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Accuracy and Stability of Self-Image of Mentally Retarded Adults

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The accuracy and stability of self-image of 21 mentally retarded adults and 24 nonretarded adults were studied. The subjects were confronted with a distorting mirror that made their faces look either fatter or slimmer. Results showed that retarded adults saw themselves as more distorted than did nonretarded adults. Significant sex differences in the retarded population were found. Both the precision and the stability of retarded adults' self-image were significantly correlated with IQ. Results were interpreted within a cognitive framework.

Most authors who have studied the problem of adults' self-image have emphasized the diversity and relative vagueness of existing concepts for defining self-image, e.g., *self-image, body-image, self-concept, self-perception, bodily-self.* From the literature, it is, however, possible to distinguish at least three perspectives in the study of self-knowledge. (A review of this area may be found in Fisher and Cleveland, 1956.) The first perspective involves studies of retarded individuals' capacities for self-evaluation. It is possible to distinguish two major concerns within this body of research. First, there is interest in the investigation of the accuracy of retarded individuals' self-evaluation in comparison with the self-evaluations of nonretarded persons. Ringness (1961), for example, has shown that retarded children's evaluations of their performance are less accurate than are nonretarded children's, with a tendency toward over-evaluation. Curtis (1964) concluded that retarded adolescents show a more negative image of themselves, yet Perron and Pêcheux (1964) found an apparent lack of awareness by retarded subjects of their inferiority, although they estimated their intelligence at a lower level than did nonretarded subjects. Second, investigators have studied factors that correlate with self-acceptance. Snyder (1966) found positive correlation between school achievement, social adaptation, self-esteem, and relative absence of anxiety. Guthrie and his colleagues revealed a positive link between self-acceptance and, among other factors, level of intelligence, level of self-actualization, and early separation from mother (Guthrie, Butler, & Gorlow, 1961; Guthrie, Gorlow, & Butter, 1967). Calhoun and Elliott (1977) showed that retarded subjects arrived at better self-estimation and better school results if they remained within the regular school curriculum. Nash and McQuisten (1977) found no differences between the self-concepts of trainable mentally retarded (TMR) pupils in a semi-integrated setting and those in a segregated school. The main problem with these studies lies in the investigators' general recourse to verbal methods, such as clinical interviews, verbal tests, and questionnaires. In fact, one may ask whether the subjects' capacity for mastering language, which is known to be influenced by sociocultural level, constitutes an important intervening variable.

In studies of individuals' capacities for

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self-recognition, authors have asked about the behavior manifested by individuals in front of their own mirror-image, thus making use of a technique used relatively frequently with nonretarded children (Amsterdam, 1972; Dixon, 1957; Lewis & Brooks, 1979; Zazzo, 1974, 1981). Shentoub, Soulairac, and Rustin (1954) demonstrated that the evolutionary stages apparent for nonretarded children in this mirror situation also exist for retarded children, who, they maintained, never attain explicit recognition of themselves. Tzavaras and Tsanira (Note 1), on the other hand, claimed that mildly or moderately retarded children do show explicit self-recognition as well as emotional disturbance when faced with their image. Mans, Cicchetti, and Sroufe (1978) found that children suffering from Down syndrome begin to show self-recognition behavior at around 34 months (22 months for nonretarded children). The group difference, however, disappeared when children were matched according to mental age (MA). Harris (1977), in reply to Pechacek, Bell, Cleland, Baum, and Boyle (1973), showed that self-recognition behavior of severely retarded men was inferior to that of adolescent chimpanzees (Gallup, 1970). All these studies were restricted to the presence or absence of self-recognition by retarded and nonretarded populations. It might be more appropriate to attempt to qualify the forms of self-recognition characteristic of retarded populations alone. This is the approach that we have followed.

The third perspective, studies of the capacities for perceptive evaluation of the body, is comprised of studies in which attempts have been made to measure quantitatively the accuracy of self-image by using various kinds of experimental apparatus. Dillon (1962) was interested in subjects' evaluations of their height, width, and girth. He observed no differences between psychotic and nonpsychotic subjects on these measures; all subjects overestimated their dimensions. Traub and Orbach (1954) constructed a distorting mirror that allowed concave and convex distortions in height or width or a combination of both dimensions. The apparatus was validated with a population of nonretarded adults, who chose images of themselves that were more or less distorted according to the part of the body transformed (Orbach, Traub, & Olson, 1966). Compared to this population, psychotic subjects often chose very distorted images of themselves and showed a greater margin of acceptability (Traub, Olson, Orbach, & Cardone, 1967).

The principal questions guiding the present study were: How do individuals come to know or recognize themselves? Is this recognition cast into doubt if their body appears to be distorted? How accurate are individuals' assessments of their self-image? Are they affected by external environmental conditions and/or internal conditions, such as emotion and development? Our perspective in this study of a retarded population was similar to that of our research with nonretarded children (Mounoud & Vinter, 1981; Mounoud & Guyon-Vinter, 1979), namely, successive developmental forms of identity may be distinguished in terms of accuracy, schematization, and stability.

