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THE PREPARATION AND DEVELOPMENT OF A MOVEMENT OBSERVATION SCHEDULE TO RECORD INDIVIDUAL MOVEMENT PATTERNS

by

(C) VALERIE SHERWOOD-KENNEDY

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

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Supervisor

Date... December 30, 1981....

Abstract

The purpose of this study was to design a Movement Observation Schedule(M.O.S.) which could be used unobtrusively in a live situation to record individual movement patterns. Within this aim was the training of observers in the use of the instrument in order to obtain acceptably high interobserver agreement.

Development of the instrument involved a search of the available literature, consultation with experts and prospective users, and a pre-test. The resultant M.O.S. consisted of eleven typed pages in which were described the three aspects to be observed, namely Posture, Shaping Pattern, and Floor Pattern. Application of the instrument involved event and time sampling. The events considered were teacher-directed, improvisational, and unstructured activities. Each of the aspects was to be observed for a set period of time during an example of each event: Posture for one minute, Shaping Pattern for the first five out of every thirty seconds for five minutes, and Floor Pattern for two minutes. A pilot test was run to examine the actual application of the instrument and the appropriateness of the agreement criteria. The revised schedule was then used in the testing situation. Two volunteers were obtained for training in the use of the M.O.S.: Ms. Rosemary Speakman, and Ms. Allison Shorey. Two drama classes at the University

of Alberta were chosen from which there was a random selection of subjects.

There were eleven observations for Shaping Pattern, and eight observations each for Posture and Floor Pattern, for a total of five hundred(500) samples. Interobserver agreement possibilities were divided into five levels for Shaping Pattern, four levels for Floor Pattern, and two levels for Posture. The acceptable minimum agreement for interobserver agreement was set at 80.0% to 85.0%. Posture was the only aspect that reached this criteria at all levels. Except for distance, one of the componants of Floor Pattern, percent congruency was below the acceptable amount for Shaping and Floor Pattern. One main reason proposed for the low percent agreement was that the observers received inadequate training concerning the specifics of what was to be recorded.

The M.O.S. did meet the aims of minimal training time and unobtrusive use in a live setting. Further research into the use of the M.O.S. is suggested, following the recommendations of improved observer training and increased investigation of existing instruments.

Acknowledgements

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The contribution of the observer trainees cannot be measured, and to Diane Post, Rosemary Speakman and Allison Shorey goes much heartfelt thanks. And to others who so freely gave of their time and expertise: Dr. A. Herriot, Dr. J. Watkinson, Dr. W. Lamb, representatives of the user groups, personnel from U. of A. Radio and Television Department, to mention but a few.

Special thanks is given to my husband, Jim, and to my family, whose belief in my ability kept me going.

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I. Introduction

A. Background

The importance of the interaction between the soma and the psyche has resurfaced into modern thinking. (Lamb, 1979; Reich, 1948; Rolf, 1977) Psychological states of tension are reflected in the behavior of the individual. Specific activities contribute to the feeling of such emotions as anger, happiness and contentment. One result of this recognition of the holistic nature of man has been the re-emergence of the therapeutic use of dance. Dance Therapy is defined as: "the psychotherapeutic use of movement as a process which furthers the emotional and physical integration of the individual." (ADTA, 1978, p. iv) Proponanats of Dance Therapy claim that deliberate involvement in specific physical activities can "facilitate insight, release and personality integration." (Fact Sheet, 1979, p. 1)

Because of the relative newness of this mode of therapy little research has been done concerning its effectiveness. Costonis (1974) outlined the development of synchronous movement of an autistic child with her therapist. She defines synchrony as "identical and simultaneous use of separate body parts along similiar movement pathways...." (Costonis, 1978, p. 3) This synchrony is paralleled by measurable improvement in behavior and

language. Davis (1970), in investigating the movement characteristics of psychiatric patients, concluded that there are movements which are characteristic of specific mental disorders. The bizarrness of these movements vary in intensity in direct proportion to the mental condition of the patient. The effect of dance therapy on the body images of severely mentally-ill adults was examined by a team of psychotherapists and dance therapists.(May,Wexler, Salkin,Schoop-1963) Their examination underlined a major problem involved in research concerning the effects of dance therapy. No "satisfactory rating scales...(were available)...to reflect their particular frame of reference...."(May et al, 1963, p.12) Although clinical tests could be used to measure changes in bizarrness, body image or language use, no appropriate tool was at hand that could record similiar changes in movement. Some researchers have applyed an analysis of movement developed by Rudolf Laban. (Bernstein,1972;Davis,1970;North,1972;Samuels,1972). However, this method requires a minimum of two years training before it can be used accurately.(Costonis,1974;Davis,1970) Because of this system's complexity, it has been applied to only one or two areas of an individual's movement pattern. Recognizing the cost involved in observer preparation, Costonis (1974) designed an instrument which required minimal training, the Synchronous Movement Profile(SMP). The SMP is used to examine the amount of synchronous movement between a

therapist and her client. The savings in time meant that more persons could use the SMP, however the specificity of its subject matter severely limited application.

B. Purpose of the Study

The purpose of this study was to design a Movement Observation Schedule which could be used unobtrusively in a live situation to record individual movement patterns. The study focused on the following concerns:

1. To devise an instrument which requires minimal user/observer training , yet will still provide enough information to make a statement about the individual's movement pattern.
2. To train observers to use the instrument so that sufficiently high interobserver agreement is obtained.
3. To establish a general procedure for instrument design which will be useful in the development of movement observation schedules for specific needs.

C. Importance of the Study

The increase in the membership in the American Dance Therapy Association since its inception in 1966 from thirty to nine hundred members is indicative of the growth of dance therapy as a profession. However, as indicated by Hall(1968) objective evaluation of the effectiveness of the therapeutic procedures is necessary for research and growth in the

field. Such objective evaluation must include measures of movement changes, as well as of any psychological effects, for as Schmais(1973) has stated, knowledge of movement behavior "is essential in the development of diagnostic procedures, in recording and measuring patient change, and in comprehending communicational systems."(p.12)

D. Assumptions

1. "Every individual has patterns of movement which are fairly constant for himself."(Chaiklin,1975,p.713)
2. The individual patterns of movement can be recorded in written form.(Hutchinson, 1974;Laban,1950;North,1972)
3. All aspects of movement need not be recorded in order to describe a general movement pattern. "Greater detail of one or other of (the aspects) will be required according to the ultimate purpose of the observations....(North,1972,p.14)

E. Definitions

The following terms are basic to an understanding of the Movement Observation Schedule;

1. Floor Pattern:"The design described on the floor by the steps of a (mover)"(Webster,1976,p.873)
2. Gesture:"includes all movement of the body which are not concerned with supporting the weight"(Preston-Dunlop, 1980,p.53)
3. Locomotion: "tranferring the weight of the body from one point of support to another in

succession"(Preston-Dunlop, 1980,p.54). In this study this term is interchangable with the word 'travelling'.

4. Movement:"the process of...caus(ing) or allow(ing) the self or a part of the self to change position or posture"(Webster,1976,p.1479f).
5. . Movement Pattern:an individual's characteristic way of changing position or posture.
6. Non-Movement:this includes any time when the individual is not involved in a gesture or in locomotion.
7. Pattern:"a reliable sample of traits, acts or other observable features characterizing an individual"(Webster,1976,p.1657).
8. Posture:"the characteristic position or bearing of the body" (Webster, 1976,p.1773f).
9. Shaping:"a change, no matter how slight, in (the body's) relationship among its parts and the surrounding space"(Dell, 1970,p.43).
10. Shaping Pattern:an individual's characteristic way of shaping.

The following terms are involved in the operation of the study:

1. Event Sampling:the selective observation of "clearly defined classes of behavior"(Bickman, 1976,p.285).
2. Improvisational Events:activity that involves stimulation by an outside influence concerning an

overall concept. Minimal or no direction is given as to specific responses. Stimuli can include music, an object, the words of the teacher, or an emotion.

3. Teacher-Directed Events:specific direction as to the activity itself is supplied by the teacher.
4. Time Sampling:"the time period during which observation will be made" (Bickman, 1976,p.285).
5. Unstructured Events:those times when the subject has received no specific direction or stimulation from an outside source.

F. Limitations

1. The study was limited to the development of a reliable, objective instrument for observing non-subtle human movement.
2. Sample selection was according to opportunity, not representative randomness.
3. The presence of observers in the classroom may have affected the movements of the subjects.
4. The situations of the observation sessions did not provoke the subjects to extremes in responses. The full range of movement of the subjects was not obtained.
5. The facilities selected for the test situations limited the possibilities for locomotion.

G. Delimitations

1. The instrument does not attempt to record all the aspects of human movement that are possible. It only considers categories within shaping, travelling and posture.
2. The study looked at representatives from the University of Alberta dance and drama classes.
3. Only observers with previous movement experiences were involved in the study.

II. Review of Literature

A. Fields of Study

The observation of human movement has been recognized in many fields as a valuable tool for assessment and research. Education, anthropology, physical education and sociology are but a few of the areas which regard movement as a valid aspect of study. Because of the many professions involved in a study of movement behavior only items relevent to this study will be considered.

The application of the laws of physics to the analysis of human movement led to the development of biomechanics, which according to Gowitzke and Milner(1980) involves "applying the principles of mechanical analysis to living systems...."(p.117) Because of the exact nature of biomechanics various instruments had been developed which measure space and time to a minute degree. However,these instruments are often very expensive and require extensive user training.

Studies of teaching techniques have involved movement observation as one of their methods.

> Barrett(1969) recorded verbal behavior as well as movement responses in movement education classes.(Campbell,1980,p.12)

Further efforts at developing an instrument to examine classroom interaction has resulted in a coding system credited to Robbins(1973), whose instrument

> was primarily designed to identify and analyse teaching behavior in a physical education setting.(Campbell,1980,p.16)

Anthropology was one of the first areas of study to recognize the need for looking at more than the verbal aspects of behavior. For example, as early as 1941 Efron studied the gestural systems of first and second generation Eastern European Jews and Southern Italians. There was no direct follow-up to his work, however he did establish gesture as a worthy area of investigation. In his book *The Silent Language* Hall (1968) developed a method of analyzing culture, which involved his "Primary Message Systems" (p. 45), many of which were non-verbal in nature. Birdwhistell (1972) strongly concurred with Hall as to the effect of culture on all of a person's behavior, and he attempted "to establish a grammer of body language".(Weitz,1974,p.130). He continually emphasized that interpretation of movement was dependent on the context of the behavior. For example, Birdwhistell claimed that the meaning of body motion:

> "...can be derived only from the examination of the patterned structure of the system of body motion as a whole as this manifests itself in the particular social system... (Birdwhistell,1972,p.217)

The concept and methodology of kinesics was Birdwhistell's main contribution to the study of movement.

> Kinesics is concerned with the abstraction of those portions of body motion activity which contribute to the process of human interaction. (Birdwhistell, 1972, p. 240)

However, Kinesics was not concerned with "the relationship of nonverbal behavior to inner feeling states" (Weitz, 1974, p. 130). Paul Ekman was interested in the study of movement from this angle: in so doing he left anthropology and entered into the realm of psychology, as Weitz (1974) indicated:

> Ekmann is concerned with the psychological problem of communication of emotional state, rather than the structural one of the nature of the communications system itself. (p. 130)

He eventually limited his observations to facial movements. His theory that all nonverbal behavior is communicative of emotional states further restricted the application of his technique.

The interaction of body movement with psychological states has been investigated by various persons. Bartienieff and Davis (1965) studied the movement patterns of psychiatric patients, Samuels (1972) attempted to measure movement changes that occurred in a withdrawn client being treated by dance therapy, and North (1972) described personality assessments which were done through the use of movement observation. These individuals used aspects of the effort-shape concept, originally developed by Rudolf Laban who described effort as "the inner function originating...movement", (Laban, 1973, p. 24) the attitude of which relate to the "motion factors of Weight, Space and

Time"(Laban,1973,p.23) As enlarged upon by Lamb:

> Laban had taught that there was an affinity between Upwards or Downwards movement and Weight Effort, Sidewards (left or right) movement and Space Effort, and Forwards and Backwards movement and Time Effort.(Action News, Spring 1981,p.3)

Laban and the others mentioned explored these relationships in individual movement patterns. The notation system developed by Laban was "developed from traditional attempts to communicate dances by written symbols...based on observation and analysis of movement, in space and time."(Laban,1973,p.25) This notation system was used to analyse and record observations.

Another investigator who began with effort-shape analysis was Warren Lamb. He found the system inadequate for his work in management consultancy. He developed Action Profiling, a method of recording specific aspects of movement. The "first stages of the research on inter-observer reliability"(Action News,Spring 1981,p.1)for Action Profiling was reported on at the Action Profilers International Conference, held in Amsterdam in later September, 1980.

> A serious drawback to effort-shape is the difficulty of deriving quantifiable data from qualitative descriptions. As Irmgard Bartenieff puts it, effort-shape deals with the 'how' of movement as opposed to the 'what'....Effort-shape requires over two years of intensive training to develop a qualified observer... (Costonis,1978,p.56f)

Costonis outlined above, two of the major weaknesses of Laban's effort-shape notation as a tool in research. She attempted to overcome the problems of the qualitative nature

and observer training time in her Movement Range Sampler. This instrument was derived from the concepts of the Eshkol-Wachmann Movement Notation System. Unlike Labanotation, developed only "to describe and analyse human movement" (Laban, 1956,p.20), the Eshkol-Wachmann system has been applied to a wide range of subjects, from rats to viruses.(Costonis,1978) Costonis' MRS was designed to measure inappropriate movement patterns in her clients.

B. The Observational Method

Isaac(1971) has described nine methods of research. He placed observational studies under the descriptive method:"to describe systematically a situation or area of interest factually and accurately." (Ibid,p.14) Descriptive research

> does not necessarily seek or explain relationships, test hypotheses, make predictions, or get at meanings and implications.... (Isaac,1971,p.18)

As such descriptive research need not follow standard research procedures. However, specific criteria must be met before the method is scientifically sound,for example:

> Oservation...is a primary tool of scientific enquiry. Observation becomes a scientific technique when it (1)serves a formulated research purpose,(2)is planned systematically,(3)is recorded systematically ..., and(4)is subjected to checks and controls on validity and reliability. (Bickman,1976,p.252)

and

> ...a definition of observational methods developed by Karl Weick (1968,p.360):'the selection,provocation,recording, and encoding of

> that set of behaviors...consistent with empirical aims.' (Bickman, 1976, p. 253)

Although the observational method is recognized as scientifically valid, the recording and encoding mentioned by Weick is often the weak element of a inquiry into nonverbal behavior. "...a problem associated with the observational mode of study is how to record observational data." (Sande, 1975, p. 18) Aspects of effort outlined in Labanotation are qualitative in nature and therefore require much subjectivity on the part of the observer. Quantitative analysis often necessitates sophisticated equipment, thus in order to observe the many variables in movement filming and videotaping techniques have been developed. The obtrusiveness of the instruments prevents their application "in studies which there are attempts to alter some aspect of the subject's behavior." (Bickman, 1976, p. 264)

The fourth criteria to be met in order for observation to be scientific is that of checks and controls.

