APPARENCY OF PHYSICAL DISABILITY AS RELATED TO SOCIAL RESPONSE

A THESIS

Presented to

the Faculty of the Department of Psychology

University of Houston

In Partial Fulfillment

of the Requirements for the Degree

Master of Science

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Billy Van Jones

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ABSTRACT

The relationship between apparency of physical disability and the reaction of disabled Ss to social contact was investigated by the performances of Ss on a binocular rivalry task.

The stimuli of the binocular rivalry test presented photographs depicting a smiling face and a scowling face simultaneously, one to each eye and simulating eye-contact with Ss. It was assumed that Ss would achieve binocular resolution by perceiving in accord with their expectations of social reactions toward self. It was predicted that visibly disabled Ss would rate the fused stimulus as significantly more unpleasant then would nonvisibly disabled Ss, due to visibly disabled Ss' anticipating social rejection more than Ss with a nonvisible physical loss. Anticipation of social rejection results from our culture's high value for physical attractiveness and ability. The hypothesis was not confirmed.

The nonsignificant results were explained as due, in part, to the possible different effects of an emotional disability as compared to a physical disability. In addition, the sample was not severely disabled physically. A subsample of quadriplegics suggested confirmation of the hypothesis when Ss were definitely and obviously disabled.

Since the Texas Institute for Rehabilitation and Research had available information on each S, a secondary hypothesis was that there

would be a significant relationship between *S*s' background data and *S*s' performances on the binocular rivalry task. Again, the relationship was not found. The nonsignificant findings were discussed in terms of the *S*s' comparison levels.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION

When disparate stimuli are presented to the two eyes, the visual system ordinarily resolves the disparity into a single percept. Early studies of binocular resolution primarily investigated the effects of formal stimulus properties on what is seen under conflicting conditions. Since formal stimulus properties refer to the stimulus determination of perception, most work used abstract figures, circles, squares, colored patches, discrepant lines and the like. Consequently, the principles of binocular fusion were elaborated on the basis of studies employing such abstract forms. A theory of perception was advanced to account for the single percept in terms of sensory organization independent of content. Content refers to selectivity in perception determined primarily by the positive and negative values of a person, his motivational structure, and the attitudes that he has learned through past experience. Little attention, if any, was given to the content of the discrepant patterns as a possible source of influence upon binocular resolution (Woodworth, 1938; Vernon, 1952). In his reference to an attentional theory of binocular rivalry, Helmholtz (1925) almost considered the influence of content. Helmholtz mentioned the possible role of the interest-character of the objects. Similarly, Kohler (1929) noted that objects with various shapes might acquire meanings. Kohler considered the evidence for the automatic effect of past experience upon perception as only speculative.

Later experiments were performed to test the theory of the automatic effect of past experience upon subsequent perception. Engel (1956) demonstrated that the meaningful content of stimuli plays a vital role in binocular resolution. Hastorf and Myro (1958) confirmed the results of Engel's experiment under conditions proposed to exclude as much as possible error in data reporting. Subsequent studies demonstrated cultural and individual differences in stereoscopic perception (Bagby, 1957; Beloff and Beloff, 1959; Davis, 1959; Van de Castle, 1960). Thus, it appears that the meaningful content of stimuli plays a significant role in the organization of experience.

The subject's affect provides an important parameter in the organization of perceptual material (Murphy, 1956; Tomkins, 1962; Young, 1961). The role of affective responses has been shown to significantly influence stereoscopic resolution (Jackson and Payne, 1963; Reitz and Jackson, 1964). In these studies, shallowness of affect was found to influence the binocular resolution of "pleasant" and "unpleasant" stereoscopically presented stimuli. Another group of studies tested the general hypothesis that specific past experiences, aggression themes, acquired under particular conditions or training, sensitize a person to related content in binocular rivalry (Toch and Schulte, 1961; Shelley and Toch, 1962;

Berg and Toch, 1964). After confirming the hypothesis of the effects of differential socialization of the sexes on the perception of violence, Moore (1966) interpreted the findings of contemporary studies as supportive of the use of the stereoscope as a diagnostic tool.

The phenomena of perceptual vigilance and perceptual defense (Bruner and Postman, 1951) have been theoretically applied by Kelley, Hastorf, Jones, Thibaut, and Usdane (1960) to the psychological rehabilitation of the physically handicapped. Kelley, et al., suggest that the traumatically disabled person expects negative social evaluation and negative reaction from normals because of the culture's high regard for attractive physical appearance and ability. Expecting rejection from others, the disabled person is acutely interested in the information processing is affected either by perceptual vigilance (elevated sensitivity) or by perceptual defense (lowered sensitivity).

A study by Koechel (1964) is one of only two works related to the foregoing that is reported in the literature. Koechel reasoned that individuals whose traumatic physical deviations are obvious upon sight experience intense discomfort due to the conflict between physical status and the cultural esteem of physical attractiveness. Individuals with a hidden loss, not intensely threatened by social rejection, are not discomfited by such interactions or interpersonal visual contact. Using fifteen lower-limb male amputees (visibly disabled) and fifteen male cardiovascular patients (nonvisibly disabled), Koechel tachistoscopically presented prints of famous paintings to test for differential reactions to the paintings by the two groups. The finding was that amputees, in comparison to cardiacs, responded to the pictures containing persons with either heightened or lowered perceptual sensitivity. Koechel interpreted the finding within the framework of Kelley, et al. (1960). The stimuli,representative of the threat of social rejection by normals, resulted in alteration of perceptual sensitivy by the visibly disabled. Since the threat was not present for the nonvisibly disabled, this group reacted more uniformly and at less extreme levels of perceptual intensity.

Capitalizing on the Koechel study, Zara (1969) performed an experiment to reduce the plausibility of other variables as explanations of Koechel's findings. Zara chose a forced-choice perceptual test situation presented stereoscopically to achieve an equivocal situation resolved according to Ss' expectations. With all optic variables controlled, Zara believed that the emotionality of expected social rejection after traumatic phyphysical loss was sufficiently intense to negate natural eye superiority. First, Zara conducted a pilot experiment which confirmed his hypothesis that Ss with spinal cord injury would report more unpleasant perceptions than cardiacs when viewing smiling and scowling caricatures of the human face simultaneously through a stereoscope. By combining the pilot study with a follow-up study, Zara compared the performance of 25 visibly disabled

Ss (spinal cord injury) with that of 25 nonvisibly disabled Ss (cardiacs) on the Embedded Figures Test Form V, a binocular rivalry task, and the Internal-External Scale. The twelve stimuli of the binocular rivalry test consisted of stereograms or caricatures depicting a smiling face and a scowling face presented simultaneously, one to each eye, simulating eye contact. The S was told that he was participating in a test to assess his visual acuity. As the S looked into the viewer, visual clarity was achieved by E adjusting a dotted line stereogram along the stereoscope viewing arm until S reported seeing a clear cross made of dots. Similarly, three stereograms of broken circles were individually adjusted until S was able to designate, verbally and accurately, the position of the break in each of the circles. The cardholder remained in the adjusted position throughout presentation of the stimuli. S was simply asked to "tell me something about what you see, and do not just identify it. Tell me some important thing about it. . . . answer as quickly as you can" (Zara, 1969, p. 46). As soon as S indicated perception of either a "smiling or nonsmiling face" the stimulus card was removed. The number of smiling faces reported and the response time were recorded. To control for possible fatigue effects, a 30-second interval was observed between each stereogram presentation. Also, each cardiac S received the same order of presentation as the paraplegic S with whom he was matched. Through randomization, presentation of the smiling or scowling face occurred to the right eye and to the left eye equally as often in the first six stereogram presentations as in the last six presentations. After each S was presented the complete set of twelve stereograms, a simple test for eye dominance was conducted.

The present study is primarily concerned with the relationship between social perception and visibility of handicap, as confirmed by Koechel and Zara, and more specifically, an operational replication of Zara's study. Only slight modifications were made in the measurement and sampling procedures, in order to increase the precision of measurement. Koechel used prints of famous paintings with and without people in their subject matter. Zara used sketches or smiling and scowling caricatures of the human face. However, both Koechel and Zara generalized their findings with abstract stimuli to the everyday lives of disabled Ss. By using actual photographs of the human faces, the present study attempted to simulate the actual situation more directly. With this refinement, verification of Zara's work would enhance the practical applications for the clinical psychologist in rehabilitation work and his clinical or psychotherapeutic approach to emotional reactions following physical loss.

A secondary concern of the present study is the relationship between Ss' living conditions and their performances on the binocular rivalry task. Kelley, et al. (1960) stated that a marked change in a person's life, such as occurs with a traumatic disability, has profound consequences. Their concern was with cases involving losses, such as losses in income, in experienced rewards, in means of contributing to one's welfare, and in sudden unemployment. Since the Texas Institute for Rehabilitation and Research (T.I.R.R.) records contain demographic and socio-economic data on each S, it was possible to investigate the importance of this information to the present study.

Also, the T.I.R.R. records contain two measures that were affected by the Ss' general anxiety: the 16 PF personality test and the Wechsler Adult Intelligence Scale. Physical disabilities suggest a generalized effect upon personality, according to the authors of the 16 PF (Cattell, Eber and Tatsuoke, 1970). For example, the effect is manifested in some damage to the typical development of the self-sentiment and in raised tension from frustration. Defensively, physical disabilities produce raised shrewdness and self concern. Commenting on the subscales of the WAIS, testors have noted that unusually low scores suggest anxiety and poor interpersonal relations as the principle mechanisms impairing performance (Rapaport, et al., 1945; Gurvitz, 1951; Ogdon, 1969). A third test, the Occupational Interest Inventory (OII), provides information on the Ss' preferences for people-related occupations (Lee and Thorpe, 1956).

The theory of Kelley, et al. (1960) states that marked changes in a person's life have profound consequences and that some form of anxiety underlies the physically disabled person's reaction to social contact. However, it was recognized that the T.I.R.R. records do not contain information about Ss' living conditions and personality prior to the disability. Therefore, the only interest is determining the presence or absence of a significant relationship between Ss' present living conditions and personality and Ss' facial expression ratings.

The primary task set for this study was to demonstrate a relationship between apparency of physical disability and expectations of social reactions toward self, as measured by viewing smiling and scowling faces stereoscopically. The secondary task was to demonstrate a relationship between the measured expectations of social reactions toward self and the Ss' living conditions and personality.

Hypotheses

1. When presented with paired smiling/scowling facial expressions in a binocular rivalry situation, Ss with more visible physical disabilities will rate the fused stimuli as significantly more unpleasant than will Ss with less apparent disabilities.
2. Ss rating themselves as more visibly disabled will rate the stimuli of the binocular rivalry task significantly more unpleasant than will Ss who rate themselves as less visibly disabled.
3. Ss' living conditions and personality will be significantly related to their performances on the binocular rivalry task.

CHAPTER II

METHOD

Subjects

Ss were fifty outpatients at the Texas Institute for Rehabilitation and Research who received scheduled services in the vocational unit during the months of June through October, 1971. Broadly, the Ss could be divided among two diagnostic categories: emotional diagnosis (n=36) and physical diagnosis (n=14). The overwhelming majority of Ss were referred to the vocational unit by the State Division of Vocational Rehabilitation. Ages ranged from eighteen years to sixty years, with a mean age of 29.4 years. Mean age of the emotional group was 28.8 years while the mean age of the disabled group was 28.1. Included in the sample were thirty males and twenty females, of whom thirty-two were white and eighteen were nonwhite. In the disabled group were nine males and five females, of whom ten were white and four were nonwhite. The majority of the Ss were single (n=32), however, all marital statuses were represented. Time since onset of disability ranged from less than two years to more than forty years, with the disabled group generally incapacitated a longer time than the emotional group. Time since last hospitalization ranged from presently hospitalized to five years or more; with an average of less than one year. None of the Ss was restricted to bed, on catheter, or in treatment for decubiti or other ailments.

