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The Body Language of Adults Who Are Blind[1]

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ABSTRACT *The body expressions of adults who are blind have been relatively unexplored. The aim of this study was therefore to deepen the understanding of different forms of body expression, or "body language", in adults who are blind. More specifically the study aimed at answering the following questions: What forms of body expression do adults who are blind display? What can the conditions for some different forms of body expression be? What importance can individual, social and cultural factors have for different forms of body expression? Data consisted of video-taped interviews with five congenitally blind, two adventitiously blind and two sighted individuals. The data were analysed in a hermeneutical and phenomenological sense. The results consisted of a typology of 19 different forms of body expression. All in all, we found that the congenitally blind participants expressed themselves mainly in a functional and concrete manner. They also seemed to have limited experiences with abstract, symbolic body expressions. The conditions and the importance of different factors for different body expressions are discussed.*

Body language[2] is one of several ways in which a person expresses and communicates thoughts, attitudes, intentions, and emotions. Body language also complements verbal language and makes communication between people clearer and easier. Therefore, there is no doubt that body language is an important means of communication (see e.g. DePaulo, Rosenthal, Eisenstat, Rogers & Finkelstein 1978 and Zaidel & Mehrabian, 1969). One can find copious literature and research on the body language of sighted school children, adolescents, and adults. As far as we have been able to ascertain, however, only about 10 studies have been published on the body language of blind school children, adolescents, or adults (more specifically, on their gestures and adaptors) (see Blass, Freedman & Steingart 1974; Frame 2000, Iverson 1999, Iverson & Goldin-Meadow 1997, 2001, Iverson, Tencer, Lany & Goldin-Meadow 2000, Kemp 1980, Manly 1980, Sharkey & Stafford 1990, Sharkey, Asamoto, Tokunaga, Haraguchi & McFaddon-Robor 2000). Following is an overview of these studies.

The studies of the body language or gesticulation of blind school children, adolescents or adults have been mainly of a quantitative nature (for exceptions, see e.g. Manly 1980, Sharkey & Stafford 1990). Most often, the researchers studied a limited number of predetermined categories of body

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movements, whose possible significance had been defined by the researcher/researchers before the study commenced. That definition was accomplished with the help of literature on the body movements of sighted people, even extending to the sign language of the deaf. The blind were most often compared with the sighted. The data consisted of video recordings of rather short conversations between blind–blind or blind–sighted pairs, who had not met each other previously, of monologues, interviews, or different types of specified tasks. In most cases the researchers studied two comprehensive categories: adaptors and gestures. Adaptors were usually defined as self-stimulating body-focused hand motions that are not related to speech, and gestures were defined as hand movements that in some way are related to speech. Several of the studies addressed both adaptors and gestures.

In summary, the researchers who carried out the quantitative studies found that the blind/visually impaired generally used more adaptors than did the sighted. The researchers who conducted the few qualitative studies instead described the adaptors or gestures of the blind in greater or lesser detail. Most of the studies generally showed that the blind and visually impaired either gesticulate less often than the sighted, or that they do not gesticulate at all. In contrast to this, Iverson and Goldin-Meadow (2001) found that congenitally blind schoolchildren and adolescents produced as many gestures as their sighted peers.

Iverson and Goldin-Meadow (1997) noted that the sighted children produced a very small number of metaphoric gestures (cf. McNeill 1992). For instance, a sighted girl extended both hands, palms upward, in front of her body as though presenting something while saying "There was a little clock". The congenitally blind children did not show any metaphoric gestures. In line with these results, Iverson and Goldin-Meadow (2001) speculate that congenitally blind individuals may be unable to produce metaphoric gestures. Therefore, "future work is needed to determine the breadth of the blind individual's gestural repertoire" (Iverson & Goldin-Meadow 2001:421).

Furthermore, there are only three studies that have included adults who are blind (Kemp 1980, Sharkey & Stafford 1990, Sharkey *et al.* 2000). There is also an obvious lack of detailed descriptions of the body expressions of adults who are blind. It should therefore be useful to carry out a detailed survey of, and to describe the repertoire of, the body expressions of adults who are blind. It should also be worthwhile to reflect upon particular conditions for various types of body expressions. It should additionally be of value to consider the significance of factors other than blindness for different body expressions.

Coupland, Giles and Benn (1986) point out that the subjective perspective has received far too little empirical attention in studies concerning communication by the blind. It is also striking that no researcher has taken into consideration whether the blind persons are congenitally blind or have become blind later on in life. Therefore, we have focused on the subjective perspective. Furthermore, we have made comparisons between the congenitally and adventitiously blind groups, as well as between individuals.

Aim and Questions

The purpose of this study is to deepen the understanding of different forms of body expression in adults who are blind, referred to in their entirety as "body language". More specifically it aims at answering the following questions: What forms of body expression do adults who are blind display? What can the conditions for some different forms of body expression be? And what importance can various factors have for different forms of body expression?