> This is typically done by some form of calculation of agreement between two or more observers in the field. (Johnson & Bolstad, 1973, p. 10)

At the present time there is no set method of calculation. "...the index must be tailored to suit the purposes of each individual investigation." (Johnson & Bolstad, 1973, p. 10)

III. Methods and Procedures

This chapter describes the development of the instrument, the pilot study, the testing of the instrument for reliability, and the collection and analysis of the data. The development of the instrument involved a search of the available literature, consultation with experts and prospective users, and a pre-test. From this the application of the instrument emerged. A pilot test was run to examine the actual application of the instrument and the appropriateness of the agreement criteria. The revised schedule was then used in the field situation.

A. Development of the Instrument

Background

A search of the literature concerning unobtrusive tools for recording individual movement patterns revealed that no such standardized instruments existed. The method developed by Birdwhistell (1972) has been basic to much of the research in body language. Birdwhistell's method is concerned with the communication aspects of behavior and "not the personality or character of the individual as expressed by his own particular style of movement." (Costonis, 1978,p.75) Another difficulty involved in using Birdwhistell's recording system is the need for a large, well-trained team in order to have complete and accurate

coding.(Birdwhistell,1972,p.229) This problem is also evident in the use of Laban's effort-shape analysis, which provided a comprehensive "system for observing and defining the elements of movement style." (Davis,1970,p.51), however, it requires two years of intensive training before an observer is qualified.(Costonis,1978,p.55) Furthermore, of the many studies which have been undertaken using effort-shape analysis, only Davis (1970) investigated interobserver agreement. She achieved "a correlation coefficient of .783 for ratings on all items...."(Costonis, 1978,p.94). This is in part due to the descriptive rather than quantitative nature of the system

Costonis(1978) attempted to develop quantitative systems for recording movement. Her Synchronous Movement Profile(1972) was specifically designed for examining the amount of rapport between client and therapist. The Movement Range Sampler(1974) developed by Costonis required little observer training, but was only used to measure inappropriate movement behavior, therefore the specificity of the population and behaviors examined limits the application of her instruments.

During the search of the literature it became evident that there was a need to design an instrument which could be used to record the general movement pattern of an individual. In order for such a tool to be useful to both therapists and researchers it needed to be precise and quantitative. Such an instrument should also require a

minimum of observer training and would be adaptable to use in live or filmed situations.

Selection of Aspects

Laban stated that "body movement can be roughly divided into steps, gestures of arms and hands, and facial expressions."(Laban, 1971, p.21) The field of Modern Educational Dance incorporated steps into the weight-change behaviors of stepping, locomotion, jumping and turning. Any movements which did not involve weight change were labelled by Preston-Dunlop as gestures, regardless of which body parts were used.(Ibid, 1963) North (1972) has added body carriage to the list in her description of aspects involved in movement analysis. Sweigard (1974) stated that "the basic neuromuscular habits of coordination developed to maintain equilibrium in the standing position influence all body positions and movements. Posture is thus the substrate of movement."(p. 173) Because of the importance of posture to movement its inclusion in the instrument was seen as imperative.

The variable of facial expressions mentioned by Laban was omitted from the proposed movement observation schedule. While facial expressions do give valid indications regarding communication, the focus of the instrument was on individual movement patterns, not on how one person relates to another. For this reason facial expression was omitted and only posture, gestures and travelling were examined.

Objective Measures of Aspects

The description of efficient posture used in the instrument emerged from a search of writings in physiotherapy and physical education. The discrepancies of the body parts from those of efficient posture were the items recorded. Only the standing position was included following the procedure established by traditional studies on posture, such as Sweigard's (1974). Furthermore, this position is "the prevalent position in which man moves and carries on many of his daily activities" (Sweigard, 1974, p. 173).

Two systems were available that had reproducible measures for gesturing. These were the Movement Range Sample of Costonis' study (1974) and the three continuums found in Lamb's (1979) analysis of Posture-Gesture Merging. Due to the specificity of Costonis' tool, it was decided to follow Lamb's instrument because it was concise, and simple to understand and use. The categories which are in Lamb's instrument, namely enclosing and spreading, rising and descending, and advancing and retreating, are those recognized in the field of movement. (Dell, 1970; Laban, 1956; Preston-Dunlop, 1963). Lamb used the categories to describe only movements of the torso, however, for this study the terms were extended to cover all gestures.

Further modification of the scales was required in order to meet the criteria of exhaustiveness as outlined by

Robbins(1973). The use of planes in the definitions by Lamb excluded some possible movements of the limbs. In order to allow a three- rather than two-dimensional approach, the categories were described according to focus and direction. This agreed with Dell's explanation of shaping.(Dell, 1970)

The continuums presented by Lamb were nominal scales which did not exhibit specific enough rankings to allow quantitative comparisons of observers' ratings. The end points and center fulcrum were not clearly defined; neither were the areas between sufficiently broken down. Thus for this study the end points were termed 'Full Potential'.This was defined as

> that point beyond which locomotion must occur due to extreme lability....The center fulcrum of the continuum represents the central axes of the body, both the vertical and horizontal. As the gesture moves away from the axis it goes through a maximum of three areas. These are termed, respectively, 'near(1), 'normal' (2), and 'extreme'(3). ((Original M.O.S.)

The final aspect requiring quantification was that of travelling. This was done by using floor patterning, namely the recording of where the subject travelled in the room. Scale drawings of the floor paths traced by locomotion were placed on scale drawings of the area itself. This showed the distance travelled,the shape of the paths, and the direction of movement. The main procedure used for coding floor pattern was taken from Labanotation.(Hutchinson, 1974, pp. 365-370)

The direction of travel was determined from the personal front of the subject. An adequate definition of personal front was not available. The description composed for this study is "that direction that the feet are facing when parallel."(Original M.O.S.)

Description of the Instrument

The Movement Observation Schedule, as an instrument, consisted of eleven typed pages. Definitions of each of the aspects of Posture, Shaping Pattern, and Floor Pattern were givin. Two figures were inserted in the discussion of Posture to assist in the explanation of where to place the various body parts. The anterior and lateral views, with horizontal and verical axes, were put on to graph paper to allow for precise quantification. (see Figure 1)

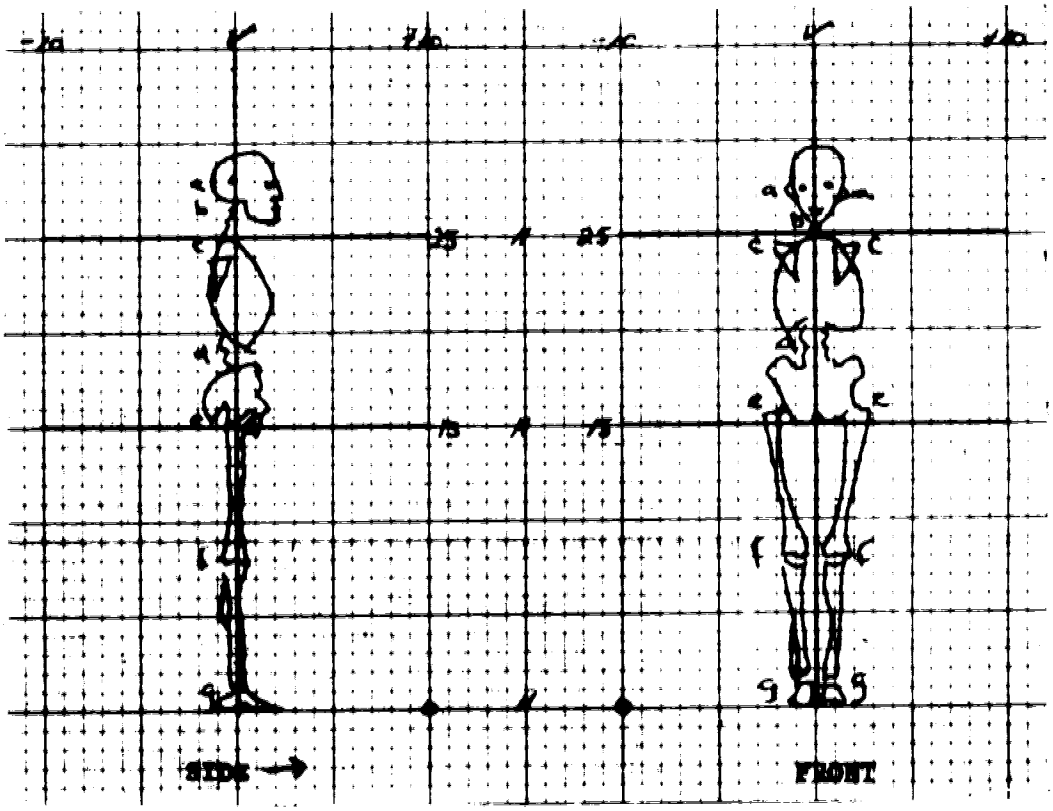

Figure 1:
Posture - A

Descriptions of efficient posture according to the use of the axes, as indicated by Sweigard(1974) followed each of the appropriate figures. In notating a subject's posture the position of each body part represented by a letter in the figures was indicated by a dot, for example, 'f' represents the position of the knees. One exception was the chin in the side view, which was indicated by a small line. Colour coding was used to indicate the different times of recording.

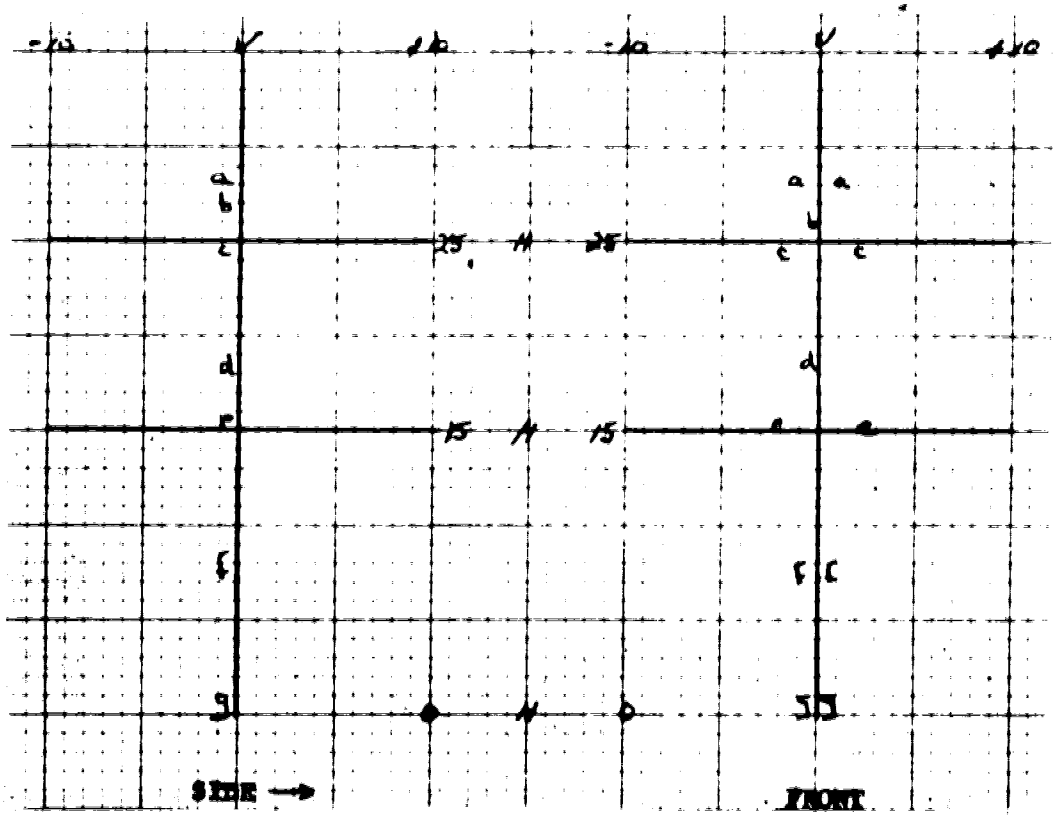

Figure 2: Posture - B

Guidance for describing inappropriate flexion or extension of joints was given at the end of the Posture discussion. The method of notating this was taken from Labanotation. Below are the statements that were given:

1. slight flexion
2.  approximately 45° flexion
3.  approximately 90° flexion
4. approximately 100°-110° flexion
5.  approximately 135° flexion
6.  complete flexion
7.  overextension (extended and taut)

(taken from Hutchinson, 1974, p. 162f)

The discussion of Posture was followed by the section on Floor Pattern. Included with the definition of this aspect was the description of a floor plan, an explanation of the symbols necessary to record it, and a clarification of the three categories involved in Floor Pattern: distance, direction, and path shape. The description of the floor plan included the indication that the area of movement was drawn according to scale. The symbols necessary to record the floor plan are summarized below:

 =female  =male

The point of the pin indicates the direction the person is facing. The placement of the pin shows where in the room the person is located. The floor path is drawn as a line coming from the pin. At the end of travel an arrow is used to indicate the direction of movement. Figure 3 is a simple

example of a floor plan.

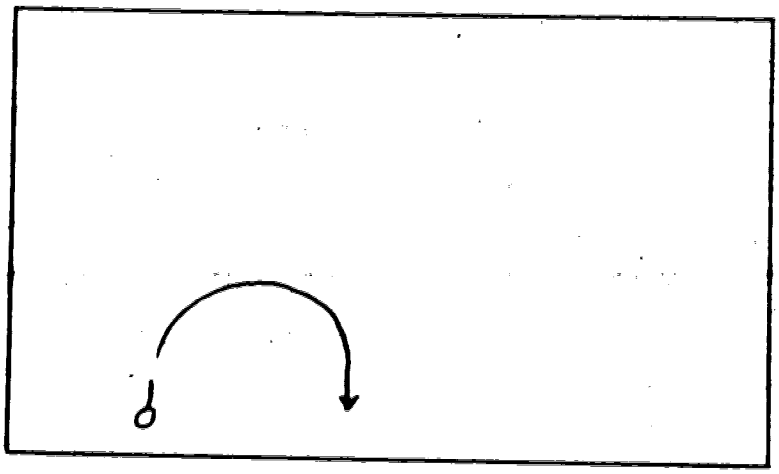

Figure 3: Floor Plan: Female travelling in a half circle, beginning facing away, ending facing front.

