The Study of Nonverbal Behavior and its Applications: State of the Art in Europe

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The increasing interest in nonverbal behavior that is to be found in Europe can be attributed to various sources. The scientific study in this field might be regarded in part as an extension of the European tradition of the psychology of expression. Current theoretical and methodological developments can be traced back to this tradition.

Psychology and ethology are among those disciplines in which European research has made major contributions to the understanding of basic principles in human communication with reference to nonverbal expression and processes of impression formation. The research in nonverbal behavior coincides with a recent trend towards the study of emotions, in which nonverbal expression serves as an important source of information in addition to physiological measures and verbal reports. In psychiatry and in clinical, organizational, and educational psychology, nonverbal behavior is used in a variety of ways, in social skills training and in understanding and improving interaction among patients and therapist, children and parents, couples, and civil servants and the public.

Despite these developments, which have led to a number of new therapeutic and diagnostic procedures, there is still a gap to be overcome: In addition to time-consuming techniques of behavioral micro-analysis, which are available and necessary in research, simpler methods are still needed for the practitioner.

Introduction

There is no specific European way for the study of nonverbal communication – there are as many ways as there are disciplines which contribute to the field. There are no specific topics chosen in Europe – studies on nonverbal communication cover the whole range of phenomena which might be included under this heading.

Instead of trying to be exhaustive and tautological, some selected aspects will be taken up in this survey; historical origins, some examples of theoretical and empirical research, and of methodological developments and application.

Culture-Specific Interests?

Generally speaking, one can locate special interests in the various aspects of nonverbal communication to different European countries.

Facial expression is studied to a large extent in the countries with Germanic languages – Germany, Switzerland, and the Netherlands. A lot of work on gaze and speech is done in Great Britain. Gestures and sign language, whilst studied quite often in Germany and Switzerland, are studied especially in Italy, thus somewhat strengthening a prejudice on the use of gestures in southern cultures. Speech and voice as vocal nonverbal elements are studied mainly in Great Britain and Germany. Surprisingly enough, there is little psychological study of nonverbal communication in northern countries such as Denmark, Sweden, Norway, or Finland. One could speculate on the reason for this lack of interest. Is little attention given to nonverbal phenomena in everyday life? or is it only a minor part within the communication processes of these cultures? In addition, comparatively little has yet been investigated systematically on gender differences by European researchers (see, however, a review by Vrugt & Kerkstra, 1982). Great concern has always been given by European researchers to methodological developments and their critical evaluation. This holds for nearly all aspects of nonverbal behavior.

Taking Europe as a whole, Great Britain, Italy, Switzerland, and West Germany are the countries where, over the longest period of time, various groups have been active in nonverbal communication research.

Various fields contribute to the study of nonverbal communication, for example psychology, ethology, psychiatry, education, linguistics, and semiotics. The methods applied are correspondingly diverse: field studies, observation in quasi-natural and experimental situations, experiments and speculation. Accordingly, it can hardly be expected that either a unified theory or a set of generalized methodological criteria has been established. On the other hand, it clearly indicates the continued recognition and wide interest which exists for nonverbal phenomena within various disciplines.

Origins and Historical Background

From an historical point of view, some prominent scientists from England, France, and Germany deserve mentioning since their work has both relevance and a still increasing influence. It was the biologist Darwin (1872) who in his work on the expression of emotions in Man and animals initiated the comparative study of emotions and their communication. Recent studies on the simultaneous expression of contradictory emotions can be traced back clearly to his principles, especially the principle of antithesis.

In his examples, Darwin could draw from the French physiologist Duchenne de Boulogne (1876, see Fig. 1).

Fig. 1. Experimental induction of facial expression via electrical stimulation by Duchenne de Boulogne (1876)

Duchenne was the first to do experimental analysis of facial expression. These studies still have only partly been taken up in facial EMG (see Fridlund & Izard, 1983) and in laterality studies on facial expression.

The German psychologist Pfungst (1907) not only investigated the experimenter effect but also nonverbal communication between species when studying the phenomenon of Clever Hans (see Hediger, 1981).