Selection of Ss in the sample depended on the availability of clients in the vocational unit. Table 1 presents the primary demographic date for the total sample.

Instruments and Test Equipment

Binocular rivalry test. The viewing instrument used in the binocular rivalry task was an amblyoscope or stereoscope contained in a box covered by black cloth. On each side of the box or each lens was a light bulb with a device attached to the outside of the box which regulated the illumination. White cardboard was used as a backdrop for the light to prevent uneven glare from the exposed bulbs. A rheostat was used to regulate the flow of electricity to the amblyoscope, thus controlling the lighting. Illumination control, glare prevention, and control of lighting or viewing time were kept constant for all trials.

The binocular rivalry test stimuli consisted of twenty-three pairs of color slides. Each slide measured 1-3/8" x 15/16" and was mounted in an appropriate cardholder to allow easy insertion into the amblyoscope. One pair of slides contained a horizontal and a vertical bar slide to achieve binocular fusion. Two additional pairs of slides consisted of identical presentations to both eyes, the same person smiling or the same person scowling. These two pairs of photographs (one male, one female) were "lie cards," or measures of reliability. The remaining ten pairs of slides contained the test slides, equally distributed into five male and five female

TABLE 1

Frequency and Percentage of Characteristics of Ss

Characteristics	Emotional Diagnosis N	Emotional Diagnosis %	Physical Diagnosis N	Physical Diagnosis %	Total N	Total %
Age						
18-40 years	30	60	10	20	40	80
40 years +	6	12	4	8	10	20
Sex						
Male	21	42	9	18	30	60
Female	15	30	5	10	20	40
Race						
White	22	44	10	20	32	64
Nonwhite	14	28	4	8	18	36
Marital status						
Single	23	46	9	18	32	63
Married	5	10	2	4	7	14
Divorced	4	8	1	2	5	10
Separated	4	8	0	0	4	8
Widow	0	0	2	4	2	4
Time Since Onset of Disab.						
Congenital	5	10	4	8	9	18
Less than 2 yr.	9	18	1	2	10	20
3-5 yr.	7	14	0	0	7	14
6-10 yr.	7	14	1	2	8	16
11-20 yr.	5	10	5	10	10	20
21-30 yr.	1	2	2	4	3	6
40 yr. +	0	0	1	0	1	2
No Data	2	4	0	0	2	4

Characteristics	Emotional Diagnosis		Physical Diagnosis		Total	
	N	%	N	%	N	%
<u>Time since last hospitalization</u>						
Presently hosp.	4	8	0	0	4	8
Less than 1 yr.	15	30	3	6	18	36
1-2 yr.	3	6	4	8	7	14
3-4 yr.	6	12	2	4	8	16
5 yr. +	4	8	1	2	5	10
No Data	4	8	4	8	8	16
<u>Referral Source</u>						
*T.R.C.	30	60	12	24	42	84
T.I.R.R.	5	10	2	4	7	14
Community agency	0	0	0	0	0	0
Self	1	2	0	0	1	2
Other	0	0	0	0	0	0
<u>T.I.R.R. Status</u>						
In Patient	0	0	0	0	0	0
Out Patient	36	72	14	28	50	100

* Texas Rehabilitation Commission (T.R.C.)
Texas Institute of Rehabilitation and Research (T.I.R.R.)

targets. The ten pairs were presented twice, with the expression presented to an eye reversed when the same target was shown for the second time. Each trial in the test presented the same individual twice, once with smiling facial expressions and once with scowling facial expressions.

The sequence by which each eye was presented the smiling or scowling expression is presented in Table 2. Presentation of the smiling or scowling expression occurred to the right eye equally as often as to the left eye. The sequence of the male-female target presentations is also displayed in Table 2. The order of presentations was determined by a random number table and was constant for all Ss.

Graphic scale of pleasantness of faces. The measurement used was a nine-point scale of the pleasantness-unpleasantness of each facial expression. One was maximum possible pleasantness; nine was maximum possible unpleasantness; three was somewhat pleasant; five was neither pleasant nor unpleasant; seven was somewhat unpleasant (See Appendix A).

For each S, the ratings of all twenty trials were summed to provide a Total Rating, with the maximum possible range from twenty to 180. A score of twenty indicated a "most pleasant" rating; a score of 100 indicated a neutral rating; and a score of 180 indicated a "most unpleasant" rating. Since there were ten female target trials and ten male target trials, the maximum possible range for each sex target was from ten to ninety.

TABLE 2

Order of Presentation of Binocular Rivalry Test Stimuli

Trials	Eye Left	Eye Right	Sex of Target	Trials	Eye Left	Eye Right
1	(+)	(+)	F $\neq$ M	12	(-)	(-)
2	+	-	F = F	13	-	+
3	+	-	M = M	14	-	+
4	-	+	F = F	15	+	-
5	+	-	M = M	16	-	+
6	-	+	M = M	17	+	-
7	+	-	F = F	18	-	+
8	-	+	F = F	19	+	-
9	+	-	F = F	20	-	+
10	-	+	M = M	21	+	-
11	-	+	M = M	22	+	-

Note.- Parenthesis indicates "lie card," no binocular rivalry.

F = female target
M = male target
= indicates the same target in separate trials
+ indicates smiling facial expression
- indicates scowling facial expression.

"Lie Cards" were not included in the computation of scores.

Graphic scales of apparency of disability. The scale was a nine-point measurement of Ss' ratings of the visibility of their physical handicap or problem. The scale ran from one, which was "most aware," to nine, which was "most unaware." (Appendix B). For the external ratings three independent judges rated the obviousness of Ss' disability on a similar nine-point scale (Appendix C). This scale ran from one, which was "most unaware," to nine, which was "most aware." In the analysis the external ratings were reversed in order that the internal ratings and the external ratings were in the same direction. The result was that the expected sign of correlation coefficients between these ratings and the Total Rating was minus or negative. For example, an apparency rating of one (most aware) should correlate negatively with a Total Rating of 180 (maximum possible unpleasantness) and an apparency rating of nine (most unaware) should correlate negatively with a Total Rating of twenty (maximum possible pleasantness).

Background measures. Information about each S was taken from the records of T.I.R.R. and included age, sex, diagnosis onset, and various socio-economic indices, eg. grade level, income, income source, and employment history. Since not all of the data were ordinal, a coding procedure was necessary before including the data in regression equations. "Dummy variable coding" was utilized (Cohen, 1968). Dummy variable coding is an arbitrary assigning of weights to data that differ qualitatively instead of quantitatively. Table 3 shows the ten variables that were coded in this manner. In all cases, the condition considered the most dependent upon other people was arbitrarily assigned the number one, whereas, the most independent condition was assigned the number 0.

Personality data. The T.I.R.R. records also contained three other measures on each S: the Sixteen PF, the WAIS, and the OII. Six factors of the Sixteen PF were used in the study: C, E, H, O, Q_3, and Q_4. Five of these primaries are measures of a second-stratum factor called "Adjustment versus Anxiety," while Factor E is a measure of "Subduedness versus Independence." Table 4 gives a brief description of each factor.

The following WAIS subscales were used in this study: Full Scale IQ, Performance IQ, Verbal IQ, Picture Arrangement, Picture Completion, and Block Designs. The first three scales are general measures of intelligence. The Picture Arrangement Test measures the S's ability to put disarranged pictures in the right order to make a sensible story. Similarly, in the Picture Completion Test, the S is required to discover and name the missing parts of an incompletely drawn picture. The final test, Block Design, measures the ability to analyze wholes into parts or the ability to perceive patterns.

The OII is an inventory in which preferences are expressed between 240 paired items. The information obtained consists of the S's

TABLE 3

List of Coded Variables

Variable	Assigned Code
Living Arrangement	
1. Alone	0
2. With parents	1
3. With spouse and/or children	0
4. With relatives	1
5. With nonrelatives	1
6. Nursing home	1
7. Dormitory	1
Primary Source of Income	
1. None	1
2. Personal employment earnings	0
3. Social security benefits	1
4. Veteran benefits	1
5. Pensions	1
6. Public welfare assistance	1
7. Workman's compensation (or other insurance)	1
8. Family and/or friends	1
9. Savings-investment	0
10. Child support	1
11. Texas Rehabilitation Commission	1
12. Other	1
13. Data not available	1
Type of Disability	
1. Physical disability	1
2. Emotional disability	0
Primary Mobility Status	
1. Ambulates normally	0
2. Ambulates with impairment	1
3. Uses standard wheelchair	1
4. Uses electric wheelchair	1
Transportation	
1. Drives self	0
2. Uses public conveyance	0
3. Depends on relatives or friends	1
4. Other	1

Variable	Assigned Code
<u>Time Since Last Hospitalization</u>	
1. Never hospitalized	0
2. Presently hospitalized	1
3. Less than 1 year	1
4. 1 - 2 years	0
5. 3 - 4 years	0
6. 5 years or more	0
7. Data not available	0
<u>Onset of Disability</u>	
1. Congenital	0
2. Less than 2 years	1
3. 3 - 5 years	1
4. 6 - 10 years	0
5. 11 - 20 years	0
6. 21 - 30 years	0
7. 31 - 40 years	0
8. More than 40 years	0
9. Data not available	0
<u>Upper Extremity</u>	
1. No impairment	0
2. One extremity impaired	1
3. Both extremities impaired	1
<u>Temporary Employment Experience</u>	
1. Yes	0
2. No	1
<u>Permanent Employment Experience</u>	
1. Yes	0
2. No	1

TABLE 4
Description of 16 PF Factors

Factor	Low Sten Score Description	High Sten Score Description
C	Affected by feelings, emotionally less stable, easily upset, changeable: Lower Ego Strength *	Emotionally stable, mature, faces reality, calm: Higher Ego Strength
E	Humble, mild, easily led, docile, accommodating: Submissiveness	Assertive, aggressive, competitive, stubborn: Dominance
H	Shy, timid, threat-sensitive, Threctica	Venturesom, uninhibited, Parmia
O	Self-assured, placid, secure, complacent, serene: Untroubled Adequacy	Apprehensive, self-reapproaching, insecure, worrying, troubled: Guilt-Proneness
Q_3	Undisciplined self-conflict: Low Self-Sentiment Integration	Controlled: High Strength of Self-Sentiment
Q_4	Relaxed, tranquil, unfrustrated: Low Ergic Tension	Tense, frustrated, overwrought: High Ergic Tension

* Factor Name.

expression of preference for activities usually associated with a given vocation. The interest areas are: Social-Personal Contact, Natural, Mechanical, Business, Artistic, Scientific, Verbal, Computation, and Manipulation.

Standardization of test stimuli. A pilot study was conducted by Schmidt (1971) using ten males and twelve females, all normal college students. Schmidt was interested in the relationship between depression as measured by the Self-Rating Depression Scale (SDS) and the frequency of negative perceptions. Although Schmidt did not find a relationship between SDS score and perception, possibly due to her sample not reflecting extreme scores on the SDS scale, the study demonstrated the reliability of the present measurement tools. Schmidt's procedure was used in the present study.

Computation of analysis of variance for Schmidt's twenty-two Ss revealed that the "lie cards" were accurately discriminated. The grand mean of judgments was 4.55, which is identical to the midpoint of the scale. Two trials of the same target either smiling or scowling each time yielded an insignificant F-value. Female targets were perceived as significantly more pleasant than male targets ($p < .01$). Neither eye dominance nor sex of S was significant.