The description of the six categories involved in Shaping Pattern formed the last part of the instrument. The categories were enclosing and spreading, rising and descending, and advancing and retreating. Definitions of the categories involved whether the focus was external or internal, and the relationship of the gesture to the center of the mover. For instance, enclosing gestures had an internal focus and came in towards the center of the mover. The categories were placed at the ends of three separate continuums the extreme ends of which were termed Full Potential; that being the point beyond which locomotion must occur due to loss of balance. The gesture was notated by an

indicator line drawn parallel and above the appropriate side of the appropriate continuum. Figure 4 shows how a gesture of the arm away from the center of the body and then back again would be recorded. In this case the arm only extends to two-thirds of its potential.

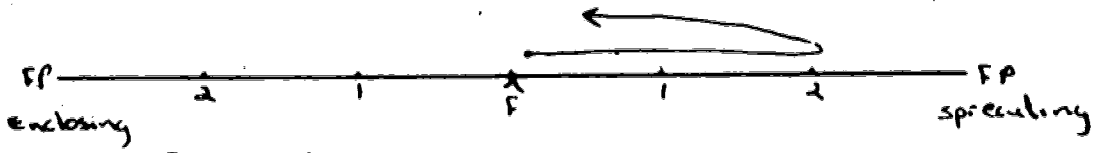

Figure 4: Arm Gesture - A

The application of the M.O.S. in the observation of an individual would result in an overall record of the posture, locomotor pathways, and gesture types characteristic of the person in that particular situation.

Validation of the Instrument

The resultant Movement Observation Schedule(M.O.S.) was sent to three individuals whose work in movement is well known: Dr. W. Lamb, President and founder of Action Profilers International; Dr. M. North, Director of Laban Center for Movement and Dance;and Professor M. Padfield, Assistant Professor in the Faculty of Physical Education and Recreation at the University of Alberta. These experts were selected in consultation with Dr. C. Padfield, thesis advisor. The M.O.S. was accompanied by a letter explaining its purpose and design, as well as by a brief

questionnaire.(Appendix 2) The experts were consulted regarding the clarity and accuracy of the definitions in the M.O.S., and the comprehensiveness of the aspects. Two of the experts responded: Dr. W. Lamb, through his associate Pamala Ramsden; and Professor M. Padfield. Representatives of those professions which might use the proposed schedule were also asked to examine the M.O.S. Selected in consultation with Dr. C. Padfield, they were chosen because of their availability and interest. In a personal interview followed by a written questionnaire the eleven individuals contacted commented on the clarity of the definitions; the categories within each of the aspects of posture, shaping and floor pattern; and whether or not they could see themselves able to use the instrument.(Appendix 2) The potential user groups contacted included counsellors, nurses, teachers,physiotherapists, occupational therapists, and university professors. Ten of the eleven representatives returned completed questionnaires. The following is a list of the representatives contacted:

1. Counsellors: Kathy Cormie, Jan deWaal, Carol Goran
2. Nurse: Gail Hogle
3. Occupational Therapist: Sharon Brintnell
4. Physiotherapist: John Cramer
5. Professors: Dr. A. Herroit,Dr. H. Scott, L. Thompson, Dr. J. Watkinson
6. Teacher: Cathy Campbell

At the same time as the initial draft of the M.O.S. was being evaluated by the experts and group representatives, a pilot study was conducted. The information that was obtained from both the pilot study and written responses of those approached was used to modify the M.O.S.. Definitions were clarified and the methods of application were streamlined.(Appendix 4)

Application of the Instrument

Once the instrument itself was developed it was necessary to decide on the procedure for its use. North (1972) stated that it is impossible to "notate every single movement"(p.5) in a live setting: it therefore becomes necessary to sample the movement for the purpose of recording. According to Bickman(1976) "a decision must be made concerning the behaviors to be observed and the time period during which the observations will be made."(p.285) While Birdwhistell stated that observed behaviors are linked with the situations in which they occur. (Birdwhistell, 1972) Thus, in order to obtain a clear picture of how an individual moves it is necessary to observe him in more than one type of situation. Where this is not possible, as in this study, event sampling may be used. Bickman (1976) maintained that "event sampling requires...clearly defined classes of behavior"(p.285). For this study three differant events were defined; teacher-directed activities, unstructured activities, and improvisational activities. (p.

5). Each of these events would occur within the classes selected for observation. It was anticipated that the activities would be varied enough to provoke a good range of movement. This is one criterion stressed in North's writings(1972)

After the selection of the 'behaviors to be observed', the time period of observation needed to be considered. Two decisions had to be made: (1)what aspect was to be recorded, and (2) for how long? Initially it had been decided to observe the event and select the dominant aspect of travelling or gesture. Posture would be recorded for each sample. However, pre-testing revealed that this would involve too much subjectivity on the part of the observer. It was therefore concluded that observation of each event would follow a set sequence of posture, gesture and travelling.

Pre-testing indicated that the recording of posture could be done following a quick scan of the body. This required no more than one minute of observation. Because of the nature of the activity recorded in Floor Pattern it was necessary to record travelling during and following continuous observation. Pre-testing indicatecd that sufficient information could be obtained from a maximum of two minutes observation. A longer time period placed too great a strain on the recording ability of the observers. In cases of extreme complexity of locomotion one minute of coding was sufficient.

In looking at gestures the method suggested by Costonis(1978) was adopted, namely that "the observer watches the movement ...for a five second period out of every sixty seconds."(p.8) Each observation session lasted for ten minutes. The coding procedures in this study were relatively simple: it did not require fifty-five seconds to record the observation of the first five seconds. Therefore samples could be taken for the first five seconds of every thirty seconds, thus allowing the collection of the same amount of data as in Costonis' study but within a five minute period. This was an advantage as some events did not last long enough to allow for the inclusion of a ten minute observation period specifically for encoding shaping pattern. The resulting sequence of observation per event sampled was a one minute scan for posture, a five minute period for gesturing, and a two minutes continuous observation for the floor pattern, resulting in a total observation period per event of eight minutes.

B. Pilot Study

A pilot study was conducted to assist in the development of the M.O.S. The purpose of the pilot study was to train volunteers in the use of the schedule, by first using it with video-taped material, then in a live situation. Procedures involved in working with the instrument, as well as the actual content of the M.O.S.,

were examined. The investigator was designated the head, or main, observer.

Observers

Two volunteers were trained in the use of the M.O.S.: Ms. Diane Post, Movement Education Consultant for the Edmonton Separate School Board; and Ms. Rosemary Speakman, dancer and muscician. Initially it was felt that the volunteers' involvement in movement would assist them in their observations, as North(1972) had indicated that an individual must "be able to move oneself in a richly varied way in order to recognize the pattern of others."(p.8) Part of the observers' experience consisted of training in other observational techniques. Although the observers believed that they were not using this previous training it became obvious that it was affecting their perceptions. They would be looking for specifics such as which body part was moving. This detailed recording was not in the design of the M.O.S. It was necessary to remain aware of this potential for error.

Training of the Observers

The training of the observers followed that outlined by Johnson and Bolstad(1973)namely:

> ...reading and studying of the observation manual,...participation in daily intensive training sessions which include discussion of the system and coding of pre-coded (video tapes),...and...field training with a more experienced observer followed

immediately by agreement checks....(p.25)

There was a total of five training sessions prior to the field experience. In order to allow sufficient time for familiarization with the instrument , copies of the proposed M.O.S. were given to the volunteers one week prior to the actual training. During the first session of training time was set aside in order to answer any questions which the volunteers had concerning the study. The preliminary training involved the viewing of a video tape of a dance solo, accompanied by a verbal description of the movement according to the terminology of the M.O.S.. The verbal description helped the observers to apply what they had read with what they were seeing.

The following four sessions involved coding two prepared video tapes. After each coding period there was discussion concerning the observers' interpretations and use of the schedule. These discussions were audio-taped and led to much clarification and simplification of specific items in the M.O.S.. Each of these sessions lasted for approximately two hours, and occured every morning for one week, for a total time of approximately ten hours.

The following two weeks involved field training. Professor M. Padfield and members of an Introductory Modern Dance Class agreed to allow the observers to attend the classes in order to practise applying the M.O.S.. This particular class was selected because it involved the exploration and use of movement, it was scheduled daily, and

the instructor was cooperative. Having been granted permission to attend the class, the observers began testing in the live situation.

The observers attended the fifth, seventh and ninth classes of the selected dance course. This particular schedule was chosen in order to allow for the least amount of interference in the class itself, and to facilitate the timetabling of the volunteers. A total of six(6) hours were spent in observation of the live situation.

At the beginning of each observation period one subject was randomly selected for the session. Random selection was based on the person who was fifth to enter the classroom. Initially the idea had been that when a particular event was occurring, whether an unstructured, teacher-directed, or improvisational activity, recordings of the three aspects would be made by each observer, and the coding would be in accordance with the set sequence of time samples described earlier. Two problems became immediately apparent: (1)many events did not last the required eight minutes, and therefore did not allow enough time to record all three aspects, and(2)the time designated for observing shaping pattern might be taken up with mainly locomotion, and little gesturing, or during the time set aside for recording floor pattern the subject was completely still, or only gesturing.

Adjustments were therefore made in the observation procedure. The posture scan was done during an example of each of the events. The dominant movement aspect, as

determined by the head observer, of shaping or floor pattern was then to be recorded. If there was a change in the event activity during the recording, it was noted on the coding sheet.(see Appendix 5 for examples) When there was not any gesturing at the time set aside for the recording of such it was noted by placing the number of the time sample, circled, at the side of the recording sheet. If locomotion only was occurring at that time, this was indicated by writing "loc", beside the circled number. The periods of no locomotion during the time set aside for the coding of floor pattern were simply shown by a break in the floor path. If gesture(s) occurred at that time the letter "g" was marked in the space made by the break.

When the subject began to travel extensively during a period of time which was set aside for noting shaping pattern, flexibility in the procedure permitted an immediate transfer to recording floor pattern. If during a time designated for watching locomotion the subject stopped travelling and began to extensively shape, or gesture, a change could be made to coding gestures.

After each coding session the three observers met to discuss their coding, or confusion arising out of application of the M.O.S., or any procedural problems. These discussions were audio-taped. At the end of the training period each trainee was interviewed as to her reactions to the training procedures and to the instrument itself.(Appendix 2)

Equipment

Two video tapes were used in the pilot study. An already-existing one-half inch reel video-tape of a solo dance done for evaluation in a beginning dance class at the University of Alberta, was used, and a one-half inch reel was prepared specifically for the study. Mrs. S. O'Brien, a Professor at the University of Alberta, gave permission to video-tape her gymnastic class. Specific taping of the type of activities to be sampled in the live situations: unstructured, teacher-directed, and improvisation, was done in this second tape.

As time sampling was also involved in the study, (p. 22) an audio-tape was prepared. The audio-tape cued for each of the three time samples as follows:

(i)Posture Scan: Thirty(30) seconds before starting: "Prepare for Posture." Two seconds before: "Ready - and - start." To Stop:"Finish."

(ii)Shaping Pattern" Thirty(30) seconds before starting: "Prepare for gestures." Two(2) seconds before each sampling time: Ready - and - start." At the end of each sampling time:"Stop." At the end of the event sampling:"Finish."

(iii)Floor Pattern: Same voice cues used as with the posture scan, with substitution of "Floor Pattern" for "Posture".

Coding sheets were prepared for each observer. (Appendix 5) A pencil and three different colored markers were used

for recording.

Additional Changes in the M.O.S.

Some procedural changes arising specifically from the pilot study were indicated: determining a flexible sequence of data gathering, indicating event changes, and adapting the time sampling. Other changes occurred within the instrument itself. The most simple of these was the inclusion of a posterior view in the posture aspect, increasing the potential for additional information without making the instrument too cumbersome. Although the M.O.S. defined the discrepancy of body parts relative to a vertical axis, it was found that what was actually being observed was the relationship of the body parts to each other. This recording of body parts respective to each other does not follow traditional use of posture graphs. It does, however, agree with the attitude that the body must be regarded in its totality, not as a collection of segments.(Bertherat & Bernstein,1976;Rolf,1977) An example of this is the coding of of the chin position from the lateral view. Originally an efficient chin position was defined as one where the chin lay on its horizontal axis. The different jaw constructions seen in the pilot study revealed that this was an inadequate description. It was decided that the chin would be seen as level if the neck was not flexed or hyperextended.

One difficulty discovered in the use of the floor pattern was the definition of personal front. As originally

stated the definition included only those times when the base of support was the feet. It was necessary to add to the definition in order to cover those times when the base of support was other than the feet. In this case "personal front is defined as the direction that the pelvis is facing."(Appendix 4)

The experts and the representatives of the prospective user groups requested that the categories in Shaping Pattern be made more concrete, specifically the catagory of enclosing/spreading. This was difficult to do without changing the intent of the instrument, since definitions which were too specific, using axes or body parts, were found to have too many exceptions. It was decided to adopt Preston-Dunlop's(1980) description of space as a medium made up of particles. Thus the definition of spreading changed from "space is taken away from the person" to "the aim of the movement is to push particles of air away.from the body"(Appendix 4).

The concept of working towards or away from a central axis was removed from all of the categories in Shaping Pattern. The idea was found to be unworkable. Observers often had difficulty determining the axis from which the person was moving, the vertical or the horizontal. Peripheral movements such as hand clenching did not fit the definitions. The new definition of a fulcrum was inherant in the expanded description of Full Potential.

