussion with the teachers. I asked the teachers how their class period went, did they complete what they wanted to, which other classes did they teach, what were their experiences of teaching in that school. Initially the informal interaction helped me to form a rapport with the teachers and the students such that my presence in the class was not considered as disturbing. With time the teachers also asked me specific questions about my research, if I was getting enough data, what were my findings and if I would be telling them later. By casually describing the objectives of the present study to the participants, I tried to open all the channels of data gathering. No specific findings were disclosed to the teachers as I believed it might alter their behaviour in the classroom but few observations were shared with them like the abrupt ending of the class periods.

PROCEDURE

For an extended time period I observed the same section (VI B) of the sixth standard of a co-educational public school. Different class periods were observed and extensive notes about the nature of interaction and the nonverbal communication between the teacher and the students were recorded on a notepad simultaneously. Non-participant observation was considered appropriate for the present research work. Keeping in view the objectives of the present study the researcher attended class periods

that were different in content, context, process and structure. The two types of class periods attended were broadly classified as academic: math, science and social studies and extra-curricular: sculpture, physical education, drama, and literature in action. In the classroom I placed herself in a relatively less conspicuous area most non-invasive to the students and the teacher as I stayed out of the direct interaction between the teacher and students. At the same time, seating where the teacher and the students were visible. I entered the classroom before the teacher and left only after the teacher left.

In the initial observation phase I recorded all possible details of nonverbal communication and the sequence of events that took place in the classroom. Later, after spending some time in observation, certain routines and patterns became apparent and note-taking usually revolved around these broad patterns. Those nonverbal behaviours of the teacher and the students that formed a part of the organization or structure of communication were recorded. I attempted to capture the communicative value of the nonverbal behaviours of the teacher and the students. Nonverbal behaviour which was most frequently used by the teachers and the students and its context which provided the meaning was also noted. At the same time, the anything unusual that happened during the class period was also noted. With time the researcher also used certain short forms while taking notes (e.g. B.B for black board). Stick figures were also drawn to describe the posture, head, arm orientation of the teacher and the students. The direction of the eye gaze or movement or gesture was indicated by the use of arrows. I also extensively used diagrams to represent the structure and shape of the classroom and also the use of space, furniture etc. in the classroom. These extensive notes taken during observation also helped later analysis of the data. The notes also helped me to see the gaps that were not understood and the informal interactions beyond the class period helped to fill-up these gaps. For instances, I could not understand why the class period ended without any conclusion by the teacher, and during the informal interaction the teachers revealed that they often did not complete what they had planned doing in the class resulting in an abrupt and sudden ending.

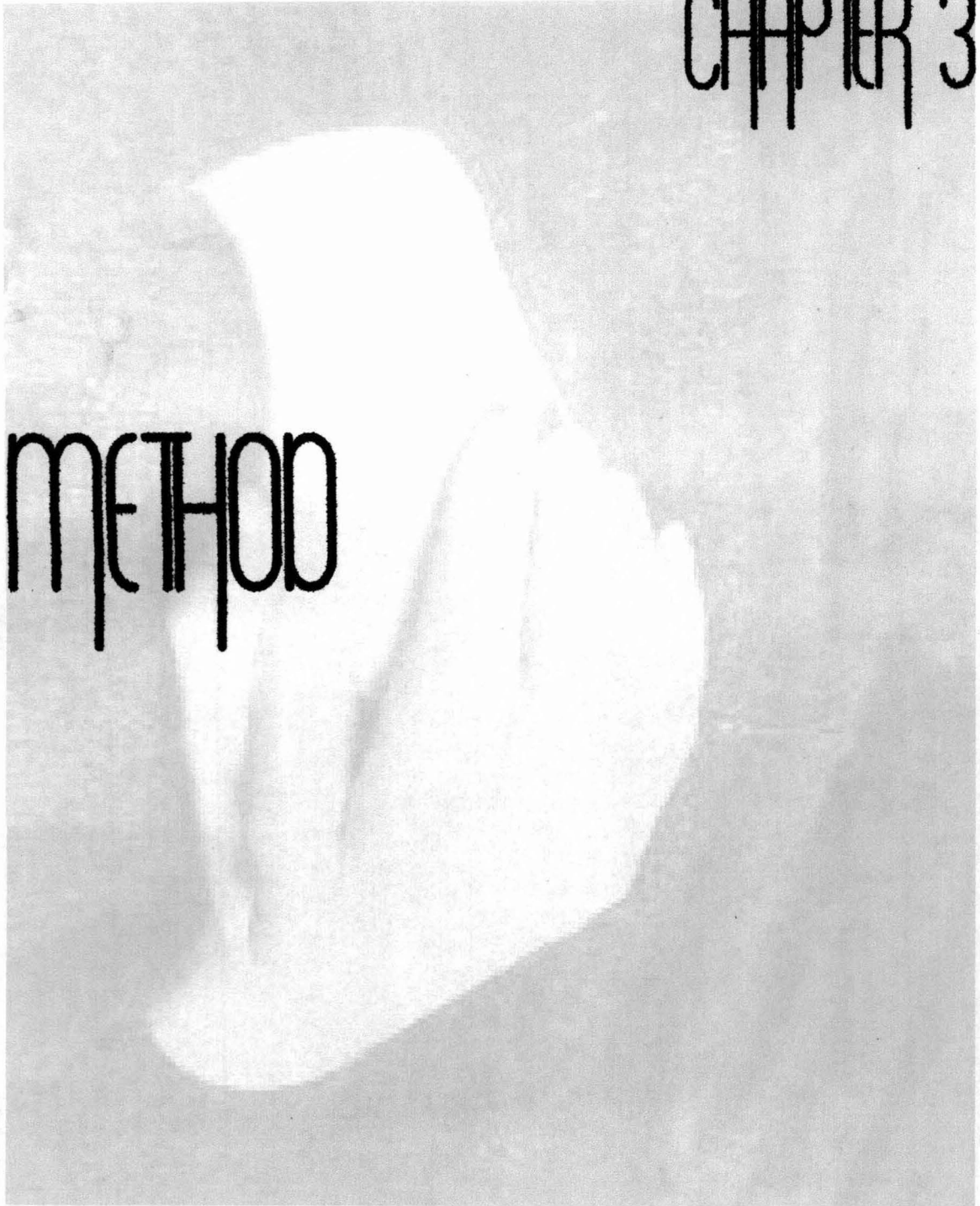
During this one and a half month of observation I also got a number of opportunities to informally interact with teachers and students outside the classroom. This interaction mostly occurred during lunch breaks and in-between class periods. It was not a

structured and a pre-determined interaction rather it was casual and informal. It provided a pool of data about the beliefs and strategies of teachers and students that they take with them to the classroom.

The observational data is presented systematically later in the chapter on analysis, in which an attempt has been made to decipher systematic patterns in the use of nonverbal behaviour by the teacher and students during their interaction. These patterns would later be interpreted in view of the objectives of the present study and in the light of the review of literature.

CHAPTER 3

METHOD



In the previous chapter the features of the class that was observed in the present study were described in detail. The class under study is the *context* in which the communication in general and the nonverbal interaction between the teacher and students in particular is placed. The meaning of the nonverbal communication between the teacher and the students is also derived from the classroom context observed in the present study. An attempt has been made in the present chapter to analyze the observed pattern of interaction between the teacher and the students in various class periods.

ORGANIZATION OF THE CLASS TIME

Each class period was for precisely 42 minutes. It was observed that in the initial few minutes (10-12 minutes) of the class period the students and teachers settled down, which was followed by a phase when the lesson or the content was taught by the teacher and then the class period ended when the bell rang. In order to decipher the patterns and routines in interaction during the class period, the classroom interaction has been divided into *time phases*. The time phases will help to understand the process of interaction in the initial, middle, and end of the class time period. These time periods have only been divided for the purpose of convenience and they are not exclusive of each other. One phase flows into the other and the transition from one phase to the other is not abrupt. The transformation from one time phase to the other is also important and an attempt would be made to describe the transformation in the process of analysis.

TABLE I: The Three Time Phases of the Class Period.

<i>PHASE</i>	<i>TIME</i>	<i>ACTIVITIES/ROUTINES</i>
Initial settling down	First 10-12 minutes	The teacher settled down. Children were distracted. Teacher settled down the students.
Middle phase	Next 30-35 minutes	The process of teaching and learning took place.
Last phase	Last two minutes after the bell rang	The teacher gave last few instructions. The students talked among themselves and moved around.

The following description is an attempt to explore the classroom processes in the academic class periods that were observed (science, math, and social studies). The interaction observed during the extra-curricular classes is also discussed under another section.

Phase I: Initial settling down

In the 42 minutes of class period the initial 10-12 minutes was utilized by the teachers and students to settle down in all the class periods. These 10-12 minutes can be broken down further to better understand the processes that took place during this period. This data has been shown by a table below.

TABLE II: Activities in the Initial Time Phase of the Class Period.

<i>TIME TAKEN</i>	<i>ACTIVITIES</i>
First two minutes (2 minutes)	The teacher placed her books-took time to settle down. The students talked among themselves and moved around
Next five minutes (5 minutes)	The teacher stood in the front zone, called out the names of the students moving around, talking and made them settle down.
Next five minutes (5 minutes)	The teacher gave instructions about the material needed in the class period, about the H. W. etc.

Before discussing the activities in specific class periods and the nonverbal communication between the teacher and the students in different classes, the broad routines that were observed in all the academic class periods are described. During this initial phase of 10-12 minutes nonverbal communication was functional in settling down the teacher and the students. There were some broad patterns that were observed in their nonverbal behaviour irrespective of the subject that they taught. The teachers usually gesticulated using their hands and fingers to *point* at the students moving around or to put their *fingers on the lips* to indicate the need for silence and discipline in the classroom. The teacher also used her eyes to communicate a lot to the students. An *extended eye*

gaze towards any student would give him/her the indication of the teachers' annoyance and the need for silence in the classroom. When the teacher made such an extended eye gaze the students lowered their eyes or looked away and settled in their places. The students could usually make out when an extended eye gaze or eye contact became a stare and what it meant for them. Few students who avoided the teacher's eye gaze continued with their disruptive behaviour. This gave the teacher an indication that the student was still distracted and then she individually addressed the students and asked them to settle down in their places.

Sometimes the teacher verbally asked the students to look at her or face her such that she could give further instructions. Students who did not look at her helped her to realize that they were still distracted. When they were attentive to the teacher's presence in the frontal zone, their bodies were also oriented towards that zone.

In these initial 10-12 minutes both the teachers and the students used the space in the classroom differently (Figure 4). The teacher was mostly present in the front zone and moved from the left front corner to the right front corner. Her physical location in the front zone of the classroom space signaled the beginning of the class period and more serious and focused interaction. This is also the zonal area from where the teacher could see all the students and the students could also see her. Unlike the use of space by the teacher in these initial few minutes, the students would remain closer to the exit, which was, in the down centre zone, left down corner or even in the middle centre zone where it was easier to form group and interact among themselves. This way they were also physically as far as they could get from the teacher who would be standing in the front of the classroom.

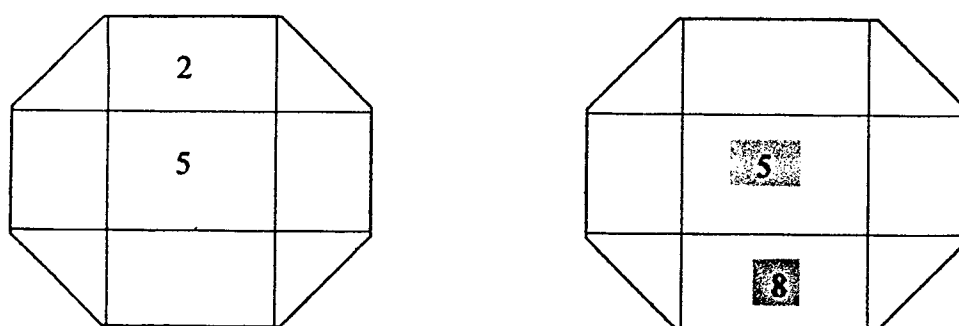


Figure 4: The Use of Space (a) by the Teacher, and (b) by the Students in the Classroom during the Initial Phase of Settling Down.

Besides seeking to control student behaviour through her eye contacts the teacher also *modulated her voice* to signal the need for discipline. She talked loudly and slowly with an increased pitch such that the instructions that she gave were clear. Talking louder than the students was a deliberate strategy to invite students to attend to her. Sometimes, the teachers' *silence* also worked. The teacher stood in the front centre of the classroom, leaned backward on the black board, looked towards the students and remained silent for few seconds. When the students noticed that the teacher was silent, they became attentive and looked at her. They sat in their place and looked at the teacher. This indicated that they were ready for the lesson. Therefore, even during this initial period the teachers and the students interacted with each other using nonverbal behaviour. Even though the nature of interaction during this period was not that of one-to-one interaction or question and answer between the teacher and the students, it had a pattern which was systematic and predictable. This initial phase was a progress towards the phase where the teacher and students would involve themselves in learning of concepts.

The initial 10-12 minutes are further divided into the first two minutes (2 minutes), five minutes (5 minutes) and the next five minutes (5 minutes). The minute divisions of the initial time phase (10-12 minutes) helps to delineate clearly the specific patterns in nonverbal communication that occurred during the process of settling down. As can be inferred from Table II above the first 2 minutes of the class period were very chaotic. The students during this time period talked among themselves and most of them moved around. The boys moved around and there was some physical interaction as they pushed, touched and ran behind each other. Girls sat together and talked among themselves. Students were also observed going outside the classroom to the toilet to refresh themselves. If the students wanted to go outside the classroom to the toilet or somewhere else, even to meet other friends, they did not take the permission of the teacher present in the classroom. Interaction between students during these small breaks between class periods was not discouraged. It was observed that the teacher after entering the classroom also took the first 2 minutes to settle down. She took out her books and other required material for the class period. During these few minutes (2 minutes) there was less interaction between the teacher and the students because the teacher was placing

herself in the class and the students were still taking time to come out of the previous class period. A diagrammatic representation of the way the classroom was during these two minutes is given below.

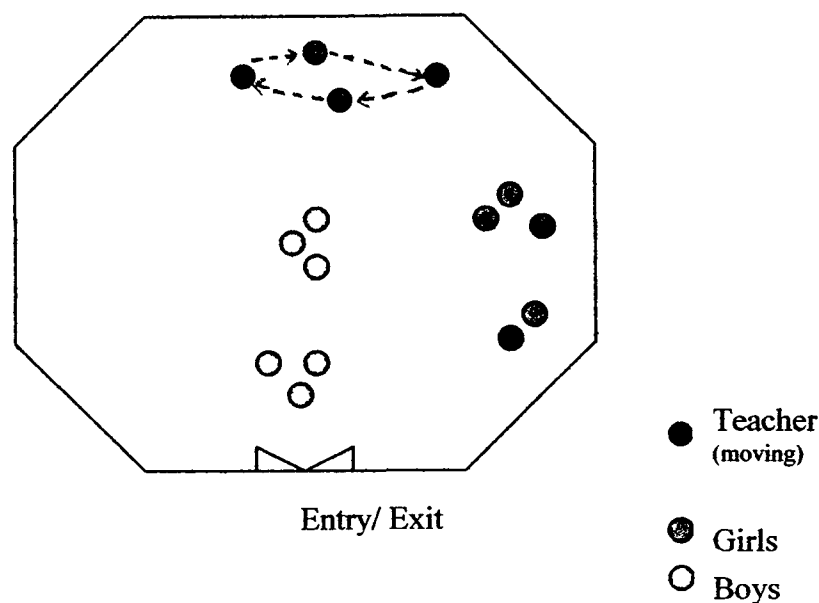


Figure 5: Use of the Classroom Space by the Teacher and the Students in the First 2 minutes of the Period.

The teacher's presence was felt by the students when she stood in the front zone of the classroom after two minutes of entering the classroom. Even after these two minutes few students (around 8- 10 students) moved around in the classroom and the teacher then made them settle down for the lesson. The researcher observed that settling down the students took approximately the next 5 minutes. The process of settling down was observed to be different for different teachers. What was common between the teachers was that they placed themselves in the *front zone* of the classroom such that the students could see them and this strategic position was an indication that her class period has started. This was the general pattern observed in all the teachers to start the class period.

The math teacher stood in the front centre zone and looked silently at the students expecting them to wish her. Till the students greeted the teacher she constantly looked at them. The students knew that they are expected to greet the teacher, however, they

continued with disruptive behaviour. At that moment, the teacher noticed that the students were distracted, and she loudly said “good morning students” and then the students replied back by saying “good morning Ms...” in the familiar sing song way. Till the time the students did not greet the teacher properly she maintained her eye gaze towards them and did not reply back. When most students stood erect in their places and looked towards the teacher, she replied by saying “please sit down” and the students then sat down. This nonverbal behaviour of the math teacher was a routine in all her class periods.

The science teacher’s way of settling down the students was very interesting and unique. Like all the other teachers she also stood in the front zone of the classroom and looked towards the students. But what was unique to her was the ‘time-out’ sign she made to settle down the students. She placed her horizontally stretched left palm on her vertically stretched right hand which touched the left palm in the centre. Her left shoulder was bent upwards, the left wrist was also bent such that the hand was horizontal in position and both her elbows were bent in the upwards direction. It is shown here in the form of a stick figure below (Figure 6). While making this time-out sign, the teacher never covered her face by this sign. It was always at a height at which the students could see the sign as well as her expressions on the face. Sometimes when the students moved around a lot, she raised the time-out sign above her head such that all the students could see it. The sign was mostly observed to be towards the left side of her head.

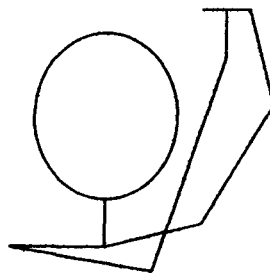


Figure 6: The ‘Time-Out’ Sign made by the Science Teacher

The science teacher acted like a game referee for the students. There were times when she just made this sign but did not say “time-out” verbally. But there were instances where the students were very noisy and she also said “time-out” verbally. The science teacher and the math teacher both in a circumstance, where the students moved around a lot in the classroom, called out their names loudly and asked them to sit in their places. This *calling out behaviour* was a routine in the math and the science class periods. Sometimes the science teacher also counted loudly from one to ten, which gave students that much of time to settle down in their places. At this point, she stretched both her arms and hands in the air and with every number that she said loudly she closed one finger. There was an instance of a particular class in which the science teacher used another unique way to make the students silent. First she made the students sit in their places and then she asked them to close their eyes and breathe deeply. She asked the students to take deep breath and in order to help them understand she did the same with them. After doing this for few seconds the students were asked to put their heads down on the table and be silent. The students were then asked to clear their tables after one minute. This was an interesting class in which the discipline was maintained by the teacher without scolding or punishing the students.