A class in introductory psychology demonstrated additional support for the reliability of the facial expressions (Appendix D). T-statistics were computed for each of the ten related trial pairs of the right eye presentation (2-13, 3-14, etc.). Each related trial pair consisted of the same target both smiling and scowling with the order of the second presentation the reversal of the first. Calculation of t-statistics on the means of sample variables A and B, where A and B were the related trial pairs, yielded significant t-values for each pair of related trials ($p < .01$). Interpretations of these data indicated that persons accurately discriminated the smiling faces or expressions from the scowling expressions.

Construction of external apparency scales. Siller (1967) tested a large group of nondisabled persons of both sexes and varying ages to discover their attitudes toward the disabled. A smaller group, weighted toward aversive attitudes, was selected for intensive interviews to explore the origin and nature of their attitudes. Four of Siller's findings are especially pertinent to this study. (1) There is a strong tendency to ascribe negative and evil personal qualities to those with distorted bodies. (2) Grouping disabilities in terms of the way others tend to perceive them rather than by impairment may be preferred over the conventional methods. (3) Esthetic rejection is the most frequently reported basis for aversive feeling. (4) Attitudes toward blindness, deafness, and amputation are usually the most favorable, while those toward skin disorders, body deformity, cerebral palsy, and muscular dystrophy are the least favorable. Keeping in mind Siller's findings, a psychology class was asked to rate various indicators of disability on a nine-point scale. The final scale was constructed by preserving as much as possible the order of the class ratings while being mindful of Siller's findings (Appendix E). This scale was the standard used by external judges in rating the apparency of Ss' disabilities.

Procedure

The 16 PF, the WAIS, and the OII data were already available at T.I.R.R. The binocular rivalry task was administered to Ss according to the availability of clients at the vocational unit of T.I.R.R.

Binocular Rivalry Test. In administering the binocular rivalry test, Zara's procedure was adopted with only slight modifications. Each S was told that he was being given an eye test to determine his visual acuity. Visual clarity was established with S looking into the viewer and E adjusting the horizontal and vertical bar stereograms until S reported seeing a "cross." No S failed to see the horizontal and vertical bars cross. The amblyoscope was left in this position throughout presentation of the slides. Illumination was adjusted by E brightening and dimming the light bulbs until the S reported equivalent illumination to both eyes. Overall, the illumination did not vary much from one S to another.

After visual clarity and illumination equivalence were achieved, S pulled away from the amblyoscope and was instructed:

> You are taking part in a visual acuity test interested in your first impression of facial expressions, not their attractiveness. I will put

> colored slides into a cardholder one by one. Keep both eyes open and do not take your eyes away from the lenses. Keep your head as still as possible. Mark your impression by rating each face on a nine-point scale. Here is a copy of the scale: one is maximum possible pleasantness; nine is maximum possible unpleasantness; three is somewhat pleasant; five is neither pleasant nor unpleasant; seven is somewhat unpleasant. I will tell you when to look into the lenses. When I turn off the light, stop looking into the lenses. Then rate the face by circling your impression.

When E was satisfied that S fully understood the directions, the trial pairs were inserted one at a time into the cardholder of the amblyoscope. S was then allowed five seconds to view each trial pair. The set of slides was removed when the light was turned off. The response to each trial pair was recorded by S. There was a thirty-second interval between trial presentations to control for possible fatigue effects.

After each S had been presented the complete set of twenty-two trials, he was asked to rate the apparency of his handicap. The following was read to the S:

> (1) Preface: All of us have physical problems from time to time. This could be anything as minor as flat feet or as major as paralyzed legs. (2) Problem (S's response to the statement): Name the one thing about yourself that you see as a physical problem or handicap that bothers you most. (3) Apparency of disability (S's response to the statement): The physical problem is something that others are aware of never-to-always on a nine-point scale.

After E was satisfied that S understood the instructions, S recorded his response. While S recorded his response, E independently recorded his rating of the apparency of the S's disability. Two other judges independently rated the apparency of S's disability.

Next, a simple test for eye dominance was conducted. This consisted of having S point his forefinger at the intersection of the walls near the ceiling. With his arm completely extended and looking down his arm and forefinger, S fixated at the point with both eyes open. Without moving the arm or finger, S then closed his left eye and reported if the finger still pointed at the intersection of the walls, as with both eyes open. S then opened his left eye and closed his right eye, also reporting where the mark was seen. The open eye which visually retained the original fixation was considered the dominant eye. This result was recorded for each S. Each S reported retaining the original fixation with one eye and not the other.

CHAPTER III

RESULTS

Success of Procedure

The success of the procedural routine was indicated by the ease and smoothness of the data collection. None of the Ss terminated the experiment prematurely. Neither did any S complain about eye strain, fatigue, or similar discomforts. Although all Ss readily understood the instructions, some Ss experienced difficulty in identifying the physical problem that bothered them most. However, after a moment of thought, these Ss were able to identify the physical problem (Appendix F). Ss appeared interested and cooperative throughout the testing.

Pattern of Analyses

The raw data for each of the fifty Ss in their individual performances on the binocular rivalry task, the 16 PF, the WAIS, and the OII are shown in Appendix F. The following analyses were calculated for each set of data: elementary statistics, correlation, regression, multiple regression, and step-wise regression.

Regression is a technique for obtaining a functional relationship among variables where the values of one variable can be measured interms of the associated variable. Multiple regression is similar to regression;

the primary difference is that multiple regression analyzes a relationship between a dependent variable and a set of independent variables instead of separate variables. In other words, y is estimated from multiple predictors.

Step-wise regression is a method to select independent variables in the order of importance and to enter them in a multiple linear regression model. The criterion of importance is based on the reduction of the sum of squares. The independent variable which reduces the largest amount of variance in a given step is entered in the regression. In analysis of the data, y was always desginated as the Total Rating or criterion and x was labeled the predictor(s) or the value(s) of S measures and apparency ratings.

Results of Analyses

Reliability of task. Table 5 displays the reliability of the task stimuli. Scores for the male and female targets intercorrelated strongly and positive, indicating a high split-half reliability for the measurement. In addition, females were rated as more pleasant than were males. This finding is in agreement with the pilot study.

Consistency of ratings. Table 5 also shows the analysis for the apparency of disability ratings and the Total Rating. The apparency ratings had high possitive intercorrelations, as would be expected on the

TABLE 5

Analysis of Apparency Ratings

Means, Standard Deviations, and Correlation Matrix of Apparency Ratings and Total Rating

Ratings	$\bar{X}$	SD	1	2	3	4	5	6	7
1. $Rater_1$	6.8	2.595							
2. $Rater_2$	6.8	2.238	.928**						
3. $Rater_3$	6.5	2.279	.849**	.910**					
4. _S_ Rater	6.2	3.022	.465**	.436**	.434**				
5. Male	42.8	12.934	-.196	-.057	-.066	-.181			
6. Female	35.6	12.733	-.098	-.033	-.092	-.263	.808**		
7. Total	78.3	24.417	-.150	-.042	-.077	-.229	.953**	.947**	

NOTE: ns = 50 * < .05=.273 ** < .01=.354

Correlation Matrix of Predictors and Criterion

	Predictor	Criterion	
Single:	$Rater_1$ (A)	-.150	
	$Rater_2$ (B)	-.042	
	$Rater_3$ (C)	-.077	
	_S_ Rater (D)	-.229	
Multiple:	A+B	.270	(*< .05=.273)
	A+C	.108	
	A+D	.187	
	A+B+C	.247	(* < .05=.336)
	A+B+C+D	.271	(* < .05=.379)

TABLE 5

Analysis of Apparency Ratings

Criterion and Predictor	% of Variance	F-Value of Variable	
Total Rating			
S Rater	5.2	2.65	(df=1, 48 F_{05}=4.03)
$Rater_2$	0.4	0.21	(df=1, 47 F_{05}=4.03)
$Rater_1$	6.9	3.62	(df=1, 46 F_{05}=4.03)
$Rater_3$	0.5	0.25	(df=1, 45 F_{05}=4.03)
Total	13.0		

R(adjusted)=.271 (df=48 * <.05=.379)

basis of reliability of the scale ($p<.01$). However, the agreement between the external raters was much better than the agreement of any external rater with Ss' ratings. The Ss varied more in their ratings than did the external raters and Ss judged their own disabilities as slightly less apparent than did the external raters.

Tenability of Primary Hypothesis. Table 5 shows low nonsignificant correlation coefficients between external raters of apparency of disability and the Total Ratings. Neither did the Ss' ratings correlate significantly with the Total Ratings. In other words, the hypothesis was not confirmed: Ss with more apparent disabilities did not rate the fused stimuli as significantly more unpleasant than did Ss with less apparent disabilities.

The effect of combining two and three raters is also displayed in Table 5. As was true for the single predictors or raters, multiple predictors were nonsignificant. Also shown is the step-wise regression analysis. No rater accounted for a significant per cent of the variance, as indicated by the F-values and the cumulative R.

Since Zara employed a dichotomized scheme for categorizing Ss as either cardiovascular or spinal cord patients, in other words, visible or nonvisible handicap, t-tests were computed for Ss who were rated visible or nonvisible on the apparency scale by $rater_1$. Visible and noninvisible were defined for this purpose as ratings of 1 - 3 and 7 - 9, respectively. Table 6 displays the Total Ratings of these two groups. The two

TABLE 6

Total Ratings of Visible and Nonvisible Groups

T-Test of Total Ratings of Nonvisible and Visible Groups

Nonvisible Group	Visible Group
81	83
50	74
20	86
78	83
74	91
84	99
59	68
65	68
69	
5[illegible]	
74	
60	
119	
80	
124	
106	
116	
84	
103	
23	
43	
68	
51	
74	
73	
68	
65	
43	
24	
49	
127	
M_1=74.451	M_2=81.625
S_1^2=774.532	S_2^2=101.984
N=31	N=8

T= -.713
.05= 2.021

groups did not differ significantly in their Total Ratings. Furthermore, neither group rated the faces as unpleasant. The mean rating of the non-visible group was 74.451 and the mean rating of the visible group was 81.625. The neutral point or midpoint of the Total Rating was 100.

Since not more than fourteen Ss were definitely diagnosed as only physically disabled, the possibility exists that the hypothesis was not confirmed because the sample was not severely disabled physically. Support for this explanation is provided by the correlation matrix of quadriplegics' apparency ratings and Total Ratings (Table 7). All Ss with both extremities impaired were defined as quadriplegics. The correlation coefficient between apparency ratings and the Total Ratings was -0.799, statistically significant ($p < .01$). Not only was the correlation coefficient significant, but the sign of the coefficient was in the expected direction. At least in the case of a definite and obvious physical disability, the hypothesis was confirmed.

Tenability of secondary hypothesis. Since the T.I.R.R. records contained background information about each S, it was convenient to examine the relationship between these data, the apparency ratings, and the Total Ratings for the total sample and the physically disabled subsample. The hypothesis merely stated that a significant relationship exists between Ss' background data and Ss' Total Ratings. The hypothesis was not confirmed.

TABLE 7

Correlation Matrix of Quadriplegics

	$Rater_1$	Male Target	Female Target	Total Rating
+$Rater_1$	1.000			
Male Target	-0.705*	1.000		
Female Target	-0.755*	0.590	1.000	
Total Rating	-0.799**	0.957**	0.792*	1.000

NOTE:
df=7 $* < .05 = .666$ $** < .01 = .798$
+ indicates external apparency ratings.

Findings for the total sample. One set of background measures was the Ss' living condition indices (Tables 8 and 9). A significant relationship was not found between a living condition index and the Total Rating. There was a significant relationship between apparency ratings and two indices: transportation and mobility status ($p < .01$). High apparency Ss were more limited in their locomotion than were low apparency Ss. Other data were Ss' performances on the WAIS, the 16 PF, and the OII (See Tables 10, 11, 12, respectively). Again, there was a nonsignificant relationship between each Ss' performances on each test and both the apparency ratings and the Total Rating.