> Full potential is defined as that point beyond which a contination of the gesture must lead to locomotion, loss of balance or change of gesture type....the fulcrum is defined as that point furthest from the full potential of the side of the continuum in question. (Appendix 4)

The initial position of the moving part was determined according to its relative distance from the Full Potential. If it was approximately at one-third of that total potential for that gesture it would be marked above the '1' on the appropriate side of the continuum. (see Figure 5)

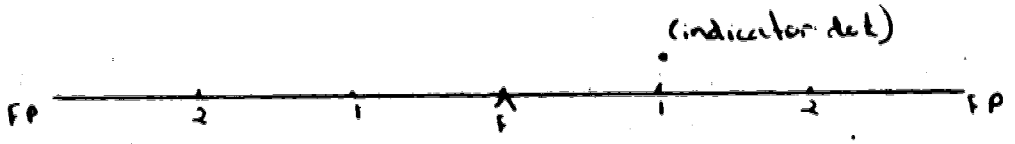

Figure 5: Arm Gesture - B

One quality that had not been considered in the original M.O.S. was that of small weight shifts. Because there is a change of weight this quality could be included in Floor Pattern. However, as there was no travelling to another place, weight shifts were considered as a part of the aspect of Shaping Pattern. Weight shifts would be recorded by a line running parallel to the appropriate continuum, just above its fulcrum. The line would be approximately two centimeters long and would have arrows at either end.(see Figure 6)

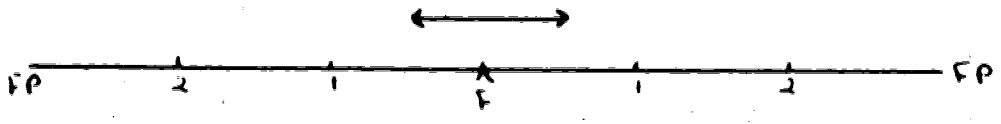

Figure 6:Weight Shift

Two confounding factors emerged from the pilot study: (i)how to record arial activities and (ii)how to record those times when the subject was in physical contact with another person. For the purpose of simplification it was decided that these factors would not be recorded in this study.

Criteria for Agreement

The pilot study examined the pre-determined criteria for agreement, necessary for the testing of intra- and interobserver reliablity, namely how close must the recordings of the observers be in order to be labelled agreement? With posture, the amount of discrepancy in the placement of the body parts on the graph was checked. The number and distance of the direction changes and path shapes were the items of comparison in the Floor Pattern. Shaping Pattern was broken down into the categories of scale, starting point and length of line recorded.

It was found that five levels of agreement for Shaping Pattern, three levels of agreement for Floor Pattern, and two levels of agreement for Posture, gave an improved interpretation as to the agreement among the three observer.

1. Shaping Pattern:

   Level I-total agreement as to which of the six scale catagories was seen, and agreement less than or equal to .125 units as to the starting point and length of the gesture.

   Level II-agreement as to which of the three continuums was used, and agreement less than or equal to .25 units as to the starting point and length of the gesture.

   Level III involved the Level II agreement for the scale. The starting point and length of the gesture agreement increased to .50 units.

   Level IV increased the starting point and length of gesture difference for agreement to .75 units.

   Level V had the margin of allowed divergence set at 1.00 units.

2. Posture:Levels in posture were determined by agreement within fractions of the graph squares. There were ten squares per inch.

   Level I was agreement less than or equal to .25 of a square.

   Level II was agreement less than or equal to .50 of the square.

3. Floor Pattern: The levels in Floor Pattern were based on the percentage of the total distance for direction and path shape.

   Level I agreement was seen when the difference was less than or equal to 2.5%.

   Level II was a difference of less than or equal to 5.0%.

   Level III was a difference of less than or equal to 10.0%.

   Level IV was a difference of less than or equal to 20.0%.

   Agreement relative to the total distance was broken down into levels according to the same percentages.

   For the number of turns in the aspect of Floor Pattern, only exact agreement was acceptable. There was therefore only one level of agreement for turns.

C. Testing for Reliability

From the input of the experts and the prospective users, and the information gained from the pilot study, a modified M.O.S.. was designed. (Appendix 4) It was then necessary to test the instrument for interobserver reliability in order to determine whether or not different persons recording at the same time were coding in the same way. Intraobserver reliability, whether or not a person obtained the same results when observing the same activity

at two different times, was also tested.

Observers

> When three or four observers all independently see the same pattern, one begins to believe that a degree of objectivity has been achieved. (North, 1972, p.8)

Such objectivity in the use of an instrument is measured as interobserver reliability. According to North(1972), a minimum of three observers is traditionally used for this testing. Thus two volunteers were obtained for training in the use of the M.O.S.. Ms. Rosemary Speakman and Ms. Allison Shorey, a fourth-year Physical Education student at the University of Alberta, participated as observers, and with the inclusion of the investigator as an observer, the necessary trio was established.

Sample

A list of drama classes at the University of Alberta, Edmonton, was obtained. These classes were considered because of the increased range of movement possibilities within the class as compared with other courses. Physical Education Activity courses were not employed because specific movements are the goal of both students and professors. Selection of the specific drama classes was based upon the following:

1. the estimated percentage of movement by the students within the class time;
2. the cooperation of the professor and class; and

3. the agreement of scheduling of the class with the availability of the observers.

Using these criteria two classes were chosen, both being courses in improvisational drama. Kevin Burn's class met Monday, Wednesday, and Friday mornings, 9:30 to 11:00; and Marnie McDonald's class met Tuesday and Thursday nights, 18:30-21:00.

The method of random selection of subjects followed that done in the pilot study.

Equipment

One 3/4 inch cassette tape, prepared for the study, was used in both the preparation and the testing of the observers. The subjects in the video tape were three student volunteers who were taking dance classes at the University of Alberta. Dance students were approached as volunteers since there was a need for subjects who were comfortable in responding to action challenges.The sujects also needed to have a movement memory which would enable them to repeat their basic movements for editing purposes. An effort was made to keep the challenges directed towards the aspects of the M.O.S., while allowing individual interpretation. Personnel from the Radio and Television Department at the University of Alberta recorded the session and edited the videotape. It was felt that the expertise of such personnel would result in a high quality tape. The edited tape was three(3) minutes in length.

For the purpose of intra-observer reliability testing the audio cues were superimposed on the video tape. This was done following the training of the two volunteer observers, and the inter-observer reliability testing.

The audio-tape prepared for the pilot study was used in both the live and taped situation testing. The coding sheets, pencil and three differently colored marking pens completed the equipment list.

Training of Observers

The two volunteer observers were trained in the use of the revised M.O.S. for six(6) hours over a one week period. The training procedure followed that employed in the pilot study up to but not including the field training, since the live situation was not presented during training. The live situation was used for testing purposes only.

Research Design

Each sample class was seen twice, as was the prepared video tape. The format for observation was the same as had been developed during the pilot study. This involved:

1. event sampling of an unstructured activity, a teacher-directed activity, and an improvisation activity;
2. time sampling within the event:
   - -one minute scan for Posture;
   - -five minutes for Shaping Pattern, sampling the

first five seconds of every thirty seconds; and

-two minutes continuous observation for the Floor Pattern.

This provided a potential total sampling of observations of thirty-three shaping patterns, sixty-three posture markings and six minutes of floor pattern per class per session. The results of the coding of the three observers were then compared, according to the levels of the criteria of agreement, in order to determine the inter-observer reliability.

Data for the testing of intra-observer reliability was collected by each observer on her own time. The unedited version of the prepared videotape was observed twice at one-sitting, following the audio cues. Allowing a minimum of four (4) days separation between sessions, the observer again recorded for the same segment of video-tape.

D. Collection of Data

The raw data consisted of the behavior categories recorded on three types of coding sheets. (Appendix 5) The seven body parts recorded for posture were observed from the lateral, anterior and posterior view points, giving a total of twenty-one (21) samples per observation. The coding sheet consisted of 8.5 x 11" graph paper, 10 squares per inch, with two subjects recorded per sheet. The three continuums involved in Shaping Pattern were placed on a blank sheet of

paper 8.5 x 11".Each scale, 12 cm. long, was centered horizontally on the sheet, and had a minimum of 3" above it for recording purposes. The fulcrum of each scale was located in the exact middle of the line. Each half of the continuum was divided equally into three.

In order to accurately record the floor paths in Floor Pattern, scale drawings of the area in which movement would occur were prepared beforehand. Significant landmarks were placed on the drawing to asist the observers. For standardization purposes, blank sheets 11 x 8.5' were used.

On each of the three types of coding sheets space was provided in order to record the date of and the subject number for the observation period.

E. Statistics

"There is no one established way to assess observer agreement or accuracy...."(Johnson & Bolstad, 1973,p.10). Because of the innovative nature of this study the most basic method of analysis was chosen:percent agreement. This is defined as the number of agreements divided by the sum of agreements and disagreements. Percent agreement would be used in both the intra- and interobserver calculations of agreement.

IV. Results

This chapter describes the results of the testing for intra- and interobserver agreement. An explanation of the possible levels of agreement is presented first. Comparisons of category usage within observer ratings and among observers is then reported. A further breakdown of the results involves the variable of live or video-tape setting. There were eleven observations for Shaping Pattern, eight observations for Posture, and eight observations for Floor Pattern. These combined to give a total of five hundred (500) samples.

A. Levels of Agreement

As indicated in Chapter 3 (p. 37f) there were different possibilities for the levels of agreement. These levels were organized according to the size of the differences between recorded values. The aspect of Shaping Pattern was divided into the categories of Scale, Start (of gesture) and Length(of gesture). With the category of Scale Level I agreement was the accordance between recordings of the beginning and ending of the gesture on the same side of the scale. Level II agreement included Level I and times when the same type of gesture was coded, but placed on the other side of the fulcrum. For example,during observation session one R recorded an enclosing gesture for time 3. In session two R recorded, for the same time period, the gesture as one

of spreading. The gesture is on the same scale, but is of a different class. It would therefore not be counted as one of agreement until Level II.

Differences in the length of the gesture and its place of origin were divided into fractions of the scale unit. There were twelve units per scale. Each unit was equal to one centimeter. There were five levels of agreement for these categories of Shaping Pattern.

The aspect of Floor Pattern was broken down into the categories of (total) Distance, Direction, Shape (of floor paths) and (types and numbers of)Turns. Three of the four categories had their level of agreement based on their percentage of the total distance. Total distance was taken from the measurement of the floor paths recorded on the scale drawings of the testing area. The fourth category of Turns had only the one level of exact agreement.

Posture required only two levels of agreement. In Level I the observer(s) had recorded the position of the body part in the same position on the graph. For Level II each recording had to be within .5 of a square of the other. As there were ten(10) squares per inch on the graph paper this meant that the two recordings of the body part would be less than or equal to .05 inches apart.

See Table 1, p.46 for a summary of the criteria for the levels of agreement.

Table 1:Established Range of Discrepancy for Criterion Levels of Agreement on the Categories Observed

		Posture	Floor Pattern				Shaping Pattern		
			Distance	Direction	Shape	Turns	Scale	Start	Length
Levels of Agreement	I	no discrepancy	±2.5%	±2.5%	±2.5%	no discrepancy	same class of gesture	±.13 unit	±.13 unit
	II	±.5square	±5.0%	±5.0%	±5.0%	n/a	same continuum	±.25 unit	±.25 unit
	III	n/a	±10.0%	±10.0%	±10.0%	n/a	n/a	±.50 unit	±.50 unit
	IV	n/a	±20.0%	±20.0%	±20.0%	n/a	n/a	±.75 unit	±.75 unit
	V	n/a	n/a	n/a	n/a	n/a	n/a	±1.0 unit	±1.0 unit

square=squares on graph paper
For Shaping Pattern see examples in Appendix 5

B. Comparisons of Category Usage Within Observer Ratings: Intraobserver Agreement

> It would seem reasonable, at the very minimum, to show that the percent agreement is greater than that which could be expected by chance alone....we consider an overall percent agreement of 80% to 85%...as a realistic upper limit for the kind of complex code we are using.(Johnson and Bolstad,1973,p.17)

Following the procedure used by Johnson and Bolstad a high level of agreement was seen as equal to or exceeding 80.0%. Table 2(p.48) is a record of the percent agreement found between the two observation sessions used in the intraobserver testing.. "As is customary, percentages have been given to the nearest decimal...."(Blalock,1979,p.33)

Two observers, A and V, had 100.0% agreement at Level I for posture. The third observer, R, had established 100.0% agreement by Level II.

In Floor Pattern R and V recorded their total distance within 2.5 units for 100.0% agreement at Level I. It was not until Level IV that A had any agreement at all. At Level II A had 80.0% agreement regarding the direction the subject was travelling. V had 71.4% agreement at Level III, while R had 75.0% agreement at Level IV. It was not until Level IV that the three observers were approaching the high level of acceptable agreement.

Agreement concerning the Shape of the floor paths for V was at 75.0% by Level III, 100.0% at Level IV. Both A and R had low recordings of agreement at all levels. The highest percent agreement for turns was obtained by A, and was only

Table 2:Levels of Intraobserver Agreement as Measured by Percent Congruency of Recorded, Repeated Observation

Observer	Criterion Levels of Agreement	Posture	Floor Pattern				Shaping Pattern		
			Distance	Direction	Shape	Turns	Scale	Start	Length
R	I	75.0	100.0	37.5	0.0	0.0	84.6	76.9	69.2
	II	100.0	100.0	56.8	25.0		92.3	76.9	84.6
	III		100.0	56.8	25.0			84.6	84.6
	IV		100.0	56.8	25.0			92.3	92.3
	V							92.3	92.3
A	I	100.0	0.0	40.0	0.0	62.5	76.5	82.3	70.6
	II	100.0	0.0	80.0	0.0		88.2	83.3	70.6
	III		0.0	80.0	50.0			83.3	70.6
	IV		100.0	80.0	50.0			83.3	76.5
	V							83.3	76.5
V	I	100.0	100.0	42.9	50.0	50.0	83.3	88.9	83.3
	II	100.0	100.0	57.1	50.0		88.9	94.4	83.3
	III		100.0	71.4	75.0			94.4	83.3
	IV		100.0	71.4	100.0			94.4	83.3
	V							94.4	83.3

62.5%. R had zero percent agreement, obviosly below any requirement for acceptence.V was only at 50.0% agreement.

With the single exception of Length for A, all of the categories in Shaping Pattern had a percent agreement close to or higher than 80.0% by Level II. According to Johnson and Bolstad, this is at the upper limit for acceptence.

C. Comparisons of Category Usage Between Observers: Interobserver Agreement

A summary of the percent agreement among the observers for the three aspects may be found in Table 3(p.49). The percent agreements are derived from the totals of the ratios of agreements to disagreements of the three combinations of pairs of observers.

Only Posture and the category of Distance in the Floor Pattern aspect are at or above the level of the accepted criteria of agreement. The Direction category in the Floor Pattern aspect and the Starting category in Shaping Pattern have relatively high agreement. Shape and Turns in Floor Pattern are very low.

Further breakdown of Interobserver Agreement according to the video-taped and live testing situations is summarized in Table 4(p. 50). The recording of Posture is not dependent upon the recording situation. Both levels in Posture show close codings:there is a 3.1% difference between situations in Level I, and a 5.9% difference at Level II.