Method

Participants

Data consisted of video recordings with four congenitally blind (coded as C1, C2, C3 and C4), one participant that had sight up to the age of four (CA1), two adventitiously blind (A1 and A2) and two sighted (S1 and S2) persons. The blind participants had no obvious disability other than the blindness. The congenitally blind individuals did not have any past experience of unimpaired vision as the other blind persons did. The congenitally blind participants were also born blind or became blind before the age of one. The blind participant CA1 had some sight up to the age of four and retained a few visual memories, and so has been categorised in-between the congenitally and adventitiously blind groups. We will discuss her later. The two adventitiously blind participants became blind as teenagers or as adults. Both have been blind for more than 20 years. The blind participants were recruited through an organization for the visually impaired and through personal contacts. The sighted participants were students at the Department of Psychology at Stockholm University. The participants' ages ranged from 18 to 52; five were women and four were men. We used sighted persons in order to obtain heterogeneous material, which can be of help when analysing the data.

Collection of Data

We collected data by letting the participants express and talk about nine different emotions such as happiness, sadness, anger, and fear. After each expression of emotion the interviewer asked questions like: "Describe what you did, thought, and felt when you expressed the emotion". The emotional expression and ensuing dialogue between the interviewer and the person were videotaped. It was this videotaped dialogue and the spontaneous body expressions that were analysed in the study. Thus, we have not analysed their, sometimes artificial, initial body expression of different emotions.

We wanted to analyse the body expressions in detail. Elapsed time was therefore recorded on every videotape. The time code allowed us to isolate body expressions for the purpose of analysis. Each participant was recorded for about one to two hours. With the completion of the taping, the analysis of 14 hours of video could commence.

Analysis of Data

We analysed the data in two steps. The first most comprehensive step was hermeneutical; the second was phenomenologically inspired. The aim of the first step was to interpret and describe some of the body expressions that the participants displayed and, in doing so, to chart occurrences of different forms of body expression. The aim of the second step was to delineate some conditions that could give rise to some of these forms (see e.g. Karlsson 1993). In addition to the second step we discussed various factors that could be of importance for different forms of body expressions.

Our phenomenological/hermeneutical point of departure was that the body expressions presented a personal, subjective meaning in a verbal, paralinguistic (voice quality) and physical context (see e.g. Karlsson 1993). Thus, we did not reduce a person's meaningful expression to an "objective" description of pure body movement; for example that a person's arm moved from the armrest to the face. It is instead the body movement's meaning/meanings that we have tried to interpret and describe in the study. These meanings consisted of different forms of body expression. Thus, the meaning is the expression (Merleau-Ponty 1962, Pilotta & Mickunas 1990). In other words, there is no gap between meaning and body expression. It is not like the body expression reflects an already defined meaning behind the expression. Therefore, we want to catch the connection between body expression and meaning by saying that the meaning "is the expression". Note that one movement (for example snapping the fingers) can belong to different forms (for example ideographs or abstract symbols), depending on the context.

In carrying out the hermeneutical step, we consulted and were inspired by literature from different researchers who have categorized and described the body expressive forms of the sighted (mainly Efron 1972, Ekman & Friesen 1969, McNeill 1992[3] and Wundt 1973). Comparisons with earlier definitions are found in the Notes at the end of the article. During the phenomenological step we had help from phenomenological literature, such as Merleau-Ponty (1962), who emphasized the intertwining between meaning, expression, body and the world.

As stated above, the aim of the study is to deepen the understanding of the body language of adults who are blind. To avoid, as much as possible, omitting any form of body expression, we chose therefore a wide definition of body language: those body expressions that can be interpreted by other people (in this study the authors and sometimes a third person) and are therefore communicative (see e.g. Pilotta & Mickunas 1990). This broad definition is such that the body language includes a number of forms that usually are not considered to be body language or gesticulation (cf. McNeill 1992), such as functional expressions and blindisms (stereotypical movements with the body).

Results

An important part of the outcome of this study is a typology of 19 various forms of body expressions. This typology can hopefully be used in future

studies as an analytical tool to interpret different body expressions of blind and sighted persons.

The results are presented in a comprehensive table (Table 1). In this table one can see the number of occurrences of each particular form of body expression shown by each respective individual on the video recordings. As stated earlier, we were interested in charting the occurrence of different forms of body expression. Except for the abstract symbols we counted up to three occurrences, and then indicated "more than three" occurrences. Those forms that were always present, i.e. frame of mind expressions and idiosyncratic expressions, we listed as "always present".

Following the table, each and every form is presented and exemplified. For many of the forms we encountered a number of interesting differences between the congenitally blind as compared with the adventitiously blind and sighted. We have also noted interesting differences between individuals. In

Table 1. Number of occurrences of body expression forms showed by subjects.

Body expression forms	C1	C2	C3	C4	CA1	A1	A2	S1	S2
Frame of mind expressions	a.p.	a.p.	a.p.	a.p.	a.p.	a.p.	a.p.	a.p.	a.p.
Idiosyncratic expressions	a.p.	a.p.	a.p.	a.p.	a.p.	a.p.	a.p.	a.p.	a.p.
Blindisms	0	0	(>3)	0	0	0	0	0	0
Functional expressions									
Instrumental expressions	>3	>3	>3	>3	>3	>3	>3	>3	>3
Turning the head toward sound	1	1	2	0	2	1	0	0	0
Formerly functional expressions	0	0	0	0	0	>3	>3	0	0
Socially functional expressions	0	0	0	>3	>3	>3	0	0	>3
Emphasizers	>3	>3	0	>3	>3	>3	>3	>3	>3
Ideographs	0	(3)	1(3)	>3	>3	>3	>3	>3	>3
Conversation regulators	>3	>3	(>3)	>3	>3	>3	>3	>3	>3
Concrete expressions									
Isomorphic representations	>3	>3	>3	>3	>3	>3	>3	>3	>3
Pointings	>3	>3	>3	>3	>3	>3	>3	>3	>3
Pictographs	0	0	0	0	1	0	3	0	2
Spatial relations	0	0	0	0	0	1	0	1	1
Abstract expressions									
Metaphoric pointings	0	1	1	2	1	>3	>3	>3	>3
Differentiators	0	0	(1)	0	0	0	>3	>3	>3
Concrete symbols	0	(1)	3(1)	>3	>3	>3	>3	>3	>3
Abstract symbols	0	1	1	0	2(1)	22	126	178	190
Emblems	0	0	3	>3	0	2	>3	>3	>3