Research on nonverbal communication in Europe is currently influenced by three major paradigms, representing (a) classical psychology of expression, (b) ethology, and (c) American research on nonverbal communication. Some of the contributions of the classical psychology of expression have recently been reviewed by Asendorpf and Wallbott (1982) and Wallbott (1982a). Not only detailed behavioral descriptions, but also some of the theoretical reasoning can still be applied to nonverbal communication.

There are a number of levels on which ethology is related to the field of nonverbal communication. Conceptually, behavior is seen as the result of the interplay between innate coordination and acquired socialization. Methodologically, the structure and function of behavior is examined in various species in order to shed light on its origins. The principle of "functional shift" is used to explain how ritual and thus communicative behavior derives from behavior which was originally necessary for survival (Lorenz, 1965; Eibl-Eibesfeldt, 1972, 1978; Cosnier, 1977a; Ploog, 1980). To a large extent the human ethology approach is followed in current developmental studies, especially of parent-child interaction (Grossman, 1977; Papousek & Papousek, 1974, 1977; Montagner et al., 1977).

Semiotics is another source especially for the philosophical study of signs and communication. It is mostly represented in the Romance-speaking countries of Italy (Eco, 1976), France, and Romania, but also in Germany (see contributions in Lange-Seidl, 1981).

Theories

Recent theoretical developments are to be found in psychological as well as in ethological and psychoanalytical approaches. They cover a variety of phenomena – from social skills models (Argyle, 1969) to basic biological principles in intra-species communication (Wickler, 1980; Hopf, 1971).

Apart from their many differences, most theories, however, demonstrate some common features, particularly in relation to the diverse functions nonverbal behavior has in social interaction. The discrepan-

cies are mostly found in the theories of the origins of behavior, specifically the impact of innate mechanisms in relation to learning in ontogenesis.

Expanding on Darwin's (1872) principle of antithesis, Leyhausen (1967) states that the expression indicates the effect of the minor of two motives on the effectors. Given two motives, for example, approach-avoidance, the momentary weaker finds expression, whereas the other leads to action. The ability of impression can likewise be traced phylogenetically as can be demonstrated by innate releasing mechanisms. According to Leyhausen (1967, p. 157), expression and impression have adapted during phylogenesis so that both mechanisms are matched. Both processes can be modified by experience and learning.

From a psycho-biological standpoint, Ploog (1972) contends that during phylogenesis, behavioral patterns which were originally of importance to the survival of the species have, through ritualization, become social signals. A functional shift is involved, so, for example, the original motivation for the behavior (e.g., body grooming) is replaced by some other initially independent motivation (e.g., courting behavior).

Psychological theories of nonverbal communication also distinguish between expression, and impression, although here the terms encoding and decoding of behavior are used; or sender and receiver functions are specified.

A differentiated model for the encoding and decoding of social signals has been proposed by Scherer (1979) in a modified Brunswik lens model. According to this model, personality features, psychological dispositions and states are externalized in distal indicators (e.g., voice quality, manner of speaking, gestures, etc.). Furthermore, these distal indicators are perceived by the observer in the form of proximal percepts so that conclusions and attributions are determined by means of inferences.

Psychoanalysis is amongst those disciplines in which nonverbal communication becomes an important source of information on affects, their control, and their displays. Cosnier (1977b) points out that psychoanalytic work is the problem of decoding what the patient might tend to convey. This is complicated by processes of transference and counter-transference. He concludes that "La psychoanalyse est centrée sur les rapports du discours vivant et du corps parlant" (p. 284), that is, psychoanalysis is centered around the ongoing verbal discourse and the speaking body.

More specifically, Rimé (1983) developed a cognitivo-motor theory of nonverbal behavior. Nonverbal behavior as posturo-motor activity is

the primary "support of the apprehension of the world." This support is seen as indispensable for the individual at a cognitive level, so that meanings can be elaborated by using words. Therefore, body language should not be regarded as a secret code separate from language, but rather as embedded into spoken language.