The social studies teacher after placing herself in the front centre used her eye gazes and voice modulations to discipline the students. She moved her face and the direction of her eye gaze towards where the noise would be coming from. She constantly stared at the students making noise. The students, knowing that they were stared at, looked away from the teacher or looked downwards, and sat down silently. However, this would not work for long and the students would get distracted again. The teacher would call out the distracted student’s name and ask him/her to sit peacefully. The teacher usually shouted out the students’ names such that they felt they were being scolded and their behavior was not acceptable to her.

Thus, the *calling out behaviour* by all the teachers observed was a routine behaviour to maintain discipline in the first 5 minutes of the class period.

After these five minutes of bringing the students to silence, in the next five minutes some students were observed settling down and the teacher either still standing in the front zone or in a place where all or most students could see her, gave some instructions (refer to Table I). These instructions were about previous days work, material

required for the lesson to be taught or even about other subject taught by the teacher. At this point no reference was made about the content of the lesson that would be taught in that class period. Therefore, these 10-12 mins were very chaotic because the interaction between the teacher and the students was still not clearly established. They would not talk about the content of the lesson but the time was considered as a built-up towards that. The teacher during this time did not have the full attention of the students because they were still in the process of settling down.

Phase II: Teaching and learning during the middle phase

After the teacher got the attention of the students and they were less distracted, she wrote the topic on the blackboard or white board or said it verbally. The students also wrote the topic in their note books. The attentive students looked at the teacher and their heads were oriented towards the teacher such that even when she moved slightly, the students also moved their head in that direction.

During this phase of approximately 30 minutes, the objective of the teacher is to teach the lesson according to the plan she made before entering the classroom (as was informed by the teacher during informal interaction). Most of the time was used by the teacher to impart knowledge about the concept or the lesson. Therefore, the teacher and the students interacted in order to reach this objective of the class period. There were number of activities in the class period that revolved around the objectives of teaching and learning. The verbal and also the nonverbal behaviour of the teacher and the students were directed towards this end. The way the teacher used the black board, the way she used the space, looked at the students, moved her hands etc. changed a number of times during the teaching of the lesson. The students' reactions, their attentiveness, interest and boredom also went through fluctuations during the process of learning. The varied nonverbal behaviour of the teacher and the students during this process of interaction can be understood by placing them in the context in which they occurred.

The middle phase was marked by *routine activities* that took place in all the class periods. All the teachers used the boards for teaching the lesson, to elucidate the points etc. The teachers also used practical examples and activities to teach a concept. Similarly, time was allotted for questioning and revisions in each class period. Therefore, there were activities that were common to all the class periods. There were eight activities that were

seen across all the class periods. They are mentioned here and have been discussed in detail below.

- (i) use of the boards
- (ii) practical exercise
- (iii) questioning
- (iv) interruptions in teaching
- (v) dictation
- (vi) revision
- (vii) punishment, and
- (viii) reinforcement

Teachers vary in the way they teach the students. In the class under study, the various subject teachers differed in their way of conducting the class. Routines were also observed within these activities across the various subject class periods. For instance, the way the math teacher used the black board showed some predictable patterns. In a similar way, other activities undertaken by different teachers indicated some pattern. These patterns have been discussed below under separate headings.

The use of the black board & white board

While the teachers explained the concept or the lesson to the students, they used the black board or the white board. Black board formed an important part of the classroom settings and was seen to be vital in the implementation of the lesson plan in the classroom studied. In the particular classroom under study, the black board and the white board were fixed in the wall and the front centre zone of the classroom was specifically marked for the boards. When the teacher elucidated the lesson, she moved among the students only sparingly as she remained closer to the black board and the white board. Therefore, the teacher was usually carrying out the lesson in the front zone of the classroom.

The boards were largely used to write the topic, its main premises, explain important concepts, draw figures and diagrams, and put forth questions, homework, and other instructions. It was also used to put the date, day, subject name, and names of absent students. Therefore, the boards were used for a number of purposes. Certain teachers extensively used the boards while teaching. The math teacher believed it to be a

crucial instrument for teaching mathematical concepts (reported during informal interaction with the researcher). The science teacher used it to diagrammatically illustrate concepts and the social studies teacher used it to elucidate important points. All these three teachers also used the boards differently. The math teacher wrote on the board simultaneously while dictating or explaining. She always stood sideways while writing such that the students were visible to her. The students were also more attentive as they knew that she was looking at them and their reactions while teaching. At the same time, the students rarely lost track of what the teacher said as she did not constantly turn her back towards the students to write on the board. Unlike the math teacher, the science and social studies teachers turned their backs towards the students to write on the board. The students in turn talked amongst themselves, moved around and lost track of what was being said by the teacher. When the social studies teacher wrote an important question on the board without explaining it simultaneously, most of the students did not answer because they did not understand it. This indicates a significant point, that while teaching even if the teacher does not maintain eye contact with each and every student but when she orients her body, eye gaze and facial expressions towards the students or in their direction it brings about synchronization or a rhythmic flow between her and the students which stimulates the process of learning.

Sometimes the teacher was aware that the students were distracted while she wrote on the board. For instance, when the science teacher wrote some important points on the black board facing backwards to the students and they made noise, she said, “even if I have my back towards you I can still recognize voices”. This however, did not settle the students down and the teacher had to turn around and make the students silent. She still proceeded with writing in the similar way and briefly turning around to make students quiet and explain what was written on the board.

It was interesting to note that the way the black board was used by the teachers to write and explain concepts indicated *as if* the board was divided into two halves: left and right by an imaginary line. This line operated so as to keep the teacher *oriented towards the students*. The teachers wrote on the board from the left to the right, leaving the middle portion of the board. When the teacher was on the left side of the board and wrote with her right hand she faced the students over her right shoulder. While moving closer to the right hand side of the board, she would not be able to see most of the students now falling

towards her back. Therefore, she would move to the right side of the board at almost the middle of the board and write with her right hand looking over her left shoulder to keep an eye on the students. By shifting this way from the left to right the teacher could avoid showing her back to the students and also keep herself oriented towards them (Figure 7). Besides while writing, the left and right division was also seen when the teacher would use her hands to explain what she wrote on the board. While standing on the left side of the board, the teacher would stretch her left arm and hand to point at what was written on the left side. And while standing on the right side to explain, the teacher would use her stretched right arm and hand to point at the board. In this way the teacher took all the measures to keep her oriented towards the students while explaining something.

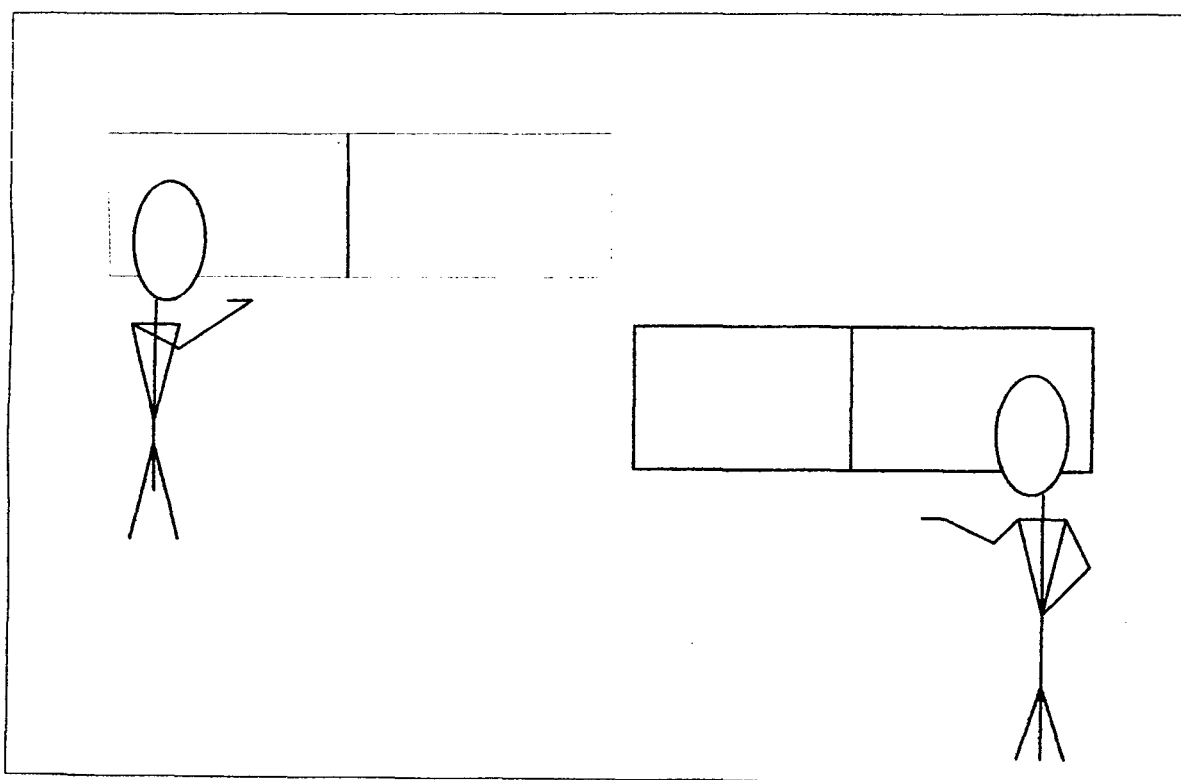


Figure 7: The Use of the Black board by the Teacher.

Practical activities & exercises

In order to impart knowledge to the students, all the teachers used activities that attracted the students' attention. To teach new concepts to the students, the teachers of this particular class carried out exercises and other practical activities. The science teacher conducted experiments, demonstrated and illustrated concept to make it

understandable to the students. The math teacher also conducted activities and experiments to make the mathematical concepts familiar to the students. The social science teacher narrated the lesson like a story to make the students' interested. During this process the teachers extensively used their hands, eyes and voice to communicate with the students. The nonverbal behaviour of the students also indicated their intention, comprehension, and reaction to what was being taught.

An instance of such a class was the math class period where the teacher conducted an activity to teach the concepts of triangles and the property of its angles. Such math class periods, where activities were carried out by the teacher were termed as the 'math lab class' and time was allotted every fourteen days for such activities. In this particular class period, the teacher stood in the front zone of the classroom, looked towards the students and asked all those who were not carrying glue stick and scissors needed for the exercise to put up their hands. After providing instructions about the required material for the task, she distributed sheets (which had a triangle drawn in black pen on them) to the students by going to each table. She asked them to put their name, class and date on the sheet. The eagerness of the students was seen in their interaction with each other and such group interaction was not discouraged by the teacher. However, when the teacher felt that the students were being noisy she asked them to leave the work and first maintain silence. Subsequent to such initial instructions about the task and maintenance of decorum, the teacher gave specific instructions about the task at hand. She held out her hands above her head to show two small sheets of paper with triangles on it. The teacher used her right hand index finger to move at the boundary of the two triangles to indicate the shape of the triangle. Followed by that, she distributed similar small sheets of paper to each student. To some students she personally went to give the sheets (those nearer to her in the front zone) and to some she asked other students to pass it to them. The students were asked to cut out the triangles from the paper. The students who had scissors proceeded with their work and others waited for their partners to finish. They were then asked to stick the first triangle which was cut out on to the sheet that was provided to them earlier. The students shared the glue stick and put the triangle on the first sheet. Some students eagerly showed their work to the teacher.

The teacher inquired if the students had finished cutting and sticking the triangles. They were asked to look up at her so that she could teach further. She held up the other

triangle with both her hands slightly above her head. The triangle was then taken in her right hand and with her left index finger she pointed at the three angles of the triangle. The teacher then cut the three angles of the triangle and put them together to indicate to the students that the sum of all the angles of a triangle is 180 degrees. While all this was done she held up the triangle slightly above her head such that all the students could see it. The students performed the same procedure and stuck the three angles demonstrating their sum in the sheet. One of the students put up a question for the teacher and she left the triangle in her hand and drew a triangle on the board to answer the question. The math teacher frequently used material familiar to the students like colourful paper, bangles etc. to teach concepts. In another class period where she was introducing the concept of circle, she used two different forms of circle. One was a big circle made of a chart paper and the other was a small bangle. Similar to the previous exercise, she held up both the circles above her head to describe circumference and other properties of the circle. Whenever she needed to describe the paper circle which she was holding in her left hand she put her right hand down and stretched her left arm holding the paper circle. When she talked about the small bangle she stretched her right arm upwards but kept her left arm down. Thus, she not only used interesting methods to teach mathematical concepts but also made clear instructions such that unnecessary time is not spent on clearing doubts. These activities specify the use of nonverbal behaviour by the teacher and the students to communicate with each other during the process of teaching and learning.

The science teacher also conducted activities and experiments during her class period and even reading from the textbook was made comprehensive for the students (as was observed in their head nods, facial expressions, upright posture) by explanations provided by the teacher after each paragraph. During one of the science periods, the teacher conducted an experiment to explain air pressure to the students. The teacher used a dish and a beaker of different sizes for this experiment. With only these minimal things she made the class very interesting and interactive. The teacher placed the apparatus on the single table used by the student in the front zone of the classroom. The teacher stood next to the table facing the students and she conducted the experiment simultaneously explaining the concept of air pressure. She also made the students think about the concept by posing questions to them and also letting few of them use the apparatus. The teacher used her hands and fingers extensively to *point* and show the apparatus to the students.

She would point at the beakers and ask the students, "What is happening here?" Some students who could not see the apparatus stood up in their places. Some students also went closer to the table where the experiment was being conducted. The moving around by the students and their interaction amongst each other was not discouraged by the teacher rather it indicated their eagerness to understand the task.

Another instance of an interactive class was when the science teacher used charts to explain the organs of the human body. The charts had the figures of the internal organs of the human body like the heart; lungs etc. and the teacher indicate the important organs and explained its functions simultaneously. One chart was hung on the wall at the left front corner zone of the classroom and the other was hung at the right front corner wall. The teacher referred more to the one on the left corner as it had more relevant detail than the other one. She used a long ruler to point at the organs on the chart and some times made a rough figure on the board to demonstrate the organ more clearly. The students listened attentively to the teacher and their gaze direction moved between the chart and the teacher. They *nodded their heads* when they understood what was said by the teacher. Their posture was attentive as their heads were high and they were rarely reclining in their chairs. The teacher also used her hands and fingers to *point* at the organs on the chart and sometimes also *touched* her own external body parts to show the placement of the internal organ e.g. indicated jaws by moving her fingers on her jaws. The teacher stood next to the charts while pointing at them but moved around in the classroom while giving explanation about that organ. The *movement* was not random but deliberate as she wanted to move closer to each group and maintain *eye contact* with the students. The teacher usually moved in the middle centre zone of the classroom from where most students were closely visible. She also smiled at the students when they answered to her question correctly and when they asked her interesting questions. Such an appealing way of teaching scientific concepts to the students wherein nonverbal communication formed a significant part indicates its value in classroom processes.

The social studies teacher did not use any activities to teach concepts in history, geography and civics but made her class period attention-grabbing by modulating her voice and directing her gaze towards the students. The teacher did not move around much in the classroom but mostly seated herself in the front zone. From here she usually read from her textbook and sometimes also narrated the lesson like a story. When the teacher

narrated the lesson in such a way the students were seen to be more attentive. They would look towards the teacher and their neck and head would also be oriented towards the teacher. They were also seen reclining in their chairs with their faces placed within their palms. The teacher did not use gestures to indicate things but used her fingers more frequently to *point* at the students who were not attentive, to put her finger on the lips to indicate the need for silence, and when counting points. The nature of nonverbal communication in the social studies period was very different from the other class periods observed. The teacher did not use any deliberate nonverbal behaviour to get the attention of the students, to teach concepts or to answer questions asked by the students. She did not undertake activities which would allow her to communicate with the students in forms other than speech. However, the nonverbal behaviour intentionally used by the teacher e.g. voice modulations, facial expressions, and pointing helped her to make the students attentive and regulate attention.

Questioning by the teacher

Besides the teaching of the lesson the class period was also used by the teachers to question the students about the lesson taught. In fact, questioning students was a significant part of the class period. Most questions were questions testing the students' memory (7 out of 10), some related other concepts to the one being taught in the lesson (2 out of 10) and few of them were application based questions (1 out of 10). The teacher would usually ask questions after teaching something about the concept and the questions would appear regularly during the class period. The teacher's voice would change while she would be putting forth the question and so would her posture. She would *look towards* the students in general or at a particular student while asking the question. While asking a particular student the teacher's *eye gaze* would be fixed at the student from the time she formulates a question in her mind. Some teachers usually asked questions with lot of nonverbal cues for the students. For example, the teacher shrugged her shoulders (upwards movement of the shoulders), moved her hands and arms upwards, raised her brows and opened her eyes wide open. She also *modulated her voice* such that the important parts in the question get highlighted. When the question were addressed to the all the students, students who knew the answer *stretched their arms and hands* in the air. The students who knew the answer well and were eager to answer stretched their arm

straight up, moved their hand back and forth as if waving to the teacher and also called out “ma’am...ma’am” loudly, sometimes they were so keen to answer that they jumped in their places. The teacher selected one student to answer the question and the student stood up in their place. Sometimes the teacher asked the student to sit down and answer.

Almost all students started their answer by saying “ma’am” and then proceed with the rest of the answer. Those who knew the answer well used “ma’am” and “ohm...” in their answer only rarely. However, the students whose answers were not very well formulated in their minds had different nonverbal behaviours. These students started with looking towards the teacher for a very brief time and then looked away. They started their answer with “well ma’am...” and even during their answer they said “ohm...” very often. Their hand movements were also very rapid and frequent while they thought and formulated the answer in their minds. As they comprehended what was to be said their gestures reduce in number and are also became less hap-hazard. Their gestures became related to the answer they were providing for e.g. the student made a zero with his finger while saying zero verbally. While answering, the students also got a number of nonverbal cues from the teacher about the answer. The teacher nodded her head if she agreed with the answer and smiled at the student indicating that the answer was acceptable to her. The student also smiled back if his/her answer was correct. If the student had a difficulty in verbally putting forth the answer, the teacher looked at the student and vigorously nodded her head up and down, to encourage the student. She also said “Yes...” in a very polite way such that the student tries harder to answer. Only when the student got the indication that the teacher had heard the answer and after she responded to it the student sat down.