Findings for the physically disabled subsample. Overall, the same results were found in the physically disabled subsample. Tables 13 and 14 show that only one living condition index correlated significantly with the Total Rating: maximum salary ($p < .05$). Ss with high salaries rated the facial expression as pleasant. Only one index was significantly related to the apparency ratings, namely transportation ($p < .05$). Ss with high apparency ratings were not dependent upon others for transportation.

Tables 15 and 16 show that there were no significant correlations between either the WAIS performances or the 16PF performances and the Total Rating. The same was true for the relationship between these data and apparency ratings. Table 17 shows that only one scale of the OII correlated significantly with the Total Rating, namely Science ($p < .01$). Ss interested in Science perceived the facial expressions as unpleasant.

TABLE 8

Analysis of Demographic Data (Total Sample)

Means, Standard Deviations, and Correlation Matrix of Demographic Data, Apparency Ratings and Total Rating

*Variables	X	SD	1	2	3	4	5	6	7	8	9
1. LA	0.70	0.46									
2. IS	0.84	0.37	.071								
3. Disab	0.28	0.45	.019	.029							
4. Onset	0.70	0.58	-.038	.057	.403**						
5. MS	0.52	0.51	-.017	.236	.421**	.265					
6. UE	0.28	0.45	.117	.029	.206	.248	.332*				
7. Tran	0.50	0.51	.393**	.218	-.356**	-.244	.160	.089			
8. R_1	6.80	2.60	.017	-.119	-.194	-.054	-.698**	-.142	-.3[illegible]*		
9. SR	6.18	3.02	.083	-.211	-.008	.136	-.384**	-.097	-.301*	-.465**	
10. TR	78.02	24.92	-.028	-.051	-.093	.079	.033	.140	-.040	-.134	-.200

NOTE: df=48 *=p < .05=.273 **=p < .01=.354

Correlation Matrix of Predictors and Criterion

Predictor	Criterion		Predictor	Criterion	
Single: LV(A)	-.028	(df=48 * < .273)	Multiple: A+B+C	.137	(* < .05=.373)
IS (B)	-.051		A+B+C+D	.160	(* < .05=.379)
Dis(C)	-.093		A+B+C+D+E	.169	(* < .05=.412)
Ons(D)	.079		A+B+C+D+E+F	.222	(* < .05=.440)
MS (E)	.033		A+B+C+D+E+F+G	.222	(* < .05=.464)
UE (F)	.140		A+B+C+D+E+F+G+H	.199	(* < .05=.504)
Tr (G)	-.040				
R_1 (H)	-.134				
SR (I)	-.200				

TABLE 8

Analysis of Demographic Data (Total Sample)

Variance Accounted for by Predictors

Criterion and Predictor	% of Variance	F-Value of Variable	
Total Rating			
UE	2.0	.964	(df=1, 48 F_{05}=4.03)
Disab	1.5	.752	(df=1, 47 F_{05}=4.03)
R_1	1.9	.932	(df=1, 46 F_{05}=4.03)
Tran	3.7	1.849	(df=1, 45 F_{05}=4.03)
MS	0.6	.297	(df=1, 44 F_{05}=4.03)
Onset	0.8	.392	(df=1, 43 F_{05}=4.03)
IA	0.3	.140	(df=1, 42 F_{05}=4.03)
IS	0.0	.006	(df=1, 41 F_{05}=4.03)

* Abbreviations are: IA (living arrangement); IS (income source); Disab (disability); Onset MS (mobility status); UE (upper extremity); Tran (transportation mode); R_1 (Rater$_1$); SR (S Rating); and TR (total rating).

Total 10.9
R (Adjusted) = .199 (* < .05=.504)

TABLE 9

Analysis of Socio-Economic Data (Total Sample)

Means, Standard Deviations, and Correlation Matrix of Socioeconomic Data, Apparency Ratings, and Total

*Variable	X	SD	1	2	3	4	5	6	7	8	9	
IN(A)	2.21	1.56										
TS(B)	0.41	0.50	-.200									
GL(C)	11.43	2.35	-.012	-.015								
TE(D)	0.18	0.39	-.253	-.153	.268*							
PE(E)	0.27	0.45	-.312*	-.198	.150	.373**						
TM(F)	3.00	1.59	.488**	.148	-.194	-.301*	-.782**					
MS(G)	3.57	2.07	.444**	.220	-.052	-.332*	-.767**	.792**				
R_1(H)	6.93	2.56	.079	-.106	-.003	-.151	-.004	.023	.122			
SR	6.41	2.94	-.110	-.101	-.164	.015	.089	-.115	-.050	.468**		
TR	76.68	25.68	-.083	-.248	.045	-.043	.046	-.058	-.172	-.172	-.110	-.208

Note df=42 *=p <.05=.288 **=p <01=.372

Correlation Matrix of Predictors and Criterion

Predictor	Criterion	Predictor	Criterion
Multiple:		Multiple:	
H+A	.076 (*< .05=.288)	H+A+B	.229 (* < .05=.353)
H+B	.242	H+A+B+C	.174 (* <.05=.397)
H+C	.097	H+A+B+C+D	.190 (* <.05=.432)
H+D	.089	H+A+B+C+D+E	.107 (* <.05=.460)
H+E	.097	H+A+B+C+D+E+F	.108 (* <.05=.485)
H+F	.092	H+A+B+C+D+E+F+G	.133 (* <.05=.526)
H+G	.121		

TABLE 9

Criterion and Predictor	% of Variance	F-Value of Variable	
Total Rating			
TS	6.2	2.757	(df=1, 42 F_{05}=4.03)
R_1	1.9	0.830	(df=1, 41 F_{05}=4.03)
IN	1.6	0.724	(df=1, 40 F_{05}=4.08)
TE	2.2	0.988	(df=1, 39 F_{05}=4.08)
GL	0.7	0.306	(df=1, 38 F_{05}=4.08)
MS	0.5	0.206	(df=1, 37 F_{05}=4.08)
TM	1.5	0.638	(df=1, 36 F_{05}=4.08)
PE	0.2	0.083	(df=1, 35 F_{05}=4.08)
Total	14.8		
R (adjusted)	.133 (* $<$ .05=.526)		

*Abbreviations are: In (income); TS (Time Since Last Hospitalization); GL (Grade Level); TE (Temporary Employment); PE (Permant Employment); TM (Total Employment); MS (Maximum Salary).

TABLE 10

Analysis of WAIS Data (Total Sample)

Means, Standard Deviations, and Correlation Matrix of Psychometric Data, Apparency Ratings and Total Rating

*Variable	X	SD	1	2	3	4	5	6	7	8	9
1. FS	91.36	14.44									
2. VI	96.27	19.12	.900**								
3. PI	88.42	12.70	.804**	.553**							
4. PC	8.61	1.92	.645**	.460**	.738**						
5. BL	7.67	2.68	.760**	.571**	.742**	.545**					
6. PA	8.06	2.87	.483**	.242	.740**	.520**	.348*				
7. R_1	6.88	2.52	-.318	-.375*	-.102	-.191	-.145	-.055			
8. SR	5.85	3.11	-.056	.161	.155	-.042	.031	.200	.400		
9. TR	80.76	25.24	-.055	-.021	-.227	-.272	-.004	-.146	-.045	-.173	

Note: df=31 *=p < .05=.325 **=p < .01=.418)

Correlation Matrix of Predictors and Criterion

Predictor	Criterion	Predictor	Criterion
FS(A)	-.055 (* < .05=.325)	A+B+C	.236 (* < .05=.397)
VI(B)	-.021	A+B+C+D	.204 (* < .05=.445)
PI(C)	-.227	A+B+C+D+E	.228 (* < .05=.482)
PC(D)	-.272	A+B+C+D+E+F	.181 (* < .05=.512)
BL(E)	-.004	A+B+C+D+E+F+G	.132 (* < .05=.538)
PA(F)	-.146		
R_1(G)	-.045		
SR(I)	-.173		

TABLE 10

Criterion and Predictor	% of Variance	F-Value	of Variable
Total Rating			
PC	7.4	2.484	(df=1,31 F_{05}=4.08)
BL	3.0	1.002	(df=1,30 F_{05}=4.17)
PI	3.2	1.060	(df=1,29 F_{05}=4.17)
PA	2.2	0.743	(df=1,28 F_{05}=4.17)
FS	2.8	0.914	(df=1,27 F_{05}=4.17)
VI	1.6	0.516	(df=1,26 F_{05}=4.17)
R_1	0.0	0.004	(df=1,25 F_{05}=4.17)
Total	20.02		
R (Adjusted)	= .132		

*Abbreviations are: FS (Full Scale IQ); VI (Verbal IQ); PI (Picture IQ); PC (Picture Completion); BL (Block Design); PA(Picture Arrangement).

TABLE 11

Analysis of 16 PF Data (Total Sample)

Means, Standard Deviations, and Correlation Matrix of 16 PF Data, Apparency Ratings, and Total Rating

Variable	X	SD	1	2	3	4	5	6	7	8	9
1. C	4.69	2.32									
2. E	5.42	1.46	-.063								
3. H	5.19	1.83	.337*	.214							
4. O	5.58	2.05	-.377*	.155	-.412*						
5. Q_3	5.75	2.03	.317	-.233	.006	-.513**					
6. Q_4	5.17	1.92	-.226	.260	-.115	.541**	-.421*				
7. R_1	7.33	2.28	-.132	.163	-.050	.104	-.111	.026			
8. SR	6.11	3.11	-.083	.109	-.079	.133	-.181	.093	.596**		
9. TR	75.56	27.70	-.229	-.277	-.130	.251	.052	.122	-.159	-.243	

Note df=34 *=p < .05=.349 **=p < .01=.449)

Correlation Matrix of Predictors and Criterion

Predictor	Criterion	Predictor	Criterion
Multiple		Multiple	
R_1+C	.249 (* < .05=.349)	R_1+C+E	.329 (* < .05=.397)
R_1+E	.251	R_1+C+E+H	.283 (* < .05=.445)
R_1+H	.127	R_1+C+E+H+O	.348 (* < .05=.482
R_1+O	.266	R_1+C+E+H+O+Q_3	.380 (* < .05=.512)
R_1+Q_3	.048	R_1+C+E+H+O+Q_3+Q_4	.345 (* < .05=.538)
R_1+Q_4	.114		

TABLE 11

Criterion and Predictor	% of Variance	F-Value of Variable	
Total Rating			
E	7.7	2.823	(df=1,34 F_{05}=4.08)
O	8.9	3.501	(df=1,33 F_{05}=4.08)
Q_3	2.4	0.947	(df=1,32 F_{05}=4.08)
C	3.0	1.187	(df=1,31 F_{05}=4.08)
H	2.7	1.064	(df=1,30 F_{05}=4.17)
R_1	2.1	0.812	(df=1,29 F_{05}=4.17)
Q_4	0.4	0.141	(df=1,28 F_{05}=4.17)
Total	27.0		
R (Adjusted)	.345 (* $<$ .05=.538)		

TABLE 12

Analysis of OII Data (Total Sample)

*Variable	X	SD	1	2	3	4	5	6	7	8	9	10	11
A	44	33											
B	41	21	-.077										
C	15	24	-.083	-.085									
D	46	23	.617**	-.548**	.063								
E	41	31	.455*	-.189	.428*	.473*							
F	32	25	-.290	.348	.135	-.267	-.222						
G	47	29	.813**	-.107	.047	.767**	.621**	-.295					
H	33	28	.672**	-.293	.024	.816**	.445*	.029	.775**				
I	39	22	.415*	-.451*	-.126	.627**	.251	-.141	.504*	.677**			
J	8	2	.394	-.077	.277	.237	.324	.089	.284	.230	-.047		
SR	7	3	.126	-.124	.185	.079	.357	-.006	.157	.217	.110	.569**	
TR	71	25	-.058	.090	-.230	.085	-.266	.180	.056	.054	.216	-.166	-.224

Note df=21 *=p < .05=.413 **=p < .01=.526

Correlation Matrix of Predictors and Criterion

Predictor	Criterion	Predictor	Criterion
Multiple		Multiple	
J+A	.137 (* < .05=.413)	J+A+B	.251 (* < .05=.498)
J+B	.112	J+A+B+C	.274 (* < .05=.552)
J+C	.145	J+A+B+C+D	.177 (* < .05=.592)
J+D	.041	J+A+B+C+D+E	.173 (* < .05=.624)
J+E	.184	J+A+B+C+D+E+F	.265
J+F	.145	J+A+B+C+D+E+F+G	.327
J+G	.083	J+A+B+C+D+E+F+G+H	.369
J+H	.098	J+A+B+C+D+E+F+G+H+I	.350
J+I	.163		

TABLE 12

Variance Accounted for by Predictors

Criterion and Predictor	% of Variance	F-Value of Variable	
Total Rating			
E	7.1	1.598	(df=1, 21 F_{05}=4.26)
I	8.5	2.018	(df=1, 20 F_{05}=4.35)
B	3.3	0.767	
D	2.7	0.611	
A	3.2	0.734	
H	1.7	0.378	
F	2.3	0.493	
G	4.2	0.870	
C	0.4	0.082	
J	0.3	0.046	
Total	33.7		
R (Adjusted)	.350 (* < .05=.750)		

*Abbreviations are: A (Social-Personal); B (Natural); C (Mechanical); D (Business); E (Art); F (Science); G (Verbal); H (Manual); I (Computation); J (Rater_1).