The well-known model of social skills by Argyle (1969, pp. 394–438; Trower, Bryant & Argyle, 1978) states that nonverbal behavior is part of learned motor skills which can be modified by appropriate training. On the other hand, ethology assumes inborn mechanisms of expression and impression. So there are at least two somewhat contradictory positions in Europe, differing with regard to the relative weight given to learning processes. Despite these differences, these theories clearly implicate communicative functions of behavior on various levels as being important for human interaction.

In all of the various theoretical approaches, there is a need for more empirical evidence. The development of a theory of nonverbal communication is in the fortunate position of being new and flexible, and thus able to profit from many influences. In the current state of the art, such a variety of approaches is neccessary for an adequate treatment of the many phenomena studied as nonverbal communication.

The Elements of Nonverbal Communication

Facial Expression

The study of facial expression has recently been taken up again due to a renewed interest in the study of emotions (Scherer, 1981). That it is clearly of significance as a social signal in stutterers has been shown by Krause (1978, 1981). He found reduced facial expression in stutterers. When facial expression occurs during moments of stuttering, it appears in an exaggerated and rigid expression of affect. Furthermore, Krause found that the stutterers appear to induce increased "back channel" behavior in their partners, i.e., smiling, nodding, and directed attention.

With regard to the recognition of emotion in the face, two lines of research are to be found. One is the search for cross-cultural differences in the ability to recognize emotions. The other is the study of emotional blends. Generally, it is assumed that there are discrete emotions (Scherer, 1981) which might appear in facial expression.

Various studies by Ricci Bitti and collaborators comparing England, Italy, and Japan suggest that there is cross-cultural invariance in the recognition of emotions (Giovannini, Ricci Bitti, 1981; Graham, Ricci Bitti & Argyle, 1975; Ricci Bitti, Giovannini, Argyle & Graham, 1979b,

1980; Brunori, Ladavas & Ricci Bitti, 1979). In one of these studies (Shimoda, Argyle & Ricci Bitti, 1978) it appeared, however, that the expressions of Japanese subjects were more difficult to recognize, thus supporting the hypothesis of different display rules between these countries. The face seems to be the best source of information on emotions when compared with gestures and other bodily cues (Graham, Ricci Bitti & Argyle, 1975).

In our own study on facial expression in depressives, it appears that, rather than sadness, other affects such as fear and disgust are displayed in the face. This can be seen as further evidence for the principle of antithesis, as the minor of two motives is being expressed. When smiling, depressed patients tend to show a high degree of simultaneous display of other negative emotions (Ellgring, 1983).

A current study at our institute by Schmidt (1984) takes up at this point. The question is how the complexity and intensity of facial expression is perceived, and how the recognition of emotions is altered when they appear as blended expression (such as in depression). From his preliminary results it appears that even weak expressions of emotions are recognized correctly. Accuracy of recognition is a function of the intensity of expression. His results indicate that if there is a pronounced smile, this expression can blend a negative affect display. If, however, positive and negative displays are nearly equally strong, a conjoint appearance of different emotions is recognized. The whole expression, however, seems to be evaluated as unpleasant and tense. No specific emotions can be detected clearly in this case. The simultaneous expression of different emotions seem to neutralize each other. Intensity of expression and its combination with other elements appear to be the main factors that determine which emotion is recognized in complex facial displays and how it is evaluated.

A newly developing field is the study of hemispheric specialization in the expression and recognition of emotions in the face (Ladavas, Umilta & Ricci Bitti, 1980). A paradox was pointed out by Bruyer (1981). It is generally accepted that the left half of the face is more expressive. The right cerebral hemisphere is dominant in the production of facial expression and also in the perception of faces. Bruyer maintains that, paradoxically, we do not look with the dominant eye at the more expressive half of the face.

Methodological developments

A method for the quantitative analysis of facial movements has been developed by Heimann and Lukacs (1966; see Fig. 2).

