

TOWARDS ASSESSMENT
OF GENDER IDENTITY

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TOWARDS ASSESSMENT
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U N I V E R S I T Y O F S A S K A T C H E W A N

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Abstract

The main purpose of this study was to investigate means of assessing gender identity, which has been defined as a core sense of maleness or femaleness. Herein gender identity has been conceptualized as a cognitive schema, particularly as the embedding of a gender subschema in the self schema. Three assessment approaches, based on this conceptualization, were explored. One hundred twenty (60 males) university students completed the Draw-A-Person Test and following a self-referent task, either a recall or recognition test. It was hypothesized that differential performances would be exhibited by male and female subjects on each of these measures; for example, male subjects were expected to draw more complex male than female figures, recall a male word first and recall more male than female words, false alarm to more male words and miss more female words. Both the Draw-A-Person Test and the recognition condition failed to elicit the expected data; modifications to the methodologies used in these conditions are discussed. In the recall condition 80% of the male and 75.9% of the female subjects did recall a same-gender word first; additionally, female subjects did recall more female than male words, while male subjects did not perform as was hypothesized. These results are discussed and it is concluded that, while they are encouraging, further clarifying research is necessary if devices for assessing gender identity are to be developed.

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1. INTRODUCTION

The primary aim of this thesis is to take some beginning steps towards the assessment of gender identity. The foundations for the empirical study itself are built through an extensive literature review and subsequent theorizing. The review begins with an introduction to the concept of gender identity. This introduction is by necessity brief and somewhat vague since the construct itself is at present rather poorly developed; indeed a subsidiary intention of the thesis is to develop a clearer conceptualization of the construct of gender identity. Following this brief introduction, presently utilized means of assessment of gender identity in children and adults are reviewed and critiqued. Finally, recent theoretical and empirical contributions from other areas of psychology are drawn upon in order to formulate a conceptualization of gender identity as a cognitive schema. It is upon this conceptualization that the empirical study is based.

1.1 An introduction to the concept of gender identity

In 1977 Shively and DeCecco differentiated between four components of sexual identity: biological sex, gender identity, social sex role, and sexual orientation. These four components were conceptualized as separate, but interactive, entities. Biological sex was described in terms of chromosomal configuration, gonads, internal reproductive structures, external genitalia and hormonal secretions. Gender identity was defined as the individual's basic conviction of being male or female. Social sex role referred to the characteristics, largely of appearance, behavior and

personality, that are culturally associated with men or with women (i.e., that are perceived as stereotypically masculine or feminine). Sexual orientation was presented as an individual's physical and affectional preferences for male and/or female sexual and emotional partners. Shively and DeCecco's conceptualization of these four components as separate but interactive entities appears to be supported empirically as will be discussed below.

Commonly gender identity is thought to be a simple intrapsychic reflection of the external reality of one's body: a man has a core sense of himself as or a conviction of being male because he is physically male, and likewise for a woman, her sense of being female is simply an internal manifestation of her female body. Our tendency is to perceive our psychological belief in our maleness or femaleness as the inevitable result of being physically male or female. However, although gender identity is most often congruent with biological sex, this is not always the case. Money and Ehrhardt (1972) and Lev-Ran (1974), among others, have worked with a number of individuals with a variety of anomalies in their biological sex. These researchers have concluded that gender identity is not preordained by sex chromosomes, pre-natal hormonal history, postnatal hormonal status, gonads, internal reproductive systems or external genitalia. Rather, both postnatal hormonal status and external genitalia may be distressing to the individual if they are contradictory to the gender identity, but do not alter that identity. The influence of prenatal hormones may predispose an individual to particular personality traits or behaviors that are traditionally regarded as sexually dimorphic, and which may interact with postnatal influences to shape the

gender identity, but fetal hormones alone do not prescribe it. These authors are quite clear that biological sex and gender identity are two separate phenomena, and that the latter is not directly determined by the former, but rather, that gender identity is influenced most powerfully by the environment of the individual.