Note. The abbreviation "a.p." indicates that the form was always present, and " >3" that the form was displayed on more than three occasions. The exact number is given for the abstract symbols. Parentheses indicate that we are doubtful that the form was expressed at all or unsure about the number of occurrences. A number is given in parentheses only if the form was expressed fewer than four times.

addition, phenomenologically inspired reflections are offered for certain of the forms.

Frame of Mind Expressions

Frame of mind expressions involve different body expressions for states of mind of varying duration. Some form of frame of mind is always present, since one is always disposed one way or the other, even if one considers oneself as not being disposed to any expression. One example of a frame of mind expression is when C1 expressed happiness by throwing back her head, and at the same time laughing loudly and saying, "That was extremely funny, that's what it was". Another example is when C2 showed embarrassment by squirming about, laughing a little and saying: "Well, now this is getting embarrassing". A third example is when C3 expressed a state of wondering by falling silent and drawing his eyebrows together in the pause within "First I get like this ... hmm, how is it that I get again?".

Idiosyncratic Expressions

The idiosyncratic expressions have to do with individual body style, the personally distinctive way a person moves and positions the body. Similar to the previous form, this form includes more or less continually present body expressions. The form manifested itself independently of what other forms of body expression were being exhibited and independently of what was being discussed. An analogy can be made with the distinctive quality of a person's voice that tends to stay the same in different situations.

These expressions showed themselves in different parts of the body, e.g. head, arms/hands, and posture (legs and feet were usually not visible in the frames). It should be noted here that the expressions were interpreted only from the videos. We do not know to what extent they occur in other contexts. It is even possible that frequent hand movements toward other parts of the body may be connected with nervousness and should therefore be categorized as frame of mind expressions. An example of idiosyncratic expressions was that a number of the participants held their heads up, while others let their heads hang down. Some had a slouching posture, while others held themselves erect. Some had weak and unspirited hand movements, while those of others were energetic and vigourous.

Blindisms

Blindisms can be defined as stereotypical movements with the body. According to earlier research, blindisms are activities such as rhythmic body rocking, twisting the head from side to side, shaking the hands in the air with the upper arms pressed against the body, or poking at the eyes. Blindisms are also relatively well researched for blind infants and usually get special treatment in the literature (see e.g. Abang 1985, Blasch 1978, Jan & Groenveld 1993, Tröster, Brambring & Beelmann 1991). In our raw data,

however, we did not find any evident blindisms among the participants, although C3 did twist his head to one side a few times independent of the context and this could conceivably be interpreted as a blindism.

Functional Expressions

Functional expressions are goal-oriented body expressions aimed at carrying out actions. We have divided them into four constituent forms: instrumental expressions, turning the head toward sound, formerly functional expressions, and socially functional expressions. Among the participants, these body expressions were not associated with verbal expressions. But it is, of course, conceivable that in conjunction with an expression one would be able to verbalize what one is doing with one's body. For example "I am now turning my ear toward the sound" or "I am now directing my eyes at your eyes".

Instrumental Expressions

The underlying characteristic of instrumental expressions is that the body is experienced as a tool or instrument serving a person's own habitual cognitive or bodily goals or intentions, without the body thereby becoming a mere thing in the sense that a hammer is a thing (cf. Bullington & Karlsson 1997, Heidegger 1980/1927). The body can be a tool in and of itself, or be used as a tool acting upon other parts of the body or physical objects on or outside the body. Examples of instrumental expressions are C1 pulling hair away from the face with one hand; C3 seating himself in a chair in a way that would be comfortable; C4 reading Braille with her fingers; and A2 feeling on and around her mouth with her fingers. These expressions were common for all the participants, which is seen in the designation " >3" in the table.

Turning the Head toward Sound

The expression of turning the head and sometimes the upper body toward sound is an interesting one, partly in that it occurs at a very early age both among the blind (see e.g. Fraiberg 1977, Preisler 1991, 1995) and the sighted (see e.g. Alegria & Noirot 1978). Preisler calls this form "pointings" (Preisler 1995:105) and observed the expression when the blind infant became attentive to sounds. The turnings can be compared to the way the sighted turn their eyes toward visual objects that are being noticed. Examples of these expressions are when CA1 clearly turned her face toward the sound from the tape recorder (it should be noted that CA1 also reported that she knows what it means to "look"); and when C2 said "Now they're coming home" and clearly turned his head to the left and thereby directed the left ear toward the sound, which was the opening door.