Table 3:Levels of Interobserver Agreement as Measured by Percent Congruency of Recorded Observations

		Posture	Floor Pattern				Shaping Pattern		
			Distance	Direction	Shape	Turns	Scale	Start	Length
Levels	I	82.3	45.0	32.1	26.6	41.7	54.3	45.7	42.4
of	II	93.5	55.0	57.6	28.2		67.9	55.1	47.9
Agreement	III		75.0	64.0	38.6			62.6	58.5
	IV		100.0	71.7	42.5			66.1	61.5
	V							69.8	63.7

Table 4:Levels of Interobserver Agreement as Measured by Percent Concruency of Recorded Video and Live Observation

		Posture	Floor Pattern				Shaping Pattern		
			Distance	Direction	Shape	Turns	Scale	Start	Length
Levels	I	82.7 <79.6>	83.4 <0.0>	39.3 <25.9>	39.6 <6.8>	50.0 <34.4>	53.2 <38.9>	51.1 <33.2>	47.8 <28.5>
of	II	91.0 <96.9>	100.0 <0.0>	44.6 <55.0>	39.6 <18.6>		70.0 <61.2>	62.9 <42.7>	50.7 <37.5>
Agreement	III		100.0 <66.7>	47.7 <74.2>	39.6 <22.6>			67.9 <53.2>	59.1 <47.7>
	IV		100.0 <100.0>	61.4 <85.0>	70.9 <37.0>			71.2 <58.2>	64.0 <53.0>
	V							74.2 <62.3>	68.2 <54.6>

Live Observations are shown as the bracketted figures.

This closeness of coding in different situations is not as obvious with the aspects of Floor and Shaping Pattern. The one exception is with Level IV of the Distance category, where percent agreement is 100.0 in both cases. For the other categories, differences in coding range from 8.8% to 100.0%.

The variables of Event; Teacher-Directed, Unstructured or Improvisational, the date of the observation and the subject appeared to have very little if any effect on the coding of the categories.

V. Discussion

One of the purposes of this study was to train volunteer observers in the use of the M.O.S. so that a sufficiently high interobserver agreement could be obtained. Inherent in this objective was the need to establish high intraobserver agreement. Accepted criteria of agreement, namely 80.0% to 85.0%, was taken from Johnson & Bolstad's work.

The results indicate that the objectives for observer agreement were not realized. Posture was the only aspect that was recorded throughout at the acceptable level. The pilot study revealed that what was actually observed for posture was the relationship of body parts to each other, and not to a vertical axis.(p. 33) This was perceived as a weakness in the instrument. However, results would appear to indicate that this did not hinder the reliability of coding within and between observers.

The main problem with regards to Floor Pattern concerned the shape of the floor path as discerned by the observers. When drawing the floor paths made by a travelling individual one is actually looking at whether the person is moving in a straight or a curved line. If the person is moving in a curved line, how much of a circle is he inscribing? The researcher assumed that the observers had this knowledge of the binary nature of floor paths. Careful analysis of the results revealed that this was not so. Lack

of clarification of this point in the coding led to the wide differences in the percentage of the total distance assigned to various shapes.

There was also the problem with the number of turns recorded. Where full turns were involved there was complete agreement. However, when the amount of turning was less than 360 degrees observers either did not see or were unable to code the same thing. This was particularly true of the subtle 1/8th turns(45 degrees).

The pilot study had revealed some difficulties in recording Floor Pattern when viewing the video-tape, depending somewhat on the angle of the camera work. Because of the two dimensional nature of the medium the Distance and Shape categories were especially difficult to observe. A relatively low percent agreement was therefore expected in these areas for the intraobserver testing, since it was done only with the video-tape viewing. A lower percent agreement was predicted for the video-taped situations of interobserver testing than for the live situations. Results did not agree with this prediction. Distance was rated at a high percent agreement in the intraobserver testing: 100.0% Interobserver agreement was higher in the videotaped situations than in the live. The range was from 83.4% difference at Level I to the same percent at Level IV. This was also true for the category Shape. Agreement was low in both testing situations, but live testing produced the most disagreements.

Although much effort had been put into quantifying Shaping Pattern the researcher recognized the subjectivity required in this aspect of the M.O.S. The high agreement reached in the intraobserver testing would appear to indicate some degree of reliability. In the interobserer testing one major difficulty was the recognition of the appearence of subtle behavior. For example, one observer would have recorded three different gestures for the time sample, whereas the other observers had recorded only two. The first observer had recorded a slight movement, such as a finger twitch, as her third gesture. The other observers may have seen the twitch, but did not think that the movement fitted the requirements set up in the M.O.S., and therefore did not record it. Reoccurance of this problem led to only 74.7% agreement among observers as to whether or not a gesture had been made at that specific time. Initial use of the M.O.S. should involve only obvious shaping: this should reduce the amount of disagreement at the first level of coding Shaping Pattern.

More time spent in discussion and actual application would have led to corrections of misconceptions held by the volunteer observers. The instructions to the volunteer observers should not incorporate assumptions as to their knowledge of the aspects and recording techniques. It should be made clear what is being looked for and how the observations must be recorded. One specific element that should have been taught was the binary aspect of floor

paths. This would have increased the percent amount of observer agreement in Floor Pattern.

Within the aspect of Shaping Pattern the observers needed to know how detailed their observations were to be. With initial use of the M.O.S. only major gestures should be recorded. As the observers improve their visual abilities more and more detail could be coded. There must be controls throughout the study as to how rapidly this would occur. Close monitoring would allow more information to be gathered while increasing the percent agreement regarding whether or not there had been a gesture. Once very high agreement on that matter has been reached greater agreement on the breakdown of the gesture codings is possible.

Conclusions

The M.O.S. was designed to meet the needs of minimal observer training and unobtrusive use. The volunteer observers had six hours training prior to the testing situation. Even including a recommended two-to-four hour increase in training time the maximal length required would only equal ten hours and with the improvement in observer training indicated above this should be sufficient to give high agreement among observers.

The only equipment required in the test use of the M.O.S. was pencils, coding sheets and a tape recorder. This allowed the observers to enter a class situation with a minimum of disturbance to its members. Hopefully the

students were able to adjust to the presence of non-moving persons.

One anticipated use of the M.O.S. was in the area of therapy. Standardization of evaluation tools would facilitate treatment, and furthermore the high level of intra and interobserver agreement required in research would not be so necessary in clinical work. The increase in the agreement values foreseen with the application of the recommendations would make the M.O.S. a useful therapeutic tool.

The M.O.S. could be used for diagnostic purposes, and for the evaluation of a therapeutic program. For example, initial use of the M.O.S. to record an individual's movement pattern may have revealed restrictive use of floor space, an inability to change directions, and a predominant involvement with close, enclosing movements. Contracted upper body posture had also been noticed. After a predetermined length of a selected treatment the M.O.S. could be applied to see if there had actually been any change in the pattern of movement..

VI. Recommendations

It is recommended that further research into the M.O.S. be done. A discussion of the recommendations emerging as a result of the study will follow the organization of the chapter on methods and procedures. These are, respectively, the background preparation, the development of the instrument, the training of the observers, and the testing of the M.O.S. for observer agreement. A brief comment on validity testing and alternative uses will be given at the end.

A. Background Preparation

During the course of the study the author discovered references to further research, for example the studies of posture conducted by F. Duetsch might have provided a more accurate tool for evaluating posture. Another possible instrument for consideration might be the Eshkol-Wachmann Movement Notation System, employed by Costonis(1972).

A survey of the associations and organizations connected with movement therapy provided little information relating to research in this area. The American Dance Therapy Association(ADTA), the Congress on Research in Dance(CORD), the Dance Notation Bureau, and the Laban Art of Movement Guild were contacted. It is recommended that other professions involved in movement observation also be approached. For example, a parallel organization to CORD

must exist for Physical Education, Education, and Occupational Therapy. Preliminary investigation in this area led to Ulrich's International Periodicals Directory(1980). Organizations mentioned therein include the Journal of Physical Education and Recreation(JOHPER), Research Communications in Psychology, psychiatry and Behavior, Research in Education, and the British Journal of Physical Education. Contacting such organizations could result in a profitable exchange of information.

Attempts at correspondence with individual should be extended. A greater number of persons questionned would result in a corresponding greater potential for information.

B. Development of the Instrument

An important consideration involved in the quantifying of concepts is the statistical analysis which will be applied to the collected data, particularly the description of material in terms easily adapted to the computer. It is therefore advised that further research into the M.O.S. include one person or a group of individuals who have expertise in the use of statistics and in computer programming. Various persons contributed their time and knowledge of these areas to this study. This is needed from the start of instrument development through to the discussion of the results.

An important part of the statistical preparation is the need for clarity of category measurement. This information

should be given to the volunteer observers. One instance where this was not done adequately was with the Floor Pattern aspect. From an examination of the results it was apparent that the observers were not aware that the Shape category was divided into straight line and various parts of the circle. They did not understand that these were the elements used to define agreement or disagreement, therefore their recordings did not specify which of these was occurring.

It is further suggested that a broader survey of experts be involved in the validation of the instrument. The two persons who responded; Professor M. Padfield, and P. Ramsden, representing Warren Lamb, were most helpful in their comments, however a wider review would provide more of this assistive feedback. The organizations mentioned earlier should also be approached for appropriate contact persons Sufficient time should therefore be allowed for this aspect of the study. Questionning representatives of prospective instrument user groups also provided much useful guidance, thus the number of persons involved in this should be increased to fifteen. This would allow greater potential for such direction.

The pilot study proved to be extremely valuable. It is therefore strongly suggested that a pilot study be an important part any research done using the M.O.S.

Further changes in the instrument were indicated. Since focus is an integral element of the gesture definitions, it

needs to have a clearer description. One possibility is that focus only be concerned with a person's eyes, even though aspects of focus can be perceived in other body parts. This should reduce the problem found in differentiating between enclosing/spreading and advancing/retreating.

Included in the discussion of Shaping Pattern should be more comment as to the indicator line. A statement should be made regarding the inability of the line to cross over the fulcrum. This is truer to the improved definitions of Full Potential and fulcrum. It might also be advantageous to further divide the continuum, adding.5, 1.5, and 2.5 where appropriate. This would allow more concise descriptions of the starting and ending points on the gesture.

An attempt was made at indicating the presence of one aspect at the time designated for measuring the other(p.54), for example the subject's involvement with gesturing when Floor Pattern was being recorded. This could be further developed in order to investigate (1)whether or not the subject is comfortable combining gesture and locomotion, and (2)the amount of time spent in gesturing compared to that spent in locomotion.

Changes in the procedure should be incorporated into any new study. A two minute sampling of Floor Pattern may be too long. One possible alternative is observing for the first thirty(30) seconds of every two minutes for four to six minutes. This should still allow for the continuity of recording necessary with this aspect.

Validity is not being tested therefore the reasoning presented for event sampling is not relevent. Since event sampling resulted in some confusion it is suggested that selective time sampling be done. For example,with a one and a half hour session the first ten minutes of every twenty could be used to record the aspects. This would increase observation times from three to five, and would provide a more regular schedule.

One area of disagreement in Shaping Pattern was whether or not a gesture was occurring.(p.) For this reason a high percent agreement of 90.0% on this step should be reached before continuing in testing.

C. Training of Observers

Training of the observers should become much more demanding, for example, there should be an increase in time spent learning to record each aspect, particularly Floor and Shaping Pattern. More practise needs to be done in the live situation, with less leeway of interpretation allowed to the volunteers. The subject should only be observed for the time specified. It should also be emphasized that the indicator line in Shaping Pattern does not always begin at the fulcrum. The importance of notating changes in personal front needs to be emphasized.

Observers need more guidance, for example. prior to the start of training volunteers should have:

1. a copy of the M.O.S.

2. a written description of the procedure, and
3. an outline of hints on observing.

Time also should be set aside at the beginning of training for discussion of the handouts.

Improvement in the equipment used to train observers is required. A videotape must be prepared where the camera man has been informed as to what aspects are to be recorded. This would help to create a better tape for the recording of Floor Pattern. The verbal time signals for each aspect should then be dubbed onto the videotape. Two parts of the tape could be prepared for training, and another prepared for intraobserver testing.

It is recommended that the use of the audiotape in the live situation be continued since it frees all observers so that they may then concentrate on their notating. It is also suggested that the use of reference points in the scale drawings for Floor Pattern be maintained, this was a great aid in determining the amount of floor space covered.

Warren Lamb Associates, Inc. train persons in observation of movement using the Lamb instrument. An effort was made at obtaining information on their training program. There was no reply to the author's request for information. It is recommended that Pamela Ramsden be again contacted regarding this matter.

D. Testing

It is important that appropriate classes will be selected for observation. One class chosen in this study involved preparation by three people who sat and talked, another class consisted of presentations by the students, thus limiting the amount of movement actually done in the class time.

At the University of Alberta Drama classes may not provide a sufficient amount of movement for data gathering. Much class time is spent in watching the performance of others. For this reason, it would be better to consider observing Movement Education classes, since all the students should be active, yet not necessarily concerned with specific skills.

There needs to be a greater number of sampling sessions. It is advised that no fewer than fifteen classes be sampled, thus providing a minimum of forty-five observation sessions for each aspect.

E. Further Research

Following the attainment of sufficiently high observer agreement validity testing could commence. The external criteria of psychological tests could be used. This would require interpretations as to the meaning of the movement analysis in psychological terms. One possible way of doing this would be to involve recognized experts in the movement therapy field. Pre- and post-testing of subjects would be

done in conjunction with test treatment. One possible test treatment could be a form of movement therapy. Specific aims of the therapy would depend on the goals of the researcher.

The format of instrument development and testing could be used with other aspects of movement. For example, personal and general space use could be measured by the application of a grid system. The time spent in various areas of the room could be calculated, in combination with the subject's proximity to others. This aspect might be of more interest than Floor Pattern to those concerned with interpersonal relationships.

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APPENDIX I: CORRESPONDANCE

June 26th, 1980

Warren Lamb Associates

Westmorland House

127-131 Regent Street

London W1R 7HA

Attention: Mr. W. Lamb

I am presently involved in working towards my Masters of Arts at the University of Alberta, Canada. For my thesis I am trying to develop an instrument to assist in the observation and recording of individual movement patterns. In reviewing the pertinent literature I discovered your book, *Body Code*. The scales you used therein for recording sequences of gestures appeared very useful. However, for purposes of research regarding reliability it is necessary to modify the instrument. Division of the continuum into areas, and definition of the end points as "Full Potential" will hopefully aid statistical analysis. I am therefore writing to ask your permission to modify your scales in the above manner for the purpose of this study. As I am not clear on the exact procedure to be followed when one wishes to adapt a scale I am assuming this request is the first step.