TABLE 13

Analysis of Demographic Data (Physically Disabled Sample)

Means, Standard Deviations, and Correlation Matrix of Demographic Data, Apparency Rating and Total Rating

Variable	X	SD	1	2	3	4	5	6	7	8	9
1. LA	0.79	0.43									
2. IS	0.86	0.36	-.213								
3. Disab	1.00	0.00	.000	.000							
4. Onset	0.93	0.27	-.145	-.113	.000						
5. MS	0.86	0.36	-.213	.417	.000	.679**					
6. UE	0.50	0.52	-.174	.408	.000	-.277	-.000				
7. TRAN	0.21	0.43	.273	.213	.000	.145	.213	-.174			
8. R_1	6.00	2.83	.255	-.300	.000	-.305	-.449	.262	.639*		
9. SR	6.14	3.42	-.030	-.354	.000	-.241	-.354	-.174	-.340	.510	
10. TR	74.36	20.81	.079	.017	.000	.088	.068	-.139	.156	-.187	-.216

Note df=12 *=p $<$.05=.532 *=p $<$.01=.661

Correlation Matrix of Predictors and Criterion

Predictor	Criterion	Predictor	Criterion	
Single		Multiple		
LV(A)	.079 (* $<$ .05=.532)	A+B+C	.346	(* $<$ .05=.627)
IS(B)	.017	A+B+C+D	.479	(* $<$.05=.683)
Ds(C)	.000	A+B+C+D+E	.604	(* $<$.05=.722)
Ons(D)	.088	A+B+C+D+E+F	.728	(* $<$.05=.751)
MS(E)	.068	A+B+C+D+E+F+G	.864	(df=7,6 F_{05}=4.21 F_{obs}=.054).
UE(F)	-.139			
TR(G)	.156			
R_1(H)	-.187			
SR(I)	-.216			

TABLE 13

Criterion and Predictor		% of Variance	F-Value of Variable
Total Rating			
R_1		3.5	.434 (df=1,12 F_{05}=4.75)
LA		1.7	.199 (df=1,11 F_{05}=4.84)
UE		0.4	.040 (df=1,10 F_{05}=4.96)
ONSET		0.1	.007 (df=1, 9 F_{05}=5.12)
TRAN		0.1	.006 (df=1, 8 F_{05}=5.32)
MS		0.1	.004 (df=1, 7 F_{05}=5.59)
	Total	5.8	

TABLE 14

Analysis of Socioeconomic Data (Physically Disabled Sample)

Variable	X	SD	1	2	3	4	5	6	7	8	9
IN(A)	2.92	2.25									
TS(B)	0.23	0.44	.019								
GL(C)	11.31	2.84	-.035	.139							
TE(D)	0.08	0.28	-.256	-.158	.496						
PE(E)	0.15	0.38	-.280	-.234	.186	-.123					
TM(F)	3.23	1.48	.430	.296	-.018	.359	-.669*				
MS(G)	3.92	2.29	.386	.434	-.009	-.252	-.567*	.546			
R_1 (H)	6.31	2.69	.321	.076	.238	-.481	.279	-.145	.383		
SR	6.46	3.33	-.106	.035	-.245	-.492	.205	-.260	.234	.429	
TR	74.85	21.57	-.359	-.128	.126	.336	.487	-.476	-.657*	-.245	-.264

Note df=11 $*=p<.05=.533$ $**=p<.01=.684$

Correlation Matrix of Predictors and Criterion

Predictor	Criterion	Predictor	Criterion
Multiple		Multiple	
H+A	.264 (* < .05=.553)	H+A+B	.091 (* < .05=.648)
H+B	.111	H+A+B+C	.286 (* <.05=.703)
H+C	.117	H+A+B+C+D	.445 (* <.05=.741)
H+D	.206	H+A+B+C+D+E	.316 (* <.05=.770)
H+E	.582*	H+A+B+C+D+E+F	.870 (* <.05=.792)
H+F	.516	H+A+B+C+D+E+F+G	.842 (* <.05=.826)
H+G	.616*		

TABLE 14

Variance Accounted for By Predictors

Criterion and Predictor		% of Variance	F-Value of Variable	
Total Rating				
MS		43.1	8.333*	(df=1,11 F_{05}=4.84)
TE		3.1	0.579	(df=1,10 F_{05}=4.96)
TM		9.9	2.030	(df=1, 9 F_{05}=5.12)
TS		5.4	1.113	(df=1, 8 F_{05}=5.32)
GL		13.1	1.046	(df=1, 7 F_{05}=5.59)
IN		7.6	3.835	(df=1, 6 F_{05}=5.99)
R_1		0.7	2.975	(df=1, 5 F_{05}=6.61)
PE	Total	87.9	0.225	(df=1, 4 F_{05}=7.71)
	R (Adjusted)	.842 (df=8,4 F_{05}=6.04 F_{Obs}=3.620)		

TABLE 15

Analysis of WAIS Data, (Physically Disabled Sample)

Variable	X	SD	1	2	3	4	5	6	7	8	9
(B)1. FS	100	15									
(C)2. VI	105	16	.921**								
(D)3. PI	95	12	.812**	.554*							
(E)4. PC	9.	1	.571*	.397	.696**						
(F)5. BL	9	4	.609**	.631*	.363	.219					
(G)6. PA	8	2	.738**	.529	.820**	.797**	.435				
(A)7. R_1	6	2	-.032	-.079	.145	.168	.167	-.032			
8. SR	10	13	-.150	-.188	-.060	.294	-.082	.297	-.112		
9. TR	76	22	.534	.482	.413	.162	.470	.353	-.282	.151	

Note df=11 $*=p<.05=.553$ $**=p<.01=.684$

Correlation Matrix of Predictors and Criterion

Predictor	Criterion	Predictor	Criterion
Multiple		Multiple	
A+B	.545 (*< .05=.553)	A+B+C	.480 (* <.05=.671)
A+C	.478	A+B+C+D	.382 (* <.05=.703)
A+D	.475	A+B+C+D+E	.271 (* <.05=.741)
A+E	.213	A+B+C+D+E+F	.260 (* <.05=.770)
A+F	.544	A+B+C+D+E+F+G	.192 (* <.05=.792)
A+G	.354		

TABLE 15

Criterion and Predictor	% of Variance	F-Value of Variable	
Total Rating			
FS	28.5	4.387	(df=1,11 F_{05}=4.84)
R_1	7.0	1.093	(df=1,10 F_{05}=4.96)
BL	6.4	0.984	(df=1, 9 F_{05}=5.12)
PI	2.3	0.324	(df=1, 8 F_{05}=5.32)
PA	3.9	0.520	(df=1, 7 F_{05}=5.59)
VI	0.1	0.012	(df=1, 6 F_{05}=5.99)
PC	0.0	0.002	(df=1, 5 F_{05}=6.61)
Total	48.2		
R (Adjusted)	.192 (* $<$ .05=.792)		

TABLE 16

Analysis of 16 PF Data (Physically Disabled Sample)

Means, Standard Deviations, and Correlation Matrix of 16 PF Data, Apparency Ratings, and Total Rating

Variable	X	SD	1	2	3	4	5	6	7	8	9
1. C	5.9	2.47									
2. E	5.0	1.05	.299								
3. H	6.3	1.89	.769**	.391							
4. O	4.2	1.62	-.717*	-.130	-.676*						
5. Q_3	6.6	2.01	.573	.157	.474	-.689*					
6. Q_4	4.1	1.60	-.082	.066	.173	.034	-.506				
7. R_1	6.5	2.59	-.078	.041	.216	.000	.213	-.148			
8. SR	6.0	3.23	-.251	-.163	.018	.318	-.154	.065	.782**		
9. TR	74.70	24.68	-.289	.359	-.439	.430	-.059	-.555	-.213	-.316	

Note df=8 **=p<.01=.765 *=p <.05=.632

Correlation Matrix of Predictors and Criterion

Predictor	Criterion	Predictor	Criterion
Multiple		Multiple	
R_1+C	.177 (* < .05=.632)	R_1+C+E	.440 (* <.05=.726)
R_1+E	.279	R_1+C+E+H	.550 (* <.05=.777)
R_1+H	.329	R_1+C+E+H+O	.434 (* <.05=.811)
R_1+O	.366	R_1+C+E+H+O+Q_3	.464 (* <.05=.835)
R_1+Q_3	.272	R_1+C+E+H+O+Q_3+Q_4	.796 (* <.05=8.54)
R_1+Q_4	.567		

TABLE 16

Variance Accounted for by Predictors

Criterion and Predictor	% of Variance	F-Value of Variable	
Total Rating			
Q_4	30.8	3.556	(df=1,8 F_{05}=5.32)
O	20.2	2.884	(df=1,7 F_{05}=5.59)
E	21.2	4.568	(df=1,6 F_{05}=6.61)
R_1	10.6	3.057	(df=1,5 F_{05}=6.61)
C	4.7	1.517	(df=1,4 F_{05}=7.71)
Q_3	0.3	0.062	(df=1,3 F_{05}=10.13)
H	0.0	0.005	(df=1,2 F_{05}=18.51)
Total	87.8		
R (Adjusted)	.796	(* $<$ .05=.854)	

TABLE 17

Analysis of OII Data (Physically Disabled Sample)

Means, Standard Deviations, and Correlation Matrix of Occupational Interest Data, Apparency Rating, and Total Rating

Variable	X	SD	1	2	3	4	5	6	7	8	9	10	11
A	53	34											
B	43	22	.423										
C	21	31	.140	-.589									
D	47	21	.362	-.647	.656								
E	36	31	.195	.192	.406	-.070							
F	36	30	.462	.065	-.131	-.131	-.466						
G	46	28	.717*	.691	-.209	-.057	.510	-.041					
H	30	14	.710*	.088	-.010	.461	.009	.444	.518				
I	47	19	.020	-.414	-.090	.313	-.739*	.760*	-.495	.293			
J	6	3	.119	.178	.150	-.077	.351	-.269	.220	-.462	-.394		
SR	6	3	.336	-.391	.472	.751*	.252	-.105	.168	.291	.052	.472	
TR	75	26	.411	.065	-.160	.135	-.558	.917**	-.019	.327	.665	-.233	-.222