In several instances it was difficult for us to judge whether the person turned the face or an ear toward the sound. What happened was that the participant seemed to turn his or her head halfway toward the sound. The reason for this might be that the person compromised between his or her own

functional needs and the needs of a sighted person. Presumably the blind have learned through social training to turn the face toward the person one is communicating with (see further Bullington & Karlsson, 1997), even if it is more functional for them and appropriate to turn an ear toward the sound.

Formerly Functional Expressions

The formerly functional expressions were detected only among A1 and A2. These are expressions that had been functional at some point in time, but are no longer so. These consist exclusively of the adventitiously blind turning their eyes toward an object, even though they cannot see. The participants that were adventitiously blind often displayed these expressions on the video recordings. Examples are as follows: when A2 said "as helpless with my hands as this", turned up her palms and moved her hands, at the same time directing her eyes toward the hands and following their movement with her eyes; when A2 read Braille with her fingers and followed the fingers with her eyes; and when A1 clearly turned his eyes toward the interviewer's eyes during an interview. As is evident from the first two examples, there seemed to be (remaining) synchronization between hand and eye – despite the absence of vision. This illustrates how the habitual body constituted a unified, cohesive and intra connected entity. It was not only one part that got involved, but rather the whole body.

Socially Functional Expressions

There are functional expressions that have a more social, cultural, and conventional meaning than those described above. In our video recordings these took the form of holding a hand in front of the mouth or turning the face away from the interviewer in different situations. Two examples are when CA1 held one hand in front of her mouth when she laughed or cleared her throat; and when A1 turned his head away from the interviewer when he coughed. The intention of these expressions was presumably to "protect" the other person, in this case the interviewer, against such things as bacteria or a view down one's throat. We believe that producing these expressions require more explicit, clear, and deliberate training for the congenitally blind than for the adventitiously blind and sighted.

Emphasizers

Bodily emphasizers have the same function as the vocal emphasis of a word, and, similar to a vocal emphasis, bodily emphasis can be more or less distinct. One example of a distinct emphasizer is when A2 said "I should never have done that" and emphasized "never" and "done" by striking the chair arm forcefully with a fisted hand. One that was less discernible was when C1 said "such things" and leaned her head a little forward on the "such". (Note that this was not a pointing to physical "things" in the room.)

Emphasizers can have the function of complementing speech, but they do not have the same shaping and, for thoughts, completing function as ideographs, which we describe below. With emphases it is more a matter of accentuating a thought/expression/word on a "one-dimensional scale." The emphasis is meant to give extra weight and force to a thought formed from language. Except one congenitally blind participant, all participants displayed more or less distinct emphasizers using their bodies.

Ideographic Expressions

The ideographic[4] expressions (shortened to "ideographs" or "seeking expressions") help to find or to clarify a thought, an idea (thus the term) or a verbal formulation, that in itself is more or less clear. On the video recordings they always appeared when the speaker was fumbling or searching for a term. This was usually signalled by a verbal pause (. . .). Some of them were more form-giving and/or conventional, others were not so, as is seen in the examples below.

One example of a more conventional ideograph, as we interpret it, is when A2 said, "Well . . . I have no concrete example", and snapped her thumb and middle finger on one hand, particularly during the verbal pause (. . .). Our interpretation was that the finger snapping was meant to help get a thought out, i.e. a "concrete example", which was not successful in this instance. An example of a more formed ideograph is when CA1 said "what a fantastic . . ." and at the same time turned up the palms and formed the hands as a dish, which CA1 talked about immediately after. Our interpretation was that the person is not finding the word "dish" which was indicated by the verbal pause. The hands, however, found the form. This example also demonstrates that body, speech, and thought were closely bound to one another (cf. McNeill 1992, Merleau-Ponty 1962). An example of an ideograph that was not formed and conventional (and thereby relatively difficult to interpret) is when C2 said "also . . . yes" and raised one hand a few inches above the thigh.

Reflections on Conditions and Factors with Regard to the Ideographic Expression. The vigorous function of body language as a means of expression for people becomes clearly apparent with ideographs. Body language has to be understood here in relation to both spoken language and thinking. The ideographs help give expression to a thought that is intended to find completion in spoken language. Seeing the thought as complete in itself and waiting to affix itself to the appropriate words, would be partly to simplify the relationship between thought and language, and partly to reduce the defining function of language in the formation and completion of the thought. The thought points me in a direction that speaking makes manifest; speaking defines and gives form in a dialectical relationship with the thought (cf. Merleau-Ponty 1962). It is in a dialectic process such as this that ideographs fulfil their function.

C4 and CA1 used ideographs quite a number of times, while C2 and C3 used them a few times and C1 not at all. Furthermore, the ideographs of C2

and C3 were indistinct and therefore difficult to interpret, while those of C4 and CA1 were fairly well defined. How can these differences be understood?

The prerequisite for producing ideographs is that the body is, to use a somewhat inelegant expression, "subjectified". By this is meant that the body itself acquires a meaning-bestowing function. Body movements are intended to help a person's thoughts and speech to emerge and to "present" them in a bodily way. The body is a partner in forming thoughts. The body takes the stage in these cases as a distinct and spontaneous subject. At the other extreme, we have an "objectified body". When the body appears as an object it has, from the perspective of the individual, the character of something observed, something that exists at a distance (of course in a mental not spatial sense). By contrast, the subjectified body is the spontaneous, vital body that in an automatic and natural manner takes part in the process of relating to oneself and to the surroundings. In short, one can say that a subjectified body illustrates the spontaneous unity of body, thought, language, and surroundings.