I am hoping the proposed movement observation schedule will contribute towards the standardization of criteria in the fields of movement research and therapy. I recognize

that movement is a complex process, and any summation of actions must, of necessity, omit some aspects. Only two qualities have been selected for my instrument: the way a person habitually carries himself(posture), and individual use of space(shaping and floor patterns). I would like to use the slightly revised version of your scales for the shaping pattern.

Enclosed is the proposed movement observation schedule, with definitions of each aspect, and a description of how it is recorded. If you permit the use of your scales as suggested, would you help in yet another way? It is necessary to have the instrument validated by experts. I would be grateful if you, or one of your associates, could find the time to read the schedule and answer the attached questions. This would greatly assist in the developing of the instrument.

Thank you for your time and consideration.

Yours truly,

Valerie Sherwood

July 19th, 1980

Americana Inn of Albany

660 Albany-Shaker Road

Albany, New York Dear Ms. Sherwood:

Your letter of June 26th has reached me just before leaving for London. Publishers are not always very good in forwarding mail.

Your questionnaire deserves careful thought and I will return it to you hopefully within the next two weeks. Incidentally, I will be staying again at this hotel August 10 to 17. Is it possible to call you? I might be able to give some help on the phone.

Yours sincerely,

Warren Lamb

January 28th, 1981

Warren Lamb Associates

Westmorland House

127-131 Regent Street

London

Attention: Pamela Ramsden

Dear Ms. Ramsden:

Thank you for replying to my letter, as well as answering the brief questionnaire on the Movement Observation Schedule. (August 15, 1980) Your response, plus the enclosed booklet, raised many questions about the instrument, particularly concerning definitions. I realized that I had not been sufficiently clear regarding terms basic to the three aspects being examined. I have enclosed the revised schedule, with clarification where indicated by your comments.

It had been my intention to write you much sooner than this, with further requests for assistance. One main concern is your training procedure for your observers. I had particular trouble with obtaining interobserver reliability for the concept of focusing; whether it was inward or outward. This was specifically relevent in differentiating between enclosing and retreating. Have you experienced this problem, and if so, what have you done about it?

Both your, and Warren Lamb's support has been greatly appreciated. I am very interested in any reactions you may have towards what I have tried to do, as well as any information you may wish to share concerning the training of your observers.

Again, thank you for your support and direction.

Yours truly,

Valerie Sherwood

Dear Dr. North:

In your letter of October 30th, 1979, you indicated a willingness to be of specific help regarding my thesis. I hope that you still feel that way as I would like to take you up on the offer.

For my thesis I am trying to develop an instrument to assist in the observation and recording of individual movement patterns, specifically in the area of space. I am hoping that it will contribute towards a standardization of criteria in movement research and therapy. At the present time the recording systems available require a great deal of study and time in order to be used correctly. This severely limits their application. It is felt that a simplified movement observation schedule would encourage further investigation.

I recognize that movement is a complex process, and any summation of actions must, of necessity, omit some aspects. I have selected only two qualities for my instrument: the way a person habitually carries himself (posture), and individual use of space (shaping and floor pattern). Posture observation is based mainly upon work by Sweigard, shaping pattern on a modified version of Lamb's instrument, and floor pattern upon Labanotation.

I have enclosed the proposed movement observation schedule for your appraisel. The instrument contains a definition of each aspect, and a description of how it is

recorded. I would be grateful if you could complete the attached questionnaire, based upon your experience and research.

I realize that the questions are not easily nor quickly answered. As you are a very busy person I will understand if you decide that you are unable to help in this manner. However, if you find you can participate in this way, I would appreciate it.

Thank you for you interest to date. I am looking forward to your reply.

Yours truly,

Valerie Sherwood

Laban Center for Movement and Dance
University of London
Goldsmiths' College
New Cross, London SE14 6NW

Attention: Dr. M. North

Dear Dr. North:

Regarding my letter of June 30th, 1980 in which I requested an evaluation from you concerning the first draft of my movement observation schedule:

I am wondering if you received the above mentioned letter. Postal problems have been the reasons I have not followed through on this matter sooner.

Also, in re-reading *Personality Assessment Through Movement* I noted your comment regarding experiments on the reliability of movement observation. Do you have a reference list where I might find descriptions of these experiments? I have trouble in locating this type of pertinent data.

Could you please reply to this letter as soon as possible? If you did not receive the letter of June 30th, please let me know and I will send a copy. for your consideration. As well, the reference list would be a valuable guide in the compiling of information.

Thanking you in advance for your help.

Yours truly,

Valerie Sherwood

APPENDIX II:QUESTIONNAIRES

Questionnaire to Prospective Users

Please indicate your responses to the movement observation schedule. Comments would be most helpful, especially in the cases where the answer is negative.

1. Are the definitions of the aspects and the categories clear?

yes _ no _

Comments:

2. Do the categories within each aspect adequately describe it?

yes _ no _

Comments:

3. Are there categories missing in the aspects?

yes _ no _

Comments:

4. Are there categories redundant in the aspects?

yes _ no _

Comments:

5. Could you use this instrument with a minimum amount of training?

yes _ no _

Comments:

Further Comments:

Thank you for your help.

Questionnaire to Experts

Please indicate your responses to the movement observation schedule. Comments would be most helpful, especially in the cases where the answers are negative.

1.Do the aspects of posture and space use provide enough information to describe an individual's movement pattern?

Yes- No_

Comments:

2. Do the categories within each aspect adequately describe it?

Yes_ No_

Comments:

3. Are there categories missing in the aspects?

Yes_ No_

Comments:

4. Are there categories that are redundant?

Yes_ No_

Comments:

5 Are the definitions of the aspects and categories clear?

Yes_ No_

Comments:

6. Are the definitions exclusive? Could a movement be put in one category rather than another?

Yes_ No_

Comments:

7. Are the definitions of the aspects and the categories accurate?

Yes_ No_

Comments:

Further comments:

Thank you for your help.

Questionnaire to Volunteer Observers:Pilot Study

1. What would you say would be the main item to improve in training?

2. What was the most unclear aspect in the definitions?

3. Which of the three aspects was the most difficult to use?

4. What was the area of the most difficulty in Floor Pattern?

in Shaping Pattern?

in Posture?

5. How much training would be required to use the M.O.S. accurately?

6. Comments on the videotapes?

7. Any further comments?

Questionnaire to Volunteer Observers: Testing

1. What is your overall reaction to the instrument and the training in its use?

2. What aspect did you find the hardest to use?

3. What specific problems were there in that aspect?

4. What, to you, is the most negative quality of the M.O.S.?
the most positive?

5. What would you like to see excluded from the M.O.S.

6. What recommendations would you make regarding training of observers?

7. Further comments?

APPENDIX III:HINTS ON OBSERVING, USING THE M.O.S.

A) Posture:

1. with the side view:

   -look for displacement from the vertical axis

   look for an easy S-shape(normal curvature)

   Lack of a curve in the upper back or lower back could be indicated by a short vertical slash( ) drawn parallel to zero-vertical in the appropriate region.

2. with the front or back view:

   -check to see if the 'pairs' are level with each other, for example both shoulders are on the same horizontal axis.

B) Floor Pattern:

1. only focus on the feet or alternative supporting body part(s).

2. mentally check the following items:

   -direction of travel: front, back, sideways, or diagonal

   is the person moving in a straight or curved pathway?

   if curved pathway, to which degree?: slightly, half-a-circle, more than half-a-circle, or a full circle.

   where is the person relative to the landmarks placed on the scale drawing?

C)Shaping Pattern:

1. mentally answer the following questions:

   -did a gesture occur? If not, place the circled number of the time sample at the upper right-hand corner of the codong sheet. If a gesture did occur

   -was the gesture one of weight shift? If yes, on which continuum? Place the symbol for weight shift above the appropriate fulcrum. If the gesture was not one of weight shift

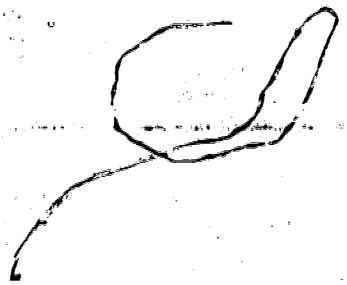
   -which type of gesture was it?(enclosing/spreading, rising/descending,advancing/retreating).

   -which side of the continuum?

   -where does the gesture begin respective to the F.P.?

   -where does the gesture end or change?

2. place the indicator line accordingly.



APPENDIX IV: MOVEMENT OBSERVATION SCHEDULE

Posture

A. Definition

Posture is defined as the continual adjustment of the body to the pull of gravity and muscular tensions resulting from stress. Although it is dynamic each individual develops habits of carriage and alignment. The development of these habits is influenced by many factors, including disease, body build and activities (Swiegard)

B. Description

Figure 1 is a superimposing of vertical and horizontal axes on an outline of the human skeleton, as seen from the side, front and back. (Swiegard). The proportions of the body parts to each other are in agreement with those standardized by artists. (Anatomy for the Artist). The head represents one unit, the total body size being seven and one-half head units in length. Each head unit = 4 graph units. The skeletal outline of the human body represents efficient posture in the anatomical position, as described by numerous experts(Clarke, Broer, Swiegard). Broer defines this alignment as "That position in which the center of gravity of each body segment is centered over its supporting base (the segment immediately below)"

The following is the description of efficient posture according to the use of the axes:(Swiegard)

3. Side view:

   a. center of the ear is at zero(0) of its horizontal axis.

   b. chin is along its horizontal axis

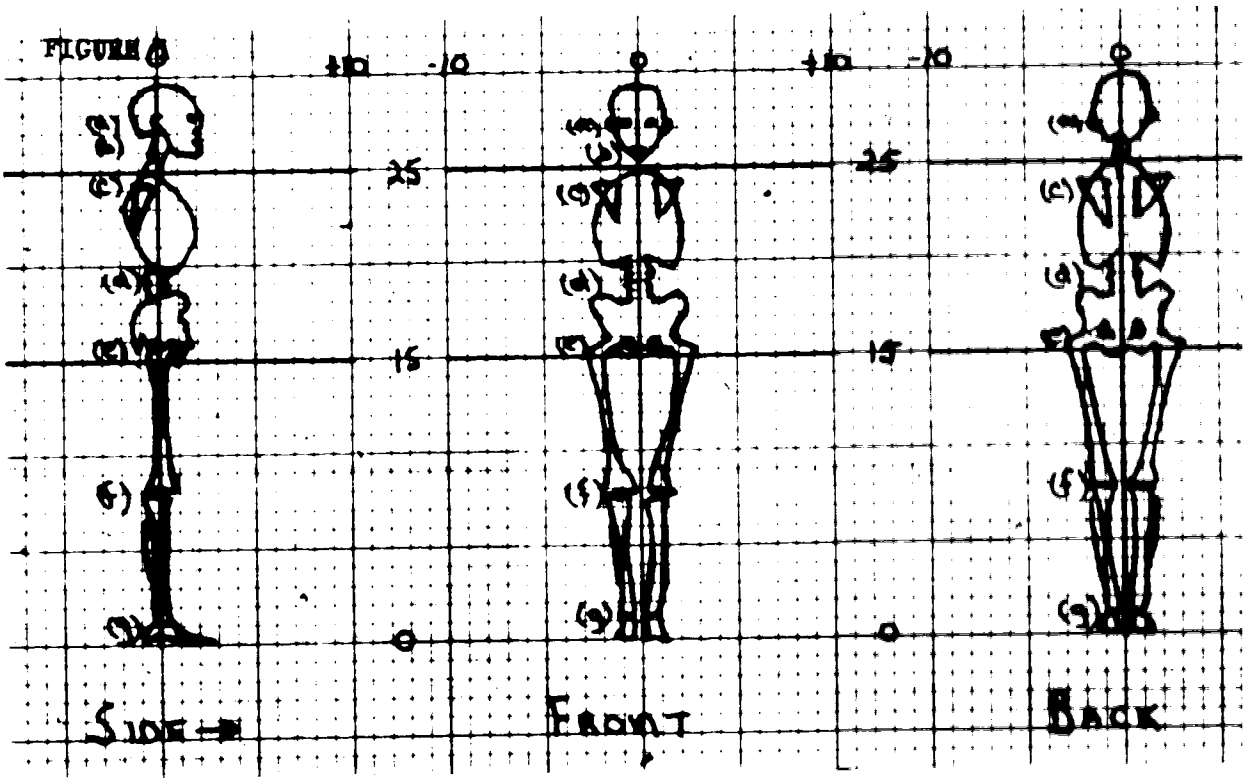
   c. acromiom process is at zero(0) of its horizontal axis.

   d. lower back is between minus 1(-1)and zero(0)of its horizontal axis.Lower back is defined as that area of the back between the bottom of the rib cage and the top of the pelvis.

   e. hip(femoral head) is at zero(0) of its horizontal axis.

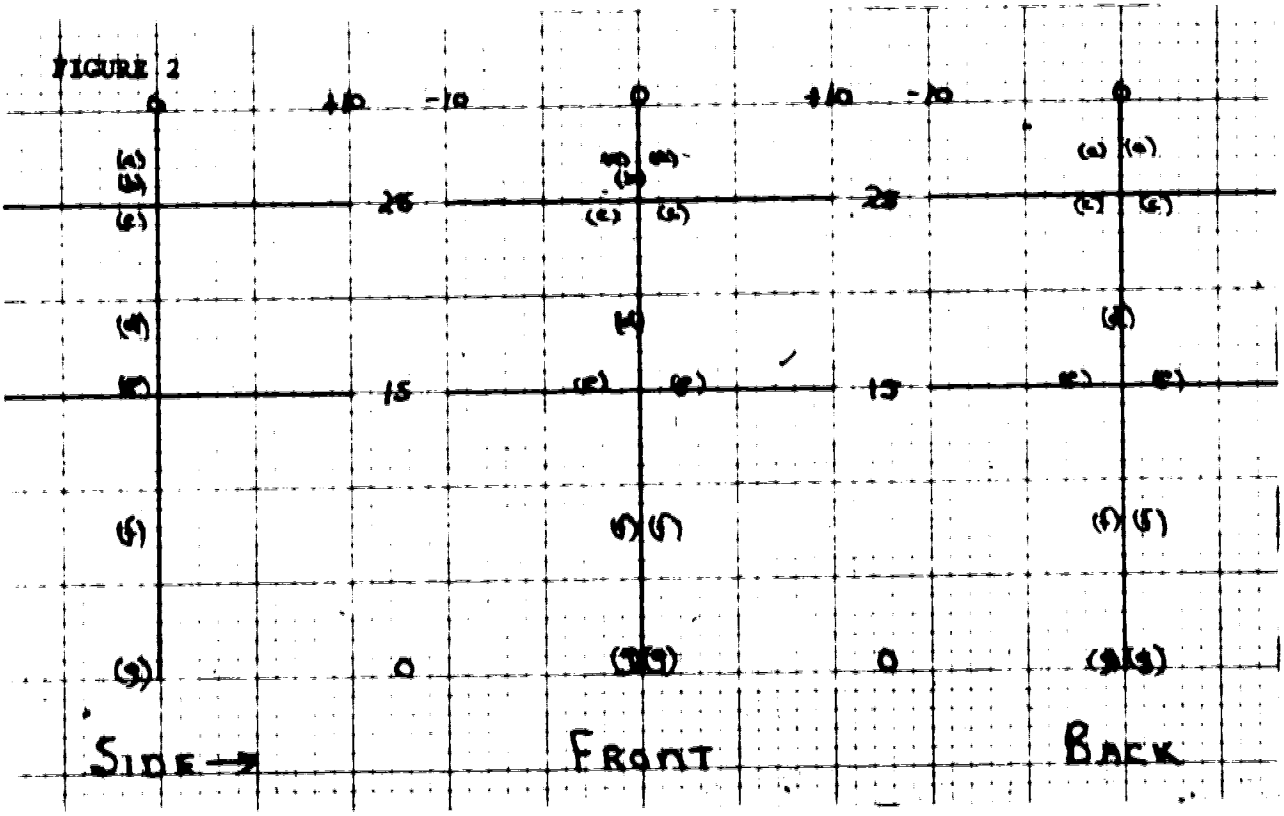
   f. knee joint is at zero(0) of its horizontal axis.

   g. ankle joint is at zero(0) of its horizontal axis.