Note df=7 *=p < .05=.707 **=p <.01=.834

Correlation Matrix of Predictors and Criterion

Predictor	Criterion	Predictor	Criterion
J+A	.377 (* < .05=.707)	J+A+B	.090 (* < .05=.758)
J+B	.260	J+A+B+C	.177
J+C	.251	J+A+B+C+D	.434
J+D	.246	J+A+B+C+D+E	.749
J+E	.463	J+A+B+C+D+E+F	.700
J+F	.904** (** < .01=.834)	J+A+B+C+D+E+F+G	.998 (df=7,1 F_{05}=237.00 F_{0bs}=125.51)
J+G	.283	J+A+B+C+D+E+F+G+ H	.949
J+H	.106	J+A+B+C+D+ E+F+G+H+I	.834
J+I	.604		

TABLE 17

Criterion and Predictor	% of Variance	F-Value of Variable
Total Rating		
F	84.0	36.845** (df=1,7 F_{01}=5.59)
E	2.2	0.950
I	3.9	1,987 (df=1,5 F_{05}=6.61)
B	2.7	1.471 (df=1,4 F_{05}=7.71)
G	1.2	0.576
H	1.9	0.948
J	2.5	1.561 (df=1,1 F_{05}=161.000)
Total	98.4	
R (Adjusted)	.967 (df=7,1 F_{05}=237.00 F_{0bs}=8.770)	

CHAPTER IV

DISCUSSION

Statistical tests strongly indicated the reliability of the measurement tools utilized in this study. First, agreement between three judges rating the apparency of Ss' disability supported the contention that the apparency scale can be used as a reliable guide in assigning persons to various degrees of visibility of handicap. Furthermore, such assignment was statistically consistent with Ss' opinions as to how apparent their disability was to others, although this agreement was not as strong as the reliability among external raters. In all cases, the physically disabled Ss indicated that "the one problem that bothers you most" was symptomatic of the diagnosed ailment, whereas, the total sample Ss' responses were much more inconsistent with the diagnosed malfunction. It appears that the total sample Ss experienced difficulty in determining how apparent their disability was to others. Probably, this accounts for some of the variance between S ratings and external ratings. Second, the intercorrelation coefficient between the male and female targets served as a split-test reliability measure. The high and positive correlation coefficient indicated an acceptable level of reliability. As was true in the pilot study, male targets were rated as more unpleasant than were female targets.

Since all Ss were tested by the author, the question of E bias is worth mentioning. Two precautions were maintained to protect against E subtly conditioning S over the twenty-two trials to yield the expected results. S recorded his own rating without E's awareness of the judgment. The forced-choice task eliminated the need for E to interpret S's response. E did not rate the apparency of S's disability until after the testing. Two independent judges rated the apparency of each S's disability without any information as to the S's rating of facial expressions.

It was theorized that, since the human face is a critical stimulus in social interaction, representation of interpersonal contact through viewing the human face would be more threatening to Ss with a high apparency of disability than to Ss with a low apparency of disability. Specifically, it was hypothesized that Ss with a more visible physical disability would perceive the scowling face significantly more often than would Ss with a lesser visible physical disability when presented with a paired smiling/scowling facial expression in a binocular rivalry situation. The prediction was not confirmed, either for external ratings or S ratings of apparency of disability.

There are at least two plausible explanations for the nonsignificant results. First, it is possible that the hypothesis was not confirmed because the sample did not include enough extremity or variation in physical disability. Of the fifty Ss, only fourteen were definitely diagnosed as physically disabled and few of the fourteen Ss would be considered severely disabled. Support for this explanation comes from the analysis of the quadriplegic Ss in Table 7. For these Ss, the correlation coefficient between apparency ratings and the Total Ratings was statistically significant ($p < .01$) and in the expected direction. Ss with a more visible disability did perceive the facial expressions as significantly more unpleasant than did Ss with a lesser visible disability. At least in the case of a definite and obvious physical disability, the hypothesis was confirmed.

A second and related explanation takes into account the possible different effects of an emotional disability as compared to a physical disability. The apparency scale did not predict well for the whole sample, mostly composed of emotionally diagnosed Ss. Although a small subsample of physically disabled Ss behaved as predicted, the total sample did not demonstrate a pattern of behavior. From the study, the effect of an emotional disability cannot be determined, but the effect might be found in the population. Furthermore, when physical disability is confounded with emotional disability, unless the physical disability is definite and unmistakably obvious, the effect of the physical disability might not be appreciated. Many of the Ss were indecisive when asked to name the "one physical problem or handicap that bothers you most." Even though the Ss identified and rated their "physical disability," the saliency of the physical disability for these Ss is questionable.

It was also hypothesized that Ss' living conditions and personality measures would be significantly related to their performances on the binocular rivalry task. A significant relationship was not found between the living condition indices and the binocular rivalry task. Neither was a significant relationship found between the personality measures and the binocular rivalry task. These findings are possibly due, in part, to the Ss' "comparison levels." That is, the Ss' evaluations of their circumstances were relative to the Ss' previously experienced living conditions and the interpretations that the Ss' made of these conditions. Unfortunately, nothing is known about the Ss' comparison levels. However, the theory of Kelley, et al. (1960) listed three adjustments to the disability that might have prevented Ss from experiencing dissatisfaction. First, the pretrauma comparison levels might not have been high, consequently the posttrauma conditions were at or near the comparison level. Second, other factors might have operated to keep Ss from realizing the loss involved. Many temporary events could have delayed this realization by providing substitute gratifications that enabled Ss to remain at or near the comparison level. Finally, the comparison level itself might have dropped sharply if Ss' evaluations became dominated by immediate, momentary conditions, and Ss no longer took account of earlier, better experiences. Ss might not have expected the earlier conditions to continue due to their loss of power. If the comparison level dropped, the new conditions would be accepted.

The overall findings do not fit well the general proposal that individuals who are visibly handicapped perceive social interaction very differently than individuals whose disability is hidden (Kelley, Hastorf, Jones, Thibaut & Usdane, 1960). The sample used in the study was diagnosed as either physically disabled or emotionally disabled. Perhaps a more reasonable test of the proposal would be to use only Ss who have been diagnosed as physically disabled. In addition, Ss providing a greater range of apparency of physical disability should be tested.

CHAPTER V

SUMMARY

The relationship between visibility of handicap and reaction to social contact was examined by associating apparency of disability ratings and Ss' performances on a binocular rivalry task. Ss were fifty outpatients at T.I.R.R., thirty-six emotionally disabled and fourteen physically disabled.

The stimuli used in the binocular rivalry situation were photographs depicting a smiling and a scowling face, presented one to each eye and illustrative of simulated eye-contact with Ss. The assumption was that Ss would achieve binocular resolution by perceiving according to expectations of social reactions toward self. It was predicted that visibly disabled Ss would perceive the unpleasant expressions significantly more often than nonvisibly disabled Ss.

Visibly disabled Ss did not perceive the unpleasant expressions significantly more often than did nonvisibly disabled Ss. Neither was the predicted relationship found when a dichotomizing scheme was adopted. However, a small group of quadriplegic Ss suggested confirmation of the hypothesis. It was also predicted that Ss' ratings of their disabilities would be more accurate predictors of social contact responses than would external ratings. The prediction was not confirmed. External raters and

S raters correlated strongly and positively with each other, but neither correlated significantly with the facial expression ratings.

The nonsignificant findings were discussed in terms of the severity of disability of the sample. The quadriplegic subsample suggested that the hypothesis might have been confirmed had the sample been obviously and definitely disabled. Also, the different effects of an emotional disability as compared to a physical disability might have been related to the absence of a behavior pattern.

A secondary hypothesis was that living conditions and personality profiles would be significantly related to the binocular rivalry task. The T.I.R.R. records contained information about each S, including the S's performances on the 16 PF, the WAIS, and the OII. Again, the hypothesis was not confirmed. Two explanations were proposed. First, sudden change might not have occurred in living conditions between the pretrauma and posttrauma periods. Second, if a significant change occurred, Ss' comparison levels might not have been altered enough to cause Ss to experience dissatisfaction.

In view of the nonsignificant findings, it was suggested that further studies test Ss only diagnosed as physically disabled and that the studies test Ss with a great range of apparency of disability.

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APPENDIX A

GRAPHIC SCALE OF PLEASANTNESS OF FACES

Graphic Scale of Pleasantness of Faces

SUBJECT NO.______

SEX__________

DOMINANT EYE_____

	Most Pleasant ... Most Unpleasant		Most Pleasant ... Most Unpleasant
1)	1 2 3 4 5 6 7 8 9	12)	1 2 3 4 5 6 7 8 9
2)	1 2 3 4 5 6 7 8 9	13)	1 2 3 4 5 6 7 8 9
3)	1 2 3 4 5 6 7 8 9	14)	1 2 3 4 5 6 7 8 9
4)	1 2 3 4 5 6 7 8 9	15)	1 2 3 4 5 6 7 8 9
5)	1 2 3 4 5 6 7 8 9	16)	1 2 3 4 5 6 7 8 9
6)	1 2 3 4 5 6 7 8 9	17)	1 2 3 4 5 6 7 8 9
7)	1 2 3 4 5 6 7 8 9	18)	1 2 3 4 5 6 7 8 9
8)	1 2 3 4 5 6 7 8 9	19)	1 2 3 4 5 6 7 8 9
9)	1 2 3 4 5 6 7 8 9	20)	1 2 3 4 5 6 7 8 9
10)	1 2 3 4 5 6 7 8 9	21)	1 2 3 4 5 6 7 8 9
11)	1 2 3 4 5 6 7 8 9	22)	1 2 3 4 5 6 7 8 9

S Scale of Apparency of Disability

Most Aware ... Most Unaware

1 2 3 4 5 6 7 8 9

APPENDIX B

S Scale of Apparency of Disability

Graphic Scale of Pleasantness of Faces

SUBJECT NO.______

SEX__________

DOMINANT EYE_____

	Most Pleasant — Most Unpleasant		Most Pleasant — Most Unpleasant
1)	1 2 3 4 5 6 7 8 9	12)	1 2 3 4 5 6 7 8 9
2)	1 2 3 4 5 6 7 8 9	13)	1 2 3 4 5 6 7 8 9
3)	1 2 3 4 5 6 7 8 9	14)	1 2 3 4 5 6 7 8 9
4)	1 2 3 4 5 6 7 8 9	15)	1 2 3 4 5 6 7 8 9
5)	1 2 3 4 5 6 7 8 9	16)	1 2 3 4 5 6 7 8 9
6)	1 2 3 4 5 6 7 8 9	17)	1 2 3 4 5 6 7 8 9
7)	1 2 3 4 5 6 7 8 9	18)	1 2 3 4 5 6 7 8 9
8)	1 2 3 4 5 6 7 8 9	19)	1 2 3 4 5 6 7 8 9
9)	1 2 3 4 5 6 7 8 9	20)	1 2 3 4 5 6 7 8 9
10)	1 2 3 4 5 6 7 8 9	21)	1 2 3 4 5 6 7 8 9
11)	1 2 3 4 5 6 7 8 9	22)	1 2 3 4 5 6 7 8 9