Questioning by the students

The asking of questions was not just limited to the teacher; the students also asked the teacher a number of questions during the class period. The teacher in most of the class periods did not discourage such questioning. Mostly the questions were to clarify the concept being taught by the teacher in that particular class period (8 out of 10). When the students did not understand something they asked the teacher to repeat, and she repeated loudly and clearly. There were instances when the students did not even have to verbally say that they haven’t understood something as the teachers could make out from their faces and reaction to what was being taught.

At other times, the students' questions would be about the application of the concept being taught (not more than 2 out of 10). In some class periods, the students posed such interesting questions to the teacher that the class period took a very exciting direction. In such cases, there were times when the teacher also failed to answer their questions. For instance, in a science period where the teacher was teaching the functions of various internal organs, some students asked details about the function of the stomach and the anus. The teacher was unable to answer few questions and she promised to look up the answers. [Later, after the class the teacher reported that sometimes the students ask a question just for fun and it is important to draw the line. However, she believed that such interaction is vital for the learning of concepts.]

When a particular student asked the teacher a question, the nonverbal interaction between them was also noted. This *one to one interaction* between the teacher and the student was essential to note as it was different from when the teacher addressed them as a mass or group of students. It was observed that usually the interaction was marked by a *synchrony* or a *rhythm* such that the teacher as well as the student were in the same 'flow' or direction, with conversation and movement going in the same direction. And if there was a barrier or disruption in the rhythmic flow of conversation, the nonverbal behaviour gave such an indication. For example, if the student did not understand what the teacher said, he looked away for a long time and the facial expressions also changed. When the student raised his/her hand to ask a question, the teacher usually moved slightly taking few steps in front to come closer to the student. They maintained eye contact for a longer time than when the teacher was glancing at the entire class. Their bodies were also directed or oriented towards each other. Their heads were noted to be in the similar position such that if the teacher while explaining the answer shifted her head towards the left, the student also shifted the head towards his right- just like a mirror image of each other.

If the student was sitting and the teacher approached the student's seat to answer some query, she stood on his right side while he sat in an erect posture; she bent forward, slightly bent from the back such that the student's face and also the notebook kept on the table were visible. Even though the teacher could not see the student's face properly, she could see the student sideways and that provided her with sufficient information about the student's attention, understanding and interest. The student could also see the

teacher's reaction and follow her speech clearly. Such an interaction between the teacher and the student helped to identify significant features of one to one conversation in the classroom setting.

Turn-taking behaviour during conversations between the teacher and students

One important feature of the one to one conversation between the teacher and a student was the systematic 'flow' or movement of verbal and nonverbal communication during the conversation. However, in every classroom setting there are situations when there was overlap and interruptions while the teacher explains the lesson or answers a question. Even in the class studied, there were numerous such instances, when the teacher would be speaking and number of students talked simultaneously and interrupted the teacher's speech. At the same time it was also observed, that certain turn-yielding and turn-taking behaviour existed. The way the students *raised* their arm or hand to answer, to ask a question or comment when the teacher would be teaching indicates a turn-taking behaviour. Such behaviour helped the teacher to notice that the student needed to speak. This turn-taking signal of raising the hand also led to a flow in the classroom processes. If the students did not put up their arm to answer, the teacher verbally asked them to do so. At times when the students interrupted the teacher while she would be speaking, she not only verbally asked the students to raise their arm but also raised her arm to nonverbally show that the students should do the same in order to speak. In other instances, the teacher looked directly at the student who interrupted her speech. Sometimes, this direct *eye gaze* made the student realize that the teacher was still not ready to yield the floor to him. Sometimes the teacher had to put her *finger on the lips* to indicate that the student was speaking out of turn. The teacher in such instances also *pointed* her index finger (left or right) or stretched out her arm and showed her palm at the student who would be interrupting.

Besides raising their arm, the student who was interested to talk, comment or answer *looked directly* at the teacher, nodded his head vigorously and also moved restlessly in his chair. When the student wanted to *yield the floor* to the teacher or to another student, he *looked directly* at that person and slightly *nodded* or *smiled* at the person, and sat down in his chair or become relaxed in his chair. In short, there occurred an increase in downward movements as the student wanted to end speaking.

Dictation: Use of the textbook

Till now, the description of the middle phase of the teaching and learning above, consisted of patterns in the way the lesson was taught by the teacher by explaining, writing on the board, illustrating by experiments etc. Along with all these methods of teaching, the teacher also dictated from the text book or made the students read out aloud from the text book. Although the use of text book by the teachers during the class period was very rare, in one or two class periods the teacher was observed to use the text book to teach.

Most students were recorded to be distracted when the teacher read from the text. The social studies teacher in most of her classes used the textbook to teach the students. It was seen that while the teacher dictated from the text, she only rarely looked up and paid attention towards the students. This in turn led the students to share glances with each other, talk to each other and even move around in the classroom. This reduced the teacher- student interaction in the classroom. The teacher's glances at the students while reading were very brief and the students also rarely looked towards the teacher as they were busy interacting with each other. The teacher only rarely moved around in the classroom. She either stood or sat in the front centre or corners or where she felt students could see and hear her. There was an occasion when the social studies teacher was dictating from the text book. The students were rarely looking up as they were busy writing down what was being dictated. They were reclining in their chairs and some were also slouching in their chairs. The teacher was also slumped in her chair with her head bent forward in the book kept on the table and both her hands placed on the face such that her face, eyes and mouth were not visible clearly. During such class periods the questions asked by the students were also very few as only some paid attention. Most questions they asked the teacher were to repeat something which they missed or could not hear clearly. In such a case the teacher looked up briefly and repeated the sentence or the main point slowly and loudly. The students then quickly noted it down in their note books.

Another situation where the text book was used in the class period was by the science teacher when she asked the students to read out aloud one by one. The students were more attentive and interactive in this class period than when the teacher read aloud from her text. This was so because the teacher asked the students questions in between reading the text book. She explained and gave main points after each paragraph. She also

made different students read the text so it was not monotonous for them. The questions that the teacher asked were related to the paragraph just completed. She put the answers in points on the black board or dictated them to the students. The science teacher in this particular instance, did not sit in the front centre zone, instead sat next to a student in the middle zone and shared the text book with him. Most students could see her in this position and she could also see most of them. The teacher was seated when a student read but once or twice she got up to ask a student some question or to write the answer on the board. At times when she did not get up to write the answer on the board; she used her fingers to indicate the answers point wise by raising a finger when a point was made. When she verbally said “point one” she also raised her left or right arm in the air and brought out one finger from her palm to indicate the point, followed by another finger as the next point was made.

The teacher looked in the text while a student read but also looked up to keep an eye on the students. She quickly moved her eyes around in the class to check all the students. Thus, even though reading from the text involved less interaction between the teacher and the students, reading out from the text by the students allowed more interaction than when the teacher read out. At the same time, both these illustration along with all the other described above has its own features of nonverbal communication. Therefore, different class periods and different activities that took place in the classroom gave a vivid picture of the configuration of nonverbal communication in the classroom.

Revision

All the illustrations given above indicate the varied activities that occurred during a particular class period. During the time of observation of the class under study, there were certain class periods that were taken by the teacher to revise the topics taught till then. The teachers used various methods to measure the students understanding and knowledge. There was class periods in which the students were given worksheets or questions required to be answered on paper. There was a class when the students were evaluated by an open book test. Occasionally the teacher also utilized the time to distribute marks or corrected worksheets during the class period. Hence, revision, recapitulation and evaluation were also noted to be a part of classroom processes.

There were class periods when the students were given questions during the class and they were required to write the answers in their note books. The answers were also discussed by the teacher in the same class period itself. For instance, in one such math class the teacher wrote the questions on the board gave some time to the students to answer in their note books and then discussed with all the students and wrote the steps and answers on the board. The interaction between the teacher and the students in the revision class periods was some what different from the classes were the lessons were taught by the teacher. In the revision classes a lot of eagerness and enthusiasm was observed in the students. This led them to talk amongst themselves and share the procedure and answers. Interaction between the students was rarely discouraged by most teachers. However, the social studies teacher was noted to consider such discussions and sharing among the students as disturbing the decorum of the class (she mentioned this to the researcher after the class periods). Students' interaction was not encouraged by her as was apparent from her irritation when students discussed among themselves. She usually spent a lot of time in making the students silent, which left her with very few minutes to discuss the answers. Thus, her classes were rarely interactive but mostly one way teaching.

The researcher observed a science class period where the teacher gave students an open book review. First, the teacher wrote all the questions on the black board but did not dictate them while or after writing. As the teacher was writing the questions on the board with her back towards the students they were talking amongst themselves. There was a lot of noise in the classroom as few students were discussing the answers amongst themselves and few were saying the answers aloud. For few minutes the teacher let the students talk but when she realized that they were getting distracted she looked at the students who were talking loudly and asked them to keep quiet. The teacher made the 'time-out' sign and later put her index finger on her lips to show they were very loud and needed to be softer. Within few minutes (1-2 mins) the students became quieter and worked in their note books. When they were working with their books they rarely looked up but only to copy the questions from the board. Their posture was relaxed as they were reclining in their chairs but not slouching. Their heads were bent at the neck and positioned downwards in their books. Both their hands were on the tables and their elbows were also resting on the books on the table. Most of the time the students got the

answers in the text book as it was an open book review, but there were times when they wanted to clarify something with the teacher. Such questions were not put off by the teacher and she answered them loudly for the entire class even when only one student put up the question. Therefore, the open book review also became an interactive process where teacher-student and student-student interaction led to understanding and learning.

Another such example of interaction during revision was noted in a math class period where the teacher gave some questions to the students to work on and later also discussed them in the same class. After entering the classroom and making the students settle down, the teacher wrote the questions on the boards. She did not dictate the questions while she was writing, like she used to in the classes when she taught the lesson. However, she realized that when she wrote with her back towards the students, they would talk and so she wrote the remaining questions on the board facing the students sideways and dictating simultaneously. After writing few questions on the board, she gave the students some time to think about the answers and then gave the answers for the first few questions. While she was giving out the answers aloud a number of students were also giving their answers loudly. This led to a lot of noise in the classroom and the teacher asked them to be softer. Seeing the eagerness of the students to answer, the teacher asked them to put up their hands such that she could choose one of them to answer. When the student answered, the teacher maintained her eye gaze towards the student and also nodded her head if she followed what he said or when the answer was correct. The student also looked at the teacher and his/her eye gaze direction moved between the teacher and the board where the question was given. She wrote down or dictated the steps clearly, emphasizing at the important points. The teacher not only emphasized by changing her voice, slowly and loudly saying the important points but also used her hands and fingers to point at the important steps. The nonverbal communication between the teacher and the students during this class period and such similar revision classes occurred along with the verbal communication.

Punishment

The students of the particular class studied were only very rarely punished or scolded by the teachers. Harsh punishment like hitting, sending them to the principal or even sending someone out of the classroom was never undertaken in the class. Teacher

also only rarely raised her voice at the students, only when they made a lot of noise, moved around and did pranks in the classroom. She did not give them lectures on discipline in the classroom and did not threaten them if they made noise. There were 3-4 students in this class which were observed to be distracted during all the periods. The teacher never sent them out of the classroom but in one or two classes changed their seat or made them sit on the floor.

There was a math class period when due to lot of noise and moving around in the classroom, the teacher punished the students. She asked all the students to leave whatever they were doing and stand up in their places. Emphasis was laid on making them stand erect and look in front at the teacher. When the teacher asked the students to stand up, 5-6 students were still talking amongst themselves and the rest of them did not realize that they were being punished. The students still looked at each other and smiled. At this the teacher said *loudly*, “no need to smile”, and maintained her eye contact with them for a long period of time. The teacher was standing in the centre front zone of the classroom when she said this and was leaning backwards on the blackboard. Only when the teacher kept *staring* at the students did they realize that they were being punished. Few students felt scared or sorry and bent their head downwards which helped them to avoid the teacher’s direct eye gaze at them. They were usually punished in situations when they made noise. The students were only made to sit when they were silent, looked downwards or apologized.

Reinforcement

The teachers also reinforced the students at appropriate times. They showed both verbal and nonverbal appreciation towards the student usually when he/she answered a question correctly. The teacher looked at the student and smiled, nodded her head, moved or leaned forward and also verbally said “good” or “excellent”. The science teacher would put a star next to the student’s name on the black board. In a particular class period the students also showed their appreciation towards their classmate by clapping for him/her. On being appreciated by the teacher the student also smiled. Thus, both punishment and reinforcement formed a part of the teaching and learning process.

This section provided a description of the various activities that occurred during a class period and the various rituals that formed a part of classroom interaction. The teaching and the learning process that took place during this period makes it an important part of the entire class period. It involves the implementation of the lesson plan which is the goal of any class. This goal also forms the structure of the class and further leads to everything that occur in the class, as elaborated in this section, to revolve around the objectives of the class. The next section is a description of the last few minutes in the class period.

Phase III: The Last Few Minutes

The 42 minutes that comprised the duration of the class period usually ended in a very abrupt way, although there was usually a routine to it. It was observed that while the teacher taught she never looked at her watch to see the time. The classroom was very well equipped but it did not have a wall clock. Unlike the teacher, the students usually kept track of the time by looking in their watches during the lesson. Even though the students did not repeatedly look at their watches, it seemed that they intuitively knew that the class period was coming to an end. Closer to the end of the class period the students were seen being distracted, looking at each other, talking, slouching in their chairs or restless in their positions. In all the classes observed, when the bell rang at the end of the class period, most teachers would still be teaching. Conclusion or recapitulation was never embarked on by the teacher.

It was observed that half of students moved around as soon as the bell rang. Even when the teacher was talking these students left their seats and moved around in the classroom. They moved closer to the exit door and talked amongst themselves. Some students closed their note books and did not listen to the teacher. The students did not wait for the teacher to stop talking, leave, or give them the permission to get up. They did it anyways. It was observed that this happened in almost all the class periods observed. After the bell rang and the children moved around the teacher tried to make them sit in their places such that she could complete what she was saying or give the students some final instructions. However, the students would not settle down and remained noisy. Even when the teacher made them stay in their places, the students remained distracted. Therefore, the lesson would just be left at that point and most information, instructions,

and homework were only given after the bell would ring and the students would not be attentive towards it. Thus, the end of the class period was usually characterized by chaos, confusion and lack of organization.

Just as the bell rang the teacher moved to the front centre zone or the middle centre zone, from where she was standing or sitting before the bell. This further indicates the importance of the front and middle centre zones in providing relevant information and making the teachers presence felt to the students. Corresponding to the fact that at the beginning of the class the students only greeted the teacher when she greeted them first, the students did not greet the teacher at the end of the class period also. There were cases when the teacher said to the students, "Have I said thank you...please sit down". The teacher remained in the centre zone till she wanted to continue with the class. She then quickly gave the instructions and left the centre zone after saying "thank you" to the students; leaving the centre zone indicating that the class has come to an end. The teacher did not wait for the students to say thank you and just left. In any case, only 5-10 students only rarely thanked the teacher back. Thus, the class period ended abruptly when the teacher left the centre zone of the classroom. There was just one time that the class did not end abruptly. It was the class period when the science open book review was taking place and the students did not move or get distracted after the bell rang. Most of them were working on the task with complete concentration but when the teacher started giving instructions they got distracted and started moving around. After the teacher's attempts to make them settle down failed, she closed the door and quickly gave the instructions and left the classroom.

Sometimes one or two students approached the teacher with their individual problems after the bell rang and mostly the teacher helped them patiently. However, the next class would start in the mean time and the student and the teacher would not be able to concentrate completely. Occasionally, the students also approached the teacher to give them feedback about how they liked the class period and the teacher thanked them and would gracefully accept the appreciations.

In all, the last few minutes of the class period are as much chaotic as the initial settling down. It comes across as ending abruptly after all the activity and energy that was noted in the middle phase of teaching and learning. At the same time, this phase has as

many unique aspects of interaction as the other phases of the class period. The analysis of the way the class comes to an end is as important as the way it begins.

PATTERNS IN NONVERBAL COMMUNICATION

The description above has been presented to analyze the observed nature of the teacher-student interaction in the classroom setting. Even though the three kinds of classes (math, science and social science) observed were different in content and context, there were certain broad patterns that were observed in all the classroom processes. The three phases that has been recorded here for analysis, is basically for the purpose of convenience in the process of analysis. Such a procedure not only helped to outline the interaction in a sequential manner but also to further delineate the broad routines and patterns in nonverbal communication. Some patterns have been deciphered in the above description; however, some specific routines and patterns observed in nonverbal communication would be presented here.

The broad patterns in nonverbal communication that have been analyzed in detail here come under three different *forms/channels of nonverbal communication*. Firstly, the way the teachers and the students used hands and fingers to communicate with each other was not random and haphazard. They were very systematic hand movements undertaken for certain specific purposes which were also predictable in the classroom setting. Secondly, the use of space, fixed and semi-fixed spaces like black board and furniture was very fascinating. Lastly, the eye movements of the teacher and the students to communicate with each other were also patterned. The patterns have been further elaborated below, under three forms/channels of nonverbal communication.

Hand Movements

Hands form an important part of our body and are used extensively for wide ranging purposes. In the observed classroom, hands were used very frequently to communicate with each other. Some hand movements were intentional and some unintentional and automatic.

The teachers used their hands and fingers to *point* very frequently. Mostly the teachers used their index finger to *point* at the black board, at an object and even towards students. While indicating on the board, pointing by the teacher *substituted* the use of

words. For instance, the math teacher usually pointed with her index finger on the board to indicate certain procedure of doing the sum. She would say, "This is like this and then... this is like this" and at each 'this' she pointed at the relevant number on the board. The science teacher was also observed pointing at the objects that were used in experiments. In the class where an experiment was conducted using a glass dish and a beaker, the teacher pointed at the apparatus and verbally said 'this (beaker) goes into this (dish)'. The teachers usually pointed at objects which substituted the use of words (like pointing at the beaker substituted the word beaker). When the teacher had to make a bigger point, gesturing or pointing helped to save time.

Besides pointing at the objects the teachers also pointed towards the students when the teacher wanted them to keep quiet. The use of index finger by the teacher also indicated some *authority* and *control* the teacher had over the students. While scolding students or making them settle down, all the teachers used to point at the students. In addition, the use of pointing towards the student also served as a *turn-yielding signal* as the teacher pointed at the student when she wanted some student to talk or answer. It was observed that the teacher usually pointed at the student and said "yes..." which meant you can talk now.