A photograph of the frontal face is projected and two axes are laid across the static parts of the face. The corners of the mouth and the inner eyebrows are marked as movable points. Various parameters can be derived and expressed in coefficients which describe the degree of symmetry and the magnitude of facial expression. Heimann (1966) gives examples of application in pharmacological and stress studies within psychiatry. Recently, even a computerized analysis of facial movements has become feasible using this method (Heimann, Axmann, Klemke, & Giedke, 1983).

The use of reaction times as indicators in the recognition of emotions is proposed by Ducci (1981).

An interesting reconstruction method has been used by Shepherd, Ellis, McMurran and Davies (1978). After having been presented with a photograph of a face together with a social lable, subjects had to reconstruct the face via photofit. Depending on the sort of information, these faces were reconstructed in significantly different ways, thus indicating the influence of social lables in the recognition of faces.

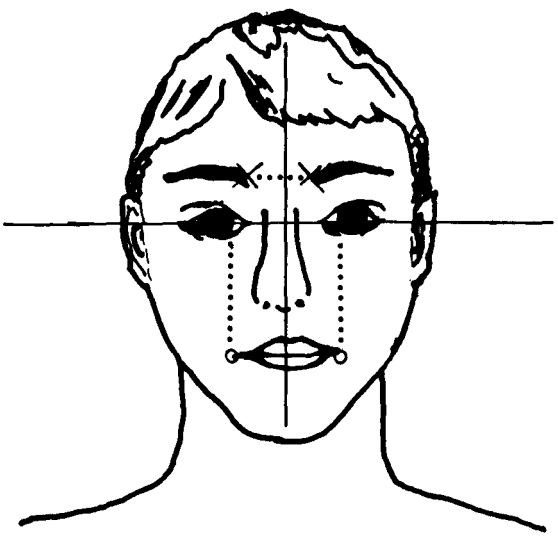

Fig. 2. Method for the quantitative analysis of facial movements according to Heimann and Lukacs (1968)

The analysis of facial expression will most likely remain laborious since observation is difficult and time-consuming. However, some of the traditional difficulties in impressionistic description and varying scientific language may be overcome by the use of common coding methods. Such methods include the FACS of Ekman and Friesen (1978) used extensively in European laboratories, and that of Heimann and Lukacs (1966). The latter has recently even been computerized (Heimann, Axmann, Klemke, & Giedke, 1983).

From decoding studies, there seems to be considerable evidence for cross-cultural invariant recognizability (see also Frijda, 1969; Nummenmaa, 1964). The study of emotional blends and their recognition, moreover, allows insight into complex emotional processes.

Generally, facial expression is studied under the assumption that there are various discrete emotions which may be present in a pure form or as a combination of different emotions at the same time. Especially, for clinical purposes the simultaneous or subsequent expression of positive and negative emotions will be of special interest in further research.

Gaze

Studies on gaze behavior in Europe have mainly investigated micromomentary changes and the coordination with other behaviors and functions of gaze rather than its correlations with personality variables (cf. Argyle & Cook, 1976; Rutter, 1973, 1978; Rimé, 1977; Beattie, 1978; Kendon, 1967; Ellgring, 1981; Exline & Fehr, 1982). In Britain, functional and clinical aspects of gaze were especially studied (Stephenson, Ayling & Rutter, 1976; Hinchliffe, Lancashire & Roberts, 1971).

Various functions of gaze behavior have been postulated and experimentally investigated. One example of the gaze as a component in the complex pattern of greeting is given by Eibl-Eibesfeldt (1979). The "eye flash" is found in a variety of cultures as a form of greeting over a long distance. This pattern involves raising of the head and eyebrows, smiling, and then a slight lowering of the head. It is supposed to be a strong signal between acquainted people. This can easily be tested by giving the eye flash to some stranger on the street. The stranger will most probably react in a particular nonverbal manner, for example with signals of surprise etc.

As a well established fact, looking behavior is coordinated with speech (Kendon, 1967; Ellgring, 1981; Beattie, 1978). The general pattern of behavioral organization in this coordination can be described within the framework of an experimental task: Maximum probability of

turning the gaze away from a visual information source is achieved when some verbal output is prepared or some other cognitive task is performed; maximum probability of looking at the partner is achieved at the end of the utterance or when listening (see Fig. 3, adapted from Ellgring, 1981).