S Scale of Apparency of Disability

Most Aware — Most Unaware

1 2 3 4 5 6 7 8 9

APPENDIX C

<u>E</u> SCALE OF APPARENCY OF DISABILITY

E Scale of Apparency of Disability

Rater____________

	Not apparent								Very apparent
1)	1	2	3	4	5	6	7	8	9
2)	1	2	3	4	5	6	7	8	9
3)	1	2	3	4	5	6	7	8	9
4)	1	2	3	4	5	6	7	8	9
5)	1	2	3	4	5	6	7	8	9
6)	1	2	3	4	5	6	7	8	9
7)	1	2	3	4	5	6	7	8	9
8)	1	2	3	4	5	6	7	8	9
9)	1	2	3	4	5	6	7	8	9
10)	1	2	3	4	5	6	7	8	9
11)	1	2	3	4	5	6	7	8	9
12)	1	2	3	4	5	6	7	8	9
13)	1	2	3	4	5	6	7	8	9
14)	1	2	3	4	5	6	7	8	9
15)	1	2	3	4	5	6	7	8	9
16)	1	2	3	4	5	6	7	8	9

	Not apparent								Very apparent
17)	1	2	3	4	5	6	7	8	9
18)	1	2	3	4	5	6	7	8	9
19)	1	2	3	4	5	6	7	8	9
20)	1	2	3	4	5	6	7	8	9
21)	1	2	3	4	5	6	7	8	9
22)	1	2	3	4	5	6	7	8	9
23)	1	2	3	4	5	6	7	8	9
24)	1	2	3	4	5	6	7	8	9
25)	1	2	3	4	5	6	7	8	9
26)	1	2	3	4	5	6	7	8	9
27)	1	2	3	4	5	6	7	8	9
28)	1	2	3	4	5	6	7	8	9
29)	1	2	3	4	5	6	7	8	9
30)	1	2	3	4	5	6	7	8	9
31)	1	2	3	4	5	6	7	8	9
32)	1	2	3	4	5	6	7	8	9

Not apparent = nonapparent
Very apparent = most apparent

APPENDIX D

RELIABILITY OF FACIAL EXPRESSIONS

T-Tests of Right Eye Presentation

Psychology Class

Trials 2-13	3-14	4-15	5-16	6-17
4 9	5 6	9 6	5 7	7 3
6 2	4 4	1 3	4 4	4 9
8 3	4 3	2 9	5 3	7 4
6 3	5 3	3 6	5 4	3 8
5 1	7 4	1 6	6 4	4 7
5 1	4 3	1 6	5 4	5 8
5 4	4 4	3 6	5 5	4 9
7 3	5 3	2 6	5 4	4 7
8 1	5 2	9 8	6 4	3 9
7 2	6 3	9 8	5 4	3 6
7 1	4 3	2 5	6 3	5 8
8 1	8 1	1 9	5 3	3 6
6 3	4 3	2 2	6 6	7 8
5 1	5 4	3 6	6 4	4 8
6 1	5 2	3 7	4 4	6 9
7 2	2 2	1 7	5 2	3 9
7 1	4 2	2 5	8 4	3 6
8 1	5 3	1 8	5 3	2 8
7 3	4 1	2 8	6 4	3 8
6 2	5 3	3 7	5 4	4 8
2 1	5 3	9 6	6 3	3 8
7 3	2 2	1 6	5 3	2 9
6 3	8 5	7 7	5 4	3 7
6 3	6 3	2 7	5 4	3 8
6 2	4 3	2 6	5 4	2 9
7 1	5 3	2 6	5 3	3 8
6 2	3 3	2 8	7 4	4 8
6 2	4 6	2 6	6 3	5 6
6 2	5 2	2 6	5 4	4 9
5 7	5 3	3 7	7 5	4 6
7 3	6 7	6 4	4 7	4 9
4 1	4 3	2 7	7 4	4 7
Computed t=9.02885**	t=5.24981**	t=6.961.50**	t=5.57832**	t=8.60201**

Trials 7-18	8-19	9-20	10-21	11-22
4 7	3 4	2 7	6 5	8 5
3 3	1 8	6 5	3 9	2 5
6 2	7 7	8 2	7 6	2 9
6 3	8 7	7 3	7 6	2 6
4 1	1 4	9 3	3 5	5 9
5 4	3 6	6 3	4 5	4 4
7 4	1 6	8 4	3 5	2 6
4 4	2 5	7 4	2 5	3 6
8 2	1 6	9 2	3 5	1 8
3 3	2 5	7 2	3 5	1 7
3 2	2 7	7 2	3 5	2 6
8 2	1 2	8 1	2 4	1 9
4 1	1 6	7 4	2 5	2 8
5 3	2 7	6 6	3 5	2 6
4 3	1 6	7 3	2 5	1 8
2 2	1 6	7 2	2 5	1 7
4 3	2 6	5 3	2 4	1 5
4 2	1 5	7 2	3 5	1 6
7 3	1 5	7 2	2 5	1 7
6 3	2 8	6 3	3 6	2 7
4 3	1 8	8 3	3 6	1 6
4 2	1 9	4 1	1 5	1 6
6 4	2 4	8 3	3 4	8 8
6 4	1 6	7 4	3 6	3 6
4 3	1 7	8 3	1 5	2 6
6 3	1 8	6 3	3 5	2 5
5 3	3 7	8 3	4 5	2 8
4 2	1 3	7 4	2 3	2 7
5 2	2 8	8 2	4 5	1 6
5 2	1 6	7 3	3 5	7 7
6 7	1 4	3 7	3 5	8 5
5 2	2 6	7 2	3 4	2 7

Computed t=6.05224** t=11.16118** t=7.74252** t=7.93719** t=8.49385**

APPENDIX E

STANDARD FOR EXTERNAL RATINGS

Rating of Indicators of Physical Handicap

1. Glasses: 1.0
2. Hearing Aid: 2.0
3. Obesity-Underweight: 2.0
4. Limp: 3.0
5. Mild Jerk: 3.0
6. Short Leg Brace: 4.0
7. Crutches: 4.0
8. Walkers: 4.0
9. Reciprocals, Armslings: 5.0
10. Long Leg Brace: 6.0
11. Wheelchair: 6.0
12. Arm-Hand Paralysis: 7.0
13. Above/Knee Amputation: 8.0
14. Missing Arm: 8.0
15. Hip Disarticulation: 8.0
16. Shoulder Disarticulation: 8.0
17. Spinal Disarticulation: 8.0
18. Facial Disfiguration: 9.0
19. Severe Paralysis: 9.0

Most Unaware

E Scale of Apparency of Physical Disability

Most Aware

1 2 3 4 5 6 7 8 9

APPENDIX F

RAW DATA FOR EACH S ON ALL MEASURES

Apparency Ratings and Facial Expression Ratings

S#	R_1	R_2	R_3	SR	Male Target	Female Target	Total Rating
* 1	2	6	6	9	55	36	91
* 2	9	8	8	9	41	33	74
3	3	4	4	5	51	32	83
4	3	4	4	4	51	35	86
5	4	4	4	9	51	37	88
6	9	7	6	3	56	47	103
* 7	9	9	9	7	64	60	124
8	9	9	9	3	56	50	106
* 9	9	9	9	8	35	19	54
*10	6	6	6	2	43	43	86
*11	9	8	9	9	39	29	68
12	6	6	4	1	63	62	125
13	4	4	3	5	44	42	86
*14	4	4	4	9	39	35	74
15	4	4	3	1	36	21	57
16	3	4	4	5	43	40	83
17	9	9	7	9	60	59	119
*18	7	7	7	8	28	15	43
19	4	4	4	5	54	39	93
20	4	4	4	1	55	48	103
21	9	8	7	9	30	29	59
22	9	9	9	9	58	26	84
23	9	8	9	9	44	34	78
24	9	9	7	3	28	37	65
25	9	8	8	9	10	10	20
26	8	8	8	5	41	40	81
*27	8	8	8	9	23	27	50
*28	7	9	9	2	44	24	68
29	9	9	8	9	38	22	60
30	9	9	9	1	36	33	69
31	9	9	8	9	43	31	74
32	9	9	9	9	50	30	80
33	6	6	5	8	46	43	89
34	4	4	3	3	36	42	78
35	9	8	8	9	38	46	84
36	4	4	3	7	46	35	81
37	7	9	8	6	64	52	116
38	9	7	5	9	12	11	23
39	9	9	8	8	23	20	43
40	9	9	9	4	27	24	51
41	9	9	9	9	38	36	74
42	3	3	3	4	41	33	74
*43	7	7	7	9	42	31	73
*44	3	3	3	2	37	32	60
45	9	8	7	9	38	27	65
46	9	8	8	9	27	22	49
47	9	9	9	9	65	59	124
48	9	9	9	6	63	64	127
*49	2	2	6	2	37	31	68
*50	2	4	2	1	53	46	99

* Physically disabled S.

Demographic Data with Codes in Parenthesis

S#	LA	IN	Disab	Onset	MS	UP	TRAN
1	3(0)	10(1)	PP(1)	8(0)	2(1)	1(0)	2(0)
2	2(1)	2(0)	IS(1)	1(0)	1(0)	1(0)	1(0)
3	6(1)	6(1)	TQ(0)	4(0)	3(1)	3(1)	3(1)
4	2(1)	13(1)	TQ(0)	4(0)	4(1)	3(1)	3(1)
5	6(1)	2(0)	TQ(0)	4(0)	3(1)	3(1)	3(1)
6	2(1)	1(1)	MR(0)	1(0)	1(0)	1(0)	3(1)
7	2(1)	1(1)	PP(1)	5(0)	2(1)	2(1)	1(0)
8	3(0)	10(1)	EP(0)	6(0)	1(0)	1(0)	2(0)
9	3(0)	8(1)	OP(1)	6(0)	2(1)	3(1)	1(0)
10	2(1)	8(1)	PP(1)	5(0)	2(1)	1(0)	1(0)
11	2(1)	3(1)	OP(1)	2(1)	1(0)	2(1)	2(0)
12	2(1)	6(1)	TQ(0)	2(1)	2(1)	2(1)	3(1)
13	3(0)	7(1)	TP(0)	2(1)	3(1)	1(0)	3(1)
14	6(1)	1(1)	MS(1)	5(0)	3(1)	1(0)	3(1)
15	4(1)	6(1)	TP(0)	2(1)	3(1)	1(0)	3(1)
16	2(1)	8(1)	TP(0)	2(1)	3(1)	1(0)	3(1)
17	2(1)	2(0)	PY(0)	5(1)	1(0)	1(0)	2(0)
18	5(1)	3(1)	AP(1)	4(0)	2(1)	1(0)	1(0)
19	6(1)	6(1)	CP(0)	1(0)	3(1)	3(1)	3(1)
20	2(1)	6(1)	TP(0)	2(1)	3(1)	1(0)	3(1)
21	2(1)	1(1)	EP(0)	2(1)	1(0)	1(0)	2(0)
22	7(1)	1(1)	PY(0)	2(1)	1(0)	1(0)	3(1)
23	7(1)	11(1)	PY(0)	5(0)	1(0)	1(0)	2(0)
24	3(0)	2(0)	CV(0)	3(1)	1(0)	1(0)	1(0)
25	4(1)	2(0)	MO(0)	2(1)	1(0)	1(0)	5(1)
26	1(0)	1(1)	OR(0)	9(0)	1(0)	1(0)	2(0)
27	5(1)	1(1)	PP(1)	6(0)	2(1)	3(1)	2(0)
28	3(0)	3(1)	OP(1)	5(0)	2(1)	1(0)	1(0)
29	2(1)	1(0)	LR(0)	1(0)	1(0)	1(0)	3(1)
30	7(1)	1(1)	PY(0)	3(1)	1(0)	1(0)	3(1)
31	3(0)	3(1)	OR(0)	3(1)	1(0)	1(0)	3(1)
32	2(1)	1(1)	CV(0)	5(0)	1(0)	1(0)	2(0)
33	1(0)	3(1)	ND(0)	4(0)	2(1)	1(0)	2(0)
34	3(0)	13(1)	TQ(0)	3(1)	3(1)	3(1)	3(1)
35	2(1)	11(1)	PY(0)	4(0)	1(0)	1(0)	3(1)
36	1(0)	2(0)	PY(0)	5(0)	1(0)	1(0)	2(0)
37	7(1)	11(1)	PY(0)	9(0)	1(0)	1(0)	3(1)
38	2(1)	1(1)	PY(0)	2(1)	1(0)	1(0)	3(1)
39	3(0)	3(1)	OR(0)	3(1)	1(0)	1(0)	1(0)
40	2(1)	1(1)	ND(0)	5(0)	2(1)	3(1)	3(1)
41	1(0)	8(1)	PY(0)	4(0)	1(0)	1(0)	1(0)
42	2(1)	1(1)	OR(0)	1(0)	2(1)	1(0)	3(1)
43	5(1)	2(0)	OP(1)	1(0)	2(1)	1(0)	1(0)
44	8(0)	1(1)	PP(1)	5(0)	2(1)	2(1)	2(0)
45	2(1)	1(1)	MR(0)	5(0)	1(0)	1(0)	3(1)
46	2(1)	8(1)	LR(0)	1(0)	1(0)	1(0)	1(0)
47	2(1)	1(1)	MR(0)	1(0)	1(0)	1(0)	2(0)
48	3(0)	2(0)	OR(0)	3(1)	1(0)	2(1)	2(0)
49	2(1)	13(1)	MD(1)	1(0)	2(1)	3(1)	5(1)
50	2(1)	1(1)	CD(1)	1(0)	3(1)	1(0)	3(1)

Abbreviations are: LA (Living Arrangement; IN (Income); Disab (Disability); Onset (Onset); MS (Mobility Status); UP (Upper Extremity); TRAN (Transportation Mode).