4. Front View
   a. ears are on the same horizontal axis.
   b. chin is on zero(0) of its horizontal axis.
   c. acromiom processes on the same horizontal axis, and the same distance on either side from zero(0) of vertical.
   d. lower back falls along zero(0) of vertical.
   e. femoral heads are on the same horizontal axis, and the same distance on either side from zero(0) of vertical.
   f. knee joints on the same horizontal axis, and the same distance on either side from zero(0), approximately -+ 2.
   g. ankle joints on the same horizontal axis, and the same distance on either side from zero(0) of vertical.
5. Back View
   a. same description as the front view, omitting point b.

Figure 2 is the central vertical and the horizontal axes of the shoulder and hip joints. The horizontal axes are numbered from the feet upwards to the top of the head. The negatively numbered axes in the side view indicate that the position is behind the central vertical axis. In the front view the negatively numbered vertical axes represent positions to the left of the central axis. Positively numbered vertical axes indicate positions in front of, or to the right, respectively, of the central axis.



The letters correspond to the parts of the body thus labelled in the description of efficient posture.

C. Application

The position of each body part represented by a letter is indicated by a dot. The exception is the chin in the side view. It is described with a line. As a minimum of three observations for posture will be made, color coding is used. A composite picture graph is then made up from the three observations.

Note: At the bottom of the scale room is left to describe any inappropriate flexion or extension of joints, such as clenched hands. Labanotation is used for this purpose.

1. X slight flexion.
2.  approximately 45° flexion.
3.  90° flexion.
4.  approximately 100° - 110° flexion.
5.  approximately 135° flexion.
6.  complete flexion.
7.  overextension (extended and taut).

Floor Pattern

A. Definition

A floor pattern is the imaginary design made on the floor by an individual travelling within a specific area. It may vary in the amount of distance covered, the shape of the floor paths, the number of turns. The floor pattern may have a center to its design, or may not have any one focal point. It is the pathway created by the person moving from one point in the room, through general space, to another point in the room.

The direction a person faces while travelling is part of the design. A change in personal front is a change in the relationship to the surrounding environment. The indication of which way the person is facing also reveals the direction of the movement; whether it is forward, backward, sideways or diagonal.

B. Description

A floor plan is the recording of the floor pattern. It shows the individual's position in the room, and the sequence involved in the change of position. Various symbols from Labanotation will be used to record the floor pattern.

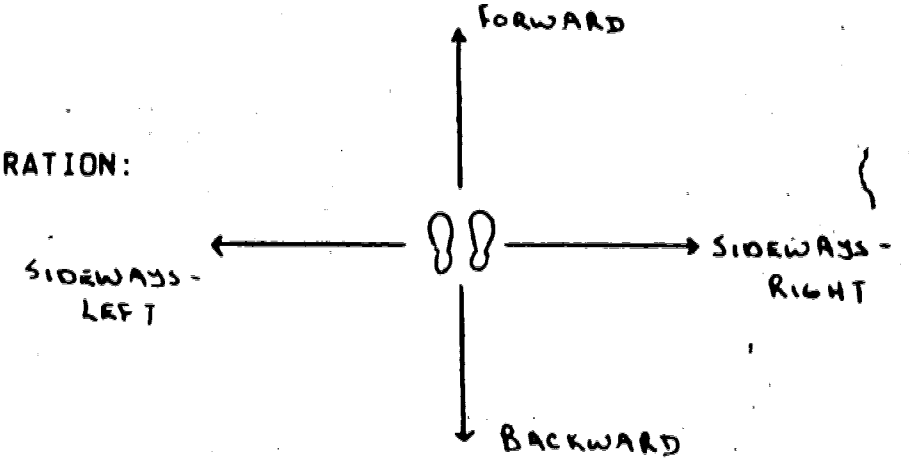
C. Application

The position of the observer is indicated by "Ob". The area of movement is drawn to scale. The aspect of floor

pattern is broken down into three separate categories: distance, direction and shape.

1. Distance: This refers to the amount of floor space covered in the act of travelling.
2. Direction: Direction is the way one is heading, reletive to his personal front. Personal front is defined as that direction that the feet are facing when parallel. When the support is not on the feet, personal front is defined as thedirection the pelvis is facing. If a person is travelling on a line directly anterior to his personal front, he is going forward. When going on a path 90 to either side of his personal front, he is moving sideways, either to the right or the left. When a person is going in a direction exactly opposite to his personal front, he is moving backwards. For the purpose of this study, a leeway of 10° to either side will be included in the above definitions.

ILLUSTRATION:



The potential lines between the four illustrated directions are known as the diagonals.

3. Shape: The imaginary path traced on the floor in locomotion may be either straight or rounded in shape. A straight shape is defined as the shortest distance between two points. A rounded shape is described as anything that is not straight, from a slight curve to a full circle.

The symbols necessary to record the floor pattern are summarized be.

The point of the pin indicates the direction the person is facing. The placement of the pin on the floor plan shows where in the room the individual is located. At the point where change in personal front occurs it is indicated by a pin is placed above or below the line of travel. The floor path is drawn as a line coming from the pin. At the end of travel an arrow is used to indicate the direction of movement.

eg. female moving sideways to the right. 

The length of the line indicates the distance that is travelled, according to scale.

It may be necessary to have more than one floor plan for a particular sequence of travelling. This would depend upon the complexity of the floor paths. In that case the plan continues spatially where the previous one finished. The starting position in the room, and the direction the person is facing, must agree with the end position and

direction of the previous floor plan.

To aid the observer in determining the location of the subject in the area specific reference points are placed on the scale drawing.

Shaping Pattern

A. Definition

Shaping pattern is the reoccurring involvement of the mover with space in a particular manner, by the body or its parts. For this study only gestures will be looked at. Space can be seen as a medium pulled in towards the body, or one which is pushed away from the body. It is the environment in which one approaches or withdraws, rises or descends. The manner of moving in space determines patterns drawn in it around the body. These shapes are created in relation to a focal point. The focal point may be within the person himself, or outside of the body.

Description

The many shapes that can be drawn around the body may be broken down into six categories,which are, in turn, placed on bi-polor continuims. These categories are as follows: :enclosing/spreading, advancing/retreating, and rising/descending. (Lamb and Watson,1979). Definitions of these are below:

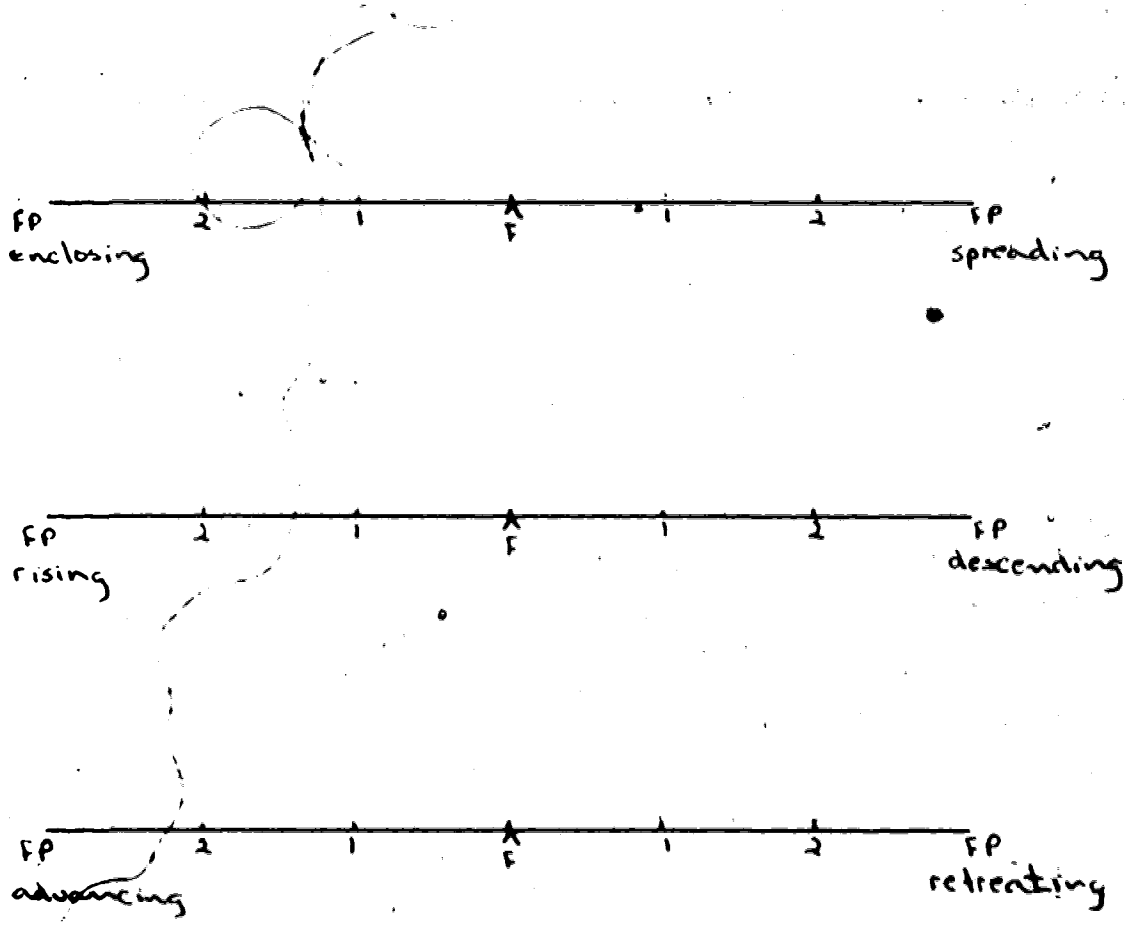
1. enclosing/spreading:focal point internal.
   Enclosing gestures are those whose intent is toward the mover. The focus is on coming in towards the body. Spreading gestures are those whose intent is away from

the mover.The aim of the movement is to push particles of air away from the body.(Preston-Dunlop)

2. advancing/retreating: focal point external.
   Advancing gestures are those whose intent is to enter space going towards an outside focus, other than the floor or ground. Retreating gestures are those whose intent is to withdraw into space away from an outside focus, other than the ground or floor.
3. Rising/descending: focal point external.
   Rising gestures are those whose intent is to come away from the floor or ground.The gesture aims at entering a higher level. Descending gestures are those whose intent is to go towards the floor or ground. The gesture aims at entering a lower level. In the rising and descending movements emphasis is on the change in level.

The extreme ends of each continuim represent the full potentials(FP) of each of the two aspects of the gesture type. Full potential is defined as that point beyond which a continuation of the gesturemust lead to locomotion, loss of balance, or change of gesture type. The middle point of the continuim, the fulcrum, is defined as that point furthest ffrom the full potential of the side of the continuim in question. For example, if the gesture was one of spreading of the arm, FP would be complete extension and reach of the arm, and fulcrum would be complete folding of the arm into

or around the body. The three area marked on each side of the fulcrum are reference points as to where the gesture begins and ends reletive to FP.

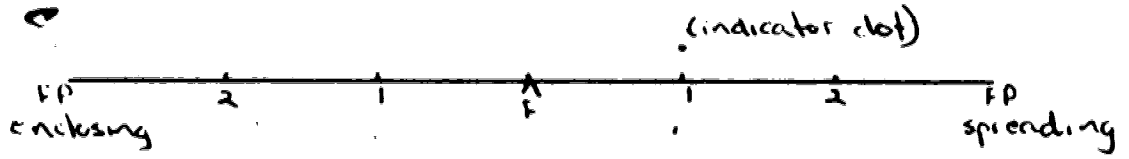


C. Application

More than one aspect of the shaping pattern may be occurring at any one time, and/or more than one body part may be gesturing. The dominant intent will be recorded, as

subjectively determined by the trained observer.

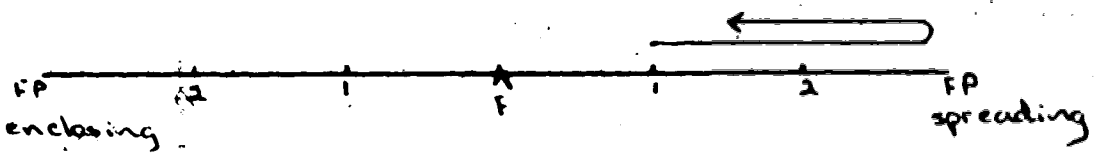
The initial position of the moving part reletive to the FP is marked with a dot just above the appropriate side of the appropriate continuim. For example: a gesture is made by the arm, the intent being one of spreading, and the movement beginning with the hand at shoulder width. The FP. would be the complete reach of the arm, fulcrum would be when the arm is completely folded into or around the body, and the dot would be marked so:



Because the gesture is one of spreading, the indicator line will be drawn from the dot toward the extreme right end of the continuim, parrallel to it. The indicator line always goes away from the fulcrum towards FP. The length of the line will depend upon the extent of the gesture. For example: if the hand continues its spreading action until the arm is fully extended, the indicator line will be drawn so:

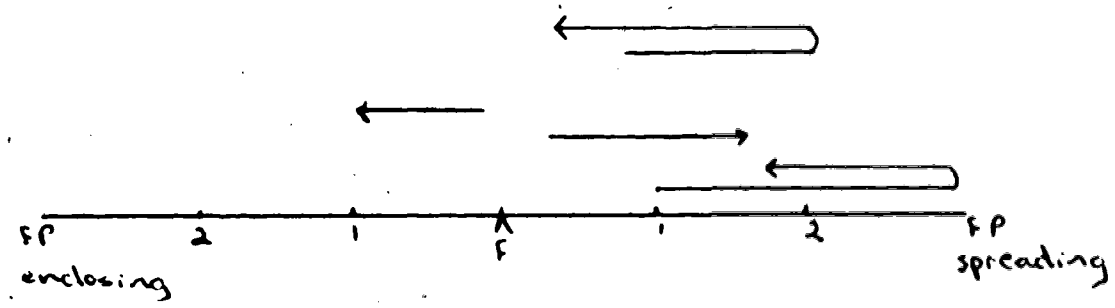
If the gesture then continues into one of enclosing, the

indicator line will make a half-circle, with the line now running parallel to its earlier self. An arrow marks the change of direction.