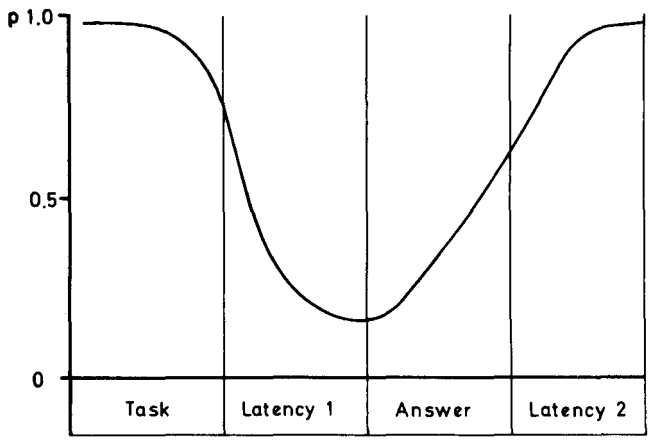

Fig. 3. Proportion of looking (p) at an information source during a standarized task-answer-sequence (from Ellgring, 1981)

This holds for any sort of visual information source: the face of a human being is "cut off" (Chance, 1962) as well as any kind of visual input. The probability of cut off is dependent on the length of an utterance (Kendon, 1967, 1978) or on task difficulty (Ellgring, 1981). The social partner or receiver can determine from this behavior whether the sender wishes to "yield" the floor or is occupied with some cognitive process. The reduced looking behavior in depressives (Rutter, 1973; Ellgring, 1977; Ellgring & Clarke; 1978) can also be interpreted as depending on a reduced capacity for visible social information. The general coordination with speech, however, remains stable even in severe depression (Ellgring, 1983).

Gaze and Distance

The equilibrium model, proposed by Argyle and Dean (1965) relates the two behavioral aspects in such a way that both contribute to a stable state of intimacy. The less the distance between people, the less mutual gaze occurs. There is, however, some evidence against such a

simple model. For autistic, cerebral damaged, and normal children, it was found that all of them reduced distance when being looked at (Castell, 1971). People choose nearer distance when observing social objects than when observing non-social objects (von Cranach, Frenz & Frey, 1968). Generally, compensatory as well as reciprocal tendencies have to be taken into account when the mutual influence in interaction is being described (Stephenson, Rutter & Dore, 1973; Capella, 1981).

From our current knowledge of the function of gaze behavior and from what is known about its quantitative aspects, one could expect that measures of gaze are being widely applied. Trower, Bryant and Argyle (1978) as well as Argyle and Cook (1976) even offer some normative data: 60% looking at partner during conversation, 75% when listening, 40% when talking, 30% eye contact, 3 sec glances, 1.5 sec mutual gazes. However, even for clinical populations there is still controversy about its significance in differentiating various clinical subgroups (Rutter, 1976; Rutter & Stephenson, 1972). Longitudinal studies, on the other hand, clearly show very close relationships between the amount of gaze and the change of subjective well-being (Ellgring & Clarke, 1978). Thus, intra-individual strong relationships between mood and nonverbal behavior might be obscured by group comparisons when studying clinical populations.

Gestures and Body Movement

Studies of gestures and body movement mainly deal with their relation to speech. In application, they are studied as indicators of retardation in depression and of personality variables (see Wallbott, 1982b; Frey, Jorns, & Daw, 1980; Ulrich, 1981).

With regard to methodological approaches, generally functional descriptions are taken like those by Freedman (1972) or Efron (1941/1972). However, more objective methods have recently been developed by Wallbott (1981b) and others. The elaborate Bernese system for coding body movements by Frey (Frey & von Cranach, 1971; Frey, Jorns & Daw, 1980) allows a comprehensive description of bodily and gestural positions and movements.