Hands were also used by the teacher to *say something* or make a point. When the teacher was interrupted by the students, she stretched her hand and showed her palm to the student, indicating that she still wanted to keep speaking. Hand gestures were also used frequently by the teachers to *teach concepts*. Most gestures were used to *illustrate, substitute and emphasize* what was being said by them. For instance, the math teacher used her hands and fingers to *make an outline* of a triangle in the air to show the shape of a triangle. Therefore, the hand movement illustrated the shape of a triangle. While saying or explaining something the teacher also moved her hands to *indicate direction*, for example, she used her left hand when she said left verbally and right hand when right. Hands were used not only to illustrate objects or figures but also *abstract concepts*. During a science class, the teacher moved her hands, which were bent loosely at the wrist and arms bent at the elbow in *rotations* from inwards to outwards, when she was explaining about development and growth. Such a hand rotation from inward to outward indicated that growth had something to do with movement forward or upward. Also, sometimes the teacher emphasized or supported her verbal account by using her hands.

Like in the science class, when the teacher said “stop” she also made a forward movement with her right hand.

Further, the hands also helped to *regulate the flow of speech*. Sometimes the teachers and the students would not get words to express themselves and the hand movement would help to bring a flow in the speech. For instance, in the math class the teacher while explaining about parallel lines made two parallel lines with her fingers by moving them in the air from left to right, one below the other. In fact, by supporting and emphasizing the words, the hands brought about a flow in the speech. Hands were also used *intentionally* by the teacher in a form which had a *specific meaning*, understood by the students in the class. For example, the ‘time-out sign’ made by the teacher had a specific meaning and was used by the teacher intentionally to indicate something specific.

The students’ hand movements were also interesting to note. One very striking feature of the students’ behaviour was to *put up their hands* in order to say something. The students were encouraged to do so as it provided a very vital *turn-taking signal* for the teacher, which further lead to a *flow* in the classroom interaction. *Pointing* with the hands and fingers was also observed in students. They pointed at the content written on the black board when they wanted to say something or clarify something. Like they said “ma’am what is that...” and pointed towards the board at ‘that’.

Gestures were also used excessively by the students when they answered. It was observed that when a student answered s/he used a lot of hand movements when s/he was not very sure of the answer. While the student comprehended the answer, a lot of forward and frantic hand movements were recorded. When the student began the answer the hand movements were noted to be more than as the student proceeded with the answer. In addition, when the student had a clear answer and had worked out a procedure fewer hand movements were observed. For example, a particular student was asked a question by the math teacher. She started answering with very clear steps worked out and used less gestures, however, when she got stuck with the procedure, she paused for a moment and then made a small forward movement with her right hand before proceeding with the answer.

It was also observed that gestures and hand movements were used simultaneously with speech by the students. While answering the gestures were used to help regulate the

flow of speech. It was noticed during one of the math classes that while answering, a student was using hand movements simultaneously as she was verbal giving steps to solve a problem. She made a small circle with her index finger in the air while she said zero and then moved her fingers to count. Students were seen moving their fingers in the air while they worked out a procedure in their mind.

Thus, all the instances above indicates that hand gestures were used in relation with speech both by teachers and students to substitute, emphasize, illustrate, and convey a flow in what was being said.

Space

The use of space by the teacher and the students in the classroom provide important insights about their interaction patterns. It was stated earlier that for the purpose of analysis the classroom space has been divided into *nine zones* (Figure 2). In the earlier description the significance of the front zone and the middle centre zone in the process of teaching has been stated. It would suffice to say here that the front zone was the area, by being in which the teacher made her presence felt to the students. There were a number of times that other teachers came and left the classroom to take their things or leave a message, however, it did not disturb the students probably because the teacher did not come to the front zone but remained in the periphery. In instances where the teacher had two consecutive class periods with the students, she had to come and stand in front to make them settled after the bell rang at the end of the first class period. It was also noted that the middle left and right corners were rarely used by the teacher while she taught. The middle left corner was sometimes used when the teacher needed her table. In addition, the down left and right corners were the areas least used by the teachers while teaching and even otherwise. Therefore, most teaching was done from the front zones and the middle centre zone. This further indicates that the students who were sitting towards or in the left and right corners of the middle and down zones came in the periphery of the classroom (11 students out of 30). And it was noted during observation that these students very rarely interacted in the class discussions (asked a question or answered not even once during a class period). They were also seen to be more distracted (talking with the partner, working on their own).

The use of space by the students was also very intriguing. It has been stated earlier that in the beginning of the class period the students moved around in the middle centre and the down centre zones of the classroom as it had enough space for the students to interact among themselves. During the remaining class period the students could not move around very freely but the distracted students mostly used the middle centre zone for moving around (3-4 students). The students one or twice in the class period went to their locker or bag to get something, but otherwise their movement was restricted.

The description of the classroom in the methodology chapter portrayed the kind of *furniture* present in the classroom. The tables and the chairs were easily moveable and were made by a durable material. The chairs and tables were not fixed in the ground which provided the students some freedom of movement in the classroom. It was not that they would move the furniture when and the way they wanted to but they had a sense that if they wanted to they could report to the teacher who could change the arrangement for them. Along with this, it was easy for the students to shift their chair in the direction of the movement of the teacher. For example, the science teacher moved around frequently in the classroom, so the students just shifted their chair in her direction.

Other than the moveable furniture, the fixtures in the classroom like the lockers, hangers, and the information pin-up board made the classroom well equipped for the students. They provided the students with a sense of responsibility to keep their books neatly and their bags in place. When the students only had the required material for the class period and the other things put away, they were not fidgety. The most important fixture in the classroom was the black board and the white board which were excessively used by most teachers. The description of the way the boards were used by the teachers has been elaborated above.

Another important consideration to be made is the three *seating arrangements* changed during the span of observation. The three arrangements have been depicted in Figure 3. The first arrangement had the tables and the chairs in two rows divided by an aisle. The teachers table was in the middle left corner zone, close to the information boards, and not in the front. The students' seats were facing each other. This arrangement came close to the traditional classroom arrangement but had some of its own striking features. The aisle in between allowed the teacher to move around, explain and also listen to the students. The teacher could go to each student individually and clarify doubts or

check their work. In this arrangement the students also discussed and collaborated with each other as they were facing each other. What made this arrangement distinct from the traditional classroom was that the teacher's table was out of the way. At the same time, this arrangement permitted the teacher with some control over the classroom interaction as she could move around close to the students and monitor their work. Besides these noteworthy features the row arrangements had its own disadvantages in terms of the interaction of the students in the class. The students who were sitting on the outer side of the rows, that is, towards the corners or the walls were less interactive in the classes than those sitting inwards. The first few students sitting in the front and those sitting at the back were also observed to be easily distracted than the other students seated in the middle. The students sitting in the back also interacted less and moved around more during the classes. Therefore, similar to the traditional classroom the 'back bencher' phenomena seemed to be existing here also.

The second arrangement came close to the horse shoe arrangement. The earlier row arrangement was changed into four groups or tables in a sought of semi-circle or horse shoe form. The students still sat facing each other and the teachers table remained in the same zone. This arrangement gave the teacher a lot of space to move around in the middle of the semi-circle and coordinate activities. It allowed experiments and activities to take place more freely and involve students in interaction. The teacher could also stand in the middle of the semi-circle and distribute books etc easily. However, this arrangement also had its drawbacks. It permitted the teacher with lesser control over the students. The students being seated in small groups interacted more among themselves and this helped when the activity in the class period required such interaction. On the other hand, during class periods when such activities did not occur as the teacher wanted it to be a one way process, the arrangement hampered this process. For example, the social science teacher faced problem of lack of control on the students and the interaction in the class. This classroom arrangement also had some areas in the classroom which were interactive and the other less interactive. Similar to the earlier arrangement the students sitting outwards in the semi-circle were less interactive than the students seated inwards. Though, unlike the earlier arrangement the students that were seated backwards, the semi-circle arrangement brought them closer to the teacher and made them more a part of the discussions. At the same time, the students who were sitting very close to the

teacher in the front zone were still too close to her and no change was observed in their easy distraction during the class.

The next change in the seating arrangement took place close to the final examinations in order to conduct fair examinations (as was reported by the teachers). Therefore, the earlier arrangement was changed to the traditional classroom seating arrangement. Still, the teacher's table was not right in the front but in the front left corner. In this arrangement the students were seated in pairs directly facing the black board, which was not seen in the earlier arrangements. This arrangement provided the teacher with a greater control on the students' behaviour. The students were not sitting in groups any more and so they interacted less among themselves. They were also directly facing the board which is the zone most utilized by the teacher. Therefore, deliberate changes were made by the teacher in the seating arrangements, for the students to work on their own tasks. After the change in this arrangement very few classes were taken by the teachers where any lessons were taught but most of the class periods were utilized in revisions and reviews. Thus, the students had lesser freedom to explore and move around in the classroom.

The three different seating arrangements indicate interesting aspects of the use of space in the classroom, the control and intention of the teachers, and the freedom it allow the students. A number of vital features of teacher-student interaction would have been lost if this nonverbal channel had been ignored.

Eye Movement

The eye movement of the teacher and the students in the classroom studied formed a vital aspect of their communication. The teachers were noted to place a lot of emphasis on the students facing and looking at them while they taught. When the teacher wanted the students to pay attention, she said "listen here" expecting the students to look at her, which was indicated by the fact that she repeated this till they looked at her. To be more specific, she also said "look here...face me", and did not proceed with teaching till the students looked at her.

In most situations the teacher's eye gaze towards the students was observed to be more frequent in occurrence and extended than the students. The students glanced at the teacher very rarely and when they maintained eye contact with her, they would look away

first. The teacher would communicate a lot with her eye movements. She used her eyes very often to express her dissatisfaction with the students' behaviour. The teacher gazed towards the students when she wanted them to keep quiet, settle down, or say something. In this sense, eye gaze by the teacher towards a particular student provided a significant *turn-taking* or *turn-yielding* signal. When the teacher wanted a student to answer she looked at the student and also gave some other verbal and nonverbal signal. If the teacher was interrupted by a student or did not want him to talk, she glanced at him and then quickly looked away. Retaining the floor by the teacher was indicated by such a brief glance.

Even though the teacher looked at the students for a longer time than the students looked at her, there were instances of one to one conversation when eye contact was maintained for a long period indicating a synchronization or rhythmic coordination between the two. Both the teacher and the student made eye contact at the start of the one to one interaction, followed by fluctuations in the eye movements during the conversation. In instances where the student *answered* and the teacher listened or agreed and when the teacher *explained* and the student understood, *eye contact* was maintained for a *longer time* till one looked away and then looked back in a moment. The auditor looked at the speaker for a longer time than the speaker. During a conversation the teacher and student looked at each other and looked away a number of times. Looking away usually happened when the speaker seemed to be taking time off to comprehend the speech in his mind (during hesitations).

It was stated in the above segment that the students sitting very close to the teacher and far from her were less interactive and easily distracted. One reason that was noted was that the teacher's eye gaze did not reach the students far away from her. The teacher also did not look much at the students sitting too close to her. When any person looks straight ahead, the person has a line of regard due to which the people very close and far will not be looked at frequently. Therefore, the teachers' *range of eye gaze* was stretched till the middle zone of the classroom; therefore, the students sitting in that zone were looked at more frequently by the teacher while teaching.

The patterns observed in the different channels or forms of nonverbal communication did not occur and derive its meaning independent of each other. The

communication between the teacher and the students occurred as a process involving both verbal and nonverbal modes of communication. All these forms occurred together at the same time and gained meaning in the particular context in which it occurred. Therefore, even though the patterns have been presented under separate headings, they were derived only by recording them as a *cluster*.

EXTRA-CURRICULAR ACTIVITIES: MOVING BEYOND THE CLASSROOM

In the present study, the researcher also observed various extra-curricular activities that formed a part of the time-table of class VI B. The activities attended were drama, sculpture, physical training, crafts, and literature in action (LIA). The students of the class were divided into groups and each group went twice a week for one activity out of drama, sculpture and crafts. The groups were assigned to the activities according to their roll numbers and each group consisted of approximately ten students. All the students attended the LIA period which happened once a week.

The drama classes happened outside the classroom, in the ground or the garden. The sculpture classes occurred in a classroom different from the classroom where their academic classes took place. The physical training period happened usually in the morning and the students would be taken to the play ground. The crafts period also took place in a classroom which was particularly used for arts and crafts and was different from the other classrooms. The literature in action (LIA) period took place in the same classroom where all the other subject classes occurred. Therefore, except the LIA period, all the other extra-curricular activities happened outside the regular classroom.

In the school under study, the extra-curricular activities stated above were never termed “extra” curricular. Not only the students but also the teachers were excited about these classes and they were never made into substitution classes for teaching other “academic” subjects. Even when close to the exams, the teacher never made the student do their worksheet, revision, or clarifications in these periods. The time-table for each day, had sufficient time allotted for such activities. Thus, the extra-curricular activities stated above were given equal importance, as other subjects, by the school, teachers and the students. The students were also assessed on the work that they did in these classes.

The hard work of the students like the activities they did in the crafts or drama classes, were displayed for others in the school by presenting them during exhibitions or plays.

In these extra-curricular activities the interaction between the teacher and students was of a different nature than that of the academic classes. It was observed that the structure, content, and context distinction between these two types of class periods led to a different nature of nonverbal communication between the teacher and the students. The students usually went to a different classroom, they got more chances to interact with their peers, the assessment was of a different nature and the teachers were also more friendly and informal. The details about these class periods are provided below.

Drama

The drama teacher was a male teacher. The students had a good rapport with him and they treated him as a teacher. The students' interaction with him was *friendly* and yet formal. The teacher did not restrict his classes to teaching the students about acting or theatre but also did *interesting games* and exercises. As soon as the class period started and the students got together in the garden, the teacher said "hello" to them and divided them into groups. Most activities were done in groups and he encouraged the students to form groups that did not necessarily consist of their friends. Both girls and boys were persuaded to interact with each other. Sometimes he gave the different group of students the same topic or situation and ask them to portray it in their way. While explaining the situation to them he would stand close to the group members and would usually join some group as a member.

The students had the flexibility to express themselves and they came up with very exciting ideas. The teacher during the class period made the students experiment with various facial expressions that can occur in different situations. The *group tasks* also helped them to learn in a team and come up with an end result that showed their common ideas brought about by cooperation. The drama classes also stimulated the students to use their *bodies* and *movements to express* their ideas. It was seen during the plays that the students used the *space very freely, moved around* in creative ways, and *used their hands and eyes* to communicate things in ways other than verbally. For example, one child portrayed anger by widely opening his eyes and moved his fist up and down as if hitting something. In order to work on the topic together in their group the students *choose a*

place in the ground they thought comfortable and *sat closely in a circle*. Though the groups were formed of students that were not necessarily friends, the students who were comfortable or friendly with each other sat closer to each other in the circle. Even while sharing ideas the students were observed to speak with lot of enthusiasm. Their eagerness was noted in their *vibrant expressions, extensive hand movements, touch towards each other* and *extended eye contact* with their group members. Such nonverbal behaviours were only rarely observed in the students during their regular academic class periods.

An interesting drama class period was observed by the researcher, in which the students were not divided into groups but all of them played *concentration games*. The teacher reported before starting the game that it was a game which required the students to concentrate on what every one did in the group. The teacher gave the rules of the game and the students listened very attentively. They *gazed* directly at the teacher and *smiled* when they thought something was very interesting. Then all the students were made to *sit close to each other* in a big circle. The drama teacher stood outside the circle. Each student had a number, which was according to their seating position. After the numbers were allotted, the teacher called out a number loudly and the student whose number was called answered the name of the student sitting on his/her left. When the teacher called out a number and along with he said right, that numbered student had to answer the name of the student on the right. Whoever answered wrong had to leave the group. All the students were very excited while playing the game. They were also concentrating on what the teacher was saying. As time passed the teacher started calling out the numbers faster and students became even more attentive. During the game the *teacher and the students looked at each other*. Especially when the teacher called out the number the students stared at the teacher till he called out the number. The teacher also looked at the student whose number he called out. The teacher's eye glance moved from one student to the other but the students' eye gaze was maintained at the teacher for a longer time. When a particular number would be called out that student and the teacher maintained an *eye contact* till the teacher called out the next number.

It was fascinating to note that the students used their *hands* a lot during this game. When the student's number was called most of them (approximately 6 out of 10) raised their hand in the air. Besides this when the student answered the name of the partner he *pointed* or *gesticulated* towards that partner. In fact, the gesture and the name

came together but sometimes the gesture came before the name of the partner. The students used the left hand when recalling the name of the partner on the left and the right hand for the partner on the right. The student who was not easily able to remember the name of his partner moved his hands in forward movements or in the direction of the partner whose name was asked. This movement of the hand was also accompanied with “ohm...hmm” followed by the answer. Few students (2 out of 10) looked at the partner whose name they took but most of (8 out of 10) them recalled the names without looking at the partner. Students who took a lot of time to recall the name were sent out of the circle.

The drama teacher used the class period for similar games in other classes also. The games tested the students’ *speed, creativity, imagination, interest* and also *body movement*. They allowed the students to explore their interests and creativity.

Sculpture

During the sculpture class periods also the students were observed to be very excited. The sculpture teacher was a male teacher and the students seemed to share a good rapport with him. The sculpture classes took place in a classroom which was rectangle in shape unlike the other regular classrooms. It had an entrance door and another door on the opposite end which opened to a small empty ground. The ground was used to dry the objects made by the students. The classroom was also well equipped for the students to indulge themselves in this activity. The room had a big drum in one corner which consisted of wet clay. There were other instruments also like spatulas, knives, molds, and big trays or boards. The trays were used as a base to make clay objects.

The furniture in the room was very modest. The tables were wooden, rectangular and very big in size. They accommodated eight students in one time. The students sat on stools which were also made of wood. The furniture was not artificially painted but maintained their natural look. The teacher had one wooden table and chair in front of the classroom. The students worked individually on their clay objects but they sat together in groups. They talked and chatted about their hobbies, school, family or the clay objects they were making. There was a relaxed atmosphere and the students got time off studies. Even though the teacher never discouraged interaction between the students, they were not let loose. When the students entered the classroom the teacher gave them some

guidelines about the object they were required to make in the class period. In some class periods the students continued with their previous tasks which they had not completed.