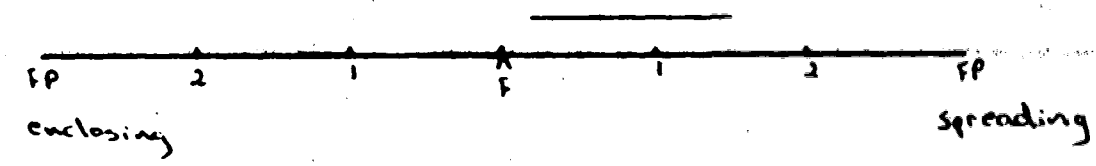


In other examples the gesture may continue on a differant continuim, or a new body part may start an action.

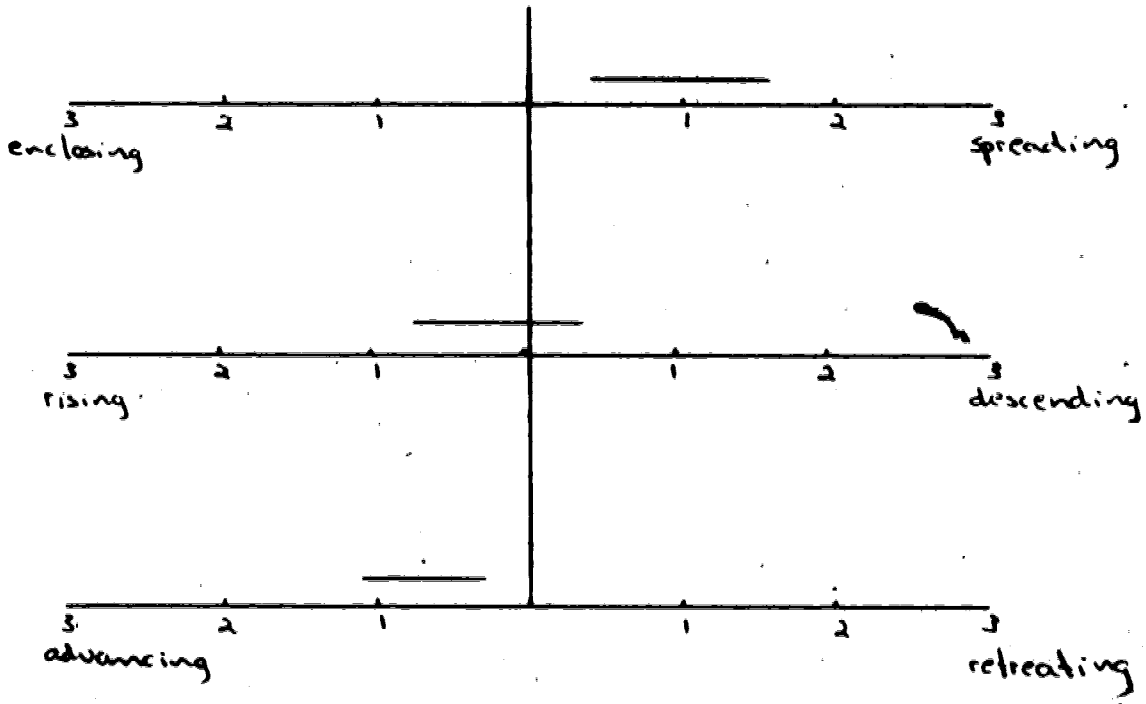
A summary of the significant pattern for each continuim is made at the end of each observation. This is done by determining the polar description most used, and the average distance from the fulcrum.



SUMMARY

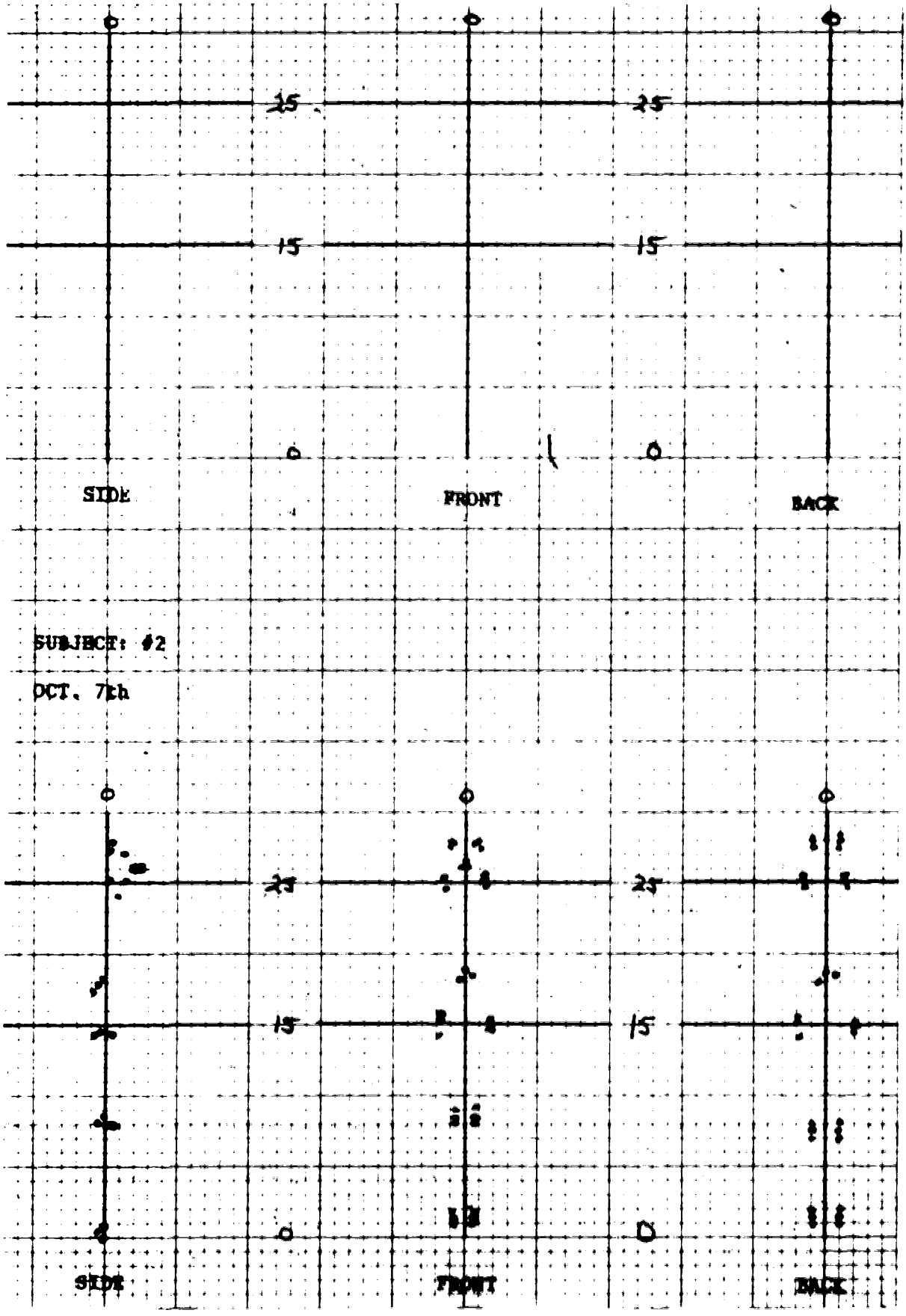


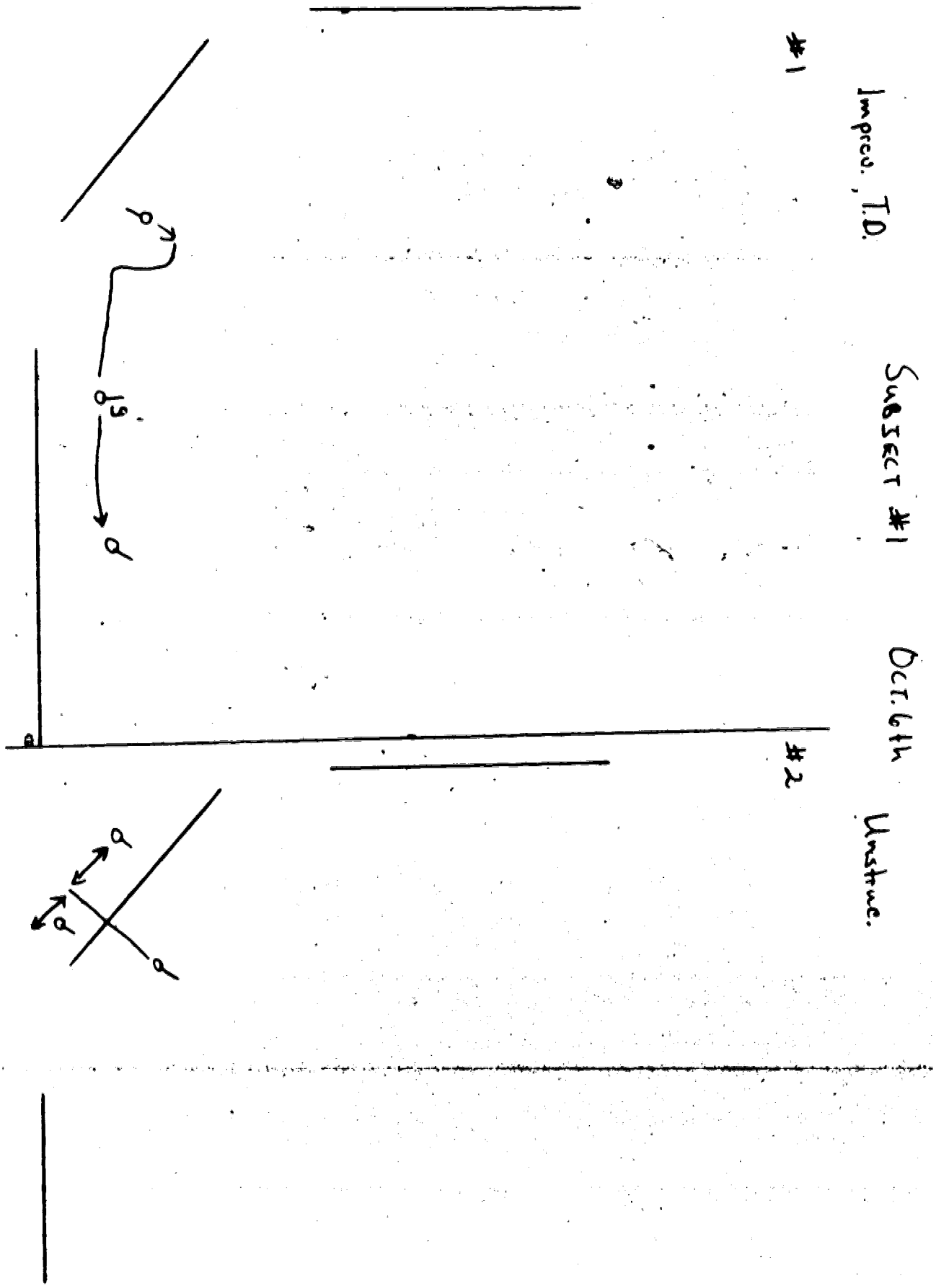
The three continuims are gathered together for the purpose of a total summary.



APPENDIX V:EXAMPLES OF CODING

POSTURE EXAMPLE




#1
Impres., T.D.
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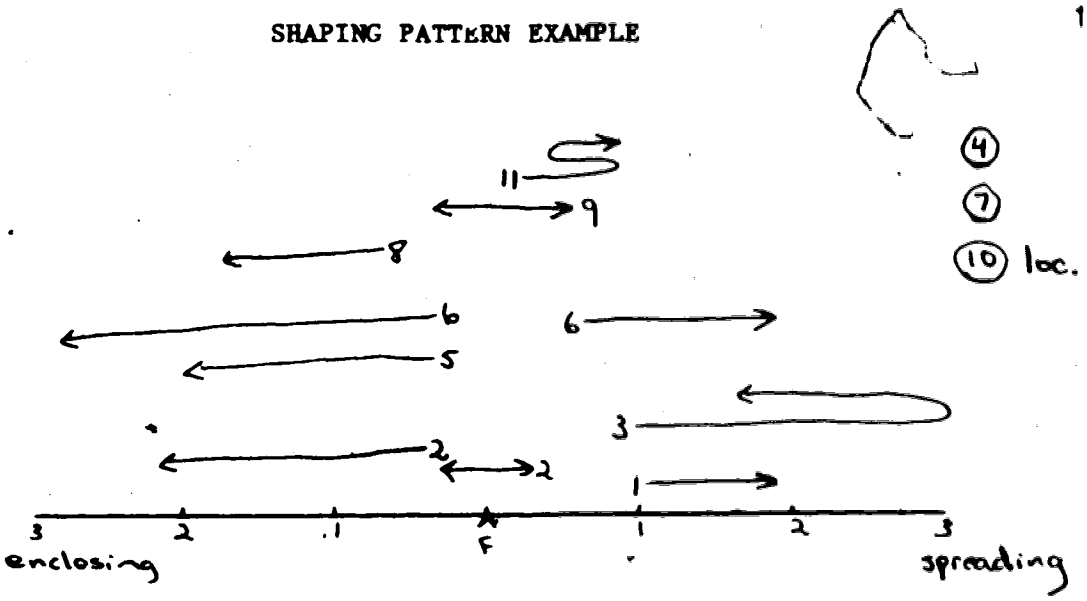
SHAPING PATTERN EXAMPLE



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