Persons whose body-subjectification is more poorly developed possibly do not have the resources to perform ideographs. Never having had vision poses a special challenge to subjectifying the body, which can also have something to do with habits and experience in moving the body. What is very interesting in our study was that C4 and CA1 who produced many ideographs also had relatively active pattern of body motions. CA1 had sight until the age of four and had so-called visual memories for things such as colours, her mother's face, bicycles, doors, etc. C4 has gone in for sports. The early experience of sight or the familiarity with one's body that arises from an activity like sports can, it would follow, contribute to the ability to produce ideographs.

Conversation Regulators

The conversation regulators involve how one uses the body in association with listening or speaking. Examples of these expressions include various eye movements (only among the adventitiously blind and the sighted), head nodding, head shaking (primarily by C4, A2, and the sighted participants, but also in a few unclear instances by C3), or a shift in body position at the start of a new conversation topic. These body expressions are studied in a wide-ranging and complex area of research (see e.g. Duncan & Niederehe 1974 and Kendon 1967) in which the expressions of the sighted are the main focus. For this reason, the conversation regulators of blind persons have been studied on their own (see Magnusson 2006).

Concrete Expressions

The concrete expressions are divided into four forms of expression: isomorphically representing expressions, pointing expressions, pictographic expressions, and spatial relations expressions. All four forms refer to an object (human body, animal, plant, mineral, cultural object) that was present or had been physically, concretely present in the room. First the forms are presented

in order, followed by reflections and commentary on the table, which touch upon all the forms.

Isomorphically Representing Expressions. By "isomorphically representing expressions" (or "isomorphic representations") it is meant that the person physically represented a body expression that he or she or someone else displayed earlier; or a physical object (animal, plant, mineral, cultural object).[5] One example of an isomorphic representation that stood for an earlier body expression is when C2 said "and then [the earlier occasion when the person expressed happiness] I stretched up my hands" and stretched his arms and hands upwards in the air (the physical representation of the original expression). An example of an expression that represented a physical object is when A1 talked about an "opened foldaway bed for guests", and folded his hands and forearms onto his lap. The interpretation was that the forearms represented the bed; the lap, the floor; and the upper body, the wall. The body represented, therefore, several physical objects, where one was placed into motion (the bed) and more than one was at rest (floor and wall). Iverson and Goldin-Meadow (1997) observed a similar expression by a congenitally blind boy.

Pointing Expressions. The pointing expressions, or pointings, intended to point out some present physical object such as a body part on (e.g. arm, leg, head) or in (e.g. heart, stomach, brain) the participant's own body, other people, objects, or location. The pointings were usually done with some part of the body, most often the hand or index finger, and sometimes with a substitute for the body part, such as a piece of paper. The substitute functioned therefore as an extension of the body and, in these cases, of the arm or hand. An example is when C2 said "a similar outdoor table" and laid his palm on the table in front of him. Another example is when CA1 said "glasses" and pointed with her index finger to her glasses.[6]

Pictographic Expressions. Pictographic expressions, or pictographs, depict the form or size of a tactile and/or visual object. One example of form depicting is when CA1 said "I understand that it [a dish] is oval" and turned up her palms and showed the form of the dish. An example of the depiction of size is when A2 said "rats that were this big" and showed the size by holding her palms toward each other, measuring out a space between them.

Spatial Relations Expressions. Spatial relations expressions means a linking together of two or several physical points. These expressions accordingly indicate a distance between the points. One example is when A1 said "comes along here and turns off that way" and pointed to various physical points below and to the side with an index finger. In order to make the situation understandable he "reduced" the original occurrence to the scale of the points.

Reflections on Conditions and Factors related to the Concrete Expressions. As in the foregoing presentation, the concrete expressions have been divided into four

categories, two of which (isomorphic representations and pointings) were seen generally to be often and clearly produced by all of the congenitally blind. In contrast, the other two (pictographs and spatial relations) were not showed at all by the congenitally blind. Let us now discuss the reasons why this is the case.

The concrete body expressions, which occurred often and in a clear fashion, are body expressions that were related to expressions or to objects. The person isomorphically represented bodily expressions produced earlier, or objects, or pointed to his/her own body parts, other persons, or objects. To do this requires in part a fundamental conception, and in part a memory, of where different parts of the body are located. When the pointing concerns objects outside the body a sense of spatial relations is also required. The tactile sense, the kinesthetic sense (perception of body movement and position) and hearing must be utilized here, while sight plays, as far as we understand, a less significant role. Certainly, sight can possibly contribute and make the expression more distinct and fully formed. Certain preliminary thoughts will be presented here with regard to the absent occurrence of pictographs and spatial relations among the congenitally blind.

Spatial relations mean a connecting together of physical points. This requires that in an "empty room" one can link (at least) two physical points. This "empty room" is not something one can experience in a tactile manner, other than possibly by a draft, which hardly gives any information about the extent of space and the like. "The empty room" is sensuously represented with the help of sight and possibly with the help of hearing and of kinesthetic sense. For the congenitally blind, then, it can be difficult to spontaneously and naturally acquire and use this form of body expression.