Gender identity and social sex role are frequently confused and/or treated as though they were synonymous (eg., Raymond, 1977; Unger, 1979). However, there is substantial evidence that gender identity and social sex role are distinct entities. Were gender identity and social sex role two sides of the same coin (i.e., a man behaves in a masculine manner because he has a core sense of being male), one would expect androgynous persons (i.e., persons reporting a high level of both masculinity and femininity) to experience a considerable degree of confusion over their gender identities. There is no evidence that this is the case (Bem, 1975). Furthermore, Fleming, Jenkins and Bugarin (1980) found that at least some transsexuals "are not seeking reassignment in order to gain access to a sex-role domain felt to be 'inappropriate' for their original anatomy, nor are they seeking to flee a set of role demands associated with the 'wrong' sex of birth." (p. 25). Thus, they conclude that gender identity can be independent of sex role. There is no question that for some individuals being male is synonymous with being masculine (Lerner, 1978), but there is ample indication that one can feel male without being masculine, and be masculine without feeling male.

It appears that there is little direct connection between gender identity and sexual orientation. Although the misconception that because, for

instance, a man feels sexual desire for men he must fancy himself a woman is still widespread, it is a misconception (Freund, Nagler, Langevin, Zajac, and Steiner, 1974; Jay and Young, 1977; Weinberg, 1972). As in the case of social sex role, there are those individuals who feel that being heterosexual is basic to their sense of being male or female, but this does not mean that gender identity and sexual orientation are synonymous concepts.

A reasonable case has been made for the existence of biological sex, gender identity, social sex role and sexual orientation as distinct, though interactive, entities. At this point further discussion of the concept of gender identity itself is necessary.

Gender identity has been defined as: "core-morphologic identity" (Green, 1975, p. 337), "an individual's basic conviction of being male or female" (Green, 1974, p. xv), "the core sense of oneself as a male or female" (Fleming, Jenkins, and Bugarin, 1980, p. 13), and "an individual's own feeling of whether she or he is a woman or a man, or a boy or a girl... gender identity is self-attribution of gender" (Kessler and McKenna, 1978, p. 8). With the exception of those researchers who continue to confound gender identity with social sex role, the above seems to be consensually accepted as a definition of gender identity. Despite this general agreement as to definition, further explication of the construct does not to my knowledge appear anywhere in the literature. As previously noted, one intention of this thesis is to formulate a clearer conceptualization of gender identity.

Not only is the construct of gender identity poorly developed, but

unanswered questions about its nature are abundant. Foremost among these are how gender identity develops, whether it becomes irreversible and, if so, when, and whether/how it can be altered. These unanswered questions detract from our understanding of human development in general, but they are perhaps even more problematic in the clinical milieu when dealing with cases of transsexualism and childhood gender identity disturbance.

Research into these areas has been haunted by our difficulty in measuring gender identity. Clinically, not only is one hampered by a paucity of information about gender identity itself, but must also contend with attempting to assess and follow-up those with gender disorders with little means of measuring either initial gender identity or its change or consolidation.

A critical review of present methods of gender identity assessment follows, in which it will be argued that these techniques are, at best, inadequate.

1.2 Assessment of gender identity in children

Under the rubric of childhood gender disorders there are two major clinical syndromes: gender identity disturbance and gender behavior disturbance (Rekers and Milner, 1978). Rekers, Bentler, Rosen and Lovaas (1977) have described these two syndromes in the following manner. A child with a gender identity disturbance has assumed the identity of the opposite sex (eg., a boy has assumed the identity of a female); not only does the child evidence cross-sex role behavior (eg., an interest in cosmetics in a boy), but also wishes or believes him or herself to be of the opposite sex. A child with a gender behavior disturbance, while exhibiting

cross-sex role behavior to a greater or lesser extent, does not evidence a cross-sex identity. Rekers and his colleagues (Rekers, 1977; Rekers and Milner, 1978; Rosen, Rekers and Friar, 1977) have emphasized the importance of correctly distinguishing between these two syndromes because of their different prognoses and treatments. To date, however, it appears that research relevant to these differential prognoses and treatments has not yet been conducted.

Research into childhood gender disturbances has focussed almost exclusively on the feminine boy. It has been suggested that this emphasis results from the more frequent occurrence of sexual deviations in males than in females, and from the typically greater societal and parental concern over feminine sex role behavior in boys than over masculine sex role behavior in girls (Green, 1974; Rekers, 1977). Consequently, the factors of interest in assessment and the techniques used have actually been developed from clinical work with feminine boys; however, these factors and techniques have, on occasion, been modified and then applied to masculine girls (Rekers and Mead, 1979).

Rosen et al. (1977) have identified seven major areas to be considered during the assessment of feminine boys: identity statements, cross-dressing, cross-sex role play behavior, parent-child relationships, parental attitude toward cross-sex role behaviors, physical appearance, and relationship to other psychopathology. Each of these areas will be discussed below.