In all the classes observed the students worked with a lot of concentration and determination to complete the object the way they wanted it to be. Some students also worked individually, sitting alone on the big table. There was one time when the students made a lot of noise and the teacher had to punish them. He asked them to stand up in their places and leave the work they were doing. The students seemed very upset and some also argued with the teacher. The students believed that they were not making a lot of noise whereas the teacher thought they were talking loudly. By talking to each other they explained their point of view and the teacher let them sit and continue with their task. The teacher was strict about the work to be done in the class period and so the students also stuck to their work. It was interesting to note the *physical closeness* among the students and also among the teacher and the students. If the student did not understand something or wanted to know something the teacher stood close to the student such that few changes could be done in the clay object. The student sat close to each other on the table and shared instruments like knives etc with each other. They were observed to not only share material things but also *personal experiences*. They *smiled* more often at each other than during regular subject classes. They *touched* each other more often like patted or pushed each other. The touch of the clay also seemed to be significant as they used their strength to make it soft before they could mold an object. In applying their strength they used their *hands* and *fingers* a lot. The hands and fingers were also used *to point* at the object or the instrument they wanted like a spatula. With the teacher also, the students *maintained longer eye contacts*. The teacher rarely addressed the entire class together but provided individual help and guidance. Therefore, the teacher and the student interacted more on a one to one basis.

When the bell rang at the end of the class period, the students did not immediately start to talk or move around. They only left their clay objects when the teacher asked them to leave. Similar to the other class periods they did not wish the teacher at the beginning or the end of the class period.

Crafts

The crafts period was taken by two female teachers. The room allotted for crafts was also rectangular in shape. There were a number of canvases placed next to the walls. The room did not have much furniture. There were only few tables and few chairs. The tables were used to keep things like sheets and paints. The few chairs were mostly used by the teachers to sit on or students who were working meticulously. The students sat on the floor and did their work. As soon as the students entered the room, the crafts teacher said “hi” to them and divided them into small groups.

The groups sat circularly and the pairs sat facing each other or next to each other. Such group interaction was never discouraged by the teachers. Even when the students talked a lot amongst themselves, it was observed that the teachers never asked them to sit individually or disintegrated the groups. To make the students silent the teachers loudly asked them to talk softly. The teachers were also very informal with the students as they sat with the students to work and also joke. In a particular class period, the two teachers taught the students to make flowers out of tissue paper. There was a lot of movement in the classroom as students were moving around to talk to the teacher if they wanted to know something or show their work and the teachers were also moving around supervising work and maintaining discipline. The teachers rarely sat down but moved from one group of students to the other. They joked with the students and if they were doing something wrong the teachers also asked them to correct it. The distracted students who did not do the work were scolded. She maintained an extended eye gaze toward the student and sometimes even shouted at them. They kept silent for a while but started with their disruptive behaviour again. Therefore, it was observed that it was more difficult to maintain discipline in the crafts class than the other academic classes. At the same time, it was observed that the students did good work and did not just let loose. They learned as well as interacted with each other at the same time.

Physical Education (PE)

There were two physical trainers for the students. One was a male trainer and another female. The PE period was the first period on the time table and the male trainer came to the VI B classroom to gather the students and take them to the ground. The students wore their house colour t-shirts and they were assembled in lines according to

the houses. The teacher walked in front and the students followed him to the ground. The ground was very big and had segments divided for various sports. There was a basket ball court, squash, badminton, hockey, football, and baseball. Most students played hockey and some played base ball. The football team consisted of both boys and girls but mostly boys (15 boys and 10 girls). The base ball team also consisted of both genders but mostly girls (15 girls and 5 boys). The female teacher was with the base ball team. Both the teams were provided with foot ball sticks, balls, base ball bat etc. The students *pushed* and *touched* each other to *choose* their favourite equipments.

The *teacher-student interaction* was very less as the students were playing with each other. However, the teacher interrupted the game when the rules were not followed. The male teacher was the referee for the football team. When the teacher addressed the students as a group, the students circled around him and the students standing closest to him listened to him most attentively. The teacher gazed at the students and talked very loudly such that the entire group heard him. The teacher also patted the students on the back when they played well. While explaining something to a student individually, they stood close to each other, and sometimes the teacher would place his hand on the student's shoulder. The students while talking to each other also *patted*, *pushed*, or *held hands*. The children in the same team patted each other or shook hands after making a goal. The girls also actively participated and even they pushed and patted the boys, maybe not as much the boys did (just two girls were seen to be physical with the boys). Thus, *touch* formed an important aspect of the physical education classes. The way the students touched each other communicated what they felt towards each other. Students who were competitors pushed each other or teased each other. Members of the same group patted each others back or put arms around each others shoulder.

Thus, physical education was another period where different structural and contextual changes brought about different aspects of nonverbal communication.

Literature in Action (LIA)

The researcher observed only one LIA class period but because it was very appealing it has been mentioned here. The class period was taken by a famous authoress who writes children's story books. Before the observed class period she had taken several classes with the students and therefore they were comfortable with each other. The class

period took place in the same classroom where all the other academic classes took place. The students sat in their respective places.

When the bell rang for this particular class period, the teacher walked in straight to the *front centre zone of the classroom*. She placed her books on the table on the left that was used by the students. She wished the students saying “good morning” and asked them to sit. All this while, she had a pleasant *smile* on her face. She did not look pressured by the lesson that she was required to complete during the class period. The students took time to settle down but when the teacher took out a sheet of paper and announced that she would narrate a story, the students quickly settled down. However, there were also few students (3-4 boys) that were very distracted. The teacher did not pay much attention to it and started reading out the story. While the teacher read the story she did not just look at the sheet. She looked up frequently and for a long period of time. When she looked up she *directly looked* at the students and filled in the story in own words. She used a lot of *voice intonations* to draw out interesting contrast in the characters, to emphasize the main parts, and to make it sound more animated and descriptive. The teacher also changed her *facial expressions* and *maintained eye contact* with a number of students. She did not move around much in the classroom but strolled in the front zone only. This way the students did not have to move much to keep her in sight.

The students also looked engrossed in the story. They were observed to *be smiling, glancing at each other, and also whispering to each other*. Their eye gaze was usually maintained at the teacher so if she moved a little their eyes also moved with her. They sat still in their chairs and were not seen to be restless. The students’ *posture* was also noted to be relaxed. It was noticed that they reclined in their chairs, stooping in front, with their elbows on the table and faces resting on their hands.

The teacher made the class interesting by *sharing her personal experiences* with the students. This helped the students to open up and they also shared their experiences. For once it was observed that the students were not moving around, chatting or distracted. They were seen to be talking among themselves but about what was being discussed in the class. The teacher also went personally to few students about what they felt about the story. Before the class period was about to end the teacher wrote on the board few things that the students could do at home. She wrote few instructions about the material required

in the next class. By the time the bell rang the teacher had completed what she wanted to do during the class and had also given instructions for the next class. The teacher thanked the students and left the room and the students also moved around some still talking about the story (5-7 students).

This class period helps to look at the way the similar classroom setting was used for differently structured class period. Similar to the academic class period, the LIA teacher also started the class by standing in the front centre zone and settling down the children. In this class period also the students sat in the same place. Unlike the academic class periods, the LIA period ended before the bell rang. As has been stated earlier, unlike the academic teachers the LIA teacher did not look pressured under the need to finish the syllabus on time.

In sum, all the extra-curricular activities facilitated the researcher to explore the teacher-student interaction in a different light. These classes helped to understand the deviations in classroom processes from the regular classroom interaction as there were differences in structure, content and context. The extra-curricular activities allowed the students to go outside the classroom, work in groups, share personal experiences and also informally talk to the teachers. There was also the difference in assessment of extra-curricular activities, which was mostly on the basis of their class involvement. There was some choice that the students had in preference of the sport, deciding what to draw, or make a clay model. The students as well as the teachers were able to see the end results during the class period. Due to all these and many more structural and contextual factors, the nonverbal communication was noted to be different from the regular classroom interaction. Working in groups the students could be closer to each other, touch and look at each other. The teachers were also observed to have more physical closeness with the students. Both students and teachers could move around with some freedom, arrange and rearrange the sitting arrangement. They also used hand movements and body movements to express themselves. Eye contact, between the teacher and the students and also between the students, was seen to be more frequent and extended in these situations than during the regular classes.

INFORMAL INTERACTION WITH THE TEACHERS

During the time period that I was in the school, there were a number of opportunities to interact with the teachers outside the classroom. Such interaction was vital not only to form a rapport with the teachers but also to get answers for certain questions that arose during the observation of the classroom settings. The teachers were never questioned in a threatening way. In fact, mostly teachers started the conversation by saying something about the school. Sometimes they also inquired about the present study and what the observations revealed. Answers to the questions were politely given by me and then the teachers were asked something about their experiences.

Through the informal interaction with the teachers I was able to understand the teachers' overall plan to conduct the lesson. The teachers reported that they followed an elaborate plan, of which they also have to keep an account off for official purposes. The principal goes through this plan of activities regularly, almost every alternate day and is also signed by her. Once, the science teacher during the lunch break showed the record of her classes that she had taken and also few of her future plans. The teachers also reported that in most of the class periods they were not able to finish what they had planned. This information substantiated the abrupt ending of the class period. The different teachers attributed different reasons to such an abrupt ending of the class periods. The math teacher believed that the course was diverse and needed time. In addition, she believed that it was difficult to get through to the students as they got easily distracted and rarely listened to the teacher. The social studies teacher believed that the students were very undisciplined and lacked commitment. She also reported that few students were slow learners and so it was difficult to control the class. The science teacher believed that it was difficult to exactly follow the plan because the class interaction can take different forms. She reported that sometimes the students got very interested in a topic and they asked her to elaborate on it or they put up a number of questions. At the same time she believed that it is also important to draw the line by telling the students that they need to proceed and probably ask individual questions after the class period.

During one of the lunch breaks the math teacher offered lunch to me and seemed eager to interact with me. She spoke about her teacher training program and her teaching career. The teacher reported that the training program was very different from the short teaching career that she has had. She said that during the training period they are not only

period they are not only taught about the content but also how to carry out the class period. During the training they are told to maintain direct eye contact with the children and involve them in interaction. However, she said that once she started teaching she *realized the importance of mutual eye contact with the students*. She reported that sharing frequent glances with the students was important to keep them involved in the lesson.

Therefore, the reports of the teachers during such informal interaction helped to unravel the classroom interaction further and also understand the strategies that they used while teaching.

SUMMING UP:

It seems rather difficult to sum up the various features, of classroom interaction in general and nonverbal communication in specific, in just few words. The class period that was divided into various phases is not segments of time periods that existed exclusively. The class time flows from one activity or ritual to another. Communication between the teacher and the students is a continuous and an on-going process. It is systematic and has a pattern. The patterns of settling down in the initial phase were marked by the calling out behaviour of the teacher and the use of hands or fingers to point at the distracted students. The frontal zone formed the centre stage from where the teacher commenced the class period and focused the attention of the students towards the teaching-learning process.

The activities that formed a part of the teaching and the learning process were largely undertaken by the teacher to fulfill certain pedagogical functions. The blackboards were used for certain purposes by all the different subject teachers that were observed. Along with teaching the concepts, the class period was also used to question the students and recapitulate the lesson. One to one interaction between the student and the teacher provided insight into the rhythmic and coordinated flow of movement between them. Turn-taking and turn-yielding behaviours were also observed during their interaction.

Both the teachers and the students used their hands to communicate with each other. The gestures substituted, illustrated, emphasized and also provided a flow to the speech process. The index finger was extensively used by the teacher to point at objects, the boards, and also at students. The students also used the index finger to point. Gestures

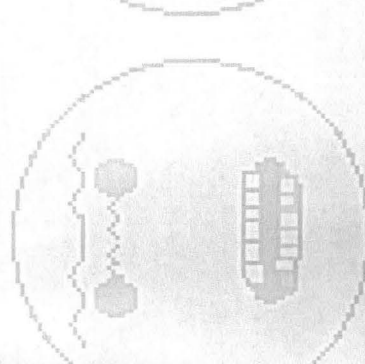
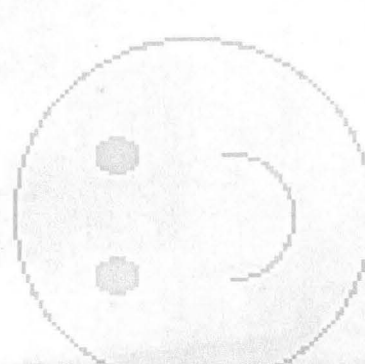
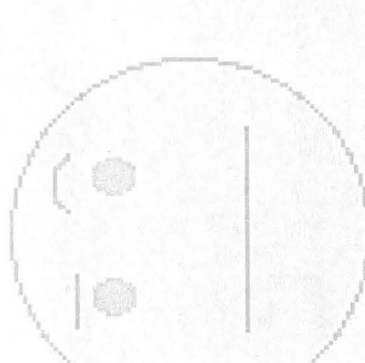
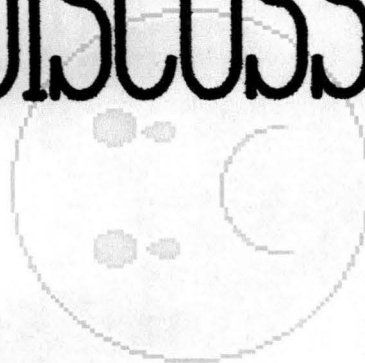
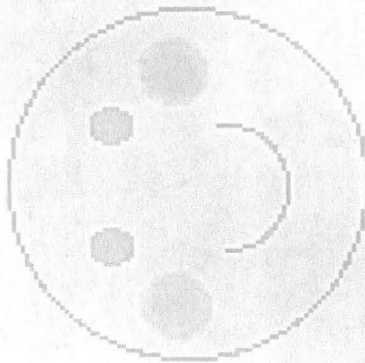
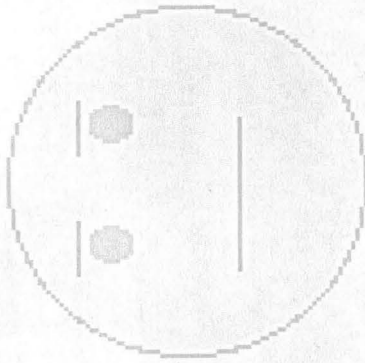
of the students during explaining and answering provided insight into their understanding and comprehension of the concepts being taught in the class. Besides the use of gestures, the teachers and the students also used their eyes to communicate. The frequently used extended eye gaze of the teacher to communicate with the students provided a marked feature of the classroom. The looking away or looking downwards of the students also provided insights into the teacher-student relationship. Space was another feature which provided important understanding of classroom processes and nonverbal communication. The seating arrangements that were changed during the span of observation showed vital relationship between the environment and interaction. This form of nonverbal communication provided a unique picture of the classroom.

The extra-curricular class periods provided understanding of the communication processes in situations that deviated from the regular classroom. Group activities, a friendly relationship between the teacher and the students, and sharing personal experiences were striking aspects of these class periods. The free use of body, hands and facial expressions by the students to express themselves and also to interact with the teacher were observed. Frequency of mutual eye contact between the teacher and the students increased in these class periods. Thus, nonverbal communication formed a significant part of the classroom processes even when there were structural changes. The meaning and function of nonverbal behaviour changed during the extra-curricular activities.

All the findings of the observations have been stated in this chapter with an attempt to unravel in a systematic way the structure, organization and functions of nonverbal communication in the classroom settings. The data is further interpreted in the following chapter.

CHAPTER 5

DISCUSSION



The present study provides an exploratory analysis of nonverbal communication between the teacher and the students in an Indian classroom. In general, the study was an attempt at theoretical and practical understanding of a vital aspect of the communication process- *nonverbal communication*. More specifically, the present study sought to examine the functional value of nonverbal communication in the classroom.

The literature reviewed in the introduction chapter of the present study, indicates that the study of nonverbal communication has been largely neglected. According to Rosenthal et.al. (1979) nonverbal communication is far from well understood. Even though scholars like Darwin had drawn attention to this phenomenon quite early, it is only in early 1960's that the research in nonverbal behaviour started (Argyle, 1972).

Despite this lack in systematic investigation, the review indicates the worth of nonverbal modality in the communication process. Storey (1989) mentioned that only 7% of our initial impact on the others is the result of our verbal communication and the other 93% of our message is made up of body language (55%) and the tone of our voice (38%). Studies also point out the importance of a person's nonverbal behaviour in communicating inner thought, feelings and attitudes. Burgoon and Saine (1978) have put it correctly when they say that "nonverbal messages have an impressive influence on every facet of communication" (p.2).

The reasons for the lack in systematic effort to unravel this phenomenon are reported to be many. Some studies have shown a number of methodological barriers in the recording and analysis of nonverbal communication (for instance, Rosenthal et.al. 1979). Another reason has been the difficulty in defining nonverbal communication. The different perspectives and viewpoints that attempt to understand nonverbal communication define it divergently, contributing to some misunderstandings about what primarily constitutes its study.

According to Verderber and Verderber (1977, p.95) nonverbal communication can be viewed from two different perspectives, namely:

1. Nonverbal communication refers to peoples actions and attributes *other than words*.

2. Nonverbal communication also refers to those elements that are not a part of people but leads to communication through *peoples' use of them*, for example, clothes, lighting and furniture.

Theoreticians also have contrasting viewpoints about when a nonverbal behaviour becomes communicative (Daniels & Spiker, 1987; Harper, Weins & Matarazzo, 1978). This issue involves the question of intentionality or unintentionality on the part of the sender or receiver of the nonverbal behaviour. Thus, it has rather been difficult to define nonverbal communication. This present research does not suggest that a narrow rigid definition of nonverbal communication is required but a definition that encompasses the various features, aspects and forms of nonverbal communication.

Another aspect that needs consideration is the two major levels of analysis of nonverbal communication. These two different levels of analysis are: the *individual* and the *interaction*. These levels of analysis are the results of research in two different traditions. One major tradition is psychology and the other is anthropology. The psychologists look at the nonverbal behaviour as a repertoire of an individual. On the other hand, the anthropologists do not consider nonverbal behaviour as a variable. Rather they consider the nonverbal behaviour as culturally embedded and reflected through interaction. Most researches start with a preference towards studying either the individual or the interaction. This has led to rigid boundaries in the research of nonverbal communication. Also this division has limited the holistic understanding of nonverbal communication.