One cannot imagine that there exists for the congenitally blind some fundamental impossibility of producing pictographs of at least smaller (graspable) physical objects (cf. Iverson & Goldin-Meadow 1997). Yet there are certain factors that we believe can make it difficult for the congenitally blind to express pictographs.

One factor can be that pictographs depict physical dimensionality. In comparison with the sighted, congenitally blind persons have a greater tendency to represent physical room objects in the form of their structure (e.g. a chair is constructed of legs, seat, and back, which are related to one another in a specific manner) rather than as physical dimensions (e.g. the height of a chair) (cf. Karlsson 1996, Révész 1950). Another factor can be that the prerequisite for congenitally blind people to represent a physical object as a whole, spontaneously rendered "picture" (but certainly not in the sense of a visual picture) is, among other things, that the object not be too large.

Abstract Expressions

The form "abstract expressions" indicates something that does not exist physically, concretely in the room. Here, the body relates to a symbolic and abstract world. One can say that the body incarnates and concretizes the

symbol, or that the body "goes behind" the symbol in order to then show any possible physical, concrete basis it may have. In order to understand an abstract expression it always has to be related to the spoken word and the context. The expression is, therefore, relatively complex. Table 1 indicates exactly how many times the abstract symbols were expressed by each of the participants. The reason we gave the exact count in this case is the significant difference between the congenitally blind participants and CA1 on the one hand, and the adventitiously blind and sighted on the other.

We have divided abstract expressions into four categories: metaphorically pointing expressions, differentiating expressions, symbolic expressions with a concrete referent, and symbolic expressions with an abstract referent.

Metaphorically Pointing Expressions. In metaphorically pointing expressions[7], or metaphoric pointings, the physical object being pointed at stands for a more abstract phenomenon. The most common pointing of this type on the video recordings was pointing at one's own body in combination with verbal expressions for the ego/self. An example is when C4 said "I" and placed the palm of the hand on her chest. This expression was metaphorical because it is not the concrete body that is my "I" but rather the ego is something more than just the body. The ego cannot be restricted to a certain part of the body. Another example is pointing at the head with one hand while talking about "thoughts". The congenitally blind participants and CA1 did not show any metaphoric pointings, or did so just a few times, and the adventitiously blind and sighted did so several times.

Differentiating Expressions. The differentiating expressions involve distinguishing between two or more abstract concepts with the help of the body.[8] As with all the abstract expressions, the spoken language and the body work closely with each other. The concepts are named explicitly and, at the same time, are kept separate through one or more bodily expressions. An example is when A2 said "this way or that way" and moved one hand to the left on "this way" and to the right on "that way". These types of expressions were not produced by the congenitally blind – with the exception of an indistinct expression by C3 – nor by one of the adventitiously blind participants (A1). They did occur several times, however, with the other adventitiously blind and the sighted participants.

Symbolic Expressions with a Concrete Referent. Symbolic expressions with a concrete referent (abbreviated to "concrete symbols") concern bodily symbols that refer to a concrete physical sensation. This sensation is distinguished by its being self-perceived and personal – experienced as being "within" one's own body. In order to communicate the sensation to other people, then, it has to be described with the aid of symbols or metaphors. It is almost as though an associative step has to be provided between the sensation and the spoken description. One example is when C4 said "[happiness] is stirring about [in the stomach]" and made stirring motions with one hand in front of her stomach. Here she symbolized or compared the bodily sensation of happiness in the

stomach to something that "stirs about". (Note that if she instead said "happiness is something that stirs about" during the stirring motion it would have been interpreted as an abstract symbol.) Another example is when C3 said, "go away, disappear [regarding some embarrassment]" and made a quick horizontal movement with one arm away from the body. A third example is when A1 spoke of how his sight had worsened and said "reduced field of vision, like this" and placed a thumb and index finger close and around each eye. For one of the congenitally blind participants (C1) we detected no concrete symbols, and a small number with two other (C2 and C3). We discerned several, however, for the remaining participants.

Symbolic Expressions with an Abstract Referent. Symbolic expressions with an abstract referent (abbreviated to "abstract symbols") concern bodily symbols that refer to some abstract concept. The meaning of this concept does not arise from something experienced in one's own body (even though many abstract concepts presumably have a bodily-concrete origin and foundation).[9] As with the concrete symbols, the meaning is communicated through symbols and metaphors, but the abstract symbols are provided with more associative steps than are the concrete symbols. Furthermore the abstract symbol, in contrast to metaphorical pointings, is displayed by a configurational or an imaginable movement "that we feel is, in some fashion similar to the concept" (McNeill, 1992:14).

As can be seen, the definition for this form is broad and comprehensive. Thus, it was possible to divide it into its constitutive parts. In short, the symbols refer to a multiplicity of different abstract concepts. Examples of the abstract concepts that were symbolized in our video material are time (two aspects are symbolized: then/now/after and speed), quantity, senses (sight, hearing and smell), communication, and relations between concepts. One example of speed being symbolized is when C3 said "ding! well, turn on a switch" and clearly snapped the thumb and middle finger on one hand;[10] quantity, when A1 said "three times [the person has cried in his life]" and extended the thumb, index finger, and middle finger of hand; the senses, when A2 said "see and hear" and moved her palms of both hands away from and toward her face several times; communication, when A2 said "speaking" and made outward circular motions with both hands; and lastly relations between concepts, when C2 said "two people become one ... together, right?" and quickly brought his palms together. Two of the congenitally blind participants (C1 and C4) did not express any abstract symbols. C2, C3 and CA1 expressed the form one time or a small number of times. The adventitiously blind participants, however, expressed abstract symbols numerous times, in particular A2, who expressed the form considerably more than A1 did.