The functions of gestures and their origin are far from clear. Not only developmental studies stress its strong relationship to speech (Kendon, 1972; Cosnier, 1982; Pechmann & Deutsch, 1982; Siguan, 1982). It is claimed that language develops out of gestures. With gestures, it is possible for the child to make first references and further to develop words as references. With regard to the temporal distribution, gestures appear within utterances, rarely at the beginning of a verbali-

zation or in the first 100 seconds of a discourse (Feyereisen, 1982). So a speech facilitating function of illustrating gestures appears to be highly probable, at least in adults.

There seems to be, however, little information on the social partner which can be inferred from gestures (Rimé, 1982; Graham & Argyle, 1975). Higher gesticulation rate appears in a more dense interaction (Rimé & Gaussin, 1982) or when there is more interest in the topic (Ricci Bitti, Argyle, & Giovannini, 1979). This could also be understood as a speech facilitating function of gestural behavior.

Studies on the amount of gestures in depression only partly support the expectation of a reduced rate of gesticulation (Ulrich, 1977, 1981; Wallbott, 1982). This might be due to high interindividual variability in gestural behavior (Wallbott, 1982). The variability of motor behavior in general, however, seems to be reduced in depression (Fisch, Frey & Hirsbrunner, 1983).

Contrary to expectation, only minor cross-cultural differences with regard to the amount of gestures in role-playing situations were found between England and northern and southern Italy (Graham, Ricci Bitti, & Argyle, 1975; Graham & Argyle, 1975; Ricci Bitti, Argyle, & Giovannini, 1979). If in decoding emotions, however, only bodily cues were available subjects from southern Italy were better in recognizing those emotions than northern subjects (Giovannini & Ricci Bitti, 1981).

Generally, gestures seem to be a very sensitive behavioral aspect that might be influenced by even minimal situational or content cues. The principles underlying this behavior have still to be detected (cf. also Kendon, this volume). Developmental studies and studies which relate gestures to speech show that a speech fascilitating function is probable. The reason why some people use many gestures and others cope without doing so is still unclear.

Because of their reliability and internal validity, the recently developed procedures for coding gestural and motor behavior in social situations are promising and deserve further attention.

Speech and Pauses

The measurement of speech-pause variables as an aspect of nonverbal communication requires comparatively little effort. Nevertheless, relatively few investigations of these variables have been reported in the European literature. The "on-off" patterns of speech are mainly investigated in clinical settings. From initial analytical interviews, Braehler and Zenz (1977) found that patients had a more positive attitude towards the therapist when longer pauses and fewer therapist utterances oc-

curred. On the other hand, therapists found interviews more pleasant when the patients spoke less. Aside from these opposing evaluations, the question remains which are the most effective interviews.

In a study of interaction with civil servants, Scherer and Scherer (1979) found that dominating civil servants make longer utterances, in comparison to "machiavellian" civil servants.

Speech *pauses* are of interest to researchers because of various theoretical considerations. They can, for example, be understood as a segmentation of speech, or in relationship to speech preparation, as an indicator of cognitive processing. Silent and voiced pauses can also have various communicative functions.

The function of pauses in the speech preparatory process was stressed at an early stage by Goldman-Eisler (1958). In his experiments using an automatic procedure, Haenni (1974) filled pauses with acoustic "noise." Despite the subjectively experienced stress, the subject's pause behavior was not significantly elongated as was expected under the hypothesis of their speech prepatory function. Haenni concludes that speech preparation occurs also during speaking and not only during pauses.

The relationship between susceptibility to anxiety and speech delay was studied by Helfrich and Dahme (1974). They found that those subjects with a high susceptability to anxiety more often displayed long silent pauses during spontaneous speech.

Odor

Although the olfactory system is often mentioned in connection with nonverbal communication (cf. von Cranach, 1971), it has scarcely been investigated. The experiment of Hold and Schleidt (1977) is one of the very few on this aspect of communication. The authors had 24 married couples wear standard cotton nightshirts for seven consecutive nights. The subjects were also requested to wash with the same neutral soap during this period. In a subsequent group test, subjects were allowed to smell the ten shirts of their respective group. It was found that the subjects could recognize their own and their partner's shirts. They could also significantly distinguish the sex of the shirtwearer; female subjects were more successful in this case.