Identity statements such as "I am a girl" or "I want to grow up to be a mommy and have children" are a major factor in distinguishing the

feminine boy with a gender identity disturbance from one with a gender behavior disturbance. This type of statement, in conjunction with a moderate amount of feminine behavior, is accepted by Rosen et al. (1977) as sufficient evidence for the diagnosis of gender identity disturbance. However, since these statements are typically made only by very young or very undefensive boys, their absence cannot be taken as an indication that the boy has a male gender identity. By the age of eight most feminine boys have learned that this type of identity statement is not well received and consequently do not make such statements, forcing the clinician to look elsewhere for evidence of gender identity disturbance.

Cross-dressing (i.e., dressing in feminine clothing or improvising feminine-like dress) may occur in boys with either a gender identity disturbance or a gender behavior disturbance. However, Rosen et al. (1977) suggest that the higher the frequency and intensity of cross-dressing and the earlier the age of onset, the more likely it is that a gender identity disturbance is present, and the more likely that it is profound.

A preference for games and toys labelled feminine by our society tends to occur in boys with either a gender identity or a gender behavior disturbance. Green (1974) has found that feminine boys, in addition to preferring feminine toys and games, also tend to prefer female playmates and to take the female role in fantasy games (eg., playing house). The preference for the female role in fantasy is considered particularly indicative of a gender identity disturbance.

The relationship of the boy to his mother and father is another area

assessed by Rosen et al. (1977). Both the gender identity and gender behavior disturbed boys tend to have psychologically or physically distant fathers. Consequently, in their families the mothers provide the major model of behavior. Unlike gender behavior disturbed boys, many gender identity disturbed boys have extremely intimate relationships with their mothers, both physically and psychologically; these mothers often report that they and their sons are "inseparable", reflecting an extreme closeness and dependency.

Parents of boys with gender disorders often fail to perceive anything abnormal about their sons until some person outside the family points it out (Rosen et al., 1977). Frequently they report that they found their sons' behavior amusing or thought it would be outgrown. Mothers, in particular, have tended to reinforce their sons' feminine behavior, while fathers, when present, typically subscribe to the belief that the boys' femininity is innate (Green, 1974). There is no indication that parental attitudes toward cross-sex role behaviors are different in parents whose boys have gender identity disturbances as compared to those whose sons have gender behavior disturbances.

Some researchers have observed that boys with gender identity disturbances tend to be attractive in appearance, to the extent that they were frequently mistaken for girls in their early childhoods (Green, 1974; Rosen et al., 1977). However, physical appearance cannot be considered a strong indicator of gender identity disturbance; there are certainly boys with gender identity problems who are not particularly physically attractive.

Rosen et al. (1977) have concluded that at present there is not enough evidence to draw firm conclusions about the relationship between gender problems and other childhood disorders, and that childhood gender disorders may occur in boys who otherwise appear to be well-adjusted.

It appears then that differentiation between the two major childhood gender disorders depends upon identity statements; with the frequency, intensity and age of onset of cross-dressing, the preference for a female role in fantasy, an extremely close relationship with his mother, and physical attractiveness being suggestive of a diagnosis of gender identity disturbance. This apparent reliance on identity statements is open to much criticism. Not only do older and/or defensive boys tend not to make such statements, but as Wolfe (1979) has indicated, it is unclear how often and in what contexts a boy must make identity statements in order for a diagnosis of gender identity disturbance to be considered. Wolfe further suggests that these public statements of identity may be under external control; for instance, a boy may say that he is a girl for a variety of reasons (eg., parental attention, permission to be uninvolved in "masculine" activities that he dislikes, or because he thinks or feels that he is a girl), not all of which point to a gender identity disturbance. Unless the functional significance of a boy's identity statements is known it seems unwise to rely upon them in major diagnostic decisions. Yet all the other factors mentioned are considered suggestive of gender identity disturbance rather than relatively clear diagnostic indications.

Despite their behavioral orientation Rekers and his colleagues (Rosen et al., 1977) include projective testing in their assessment battery;

it is unclear to which of the seven major assessment areas it relates, although one would assume that it aids in the assessment of "identity statements". This assumption is supported by these researchers' attentiveness to the boy's responses on projective tests and their suggestion that these tests are useful in uncovering gender identity problems when a boy has become defensive and unwilling to admit to wanting to be a girl.