We confronted retarded adults with distorted images of themselves (concave and convex) in order to see which image(s) they recognized as their own, the quantity of their distortions, and to what extent their choice was affected by the initial curvature of the mirror. This situation is similar to that designed by Witkin (1962) in his attempts to measure the degree of field dependence in subjects' perceptions. Witkin found that field independent subjects learn better and have higher IQs. From a functional point of view, he distinguished dependent subjects who have a global field approach from independent subjects who have an analytic approach.

Luria (1974) observed that retarded individuals can neither differentiate nor synthesize the various properties of an object; their perception of the world is wholistic, imprecise, and fragmented. Within the same perspective, Inhelder (1963) described the thinking of retarded persons in terms of "viscosity." She compared them to younger nonretarded subjects because of their egocentrism, lack of decentration and reversibility, and the immobility of their thinking.

From this point of view, retarded individuals should be more affected by the initial positions of the distortion mirror and should show less accurate and less stable representations than should nonretarded adults. This reasoning amounts to relating the degree to which individuals may be influenced by an object with the completeness and accuracy of their knowledge (or representations) about that object or situation. We qualify representations as partial or fragmentary when they take into consideration only certain aspects of objects without coordinating them (Mounoud & Vinter, 1981). We have also shown that these representations correspond to a kind of "multiple" identity, in which subjects accept several radically different images as possibly corresponding to themselves. In contrast, we qualify as total and rigid those representations in which consideration of several object properties simultaneously produce a kind of "unique" identity in which subjects accept only a single self-image or self-images very similar to one another. Finally, when these representations become decomposable and mobile, we qualify the identity as "typical" identity. From a developmental point of view, children pass from a multiple identity (inaccuracy and instability) through a unique identity (accuracy and stability) to a typical identity (partial accuracy and stability).

We therefore decided to study self-image of retarded individuals in order to test this relationship between the degree to which individuals may be influenced and the degree of accuracy and stability of their representations. We expected that retarded adults would present an identity closer to the multiple type, whereas nonretarded adults would present the unique or typical type. Further, the more that an individual may be termed autonomous, the less he or she would be subject to external influence and the more likely he or she would be to possess an accurate and stable image, i.e., approach a unique identity. Moreover, the higher a subject's intellectual ability, the more accurate and stable will be the images he or she chooses.

Method

Subjects

Two groups of subjects were used. The first consisted of 24 nonretarded volunteers, 14 ungraduate students, and 10 administrative personnel from the psychology department of the University of Geneva. None of them was undergoing psychological or psychiatric treatment. There were 12 men (mean age = 31.58 years, standard deviation (*SD*) = 6.22) and 12 women (mean age = 28.30 years, *SD* = 8.15). The second group consisted of 22 mentally retarded adults, 12 men (mean age = 34.66 years, *SD* = 11.01) and 10 women (mean age = 37.50 years, *SD* = 12.60). All subjects were under the care of the Centre de Diagnostic et de Soins de la Déficience Mentale (Geneva) and attended special occupational workshops. The men's Wechsler Adult Intelligence Scale (WAIS) IQs (Wechsler, 1939) ranged from 44 to 82 (mean = 59.44, *SD* = 15.12); women's WAIS IQs ranged from 47 to 79 (mean = 63.50, *SD* = 11.58). Seven men and 4 women were living with their parents; one man and 3 women lived alone; the others lived either in a psychiatric institution or in a home for handicapped persons. These subjects were selected by the responsible psychiatrist according to their estimated ability to understand the experimental task and to relate to strangers.

Procedure

Subjects were confronted with a distorting mirror, which consisted of a flexible sheet of chromed plastic measuring 23.5 × 24 cm, held within an adjustable metal frame. A handle at the base of the mirror could be used to turn a screw that allowed a vertical metal rod attached to the back of the mirror to be moved. Rotation of the handle caused the metal frame to bend and thus induced concave or convex distortions in the mirror.

A factorial design was used with three crossed factors (intellectual level, sex,

order of presentation for distortion values, namely concave followed by convex or convex and then concave) and one within-groups paired factor (concave or convex curvature). Moreover, all subjects were first presented with a "passive" (experimenter) and second with an "active" (subject) method of producing distortions.

Linear displacements of a marker situated behind the mirror provided a measure of distortion on a scale with a range of 1.5 cm above and below the zero point (nondistortion). This distance was affected either by a positive (concave image) or negative (convex image) sign according to the subject's choice.