The present study attempts to provide a holistic understanding of nonverbal communication. The study has two broad objectives. The first objective of the present study is an attempt to understand the nature of interaction between the teacher and the students in the classroom setting. The study specifically attempts at unraveling the pattern and routine in nonverbal communication between the teacher and the students. In order to achieve this objective the specific nonverbal behaviour has been placed in the context of the *interaction* between the teacher and the students in the classroom and its meaning has been derived in this interaction itself.

The second objective of the study is to understand the various nonverbal behaviours used by the teachers and the students in two different types of subject classes. One type of class period is the routine academic type which included the math, science and social science class periods. The other type of the class period is the more flexibly structured extra-curricular class periods which included crafts, sculpture, drama etc. The various class periods were taught by different teachers. The class periods also differed in terms of content and context. The present study sought to look at the *individual differences* among the teachers in conducting the classes which differed in subject content and context. This objective also involved examining the ways in which the nonverbal communication in the extra-curricular activities deviated from that in the regular class periods.

Thus, the present study attempts to *place* the nonverbal behaviours utilized by individuals to communicate in the process of interaction with other individuals. The individual and his repertoire of nonverbal behaviour are used in interaction and therefore form a *part* of the interaction process. It has been a sincere attempt of the present study not to give preference to only the interaction or only the individual. Both the levels of analysis have been studied as both are considered equally vital to the understanding of nonverbal communication. The nonverbal behaviour of the teacher and the students has been placed in the interaction process that they engage in to achieve the communicative goals of a classroom setting.

The sample for the present study was one class of a co-ed public school which was studied for a time period of two months every school day. Non-participant observation method was used to extensively record the interaction between the teachers and the students in the classroom for two types of subject periods mentioned above. The methodological assumptions of the ethological approach indicate the importance of detail recording and observing behaviour in the natural environment. In addition, the symbolic interactionist Blumer (1969) recommends being in the social world in order to unravel a phenomenon. These methodological positions are accepted in the present study. Therefore, extensive records were taken on a notepad by the researcher while being present in the classroom.

The selection of a particular school was not much of a choice for the researcher as this was the only school in a long list of schools which did not have hassles with an observer being present in the class periods during the process of teaching. The principal and the teachers of this particular school reported that they usually encouraged training teachers and researchers to explore the classroom processes which they believed would in some way benefit them and the education system at large. This helped the researcher to be comfortable in conducting observations in the classroom and at the same time be cautious of not disturbing anyone.

Detail notes were taken of the sequence of events that took place between the teacher and the students in the classroom. More specifically the kind of nonverbal behaviours used by the teachers and the students to communicate with each other were recorded during the initial, middle and last phase of the class period. The researcher could decipher *patterns* and *routines* in nonverbal communication between the teacher and the students in the sequence of events. The pattern deciphered in the communication process is the result of a series of activities that took place in the *everyday* classroom, and therefore indicate that the pattern is *predictable*. The sequences of activities were not only recorded to point out the patterns but also because it provides an understanding of the *nature* of interaction that took place in the classroom.

The Structuralist approach advocated that it is not only important to know which nonverbal behaviour occurs but also *when* it occurs in the sequence of events. According to Birdwhistell (1970), the context in which the nonverbal action takes place is important to derive its meaning and understand which nonverbal behaviours people engage in to communicate with others. Similarly, the sequence of interaction in the classroom between the teacher and the students provided *meaning* to the nonverbal behaviours used by them. For instance, the teacher used the front zone in the initial and also during the middle phase of the class period. Therefore, understanding the time period when she used that particular space help to realize the importance of the zone in conveying something. This meaning was derived only by observing the interaction of the participants who *jointly created* it. In this sense the communication was not seen as a linear one way process. An assumption held by the symbolic interactionists, which

provided a clearer understanding of the meaning of the nonverbal behaviours used in the classroom, was that nonverbal behaviour is *symbolic* and therefore it is like a *code* used by participants during communication (Burgoon & Saine, 1978). The science teacher's use of the 'time-out' sign to settle down the students was a code mutually interpretable by the teacher and the students. The other nonverbal behaviours used in the classroom also evolved as shared forms between the teacher and the students.

The social psychological approach emphasizes the significance of the immediate social setting, the specific communication function or the goals in the occurrence of a particular behaviour (Argyle, 1972). In the present study the role of the classroom setting is considered in order to understand the meaning of a specific behaviour especially the nonverbal behaviours. For instance, in the beginning of the class period the immediate goal of the teacher is to settle down the students who move around in the classroom and this is when the teacher was observed calling out or pointing at the students moving around. The communication function of the teacher guided her behaviour and provided the justification for calling out and pointing.

The observations in the present study indicate that a number of activities and various nonverbal behaviours specific to a particular time period occurred during the class period. Specific nonverbal behaviours of the teachers and the students had specific functional significance in the different time periods of the class. The class time period was divided into three time phases in order to decipher the events and movements in the beginning, middle and the end of a class period (refer to Table I).

CLASSROOM NONVERBAL COMMUNICATION IN DIFFERENT PHASES

The **first phase** with which the class period began was the initial 10-12 minutes which were utilized by the teachers and the students to settle down. The teachers used various parts of their body, voice and the space in the classroom to communicate with the students. The students also engaged in different forms of behaviour. This phase was marked by a lot of chaos and a preparation towards some organized interaction.

Certain patterns were observed in the behaviours of all the academic subject teachers during this initial time period. The behaviour common to all the teachers during the

initial phase of all the class periods observed was the way the teacher placed herself in the *front zone* of the classroom. This way of taking the physical position in the frontal zone signaled to the student the need for more focused and organized attention towards the teacher. The frontal zone is like the centre position of the stage from where the main character, the teacher in the classroom, makes her visible and prominent to the audience or all the students in the classroom setting. In this sense the teacher tries to take charge and some control over the situation. Unlike the teachers, the students were observed to be closer to the exit or in the down zone or the middle centre zone where group interaction was possible. The students tried to physically stay as far away from the teacher as possible.

Along with the use of the classroom space, the teachers also moved their body parts especially their *hands, arms, and eyes* to communicate with the students. The fingers were used most frequently by the teachers *to point* at the students who were moving around in the classroom or talking among themselves. Ekman and Friesen (1981) categorized gestures according to the functions that it performed. They termed the pointing movement as an intrinsically coded movement referred to as *deitic illustrator*. An intrinsic movement, according to Ekman and Friesen (1981), is closely tied with the verbal message and has a shared decoded meaning. Therefore, the pointing movement of the teacher was a deitic illustrator used to get the attention of the distracted students. Another intrinsically coded nonverbal behaviour frequently used by the teachers to settle the students was the *finger on the lips* movement. The teachers placed their index finger on their lips which indicated sealing of the mouth, or in other words, the need for silence in the classroom.

An *extended eye gaze* of the teacher towards the students formed a significant part of the settling down process of the initial phase. Exline and Fehr (1979) suggested measuring the duration to differentiate between glance, look, gaze, leer and stare, which are stated here in an increasing order. It was observed in the present study that the teachers *gazed and stared* at the students when she wanted them to be silent. In return the distracted students looked away or downwards and settled down in their places. Students never gazed or stared back at the teacher but just glanced at the teacher to know

if she was gazing or staring at them. Kendon (1983) reported that gaze is not always reciprocated by people. According to him, negative or threatening situations evoke compensatory responses which are looking away or moving away. Similarly in the classroom situation the students produced compensatory responses to the teacher's gaze or stare.

The teachers also modulated their *voice* to settle down the students in the initial phase. In the present study no tape recorder or any other devices to measure the loudness, pitch etc was used as it was considered invasive, therefore, it was not possible to record the exact changes in the voice of the teacher. However, certain qualitative changes that were obvious were recorded. The quality of teachers' voice changed when she wanted to be heard. She would deliberately talk louder than the students so that her instructions would be heard clearly. In his study Lee (1990) mentioned that voice intonation shifts served important pedagogical functions by highlighting the important information. In the present study the intonations clearly served such a function. The teachers also engaged in the *calling out behaviour*, that is, they called out the names of the students who were talking with others or moving around in the classroom. The teachers' regular use of their voices to get the attention of the students was observed to be a marked routine of the classroom studied.

A deliberate strategy used by the teachers during the initial phase of the class period was to stand *silently* in the front zone of the classroom. The math teacher used this strategy in all her class periods to settle down the students. Burgoon and Saine (1978) termed the silence created intentionally by speaker or auditor as *imposed* or *intentional silence* and also reported the importance of silence in social interaction when the verbal channel is not used. They stated that the imposed silence may function to prompt a favorable back channel from the auditor. In the classroom observed in the present study, the silence was utilized by the teacher to make the students realize their inappropriate and unacceptable behaviour in the classroom.

The students' response to the various nonverbal behaviours differed from one subject teacher to the other because each teacher also had her own way of communicating with the students. As was stated earlier in the results chapter, the science teacher's way of

settling down the students was very interesting and unique. She deliberately used certain nonverbal behaviours to communicate with the students. She used her hands, eyes and voice to expressively communicate her intentions and expectations to regulate the interaction between her and the students. The science teacher's 'time-out' sign was exceptional, unique and somewhat idiosyncratic. Figure 1 in chapter 4 shows a figurative image of the teacher making a 'time-out' sign. Even though the 'time-out' sign was made by the teacher without any verbal signal, it was understandable to all the students. That is, it was a symbolic communicative act to indicate the teacher's need for discipline and silence in the classroom. The symbol was a code which had a shared meaning for all present in the classroom. The science teacher used this sign when the students moved around in the class and there was a lot of noise such that it was not sufficient to shout out loud to make the students settle in their places. Ekman and Friesen (1981) has a category for such gestures that have a direct verbal translation, awareness of the sender, whose meaning is known to all the members of the group and occur when verbal exchange is not possible due to external circumstances. They termed this category as 'Emblems'. The 'time-out' sign used by the science teacher in the initial phase of settling down is therefore an emblem fitting the description of the category given by Ekman and Friesen (1981).

On other occasion the science teacher used her hands was while counting one to ten out loud for students to get ready. She stretched her left or right arm up in the air and with every number said aloud closed one finger. The relationship between this act and that which it signifies, i.e. counting is arbitrary or iconic (Ekman & Friesen, 1981). It is a kinetic act that signifies the process of counting but does not have a direct verbal meaning. It *illustrates* that which is being verbally conveyed by the science teacher. The function of this nonverbal behaviour is to emphasize and call attention of the students to what is being said by the teacher. It seemed that the science teacher's way of making the students silent, her extensive and deliberate use of nonverbal behaviours attracted the students' attention as they seemed more eager to start the lesson than during the other class periods that were observed.

Even though the students took the same initial 10-12 minutes to settle down in the social science class as they took in the other class periods but their facial expressions, slouching posture and wandering eyes did not show interest in the social studies class period. The social science teacher after entering the classroom and placing herself in the front zone loudly called out the names of the distracted students. She was never seen walking actively among the students, counting out loudly, or even smiling. On the contrary, she stared at the noisy students or shouted out their names loudly. These strategies lead to compensatory responses by the students like looking away and moving away from the teacher. It was observed that for only few minutes the students remained silent but again they got distracted and noisy. It is difficult to say that the students' behaviour was the result of some lack of effective control strategy on part of the social science teacher. The nature of the subject, the allotted time of the class period, and many other possible reasons can be offered to explain the lack of students' eagerness. However, based on what was observed, it can be said that in the class periods in which the social science teacher smiled more often than usual, narrated her lessons like a story and showed more enthusiasm through use of exaggerated movements than on other occasions, the students also reciprocated by looking towards her, orienting their seating direction towards her, nodding their heads, and smiling. Therefore, it would not be an exaggeration to state that nonverbal actions help in achieving a smooth pattern of synchronization between interactants (Argyle, 1980). Also, nonverbal behaviour regulates the flow of verbal behaviour between people (Galanes & Brillhart, 1991). In the social science class period, the teacher's nonverbal behaviour clearly affected the degree of control over students' attention to the class proceedings.

As has been indicated in Table 1 of chapter 4, the **middle phase** of the class period lasted for 30 minutes approximately. This phase was largely marked by effective teaching-learning process and the teacher-student nonverbal communication was directed towards that end. Since the middle phase formed a large chunk of the entire class period of 42 minutes a number of activities occurred that involved direct interaction between the teacher and the students. These 30 minutes provided the

researcher with a lot of useful data about the nature of nonverbal communication in the classroom. It helped to understand the significance of nonverbal communication in reaching pedagogical goals. The middle phase also provided insight about the close relationship between the verbal and nonverbal modalities. The nonverbal actions occurred along with the verbal exchange which helped in understanding the meaning and significance of the nonverbal movements. The nonverbal communication between the teacher and the students during the initial phase of the class period was to initiate interaction, but in the middle phase the nonverbal behaviours used by the teacher and the students was to *sustain* and *regulate* interaction between them.

Due to a number of reasons no video and audio taping was used to record classroom activities in the present study, the only channels or forms of nonverbal channels that were considered most possible to record by my naked eye were noted. In addition, the movements that seemed to be a part of the flow of interaction between the teacher and the students were recorded. The teacher-student nonverbal communication was not haphazard or random. They were very systematic, patterned and predictable nonverbal actions undertaken to obtain a desired goal shared by all those who formed a part of the classroom. The classroom can be considered as an *interactional territory* or a geographical space wherein *social interaction* takes place between people who have a legitimate right to participate in it (Burgoon & Saine, 1978). Therefore, all those who form a part of the classroom, including me, share a sense of the direction of the interaction.

The earlier literature also provided certain methodological guidelines in recording movement in the classroom for the present study. Birdwhistell (1970) remarked on the *quality* of nonverbal behaviour by noting the intensity, duration and the range of movement in the interaction. Rosenfeld (1982) suggested that in order to measure body motion, the researcher can cite the position or movement of a particular person to a *relative position* of other objects in the environment. Therefore, in the present study, the posture, body orientation and other nonverbal behaviours of the teacher or the students were understood to be relative to each other. For example, as mentioned earlier the teacher's eye gaze was more extended *compared* to the student's gaze towards the

teacher. One very interesting proposition was made by Davis (1972) to record the process of movement and not specific actions. Davis's ideas have special relevance for the present study. According to her, the *process, form, rhythm*, and the *sequencing* of movement is important and not the content of the movement. She offered the use of *adjectives, verbs* and *adverbs* but not nouns in describing body motion. This suggestion has been taken into consideration for the analysis of the patterns in nonverbal communication recorded in the present study.

The three forms or channels of nonverbal communication used by the teacher and the students that were extensively recorded by the researcher are: *hand movements*, the use of *space* and the *eye movements*. The broad patterns in classroom nonverbal communication that were analyzed in detail were in these three forms or channels. Other nonverbal behaviours like head nods, posture were also recorded. However, it was only possible to mainly record routines in the three channels mentioned above. The nonverbal behaviours of the teachers and the students were analyzed as a *cluster* of behaviours occurring together to fulfill a goal.

Before moving on to the elaboration of the patterns in nonverbal behaviours observed in the classroom, it seems important to mention the way the class period came to an end. The **last phase** in the sequence of events was marked by the *abrupt ending* of the class period. The teacher was never observed concluding and recapitulating at the end of the class but giving quick instructions only after the bell rang for the end of the class period. During informal interaction with the teachers the reasons of such an abrupt ending was realized. The teachers believed that the class interaction can take different directions and no matter how well the class is planned beforehand it can never be completely predicted. The striking nonverbal behaviour observed during this phase worth a mention here, was the importance of the *front zone* for the teacher in regulating the class interaction. Just as the bell rang the teacher was observed to move to the front zone from wherever she was in the classroom. Thus, this zone seems to have a special functional value for the teacher in regulating the classroom interaction. This zone

provided the teacher with a front view of all the students and therefore gave her some control over the classroom interaction.

PATTERNS IN CLASSROOM NONVERBAL COMMUNICATION

Hands

The gestures of the teachers and students to communicate with one another formed a very distinguishable part of the classroom interaction. The hand movements were very systematic, undertaken along with speech or even without it. Some hand gestures were intentional and some unintentional or automatic. The 'time-out' sign of the science teacher, which comes under the category of Emblems, primarily used in the initial phase of the class period to settle down the students is an example of a movement used intentionally by the teacher. Besides, the hand movements were used to *substitute*, *emphasize*, and *regulate* the use of words. The functions that the gestures performed are presented below in the form of a chart which provides a quick glance at the significance of gestures in classroom interaction.

CHART I: Hand Movements of the Teachers & the Students Observed during Classroom Interaction.

HAND MOVEMENTS	DESCRIPTION	FUNCTIONS	TYPE OF GESTURES
The teacher pointed at the blackboard, objects, and students in the classroom.	Teacher used her index finger (left & right) to point at the content on the boards, objects used during the class period and also students if they were required to keep silent or even to talk.	To illustrate and emphasize what is being said or shown by the teacher. Substitute the use of words e.g. math teacher pointed at the procedure of a	Pointing movement is an intrinsically coded gesture. Ekman & Friesen (1969) termed it as Deitic illustrator.

(Chart continues)

(Chart I continued)

sum at the board & said "this is like this..." pointing at 'this' but not saying the number or sentences completely.

Teacher pointing at the students indicates her authority or control to the student.

Pointing is a turn-yielding signal used by the teacher to indicate who would talk next.

Students also pointed at the content on the board or charts used for the class. They stretched their arm out and used their index finger to point.

Helped to clarify concepts written far away on the board, and substitute the use of words by pointing at what is being referred to on the board. Pointing is an intrinsically coded movement termed as deitic illustrator by Ekman & Friesen (1969).

The teachers used their hands to indicate or explain concepts being taught in the class. Math teacher used her fingers and hands to trace out the surface of a triangle, circle to teach about the shape & other properties of these figures. The science teacher during explaining about body

This illustrated the concepts being taught in the class. Math teacher's use of gestures to teach about geometrical figures shows a pictorial relationship between the gesture & the object. Science teacher's drawing out a

(Chart continues)

(Chart I continued)

parts used her hands to touch that part on her body.

In another experiment science teacher used her hands to draw in the air or make the shape of the beaker she was using.

Math teacher showed the distance between two parallel lines by holding out her hands parallel to each other at a distance.

picture of the beaker also shows a pictorial relationship. Both are referred to as Pictorial movements by Ekman & Friesen (1969).

Science teacher illustrating the body parts is a Kinetic gesture as categorized by the rules described by Ekman & Friesen (1969).

Showing the distance between parallel lines by the math teacher is a spatial movement (Ekman & Friesen, 1969).