Applications

There are certainly many situations where findings on nonverbal communication are applied without the results being reported on. In almost every case, for example, where video is used for observation, analysis of discussion groups, behavioral training, etc., it may be assumed that the visible behavior plays a major role. Frequently, it is not specified which behavioral content is of importance. Applications of nonverbal communication in Europe are mostly reported for child developmental studies, clinical psychology, and cross-cultural comparisons.

The many studies on developmental aspects undertaken in various laboratories deal with human territory, bonding behavior, contact between peers, and mother-infant interaction. They generally use ethological concepts to understand the development of social behavior. (Papousek & Papousek, 1977; Grossmann, 1977; Stanjek, 1978; Montagner et al., 1977; Garrigues, 1977).

Nonverbal communication has become of considerable importance in clinical psychology and behaviorally oriented psychiatry. Krause (1978, 1981), as mentioned above, has emphasized the major significance of the nonverbal expression of emotion in relation to stuttering. He considers stuttering to be an interaction disorder in which, above all, the affect display is inhibited. Since stutterers apparently display little affect behavior in social interaction, he maintains that therapeutical programs should include speaking with affect and nonverbal expression of affect.

In a study on psychopaths, Rimé, Bouvy, Leborgne and Rouillon (1978) found that these people show more gestures and lean forward more than normal people do, thus reducing distance between them and their partner. They looked at their partner for longer periods of time and tended to smile less. Their interview partners themselves showed significantly different behavior in that they spoke more with psychopaths. In general, interactional equilibrium seems to be lacking. A lack of social responsiveness is expressed in the behavior of psychopaths indicating a lack of social maturity.

In Europe, clinical psychology and psychiatry are supposedly the applied fields most actively interested in using nonverbal information. In some clinical fields, however, there is still only implicit usage of nonverbal information even if, from their theoretical notion, it should appear as a major topic. The concept of "expressed emotions" (Kuipers, 1979), which assumes a relationship to the probability of relapse for schizophrenics and depressives, still makes no explicit and specific reference to nonverbal information.

Current studies on the interaction of patients with their therapists, marital interaction and emotional disturbances are examples where nonverbal aspects should necessarily be taken into account on more than an impressionistic level.

Social Skills Training

Especially in Great Britain, but also in the Netherlands and Germany, social skills training is widely used and, to a large extent, takes nonverbal elements into account. Various programs designed for mental health problems have been developed, for example by Trower, Bryant and Argyle (1978) and Ullrich and Ullrich de Muynck (1980). Studies on the interaction of civil servants and the public have also been reported (Scherer & Scherer, 1979) and have led to programs to increase communication effectiveness.

Cross Cultural Comparisons

Since Europe includes quite a variety of cultures, there are also many culture specific forms of communication to be expected. Southern areas are thought to be more expressive than northern ones, Italy using more nonverbal behavior than England, for instance. However, in Spain, especially for females in higher social classes, control of behavioral expression seems to be the rule. In northern Germany it is good manners not to show your emotions, but in southern Germany this is allowed much more.

As with political behavior, nonverbal behavior seems to vary markedly between countries. However, in systematic studies, differences in the expression and recognition of nonverbal elements turned out to be less than expected. In a conjoint experiment, communication of emotions and arousal via facial and gestural cues was investigated (Ricci Bitti, Argyle & Giovannini, 1979; Graham, Ricci Bitti & Argyle, 1975). In videotaped role plays, encoders had to express six emotions. Independent of culture, the face was the best source of information from which to infer emotions. In contrast to other findings (Efron, 1941/1972) that Italians gesture more than English and likewise use gestures more to inform nonverbally about shapes (Graham & Argyle, 1975), there is no difference in the communication of discrete emotions. From Italians as well as from English encoders, emotions are hard to infer from gestures. Also, no differences were found between northern and southern Italian encoders (Ricci Bitti, Argyle & Giovannini, 1979). However, as Giovannini and Ricci Bitti (1981) report,

southern Italian subjects are more capable of inferring emotions from bodily cues than northerners.