Psychometric Data

S#	FSIQ	VIQ	PIQ	PCOM	BLOC	PARR
1	89	86	93	8	9	8
2	117	120	111	11	12	11
3						
4						
5						
6	61	70	55	5	3	2
7	114	114	111	10	12	10
8	80	91	68	7	7	2
9	102	103	100	11	9	9
10						
11	90	101	77	8	7	7
12	106	116	93	11	9	9
13						
14	95	109	78	9	5	6
15	108	110	104	13	12	10
16						
17	72	79	65	3	6	
18	98	96	100	9	6	10
19	97	99	95	11	9	11
20	74	77	74	7	5	6
21	94	92	98	10	11	8
22	83	72	99			
23	102	99	106	10	10	12
24	110	110	108			
25	79	80	80			
26	80	79	84	9	2	11
27	73	85	79	8	5	5
28	85	86	86	7	6	4
29	73	67	83	8	7	7
30	79	77	85	8	7	7
31	89	91	87	8	9	6
32	87	81	98	11	9	11
33	100	115	80	6	6	6
34	116	156	102	11	9	7
35	81	89	73			
36	83	87	80	7	9	5
37	91	95	88	8	7	12
38						
39	98	99	97	6	7	14
40	86	95	76	8	6	6
41	105	104	105			
42	89	94	85	9	5	11
43	75	79	73			
44	94	95	92	10	7	9
45	59	59	63			
46						
47	75	74	79	7	6	8
48	76	78	76	5	6	6
49						
50	123	140	98	8	14	9

Abbreviations are: FSIQ (Full Scale IQ); VIQ (Verbal IQ); PIQ (Picture IQ): PCOM (Picture Completion); BLOC (Block); PARR (Picture Arrangement).

16 PF Data

S#	C	E	H	O	Q_3	Q_4
1						
2	3	5	4	5	4	5
3						
4						
5						
6	7	3	6	3	8	3
7	4	6	5	6	8	1
8						
9	7	6	10	2	8	5
10						
11						
12	3	4	3	5	7	3
13						
14						
15	3	8	6	8	5	7
16						
17						
18	4	4	6	6	4	6
19	2	4	4	6	5	5
20	3	3	7	5	5	4
21	6	6	5	6	5	7
22	1	6	5	8	4	4
23						
24	3	5	3	6	9	5
25	6	5	2	5	6	4
26	3	6	4	7	9	6
27	7	3	6	3	9	2
28	9	5	8	2	9	4
29	4	5	3	4	5	3
30	7	5	5	9	1	7
31	4	9	5	9	3	9
32	7	5	5	6	8	4
33	5	2	4	7	5	8
34	4	6	6	4	6	6
35	3	6	6	5	4	6
36	3	5	5	5	7	6
37	4	6	4	9	6	7
38	5	6	5	7	5	3
39	8	8	9	3	5	4
40	1	8	7	3	4	5
41	1	5	5	8	3	5
42	9	6	3	7	6	5
43	9	6	8	5	6	5
44	7	6	6	3	8	5
45						
46	4	6	2	4	6	6
47	3	6	6	9	2	9
48	3	5	3	7	7	9
49						
50	7	5	6	4	5	3

Socio-economic Data with Codes in Parenthesis

S#	IN	TSH	GL	TE	PE	TM	MS
1	3	4(0)	5	1(0)	1(0)	3	2
2	3	5(0)	12	1(0)	1(0)	2	3
3	2	5(0)	12	2(1)	2(1)	1	1
4	3	7(0)	15	1(0)	2(1)	1	1
5	2	5(0)	12	2(1)	2(1)	1	1
6	1	5(0)	12	1(0)	2(1)	1	1
7	1	4(0)	11	1(0)	2(1)	1	1
8	2	5(0)	12	1(0)	1(0)	3	4
9	8	4(0)	12	1(0)	1(0)	5	6
10	5	5(0)	13	1(0)	1(0)	2	5
11	2	3(1)	12	1(0)	1(0)	4	8
12	2	3(1)	12	1(0)	1(0)	3	4
13	2	2(1)	8	1(0)	1(0)	5	5
14	1	3(1)	12	1(0)	1(0)	3	5
15	2	3(1)	13	1(0)	1(0)	3	7
16	1	2(1)	13	1(0)	2(1)	1	1
17	2	6(0)	12	1(0)	1(0)	3	3
18	4	4(0)	8	1(0)	1(0)	5	7
19	2	3(1)	15	2(1)	1(0)	3	5
20	2	2(1)	7	1(0)	1(0)	5	5
21	1	3(1)	13	1(0)	1(0)	2	2
22	1	6(0)	8	1(0)	2(1)	1	1
23	2	3(1)	13	1(0)	1(0)	5	5
24	5	4(0)	14	1(0)	1(0)	5	7
25	2	3(1)	8	1(0)	1(0)	4	3
26	1	3(1)	8	1(0)	1(0)	4	4
27	1	7(0)	12	1(0)	1(0)	3	5
28	6	3(1)	12	1(0)	1(0)	5	4
29	1	7(0)	12	1(0)	1(0)	2	5
30	1	3(1)	11	1(0)	1(0)	6	4
31	5	5(0)	7	1(0)	1(0)	5	6
32	1	3(1)	12	1(0)	2(1)	1	1
33	3	6(0)	12	1(0)	1(0)	5	5
34	9	2(1)	18	1(0)	1(0)	5	8
35	2	3(1)	7	2(1)	1(0)	2	9
36	4	4(0)	14	1(0)	1(0)	6	9
37	2	3(1)	10	1(0)	1(0)	2	9
38	1	3(1)	11	2(1)	2(1)	1	1
39	3	3(1)	13	1(0)	1(0)	5	6
40	1	7(0)	12	2(1)	2(1)	1	1
41	2	5(0)	10	1(0)	1(0)	5	4
42	1	3(1)	12	1(0)	1(0)	3	4
43	2	7(0)	14	1(0)	1(0)	1	1
44	1	6(0)	8	1(0)	1(0)	3	2
45	1	6(0)	12	2(1)	2(1)	1	1
46	1	3(1)	11	1(0)	1(0)	2	4
47	1	7(0)	12	2(1)	1(0)	3	5
48	3	4(0)	16	1(0)	1(0)	5	3
49	9	7(0)	16	2(1)	2(1)	1	1
50	1	7(0)	16	2(1)	1(0)	5	2

Abbreviations are: IN (Income); TSH (Time since last hospitalization); GL (Grade Level): TE (Temporary-Employment); PE (Permanent-Employment); TM (Total Permanent-Employment); MS (Maximum Salary).

Underlined number (9) indicates information not available.

OII Data

S#	Soc	Nat	Mec	Bus	Art	Sci	Ver	Man	Com	Lev*
1										
2	70	5	60	90	5	60	20	50	80	90
3										
4										
5										
6	90	80	1	30	10	40	60	10	40	
7	80	50	5	50	10	90	50	30	70	99
8										
9	60	30	90	60	95	10	50	20	20	
10										
11										
12	50	50	30	30	50	50	80	70	50	20
13										
14										
15	80	1	20	99	70	50	95	70	98	70
16										
17										
18	30	40	2	40	60	2	60	30	40	
19	90	20	30	20	80	20	60	60	70	40
20	10	40	2	50	10	20	40	5	30	
21	30	70	20	30	50	80	50	60	30	90
22	95	20	2	90	80	20	90	80	60	
23	80	20	10	80	70	60	70	80	98	
24	30	70	80	20	1	50	5	10	10	40
25	40	70	20	30	50	80	50	40	20	
26	30	40	70	80	50	20	30	60	80	20
27	90	70	10	50	50	20	80	40	30	
28	20	50	10	30	5	10	20	5	40	
29	5	50	90	30	80	60	30	20	30	
30	95	30	10	90	80	30	98	80	40	
31	90	1	30	99	30	10	95	99	95	
32	10	40	1	50	50	10	40	10	40	
33	1	50	60	20	90	50	30	60	30	90

OII Data

S#	Soc	Nat	Mec	Bus	Art	Sci	Ver	Man	Com	Lev*
34	90	80	5	20	5	90	60	20	70	20
35	70	40	5	50	95	10	95	40	50	
36										
37	30	95	10	30	10	80	40	50	20	
38	40	30	70	40	20	80	40	35	50	60
39	30	40	2	30	20	30	30	20	20	
40	30	20	20	30	10	50	10	2	5	
41	5	10	50	60	80	60	40	90	99	40
42	20	30	5	50	20	20	40	30	40	
43	60	40	2	20	40	10	40	20	40	
44	10	40	10	20	30	50	5	20	60	
45	5	30	10	40	2	50	5	10	30	
46	60	40	1	30	30	2	20	20	20	
47	2	30	10	30	10	70	20	20	30	
48	20	20	50	90	50	50	40	80	80	50
49										
50	99	80	1	30	50	60	90	50	40	95

* Two forms of the OII were administered (literate-nonliterate). For the total group only the literate form was analyzed. Due to the size of the physical group, both forms were combined and analyzed.

Disabilities Identified by Ss

S#	Disability
1	Obesity
2	Weak muscles
3	Cerebral Palsy
4	No physical problem
5	No physical problem
6	No physical problem
7	Plastic mouthpiece
8	No physical problem
9	Teeth
10	"My looks"
11	Weak back, leg, foot
12	Heart
13	Flat feet
14	Slow to learn
15	Inability to walk
16	Heart
17	Right arm
18	Imbalance in body
19	Partial paralysis of lower extremities
20	Quadriplegia
21	Visual concentration
22	Eyesight
23	Arthritis
24	No physical problem
25	Back
26	No physical problem
27	Paralysis
28	Weak back, bladder, right leg
29	Hip disarticulation
30	Tremors, crippled foot
31	Severe pain in upper spine
32	Poor use of hands
33	Back curvature
34	No physical problem
35	Paralyzed arm
36	Quadriplegia
37	Urinary problem
38	Loss of use of arm and hand
39	Broken neck
40	Stiffening of fingers
41	No physical problem
42	Paraplegia
43	Loss of leg
44	Brain injury
45	No physical problem
46	No physical problem
47	Leg brace
48	Inability to walk
49	Muscle pull
50	Muscular dystrophy