Hands explained abstract concepts	The science teacher explained the concept of growth & development to her students by rotating her hands outwards & in a forward movement.	Hand movements illustrated abstract concepts that cannot always be put in words. It reduced the gap between abstract concepts & tangible ones.	McNeil (1985) termed such symbolization of abstract concepts as Conduit gestures.
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Use of hands to settle down the children	The science teachers unique 'time-out' sign. The finger on the lips used frequently by the teachers in the initial phase of the class period.	These intentional gestures helped the teachers to communicate with the students when external	The 'time-out' sign comes under the category of Emblems. The finger on lips act is an intrinsically coded gesture (Ekman &
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(Chart continues)

(Chart I continued)

		circumstances like Friesen, 1969). noise did not make verbal exchange possible.	
Hand movements of both the teacher & students during conversations between them.	They were rapid and small hand movements usually occurring during discontinuity in conversation like hesitations, silences, pauses.	They regulated the flow of speech in the conversation.	McNeil (1985) termed it as Beats: movement with no propositional content but serves as a visual indicator. Batons were a name given by Ekman & Friesen (1981) to such gestures. Some were also regulators (Ekman & Friesen, 1981) as they regulated speaking and listening between the teacher & students.
The students raised their hands in order to talk aloud.	They outstretched their right arm & hand in the air.	It worked as a turn-taking signal as it indicated to the others the student's intention to talk. This led to a flow in the classroom interaction.	It is a Kinetic movement (Ekman & Friesen, 1969).
Hand movements to indicate direction.	Moved the right hand forward or outward when saying right & movement of the left hand when verbally specifying left.	Regulated a flow in the interaction & also illustrated the words being used.	Such hand movements have been called Kinetographs (iconically coded) as it is a kinetic behaviour (Ekman & Friesen, 1969).

(Chart continues)

(Chart I continued)

The social studies teacher used the palm of her hands & the fingers to cover her face while dictating or reading from the textbook.	She placed her elbows on a table while sitting & covered the sides of her face with her palms without covering her eyes. She was also observed holding her forehead in her palms with head bent downwards.	Reduce the effect of noise. Ignoring or avoiding the students & their nonverbal behaviour.	Ekman & Friesen (1969) categorized such gestures as self-adaptors designed to satisfy some physical & emotional need.
Students used gestures while explaining answers or talking about some concept.	Certain hand movements were used intentionally to describe something for e.g. a student made a small circle with her hand & simultaneously said zero. Also drew some objects or symbolized concepts. Some gestures were small & simple movement of the hands while explanation which did not have any meaning of their own. Such hand movements were more at the beginning of the answer especially when not sure of the answer. When the student preceded with his/her answer the gestures reduced in number.	Helped the students to comprehend the answer. Students made a lot of rapid movements when not sure of the answer. Such gestures serve as an indicator to the teacher of the students' conceptual understanding.	Certain gestures were pictorial, spatial & rhythmic in nature. The small hand movements which had no specific content of its own were Beats. The gestures that occurred to give body to abstract objects, concepts & ideas, have been named Metaphorical gestures (Roth & Lawless, 2002).

As can be inferred from the chart above, a range of gestures was observed in the classroom. Both the teachers and the students heavily relied on gestures to communicate

with one another. The teachers used their hands while teaching concepts, conducting experiments and activities. The teachers made the learning process interesting for the students by using their hands. This way the teachers were able to not only attract the attention of students but also teach a concept with relative ease. The functions that the various gestures fulfilled were to *initiate*, *regulate* and *sustain* the flow of interaction by *emphasizing*, *highlighting*, *substituting* and *supporting* the verbal messages.

One very vital function of gestures among the students was that the gestures provided an indication of their conceptual knowledge. It has been mentioned in the chart above, but needs some further emphasis because it has important implication for classroom learning. Goldin-Meadow, Alibali, and Church (1993) stated that a child's gestures provides the adult with a mechanism by which the adults can regulate their inputs to the child. In the scenario of a classroom the teacher can make her teaching more effective by being sensitive to the gestures of the students. Goldin-Meadow et.al. (1993) specified the importance of noting the gesture-speech mismatches in children to understand the level of comprehension. In the present study, no such mismatches were recorded when the students answered, however, the significance of gestures in providing a yardstick of their conceptual understanding cannot be denied. Knapp (1977) also mentioned that the teacher can use the gestures of the students to know if what is being taught is understood or not.

In all, the gestures have a functional significance in augmenting interaction between the teacher and the students. Most of the gestures occurred during the middle phase of teaching-learning process. It can be stated that the gestures help the teacher to accomplish pedagogical functions.

Eye Movement

The eye movements formed important aspects of classroom communication like the hand movements. It was more difficult to observe the precise movements of the eyes than the hands, however, over a period of time certain patterns emerged that were carefully recorded. Just as the hands performed certain functions in the regulation of the classroom interaction between the teacher and the students, the eye movements also

fulfilled certain functions. The importance of communication through the eyes was observed in the class periods when the teachers dictated from the textbook and so did not look or maintain eye contact with the students. In such instances, the students were observed sharing glances, talking to each other and getting distracted. A chart would help to systematically show the different forms of eye movements and what it indicated about the classroom interaction.

CHART II: The Different Forms of Eye Movements of the Teacher and Students in the Classroom.

EYE MOVEMENTS	INDICATIONS
The teacher expected students to look at her & face her while she taught. Instances recorded where teacher said "face me" or "listen to me", expecting the students to look at her.	This indicates the importance of <i>visual stimulation</i> in teaching & understanding in the classroom. This way the teacher knew the students who were attentive to her.
The teachers' gaze was more frequent & extended than that of the students. The students rarely looked straight at the teacher & when they did, they always looked away first.	Teachers used their eyes to show <i>authority</i> & higher status than the students in the classroom. It also indicates their <i>control</i> over the classroom interaction. For instance, during a math class, the teacher punished the students but they did not realize it till she <i>stared</i> at them.
While the teacher talked & a student interrupted her, she briefly glanced at the student & looked away to continue with her discourse.	The eyes functioned as a turn-taking signal. During interruption the teacher's brief glance was a <i>turn-retaining</i> signal to the student.
When she wanted a student to speak or address the class she looked directly at the student.	It was a <i>turn-yielding</i> signal when she looked at the student required to speak (Duncan, 1972).
Eye contact during one-to-one conversation between the teacher and a	This indicates the <i>synchronization</i> & <i>rhythmic coordination</i> between the teacher & the student.

(Chart continues)

(Chart II continued)

student.

The teacher & the students maintained eye contact when the flow of their ideas were coordinated & in the similar direction.

They looked at each other at the start of the conversation, followed by looking away & looking back at each other.

Looking away usually happened by the person comprehending what to say (during hesitations). Also the speaker looked away more than the auditor.

While teaching the teacher very rarely looked directly at the students sitting very close or far away from her in the classroom. These students were also less interactive in classroom interaction.

Kendon (1970) studied similar instances of interactional synchrony between the speaker & auditor which made possible the coordination of their expectancies.

Looking in the eye (eye contact) involves a series of rapid & repeated scans of the other's face (Cook, 1979).

Kendon (1967) reported similar findings, which said that people looked away when they started to speak, answer a question or when hesitating. Also people look at the other more while listening than while talking.

The teachers' line of regard or *range of eye gaze* was limited to those sitting in the middle zone of the classroom. This zone is where the teachers' eye gaze reached when she looked forward. Sommer (1969) reasoned that the students sitting at the back did not interact more because of the eye-contact hypothesis, that they did not have a clear view of the teacher. But no study indicated the reason why the teacher did not look much towards students sitting very close to her.

Thus, it can be seen from the chart above that the teachers and the students communicate a lot through their eyes. Their expectations and intentions were signaled by their eye movements. Some very interesting features of classroom interaction are unraveled in the present study by observing the patterns in eye movements. The extended eye gaze of the teacher towards the students indicates the relationship shared between the teacher & the students. Power status and role divisions are made clear to the students by the eye movements of the teacher. Informal interaction with the math teacher outside the classroom revealed to me that the teacher training program emphasizes on

making eye contact with the students while teaching. Further systematic work is required in this area to recognize significant aspects of the classroom communication.

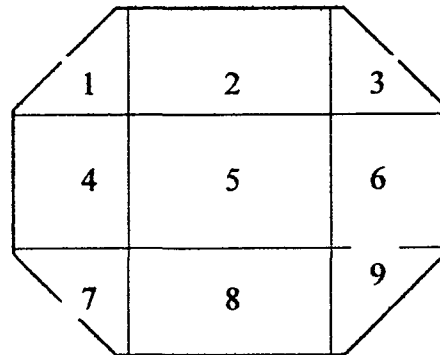
Classroom Space

The study of the classroom environment and space comes under the field of ecological psychology the study of which is expanding in the recent years. Jones (1995) stated that the way the teacher organizes her class space indicates what she wants and her beliefs about the learning process. The use of classroom space in the present study provided a lot of vital information about an aspect of nonverbal communication that does not form a part of the human body, but communicates through the use of objects in the environment.

The description of the classroom is provided in detail in Chapter 2. In brief it can be said that the classroom was very well equipped, clean and attractive. The classroom had a black board & white board fixed on the wall in the front centre zone of the classroom. There were windows which led to adequate light and air in the classroom. Artificial light was also sufficiently available in the classroom. Lockers were provided to the students and the teachers, which were marked with their names for convenience. The walls were painted with a cream shade and the furniture contrasted with the wall colour. The furniture was not heavy and easily moveable. In short, the classroom had enough space which was also well equipped and appropriately managed by the teachers. It stood apart from the general image of a classroom which is dim, dull & unattractive. Burgoon and Siane (1978) argued that the “classrooms we have seen would clearly qualify as ugly environments” (p.106). However, the environment and the arrangement of the classroom studied in the present research were attractive and well equipped.

In the present study, the classroom observed was divided into zones to understand the use of space and the interaction in each zone. Jones (1995) also confirmed that the classroom space is divided into different zones in which people behave differently. In the present study there are nine zones in which the classroom is divided. They are as follows:

1. Left front corner zone
2. Front centre zone
3. Right front corner zone
4. Left middle corner zone
5. Middle centre zone
6. Right middle corner zone
7. Left down corner zone
8. Down centre zone
9. Right down corner zone



It was observed that the front and the middle centre zones were the most used areas or zones in the classroom by the teachers. The teachers extensively used the front centre zone where the blackboard was fixed on the wall. The middle centre zone was also used by the teachers to move around, to closely observe the students, and to explain while teaching. The students also moved around a lot in the middle centre zone. They were observed to form groups in this zone between the class periods. The students and the teachers were physically the closest in the middle centre zone. The middle left and right corners (no. 4 & 6) were rarely used by the teachers and the students during the class period. The down left and right corners (no. 7 & 9) were the least used areas in the classroom. The students used it only after some class periods as their lockers were present in the right down corner. Therefore, the *front centre* and the *middle centre* zones were the *action zones* of the classroom where most interaction between the students and the teacher took place. In the diagram above, number 2 and 5 are the action zones. The fact that the middle centre zone was also frequently used by the teacher to communicate with the students during teaching indicates that the teacher was a guide and a facilitator to the students as she did not just stand in front of the classroom and conducted the lesson but involved herself in the work of the students.

Seating arrangements

As has been mentioned earlier, three different seating arrangements were tried by the class teacher during the time of observation of the class. The description of the arrangement and its implication in the classroom are presented in the form of a chart given below.

CHART III: The Three Seating Arrangements Observed in the Classroom.

No	DESCRIPTION OF THE ARRANGEMENT	ZONE COVERED	TEACHER'S ROLE	EXPECTATIONS FROM THE STUDENTS	INTERACTION BETWEEN TEACHER & STUDENTS
1.	The students' desks divided into two rows facing the boards separated by an aisle. The students faced each other. Teachers' table was not in the front but in the middle left corner zone. One student made to sit in the front centre zone.	The desks started from the front zone & stretched vertically to the down centre zone. The right rows of the desks were more in the right corner of the classroom.	Teacher was a listener & a guide. Some control over students was available.	The students were expected to collaborate in the classroom activities & interaction.	The students sitting in the middle zone interacted most during classroom discussions. The students towards the corners & in the back (down zone) were less interactive & got distracted easily.
2.	This arrangement came close to the horse-shoe	The first group of desk was partly in the front centre	The teacher was a collaborator.	Students not considered as empty vessels	The students sitting closer to the middle

(Chart Continues)

(Chart II continued)

- | | | | | |
|---|--|--|---|---|
| <p>arrangement. The desks were divided into four groups of desks & placed in a sort off semi-circle. The students faced each other & teachers' table in the middle left corner zone. Again one student sat in the front centre facing the boards.</p> | <p>zone extending to the left front & left middle corner zones. Another group was partly in the middle centre & down centre zone. Third group was partly in the front centre, middle centre & corner zones also. Fourth group was in the middle centre & down centre zone.</p> | <p>The control over students in this arrangement reduced.</p> <p>The teacher had the most control on the students & classroom interaction. But the teachers' table in the corner indicated that she was still a facilitator.</p> | <p>but active participants in the classroom interaction.</p> <p>The students sitting in the sides or corner zones were less interactive, along with the ones in the down zones. Though the students earlier sitting in the back came closer to the front. The student-student interaction also increased.</p> <p>The students were expected to concentrate on their individual work & examinations. Lack of freedom of exploration.</p> | <p>centre zone participated more in discussions. The students sitting in the sides or corner zones were less interactive, along with the ones in the down zones. Though the students earlier sitting in the back came closer to the front. The student-student interaction also increased.</p> <p>Very less interaction between the teacher & students. Only individual assignment given & evaluated.</p> |
| <p>3. This arrangement was closer to the traditional arrangement except that the teachers' table was still not in the centre but in the left front corner zone. Students sat in pairs directly facing the boards.</p> | <p>Some students' desks were in the middle left corner zone, some in the front centre & middle centre zone.</p> | <p>The teacher had the most control on the students & classroom interaction. But the teachers' table in the corner indicated that she was still a facilitator.</p> | <p>The students were expected to concentrate on their individual work & examinations. Lack of freedom of exploration.</p> | <p>Very less interaction between the teacher & students. Only individual assignment given & evaluated.</p> |

The students in the first two arrangements were encouraged to interact among themselves, as can be seen from the chart above. The students sitting next to each other interacted more among themselves than those sitting far away. Even students sitting opposite each other or facing each other talked more to each other. Similar findings were reported by Sommer (1959). He stated that people interact more with people in the neighboring chairs than distant ones. Mehrabian and Diamond (1971) also declared that immediacy is a correlate to the amount of conversation, however in their study the participants were strangers.

Another study that confirms the findings of the present research is by Getzel, cited in Jones (1995). According to him, a classroom where students' chairs are moveable and the teachers' table is in the corner conveys to the learner that he is an active collaborator. In all the seating arrangements cited above in the chart, the teachers' table was in the corner. Even in the last arrangement which was similar to the traditional arrangement, the table was put in the corner. Further, Getzel reported that when students' chairs are placed in a circle with no teachers' table, the learner is a social learner. In the second arrangement the students' chairs especially the ones inwards in the middle center zone, formed a sort off semi-circle. The students in this case, mostly the ones sitting in the middle zone, interacted and participated actively.

Studies have also revealed that the students sitting in the sides and back rows or in the back zone of the classroom participate lesser than those in the front (Jones, 1995). Sommer (1969) has shown that the front zone and sides are where the classroom interaction is concentrated. However, an interesting finding of the present study is that the students sitting in the front or closest to the front zone did not interact as much as those in the middle zone. Therefore, the students in the middle zone were the most interactive students in the classroom observed. One reason could be that these students in the middle zone had a clear view of the teacher and the teacher also had a clear view of these students and therefore they communicated freely with each other. It can also be reasoned that the front centre zone was an area in the class mostly used by the teacher to

teach and write on the boards; therefore, students sitting close to this zone were too close to her and did not come in the line of regard of the teacher.

The action in the front zone and the teachers' use of the boards were interesting findings of the present study. In using the boards to put down the content being taught, the teacher also communicated a lot nonverbally. The way the teacher pointed at the boards to illustrate or substitute the verbal message has been mentioned above. Along with this, the teacher also made sure that she kept her *oriented to the students and looked towards them* while using the boards so that they don't get distracted. The math teacher especially dictated simultaneously while writing and so kept her body oriented towards the students. She did this by moving from the left to the right, leaving the middle part of the board to write. The science teacher did not dictate while writing and turned her back towards the students. This constant turning of the teacher towards the board to write disrupted the rhythm or flow in interaction between the teacher and students. Therefore, when the teacher turned her back towards the students, they talked among themselves, looked around and also moved around. At the same time, it can be reasoned that the turning away of the teacher from the students to write on the board possibly gave her a few seconds to think of what to write on the board. While explaining something that is not well formulated, looking away helps to comprehend ideas.

NONVERBAL AND VERBAL BEHAVIOUR

Nonverbal behaviour and verbal behaviour are equally important modalities of communication possessed by human beings. In the above description no specific mention was made about the relationship between verbal and nonverbal communications, however the description gives an idea of how these two modalities are interconnected. The nonverbal movement closely related to verbal transmission and also closely researched with language is gestures. Ekman and Friesen (1981) have given a list of gestures and how they are related to speech. For instance, the category of gestures called Emblems has a direct verbal translation. In the classroom observed in the present study, the 'time-out' sign of the science teacher is an Emblem. In the process of observation the verbal exchange between the teacher and the students provided a

guideline about the meaning of *nonverbal* actions. McNeil (2003/2004) recently reported that speech and action are synchronized and mutually shaped each other. He stated that iconic actions are related to speech as they provide an *image* of the meaning in part.

The findings of the present study show the variety of gestures used by the teachers and students to communicate with each other (refer to Chart I on p.12). There were hand movements that have a direct verbal translation (Emblem), those which symbolized abstract concepts (Conduit gestures), and also those which did not have any content put regulated the flow of speech (Batons). All these hand movements occurred along with speech and also during discontinuation in speech like hesitations, but they were clearly intertwined with the *flow of speech*. DeLong (1981) also indicated that kinetic activity is not uniformly distributed through out the utterances. According to him, leftward and downward kinetic activity increased as the end of utterance was approached. Similarly it was observed in the present study that when the student answered standing up in his/her position, close to the end of the answer the student nodded his head, lowered his hands, looked towards the teacher and sat down in his chair.