Currently, a conjoint study is investigating emotions in social interaction. Seven European countries are compared with regard to the situations in which emotions are experienced and to the bodily and nonverbal reactions to these experiences (Scherer, Summerfield, & Wallbott, 1983). It appears that there are indeed cultural differences in the kind of situation in which emotions are experienced, and in the nonverbal reactions to these experienced emotions. As an example, with the exception of Italians, most people in the sample studied so far experience anxiety in traffic situations. Generally, southern European people report higher intensities of emotional experience than northern Europeans.

The applications of nonverbal communication research are probably more widespread than reported in the literature. It seems, however, still necessary to do more scientific study on communication disorders in clinical applications, and also within other fields such as impression formation and recognition of nonverbal "schemata" in mass communication. Besides basic research, a good deal of work has also still to be done in transforming theoretical knowledge into application.

General Outlook and Future Developments

Generally speaking, "wavelike" interest in nonverbal communication can be found at a number of places. That is, there is initial interest up to the point where empirical studies have to be done. This is followed by frustrations over laborious observational work which leads people back to paper-and-pencil research.

From an intercultural perspective, Europe is luckily small enough to enable us to look at some universals *and* culture specific parts of communication. At the present state of our knowledge, a unified theory of nonverbal communication cannot be expected. The variety of approaches is, from a "Darwinian" point of view, essential to preserve variety and therefore the survival of the field.

In some respects, the European tradition can contribute to nonverbal communication research. Classical expression psychology is one example – albeit negative – of the risks inherent in making to extensive an interpretation of nonverbal phenomena when our knowledge is still limited. Ethology is another where, from a phylogenetical and ontogenetical viewpoint, the origins of our communication can be traced. A third area in which European research is contributing is the development of observational methods. There is still more need for having these meth-

ods on various levels of complexity, depending on the task and the psychological processes to be inferred.

The inference of emotional states, motives, etc. will continue to be a main problem for nonverbal behavioral research. However, the same errors which led to the disrepute of "Ausdruckspsychologie," the psychology of expression, are also possible within nonverbal communication – namely extensive interpretations on the basis of subjective evidence only. Some precautions seem to be appropriate which are also part of the European tradition.

There are high expectations regarding the potentials of nonverbal communication – we expect nonverbal behavior to be less controlled and therefore more likely to tell us the truth. We see the power of innate releasing mechanisms as they work in impression formation and as they are used in advertising. We experience our power using nonverbal behavior as positive and negative reinforcers in social interaction. From a scientific point of view, however, a great deal of the communicative and indicative functions of nonverbal behavior have still to be evaluated empirically or experimentally.

It may be useful to dwell on the development of physiognomy and phrenology. The basic idea was revolutionary and is still valid: that there are specific functions in different parts of the brain. Going further, however, that is, inferring from the outer appearance and from the form of skulls, the personality, strength or weakness of specific abilities, was a total and dangerous failure. This was pointed out at an early stage by the essayist and philosopher Lichtenberg (1783/1970). He ironically proposed that at first people should train their abilities to interpret the character of people from the forms of their wigs!

The academic study of nonverbal communication will require that the methodological criteria of empirical research be fulfilled. In order to ensure serious application of the findings of research into nonverbal communication, there is little alternative to learning via intensive observation, validation of observational data, and the development of new observational procedures. The segregation of observation and interpretation is a critical and often ignored factor which can be achieved by the rigorous application of scientific methods.

Addendum

After finishing the manuscript, two edited volumes on nonverbal communication were published in Italy. One covers original articles on various aspects of nonverbal communication in general (Attili & Ricci Bitti, 1983 a), the other is dedicated to gestures (Attili & Ricci Bitti, 1983 b).

The highly interesting books, written in Italian, give an excellent overview over current research in nonverbal communication with regard to neurophysiological, developmental, clinical, and a lot of other aspects.

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