Subjects were individually seated facing the mirror at a distance of about 30 cm. They were first shown their nondeformed image and had to recognize it as such. The experimenter then demonstrated the range of distortions possible, returning to the true image (zero point) between each run-through. For each maximum of distortion, subjects had to admit that their image was fatter or slimmer than their own true one. The mirror was then set to the maximum concave or convex distortion. All subjects started the experiment with the "passive" mode. At this point, the experimenter told subjects that they "will see slowly the images of the mirror" and that they will have to decide themselves whether "the image given by the mirror is the true one like he or she knows it, or if it is still too big or too slim." Four consecutive measures were obtained: two after the initial maximum concave position or convex, according to order (these measures were then averaged), and two after the initial maximum convex or concave position of the mirror (averaged measures were then used). In the second phase, subjects operated the handle to bend the mirror ("active" method), with "to and fro" adjustments as desired. The experimenter set the mirror at the maximum concave or convex position and asked subjects to adjust it to the image they considered "objective." The procedure was repeated with either direction of initial distortion.

It was not possible to obtain results for 3 retarded subjects with the "active" method for a number of reasons, e.g., motor disorders such as trembling or focusing attention on turning the handle rather than looking at the image.

Results

Population Comparisons

Table 1 shows the general results for each group. Two analyses of variance for repeated measures (Finn, 1976) were carried out to examine differences among the retarded and nonretarded adults by sex, order (between-subjects factors), and mirror curvature (within-subjects factor), one with the passive method, the other with the active method. These analyses were conducted according a multivariate model: new variables were formed as linear combinations of the original measures. The reported *df*s correspond to the transformed input.

With the passive method, the mirror curvature factor was significant, F (1, 39) = 41.55, $p < .001$. The interaction between population and mirror curvature was also significant, F (1, 34) = 4.90, $p < .0328$. With the active method, the order factor, F (1, 34) = 8.93, $p < .0052$, and the mirror curvature factor, F (1, 34) = 29.24, $p < .0001$, were significant as was the Order × Mirror curvature interaction, F (1, 34) = 15.31, $p < .0085$, and the Population × Sex × Order interaction, F (1, 34) = 5.67, $p < .023$.

To summarize, we found that retarded adults chose images of themselves that were more deformed and more distant from one another than did nonretarded adults, who showed a certain stability (see Figure 1). The greater dispersion in the images chosen by the retarded adults apparent in the passive method, however, masked a clustering of some images for the concave distortions, apparent in the active method (see Figure 2). The retarded females had a greater tendency to choose fatter images of themselves in contrast with the retarded males, whereas nonretarded men overestimated size more systematically than did nonretarded females. The order effect was asymmetric for both populations: Starting the experiment with an initial concave measure determined the nature of the distortion of the chosen images in the second (convex)

TABLE 1
MEANS AND *SD*s OF DEFORMATION SCORES

Subjects	Passive method								Active method[a]							
	Order 1				Order 2				Order 1				Order 2			
	Concave 1		Convex 2		Convex 1		Concave 2		Concave 1		Convex 2		Convex 1		Concave 2	
	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*	Mean	*SD*
Retarded[b]																
Men	.71	1.01	−.36	.69	−1.0	1.17	.90	.67	1.37	.75	1.25	1.10	.83	1.16	.10	.40
Women	1.93	1.20	−1.50	1.45	−.70	.69	2.55	2.10	1.20	1.30	1.20	1.63	−1.20	1.34	3.0	1.83
Nonretarded[c]																
Men	1.08	.81	−.25	.27	−.13	.54	.58	.40	.92	.97	.58	.66	−.08	.98	.92	1.01
Women	.79	.75	.13	.22	−.66	.98	.58	.46	1.50	1.0	.83	.71	−.83	.93	.66	.68

[a] Three retarded subjects did not complete this method.
[b] 12 men, 10 women.
[c] 12 men, 12 women.

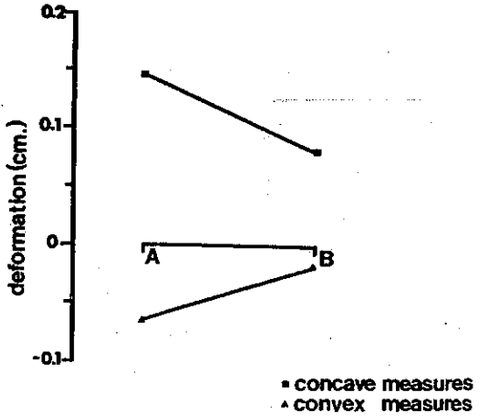

FIGURE 1. Effect of mirror curvature for retarded (A) and nonretarded (B) adults.

measure (a magnification), whereas the influence of the convex upon the concave was much smaller.

Level of Intelligence, Accuracy, and Stability of Self-Image

The relationship of IQ of retarded adults to the accuracy of their chosen images (quantity of deformation) and the criterion of image stability (the distance between images) was investigated (see Table 2).