Their battery of projective tests includes the Machover Draw-A-Person test, the Make-A-Picture-Story test and the Bene-Anthony Family Relations test. In a standard administration of the Draw-A-Person test the boy is told to "draw a person" with no cues given as to the sex of the person to be drawn. In a boy, the drawing of a female figure first (i.e., when asked to draw a person) is considered indicative of a gender identity disturbance; it is noted, however, that other supportive evidence is necessary for an accurate diagnosis. In the Make-A-Picture Story test the child's identification is measured by the ratio of total male to total female figures in the stories, and by the sex of the main character. The Family Relations test provides a quantitative measure of how the child feels toward each member of his family; low involvement with the father and a high degree of involvement with the mother is supportive of a diagnosis of a gender identity problem.

In addition to these tests used by Rekers and his colleagues, Green (1974) has developed two other projective tests for use with children who may have gender disorders. Green uses both the Family-Doll Preference test and the Parent and Activity Preference test to point out the similarity between the responses of feminine boys and those of girls. Since he,

unfortunately, does not distinguish between gender identity and gender behavior disturbance, he does not interpret the responses on these tests in a manner which is useful for differential diagnosis.

Rekers and his colleagues' use of projective tests has been criticized by Wolfe (1979) because it moves beyond a behavioral framework.

If these investigators really believe they are dealing with an unconsciously motivated gender identity conflict, it is unclear why they would expect a rearrangement of the social contingencies in the boy's environment to resolve this conflict. If, on the other hand, the boy's cross-gender identity is - like other gender behaviors - a result of a particular set of social contingencies, then why are the investigators employing projective techniques to diagnose it? (p. 561)

While the answer to Wolfe's criticisms is fairly straightforward, other criticisms of projective testing are less easily dismissed. In particular, the reliability and validity of projective techniques have been historically and remain highly controversial. Although there is some empirical support for the utility of the Draw-A-Person test (Green, 1974; Rekers and Mead, 1979; Rekers and Varni, 1977; Skilbeck, Bates & Bentler, 1975), neither the Make-A-Picture-Story test nor the Bene-Anthony Family Relations test appear to have any clearly documented empirical support. Green (1974) does provide some data favourable to the Family-Doll Preference test and the Parent and Activity Preference test, however, these data result from relatively small samples of responses. It is apparent that at present responses on projective tests cannot realistically be considered any more than suggestive of gender identity disturbance in children, and ought not play a major role in diagnostic decisions.

In conclusion, it appears that differential diagnosis of childhood gender identity disturbance and gender behavior disturbance is fraught with difficulty. While many factors are suggestive only one (identity statements) is considered conclusive. Not only is it common for this factor to be inaccessible to the clinician, but its own validity has been questioned. Theoretically the distinction between gender identity disturbance and gender behavior disturbance rests on gender identity, but gender identity is not itself adequately assessed; both potential measures (identity statements and projective testing) are of doubtful reliability and validity. Perhaps it is possible, reasonable, and necessary to diagnose gender identity disturbance relying primarily on "suggestive" factors, but there is no doubt that reliable and valid devices for assessing gender identity would be of use.

It could be argued that distinguishing between gender identity and gender behavior disturbance is of minor importance, since their differential prognoses and treatments appear to be predominantly words on paper, reflected neither in empirical data nor in clinical practice. Yet even if the importance of differential diagnoses can be disposed of in this manner, there remains the difficulty of follow-up. How does one assess the efficacy of one's interventions to change gender identity when gender identity is itself largely unmeasurable, and indeed tends to go "underground" in the face of treatment (Stoller & Newman, 1971)?

1.3 Assessment of gender identity in adults

This section begins with some discussion of the nature of adult gender identity disturbance and of the terms used to refer to it. The importance

of psychological assessment of these adults, particularly assessment of their gender identities, is then highlighted. This is followed by a review and critique of the assessment techniques used at present and of related research, which reaffirms the need to assess gender identity itself.

The term "transsexual" was first employed by Cauldwell in 1949 (cited in Pauly, 1968) who used it to denote a biologically normal person who identifies himself or herself as, psychologically, a member of the opposite sex. More recently transsexualism has been described as the sustained conviction of belonging to the opposite sex, wanting to live and appear as such, and desiring a sex change operation (eg., Buhrich and McConaghy, 1977). However, gradually the term "transsexualism" has fallen into disrepute, partly because of its implication that sex can be transformed, and partly because it indicates a unitary phenomenon (Meyer, 1974).