Therefore, it cannot be denied that verbal and nonverbal communications are closely interrelated but the relationship is not a direct simple one. McNeil (1985) stated that gestures only occur during speech. On the other hand, Butterworth and Hadar (1989) argued that gestures also occur without speech. In the classroom observed for the present research instances were cited were gestures were observed without speech, however they occurred during hesitations or noise to provide a continuity or flow to the speech. Therefore, an answer to such a debate is not easily available. The present study has not attempted to solve the debate about which modality is more important in the classroom communication process. On the contrary the study has attempted to understand the way *both* these modalities *augment* and *regulate* classroom interaction between the teacher and students.

Instances in the classroom showed interactional synchrony between the teacher and the students, for example when the teacher taught and the students coordinated movement with the speech and movement of the teacher indicate the close relationship between speech and action. The teachers and the students during such coordinated

rhythmic interaction maintained eye contact, oriented their bodies and posture in the same direction. Instances like dictation by the teacher, writing on the board with her back towards the students, and other such instances when the coordination or flow in interaction was not established between the teacher and the students, the students were observed to be distracted and the interaction between them lacking direction.

Also a smooth flow of conversation between the teacher and students when both exchanged turn-taking signals show the functional value of both language and nonverbal behaviours. The backchannels employed by the students like head nodding, eye contact provided a feedback to the teacher but more importantly *confirmed* her role as a speaker (Burgoon & Saine, 1978). The close relationship between verbal and nonverbal modalities in regulating classroom interaction was observed during instances when the teacher verbally and nonverbally appreciated or reinforced the students by smiling, nodding and also verbally saying “good”. The students reciprocated the appreciation by producing nonverbal behaviours like smiling back at the teacher.

Further investigations are required to get a clearer idea about the close relationship between verbal and nonverbal communication. Duncan (1981) puts it appropriately when he states that relationship between language and nonverbal communication would become clearer when “more is understood about how synchronous and sequential nonverbal elements are organized” (p.134).

NONVERBAL COMMUNICATION IN EXTRA-CURRICULAR ACTIVITIES

The various activities that took place in the different extra-curricular class periods that were observed in the present study have been described in chapter 4. In this section an attempt is made to specifically mention the nonverbal communication that took place in the extra-curricular periods and how they deviated from the regular classroom interaction.

The main differences between the two types of class periods divided for the present study is in content and context. The subject class periods have a specific curriculum which requires the teacher to teach in a more structured way than the extra-curricular subjects. Even though the subjects like sport, drama were not considered “extra”

curricular in the school that was studied, the teachers looked less pressurized and more relaxed than their colleagues teaching math, science or social science. The teachers of the extra-curricular subjects finished their class periods before the bell rang at the end of the period. Unlike the subject teachers they gave all instructions before the bell rang and class period never ended abruptly. The students also never looked restless and eager to leave after the bell rang. In fact, the teacher had to ask them to go back to their classrooms.

The extra-curricular classes took place outside the regular classroom where the subject classes took place (except the Literature in action class). The drama and physical education classes happened in open spaces like playground or courtyard. The sculpture and crafts classes took place in two different classrooms assigned specifically to these subjects. The rooms were more spacious than the regular classrooms. They also had less furniture and more moving around space. The furniture was arranged in a way that the students could work in groups. Therefore, there was more student-student interaction in these class periods than the subject periods. The teachers' table was used to keep material but was only rarely occupied by the teacher. The students' work was assessed by the amount of hard work and creativity they put in their work. The teachers moved around among the students and also joked with them along with teaching them things. They also participated in the group activities of the students. For instance, the drama teacher usually joined a group of students and contributed ideas.

The nonverbal communication between the teacher and the students during the extra-curricular classes was different in some ways from the regular classroom interaction. The students used their hands, eyes and body more freely to express themselves. In the drama classes the students used the available space very creatively to express their ideas. In the sculpture classes they maintained eye contact with the teacher for a long time while they explained something. In the physical education classes they used their hands to touch each other and express their feelings. Thus, all the extra-curricular class periods seem to provide them with more freedom to communicate nonverbally. The students' nonverbal behaviour was observed to be more free, open and uninhibited than during the regular class periods.

In the drama classes the students were observed using a number of gestures while playing a concentration game with the teacher. In brief, the game required the students to pay attention if their name was called and then as it was required, to name the partner sitting on the left or right. When a student name was called the student moved forward or raised his hand. While saying the name of the partner the student looked in the direction of the partner and also gesticulated or pointed towards that partner. The *kinetic movement* of the students was considered essential for such games. Other *spatial* and *pictorial gestures* were also observed during other games. Students also gesticulated and pointed at each other during the games. Therefore, the drama classes provided the students with the opportunity to test their concentration, speed, creativity and body movement. Along with the drama classes the teachers in other extra-curricular classes were also very friendly and informal. Their nonverbal behaviour was also different. They smiled at the students more and also touched them often. For example, the physical education teacher stood close to the students and touched them on the shoulder to explain the rules of the games.

A striking feature of the extra-curricular periods was that the students glanced and *maintained eye contact* with the teachers *frequently*, unlike in the regular class periods. For instance, in the concentration games conducted in the drama classes, it was observed that the students maintained eye contact with the teacher. The extra-curricular periods gave an opportunity to the students to look directly towards their teachers. Also, the teachers' informality and casualty reduces the threatening nature of their eye gaze. This also indicated the difference in the nature of relationship between the teacher and the students in the two types of class periods.

Thus, the difference in subject matter and context brought about a difference in the nature of interaction, nonverbal communication and nature of relationship between the teacher and the students.

The observations of the Literature in action (LIA) class period indicate the nature of nonverbal communication when there was a difference in the subject matter from the math, science and social science periods but not the context in which the subject was taught. The LIA classes took place in the regular classroom and the students sat in their

assigned places. One significant finding which resulted from the observation was that the LIA teacher used the front zone in the same way the other subject teachers used it. The LIA teacher started and ended her class period by standing in the front centre zone. This further indicates the importance of the *front zone* in regulating the interaction in the classroom. The manner in which the LIA teacher used the classroom space came close to the ways of the other subject teachers. Therefore, even though the arrangement of the regular classroom shows the beliefs and expectations of the teachers towards the students, the above findings point out that there are certain constraints in-built into the classroom space such that it can only be used in certain specific ways.

At the same time, if the teachers are aware about the constraints of the classroom they can use various deliberate nonverbal strategies; just as some teachers in the present study did, to facilitate classroom communication. For instance, similar to the other teachers, the LIA teacher did not look towards the students sitting in the sides and the back of the classroom. This resulted in few students not participating actively in the classroom interaction. Unless the teachers are trained to be sensitive to their nonverbal behaviours such barriers in communication would persist.

Investigations of nonverbal communication in different class periods within a particular school can indicate the way in which the differences in nonverbal communication between the regular class periods and extra-curricular periods are systematically related to the *purposes* of these subjects. It also shows creative ways in which students' participation and interest is captured and sustained by the teachers.

SUGGESTIONS FOR FURTHER RESEARCH

The present study is an effort in the exploration and understanding of a complex phenomenon of nonverbal communication. It would not be an exaggeration to state that the understanding of nonverbal communication is limited. There is a lack of systematic work regarding nonverbal communication not only in the field of psychology but also other fields. This study is just an attempt to fill that void.

The present study indicates a demand on the part of psychologists, sociologists, anthropologists, communication experts and others from diverse field to invest their time

and effort in unraveling this vital aspect of the communication process. Much effort is required in understanding the reasons behind referring to an important human ability as “*non*”-verbal, which sounds as a residual category. Indeed it points towards the dual nature of the field of psychology and others claiming to study human nature.

There is a necessity to capture the various facets of nonverbal communication. This requires quantitative as well as qualitative efforts by researchers. There is also a need to explore the nature of nonverbal communication in different social settings like the classroom. At present here seems to be a paucity of studies of nonverbal communication in the classroom setting. The Indian classroom communication has only been studied with respect to the verbal communication between the teacher and the students. In general, there is a paucity of nonverbal communication research in school-aged children (Evans & Rubin, 1979). Research in classroom settings would provide greater theoretical clarity that is presently lacking in this field. Application of significant findings of the research is also vital to the process of understanding nonverbal communication. The relationship between gestures and students’ conceptual knowledge reported in the present study can be applied in the classroom setting to help the teachers.

The relationship between nonverbal and verbal communication is not much explored. Researchers need to move beyond finding the superiority of one over the other or determining which one is the predecessor of the other. Rather researchers should concentrate towards understanding the interrelation and interconnection between the two modalities in regulating the flow or process of interaction. Future researchers should consciously make an attempt *not* to start their study by focusing on either the individual nonverbal acts, or the structure of the interaction process, because *both* the aspects are important. The researchers need to be sensitive towards the complexity of the communication process.

CONCLUSION

The present research is an effort towards understanding the phenomenon of nonverbal communication in the classroom setting. Based on the findings, two main conclusions can be stated as follows:

- The study indicates the functional value of nonverbal communication in facilitating classroom interaction.
- It shows the importance of nonverbal communication in the classroom interaction and that nonverbal communication needs to be systematically investigated.

The understanding of nonverbal communication can be used to teach people the skills of successful communication. The teachers and the students use nonverbal behaviours to communicate with each other; however, they need to be more conscious of their nonverbal actions as well as that of others. For instance, if the teacher of the classroom studied is made aware of the fact that she does not look much towards the students sitting on the sides and back of the classroom and therefore they interact less in discussions, she would rearrange her classroom such that every student participates or the teacher would indulge in certain strategies to include all the students in the interactions. Detail knowledge of the nonverbal behaviours of people makes it possible to modify the behaviour of those who cannot effectively communicate with others.

The present study has other important implications for the classroom setting. Various nonverbal behaviours of the students can be used by the teachers to reach their feelings, expectations, and learning in the classroom. The study shows that the some teachers use these nonverbal behaviours of the students as a signal; however, if the teachers are adequately trained or made sensitive they can make their class interaction more effective. The students can also be made sensitive towards the nonverbal actions of the teachers such that a flow or smoothness in classroom communication occurs.

A more systematic effort needs to be directed towards this end. The present study is just a beginning towards such a direction. Investigation in the field of communication is a rich new territory which would benefit people in a number of ways. In the words of Harrison and Wiemann (1983) "It seems likely that nonverbal research will continue to enrich and illuminate our understanding of human communication" (p.282).

REFERENCES

Argyle, M. (1980). Verbal and non-verbal communication. In J. Corner, & Hawthorn, J. (Eds.), *Communication Studies: An Introductory Reader* (pp. 50-61). London: Edward Arnold Ltd.

Argyle, M. (1972). Non-verbal communication in human social interaction. In R.A.Hinde (Ed.), *Nonverbal Communication* (pp. 243-269). Cambridge: Cambridge University Press.

Barnes, D. (1976). *From Communication to Curriculum*. England: Penguin Books.

Becker, R.D., Sommer, R., Bee, J., & Oxley, B. (1973). College classroom ecology. *Sociometry*, 36, 514-525.

Birdwhistell, R.L. (1970). *Kinesis and Context: Essays in Body-Motion Communication*. Philadelphia: University of Pennsylvania Press

Blumer, H. (1968). *Symbolic Interactionism: Perspective and Method*. New Jersey: Prentice Hall Inc.

Burgoon, J.K., & Saine, T. (1978). *The Unspoken Dialogue: An Introduction to Nonverbal Communication*. Boston: Houghton Mifflin Co.

Butterworth, B., & Hadar, U. (1989). Gestures, speech, and computational stages: A reply to McNeil. *Psychological Review*, 96, 168-174.

Cook, M. (1979). Gaze and mutual gaze in social encounters. In S. Weitz (Ed.), *Nonverbal Communication: Readings with Commentary* (pp. 77-85). New York: Oxford University Press.

Critchley, M. (1975). *Silent Language*. London: Butterworth group Press.

Daniels, T.D., & Spiker, B.K. (1987). *Perspectives on Organizational Communication*. USA: Brown Publishers.

Darwin, C. (1979). The expression of the emotions in man and animals. In S. Weitz (Ed.), *Nonverbal Communication: Readings with Commentary* (pp. 49-53). New York: Oxford University Press.

Davis, M. (1979). Laban analysis of nonverbal communication. In S. Weitz (Ed.), *Nonverbal Communication: Readings with Commentary* (pp. 182-206). New York: Oxford University Press.

DeLong, A.J. (1981). Kinesic signals at utterance boundaries in preschool children. In T.A. Sebeok, & J.U. Sebeok (Eds.), *Nonverbal Communication* (pp. 251-279). The Hague, Paris: Mouton Publishers.

Duncan, S. (1972). Some signals and rules for taking speaking turns in Conversation. *Journal of Personality and Social Psychology*, 23, 283-292.

Duncan, S. (1969). Nonverbal communication. *Psychological Bulletin*, 72, 118-137.

Ekman, P. (1965). Differential communication of affect by head and body cues. *Journal of Personality and Social Psychology*, 2, 726-735.

Ekman, P. (1957). A methodological discussion of nonverbal behaviour. *Journal of Psychology*, 43, 141-149.

Ekman, P., & Friesen, W.V. (1981). The repertoire of nonverbal behaviour: categories, origins, usage and coding. In T.A. Sebeok, & J.U. Sebeok (Eds.), *Nonverbal Communication* (pp. 57-105). The Hague, Paris: Mouton Publishers.

Evans, M.A., & Rubin, K.H. (1979). Hand gestures as a communicative mode in school-aged children. *The Journal of Genetic Psychology*, 135, 189-196.

Exline, R.V., & Fehr, B.J. (1982). The assessment of gaze and mutual gaze. In K.R. Scherer, & P. Ekman (Eds.), *Handbook of Methods in Nonverbal Behaviour Research* (pp. 94-129). USA: Cambridge Univ. Press.

Galanes, G.J., & Brillhart, J.K. (1991). *Communicating in Groups: Applications and skills*. USA: Brown Publications Inc.

Goldin-Meadow, S., Alibali, M.W., & Church, R.B. (1993). Transitions in concept acquisition: Using the hand to read the mind. *Psychological Review*, 100, 279-297.

Gudykunst, W.B., Ting-Toomey, S., & Chua, E. (1988). *Culture and Interpersonal Communication*. New Delhi: Sage Publication.

Hall, E. (1959). *The Silent Language*. New York: Doubleday & Co.

Harper, R.G., Wiens, A.N., & Matarazo, J.D. (1978). *Nonverbal Communication: The State of the Art*. Canada: Wiley and Sons Publishers.

Harrison, R.P., & Wiemann, J.M. (1983). Implications for theory, research, and practice. In J.M. Wiemann, & R.P. Wiemann (Eds.), *Nonverbal Interaction* (pp. 271-285). California: Sage Publications.

Honey, P. (1988). *Face to Face: A Practical Guide to Interactive Skills*. USA: Gower Publishing Limited.

Jones, R.A. (1995). *The Child-School Interface: Environment and Behaviour*. London: Cassell Publishing.

Kendon, A. (1983). Gesture and speech: How they interact. In J.H. Wiemann, & R.P. Harrison (Eds.), *Nonverbal Interaction* (pp. 13-45). California: Sage Publications.

Kendon, A. (1982). The organisation of behaviour in face-to-face interaction: observations on the development of the methodology. In K.R.Scherer, & P.Ekman (Eds.), *Handbook of Methods in Nonverbal Behaviour Research* (pp. 440-505). USA: Cambridge University Press.

Kendon, A. (1972). Review of kinesics and context by R.L.Birdwhistell. *American Journal of Psychology*, 85, 441-455.

Kendon, A. (1970). Movement coordination in social interaction: Some examples described. *Acta Psychologica*, 32, 100-125.

Kendon, A. (1967). Some functions of gaze-direction in social interaction. *Acta Psychologica*, 26, 22-63.

Knapp, M.L. (1977). The role of nonverbal communication in the classroom. In J.W.Civikly (Ed.), *Messages: A Reader in Human Communication*. NY: Random House.

Lee, V. (1990). *Children's Learning in School*. Milton Keynes: The Open Univ.

McNeil, D. (2003). Aspects of aspects. *Gesture*, 3, 1-17. [From *Linguistics and Language Behaviour Abstracts*, 2004, 38]

Mc Neil, D. (1985). So you think gestures are nonverbal?. *Psychological Review*, 92, 350-371.

Mehrabian, A. (1977). Communication without words. In J.M.Civikly (Ed.), *Messages: A Reader in Human Communication*. New York: Random House.

Mehrabian, A., & Diamond, S.G. (1971). Seating arrangement and conversation. *Sociometry*, 34, 281-289.

Pace, R.W., & Faules, D.F. (1989). *Organizational Communication*. New Jersey: Prentice Hall.

Rosenfeld, H.M. (1982). Measurement of body motion and orientation. In K.R. Scherer, & P. Ekman (Eds.), *Handbook of Methods in Nonverbal Behaviour Research* (pp. 199-275). USA: Cambridge Univ. Press.

Rosenthal, R., Hall, J.A., DiMatteo, M.R., Rogers, P.L., & Archer, D. (1979). *Sensitivity to Nonverbal Communication: The PONS Test*. London: John Hopkins Univ. Press.

Roth, W.M., & Lawless, D. (2002). Scientific investigations, metaphorical gestures, and the emergence of abstract scientific concepts. *Learning and Instruction*, 12, 285-304.

Sacks, H. (1992). Turn-taking: the notion, conversation, noticeable absences; greetings, adjacency. In G. Jefferson (Ed.), *Lectures on Conversation: Vol.II* (pp. 32-36). USA: Cambridge Press.

Shipman, M.D. (1976). *The Sociology of the School*. London: Longman.

Sommer, R. (1959). Studies in personal space. *Sociometry*, 22, 247-260.

Storey, R. (1997). *The Art of Persuasive Communication*. USA: Gower Publishing Ltd.

The Carpet and Rug Institute (2001). *The importance of interior design elements as they relate to student outcomes*. Athens: Tanner, K.C., & Langford, A. [<http://www.carpet-rug.com/index.cfm>]

Verderber, R.F., & Verderber, K.S. (1977). *Inter-Act: Using Interpersonal communication Skills*. USA: Wordsworth Publishing Company.

Weimann, J.M., & Harrison, R.P. (1983). *Nonverbal Interaction*. California: Sage publication.

Wood, J.T. (1982). *Human Communication: A Symbolic Interactionist Perspective*. New York: Holt, Rinehart, Winston.

Woods, P. (1983). *Sociology and the School: An Interactionist Viewpoint*. London: Routledge & Kegan Paul.



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