It is interesting that A2, but most of all the sighted participants, as can be seen in Table 1, displayed symbols with an abstract referent quite often. A1 also expressed numerous abstract symbols, but they were significantly fewer than between A2 and the sighted participants. Without doubt, then, there is a marked difference between the congenitally blind and sighted participants as to the number of times these symbols were expressed. It is also of interest that

the adventitiously blind, especially A2, so frequently displayed abstract expressions. It should be added, however, that about 40% of the identifications of A2's abstract symbols were made with some doubt. By way of contrast, all of A1's abstract symbols were clearly identifiable, as were about 90% of those displayed by the sighted participants. The reason for the adventitiously blind expressing abstract symbols might be that (to a certain degree) that they have retained their sighted body language, in spite of the fact that it was more then 20 years before that they became blind. However, we cannot comment about how their body language may have changed after their visual impairment, since we have no data from the time prior to the impairment.

Reflections on Conditions and Factors related to the Abstract Expression Forms. The relative absence of abstract body expressions for the congenitally blind can perhaps be understood as a difficulty in subjectifying the body, and sight presumably facilitates such subjectification. What is required for expressing the abstract forms is a bodily sensation (especially when it comes to concrete symbols) or a sense that the abstract can be given form with the body (cf. McNeill 1992). Whether these abstract forms will be used may, it follows, be related to whether the body is perceived as a natural interface with one's speech, surroundings and way of existing, or to whether the body appears as though at a distance, more like a thing. Thus, in the last case the body and the speech are not closely bound to one another. This can be contrasted to McNeill's (1992) argument that gesture and speech form a single, integrated system.

There is also a dimension from which blind persons are to a great extent excluded because of the absence of vision. Quite simply this involves the fact that blind persons are not anywhere near as "exposed" as the sighted to expressions displayed by others or to graphic representations (e.g. graphic plots where feelings, emotional states, and the like are placed in spatial relation to one another).

Emblematic Expressions

Emblematic expressions (abbreviated to "emblems") are the types of body expressions that can replace spoken language. The meaning of an emblem, then, is supposed to be understandable without the help of the spoken word. This differentiates emblems from many of the forms of expression described above. This is where body language most clearly achieves its linguistic function and can, in this respect, be comparable to sign language. An emblem, therefore, has to be so utterly recognizable, both socially and culturally, that it speaks for itself. Examples of emblems in the Swedish culture are nodding in the sense of "yes", shaking the head from side to side to express "no", and two bent fingers in the air to represent quotation marks.

C1, C2, C3, CA1 and A1 did not display any emblems, or only a small number. One congenitally blind participant (C4), one adventitiously blind

participant (A2), and the sighted participants, however, expressed emblems on numerous occasions.

Emblems are relatively simple motions; they have to be easily understood. The reason they were expressed so seldom by the congenitally blind participants is probably that acquiring them in the first place is done with the help of vision. Emblems also have a pronounced communicative function and the person being addressed must, in principle, be sighted. To the extent that blind individuals do learn emblems, there must be a clear verbal and/or physical instruction; alternatively the emblem has to be audible and/or tactile/physical. Spontaneously acquiring an emblem through visual imitation is just out of the question for the blind.

Discussion

Our analysis of 14 hours of videotape and study of the literature in this field of research resulted in our description of a typology of 19 different forms of body expression. This typology can hopefully be used in future studies as an analytical tool by means of interpreting different body expressions of blind and sighted persons.

Some of the forms were expressed by everyone, others were expressed by only a few individuals. Every person expressed, for example, various spontaneous states of mind using the body, and a personal body style (idiosyncratic expressions). All the persons also expressed themselves in a functional and concrete manner, as indicated by the heavy occurrence of instrumental expressions, isomorphic representations, and pointings. In these forms the participant used the body as a physical tool to perform a goal-oriented action, or the person let the body represent or point to a physical object. These forms can also be associated with the sense of touch and/or hearing, which are the most important senses for blind people (cf. e.g. Karlsson & Magnusson 1994). In addition to these similarities there are also interesting differences between different individuals and groups of individuals.

As we mentioned in the results section, C4 and CA1 displayed a more active pattern of movements than C1, C2 and C3. Indicative of this was the fact that C4 and CA1 expressed more forms on more occasions. Their expressions were, moreover, more vigorous and distinct than those of C1, C2 and C3, which also were done more rapidly. One can ask to what extent a pattern of active movement allows one to "subjectify" the body and thereby, possibly, to facilitate the body's supporting and complementing the spoken language. As we stated in the results section, the meaning of a "subjectified body" is that the body itself attains the capability of creating meaning – that the body is experienced as a subject. At the other extreme the body is experienced more like a thing, an object. In these cases the body appears as something observed, something located at a distance. But when it comes to the ability to subjectify the body, one must also pay regard to factors other than the experience of one's own body movements. Examples of such factors could be the experience of (physical) closeness to other people (e.g. early

relationships between children and parents, or imitative ability gained through explicit instructions about body expression), as well as cultural practices, norms, and values.