TABLE 2
SPEARMAN RHO (r_s) CORRELATIONS AMONG IQ AND ACCURACY AND STABILITY OF SELF-IMAGE

Subjects/Method	Accuracy	Stability
Women (n = 10)		
Passive	.67*	.71*
Active	.02	.22
Men (n = 12)		
Passive	.38	−.16
Active	−.48	−.70*

* $p < .05$.

Female population. For the passive method, this analysis revealed that the higher their IQ, the more likely were the women to choose accurate and stable images. For the active method, however, the correlations between IQ and accuracy/stability of chosen images were much weaker; no one attained a significant level.

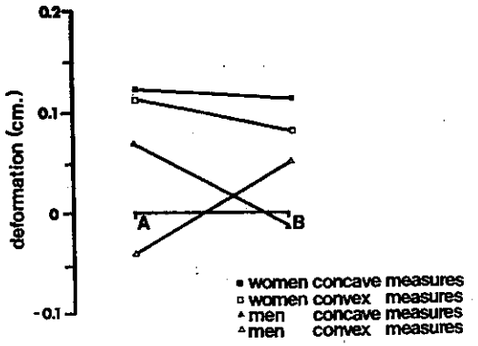

FIGURE 2. Effect of sex and order for retarded (A) and nonretarded (B) adults.

Male population. For the passive method, the correlations between IQ and accuracy or stability of selected images were not significant, even though there was a slight tendency for men with higher IQs to choose more accurate images. With the active method, the relationships were much more obvious: Men shared a rather greater tendency to choose unstable images the higher their IQ. The correlation between IQ and accuracy was not significant but showed a similar tendency.

Discussion

Overall, the retarded adults showed a greater tendency to choose inaccurate and unstable images than did nonretarded adults (see Figure 1). It would therefore seem that retarded adults do not possess a unique and accurate image of themselves but feel that several images may fit them. One might think that the various curvatures of the mirror reveal different dimensions of the face; despite the differences, however, subjects can identify themselves. This would mean that these subjects have elaborated different, noncoordinated representations of themselves. From this point of view, our initial hypothesis that retarded subjects would possess more partial representations of themselves is confirmed by these findings; however, this analysis only partially accounts for these results: e.g., with the active method, retarded women chose images that were very similar, all of them magnified, unless the initial curvature of the mirror was convex (see Figure 2).

Thus, the retarded women overestimated their size more systematically than did the men, whereas a slight inverse tendency was found for the nonretarded population. Similar sex differences were found by Tomkiewicz and Finder (1970–1971) in a study of dismorphophobia of adolescents, where girls feared becoming fat and boys showed fear of being thin. Mentally retarded and nonretarded adults have different means of integrating these types of fears, perhaps because of the more marked tendency for self-derogation by retarded individuals. Mentally retarded subjects may accentuate the distance between themselves and their ideal, whereas nonretarded individuals may tend to diminish this distance.

A marked sex difference was also revealed in the retarded group when we tried to relate IQ and acuracy/stability of the self-image. The higher the men's IQs, the greater their tendency to choose inaccurate and unstable images (active method). The reverse was true for women with a higher IQ; they tended to choose accurate and stable images (passive method).

In order to interpret these differences, we have to remember first that imprecision and instability could as accurately indicate multiple identity as typical identity. Second, these forms of identity are supposed to be ordinated between themselves; they evolve from a multiple to a unique and then typical form.

Adopting this point of view, we propose that for low-IQ women there is a distancing of images, revealing a multiple identity (inaccuracy and instability). For men, on the other hand, a unique identity (accuracy and stability) would correspond to low IQ. A higher IQ would more often be associated with a distancing of images revealing a "typical" identity. Thus, for both men and women, the relationship between forms of identity and IQ would tend to go in the same direction: the higher the IQ, the more evolved the subject's form of identity, tending towards that characterizing a nonretarded adult population. Their identity would still differ in terms of its imprecision, however, with retarded individuals generally accepting more distorted images of themselves. This finding coincides well with findings in the literature on this subject. In any case, one aspect of these results remains obscure, namely, the reason for the sex difference due to the two methods.

These results illustrate quite well our working hypothesis that individuals' susceptibility to influence in a given situation is linked to conception or misconception of that situation (or of the objects they deal with). A person is much more susceptible to be influenced by an idea or an object, for example, if their knowledge (or representations) about this idea or object is inaccurate, vague, or undifferentiated.

In conclusion, we emphasize the benefit for investigators in the field of mental retardation of conducting studies in which they compare retarded and nonretarded populations as well as analyze differentiating factors within the retarded population. In this way, we have been able to show that although retarded subjects may have inaccurate self-images, they nevertheless differ among themselves in the same way that nonretarded children or adults do. Thus, retarded individuals seem to be both different and similar to their nonretarded counterparts just as they are both similar and different to one another.

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