The participants that were adventitiously blind (A1 and A2) differentiated themselves from C1, C2 and C3 in a manner similar to that of C4 and CA1. But the adventitiously blind participants, especially A2, were indeed even more active and explicit in their pattern of body movements than C4 and CA1. The sighted participants, however, were the most active and expressed themselves most clearly, which can be seen in the many instances of their clearly displaying abstract symbols. A relevant question is whether this difference can be connected with the fact that the sighted participants, quite simply, talked more about abstract issues than did the blind participants. After a special examination of the data, however, it is our view that there was no difference between the degree of abstraction in the spoken communication of the blind and sighted participants. But we are somewhat doubtful as to whether the two sighted participants are representative of Swedish culture. In our view, these individuals displayed an extremely active pattern of movement on the video recordings, particularly as regards to their hands. Sighted persons in the Nordic countries are thought to express themselves less actively with their hands than, for example, individuals in Latin countries (Fast 1981).

Many forms seem to have a salient communicative and social meaning. In using, for example, pictographic expressions a person usually depicts the form or size of the object for the other person, in order to show what it looks like. This form of social function is probably more pronounced among the sighted, since it is more difficult for blind people to experience another person's pictograph than it is for sighted people. Once a blind person has perceived the form, however, he or she may well be able to use it on a subsequent occasion.

To sum up, the participants that were congenitally blind seemed to express themselves mainly in a functional and concrete manner using their bodies. They also seemed to have limited experience with abstract, symbolic body expression. A possible basis for this difference may be the absence of sight, since the abstract expressions are presumably learned through the visual imitation of others. Additional reasons may be that the congenitally blind did not get to learn to use abstract symbols with the help of the tactile sense or with the help of constructive and positive feedback from other persons.

Finally, we think that blind persons have the human right to try to develop their body language, for example to develop abstract symbols, through social training and socialization. But one must – and it deserves to be emphasized – be sensitive to the blind individual's own experience of social training. Otherwise there is the risk of abuse (Magnusson 2006).

Notes

[1] This article is based on a study that is a part of Magnusson's doctoral thesis "Blinda personers icke-verbala kommunikation" ("Blind People's Non-Verbal Communication"), 2003.

[2] Pilotta and Mickunas (1990:57) define language in terms of experience "as a structuration of consciousness into a world". Bodily gestures are included in this broad definition of language in addition to verbal language.

[3] We are grateful to one of the anonymous reviewers who brought to our attention McNeill (1992), which has been useful.

[4] Efron (1972) defines ideographs differently to us. Efron defines an ideograph "in the sense that it traces or sketches out in the air the 'paths' and 'directions' of the thought-pattern" (Efron 1972:96). We find it difficult, however, to understand the definition since Efron gives few concrete examples. As far as we understand, there is a similarity between Efron's ideographs and our differentiating expressions and symbolic expressions with an abstract referent.

[5] Isomorphically representing expressions and pictographic expressions can be compared with Wundt's (1973) division into "plastic" (p. 78) and "indicative" (p. 78) gestures. The first are defined as a three-dimensional imitation of an object with the hands, the latter as a sketching of the object in the air using the index finger. Also compare the representing expressions with Ekman and Friesen's (1969:68) "kinetographs", defined as "movements which depict a bodily action".

[6] Iverson and Goldin-Meadow (2001) found that their congenitally blind schoolchildren and adolescents rarely pointed with the index finger extended. In our study CA1, who had sight up to the age of four, pointed several times with the index finger, for example to her glasses or to fictive tears. This indicates that she has retained some body movements from the time she was sighted.

[7] Metaphorically pointing expressions can be compared to McNeill's (1992) "abstract pointings". Both forms imply abstract ideas that have a physical locus (see McNeill 1992:18). Like McNeill, we have also found pointings where the speaker appears to be pointing at empty space, for example, indicating "over there" or "this person". In contrast to McNeill, we have found examples where the person point at a present physical object, such as the chest, indicating "I" or "me". Thus, here the physical body stands for a more abstract phenomenon. Our point of view is that pointings have a very complex character and need to be further explored.

[8] Ekman and Friesen's (1969) spatial relations that touch upon relations between ideas can possibly be compared with our differentiating expressions. But we consider ideas as abstract things that are not found concretely, physically in the room. We are therefore critical of their definition of spatial relations, and instead place value on distinguishing spatial relations from the differentiating expressions (cf. McNeill 1992).

[9] Wundt (1973) has divided symbolic gestures into two groups, "primary" (p. 90) and "secondary" (p. 90). The former correspond to abstract concepts from the start, which the latter do not. Wundt believes, moreover, that the primary gestures are an evolutionarily late development.

[10] Several of the blind and sighted participants snapped their fingers to symbolize speed, e.g., in connection with one person talking about something "fast as lightning" or when another one said "ding! well, turn on a switch". Snapping the fingers is, besides being visual, also audible, and therefore can be used by the blind. This expression might also conceivably be interpreted as an emblem but, in the contexts in which they appeared, were interpreted as abstract symbols.

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