While "transsexualism" is still widely used, the more progressive term is "Gender Dysphoria Syndrome" (GDS), which is defined as encompassing "the person who believes himself or herself to properly belong to the opposite sex and who, while not denying his or her sexual anatomy, attempts to live in the chosen social role and seeks out sex-reassignment procedures" (MacKenzie, 1978, p. 251). MacKenzie has identified a number of subcategories of GDS with "known" etiology; these are GDS related to: i) chromosomal abnormalities, ii) endogenous hormonal abnormalities, iii) exogenous hormonal abnormalities, iv) temporal lobe phenomenon, v) psychosis and vi) psychopathic personality disorder. MacKenzie has also identified GDS related to three other entities which have no established etiology: classic transsexualism, effeminate homosexuality in the male and hypermasculine

homosexuality in the female, and transvestism. Meyer (1974) suggests some subgroups of these last three entities; for instance, he discriminates between aging and younger transvestites and mentions the stigmatized homosexual, elaborating on the former two groups in a later article (Wise & Meyer, 1980). These authors agree that a common symptom pattern has emerged, which includes a sense of inappropriateness or incapacity in the anatomically congruent sex role, a sense that improvement would ensue with role reversal, homoerotic interest and heterosexual inhibition, and a desire for surgical intervention. It is suggested that gradually a phenomenological set of criteria will be developed until clear subgroups emerge with etiological consistency (MacKenzie, 1978).

Despite the improvements effected by using the term "Gender Dysphoria Syndrome" rather than "transsexualism", at least one major and longstanding problem regarding the terminology remains. This problem was first expressed by Kubie and Mackie (1968) over a decade ago, namely that of defining a syndrome on the basis of a treatment seeking behavior. This concern has been reiterated by Meyer (1974) who noted that the request for reassignment had been converted into a diagnosis, and MacKenzie (1978) who states "it is crucial that at this stage such categorization not be linked directly to the surgical decision-making process less the self-fulfilling diagnostic prophecy...be repeated" (p. 254).

To some extent this treatment oriented description of the syndrome seems to be reflected in what has been and most often continues to be the major "assessment" and selection-for-surgery method. Candidates for sex-reassignment

procedures are typically required to "live-out, full-time, vocationally and avocationally, in all social situations, the social role of the genetically other sex" (Harry Benjamin International Gender Dysphoria Association, 1979, p. 5). This "real life test" has been recommended by many professionals as the method of choice for determining which individuals should undergo surgical reassignment (eg., Harry Benjamin International Gender Dysphoria Association, 1979; Fisk, 1978; Weatherhead, Powers, Rodgers, Schumacher, Ballard, and Hartwell, 1978). Gender identity clinics vary as to whether the "real life test" includes hormone therapy from the start or requires a period of cross-living prior to the initiation of hormone therapy; for instance, at John Hopkins and Stanford University gender identity clinics hormone therapy has been considered a part of the one year or more real life test (Morgan, 1978). In contrast, the Clarke Institute of Psychiatry's gender identity clinic requires one year of cross-living without hormone therapy and an additional year with hormone therapy prior to considering surgical sex reassignment (Steiner, 1981).

Morgan has suggested that the rationale behind the "real life test" approach seems to be based on the following two beliefs: "1) that the candidate should try on the role 'for size' as completely as possible to see if this is what he or she really wants, and 2) that anything short of surgery is essentially reversible, and the candidate can 'back out' without any major problems if it appears that sex-reassignment is inappropriate" (Morgan, 1978, p. 275). In its favour, the real life test certainly does have the effect of bringing the candidate face-to-face with what had been

heretofore a fantasy, and thus gives him or her the opportunity to assess whether reassignment is the best choice for him or herself. In addition, Fisk (1978) has noted that cross-living may be, for some individuals, in and of itself rehabilitative.

Despite these advantages, the real life test, particularly when it incorporates hormone therapy, has been soundly criticized by Morgan (1978). He begins by stating that "any person applying for sex-reassignment surgery has a serious problem" (p. 273), and continues on to indicate that most often operative intervention is neither required nor desirable, in which case the patient must be redirected into more appropriate channels. Even when reassignment does seem indicated much psychotherapeutic work must be done before, during, and after the surgical time period to aid the person in adjusting to his or her role. Morgan has found his psychotherapeutic interventions hindered by what he calls the "transsexual imperative", by which he means the candidate's strong and unswerving drive to attain surgery, and extreme unwillingness to consider other options. Morgan perceives the real life test, particularly when it includes hormone therapy, as increasing the "transsexual imperative" and thus decreasing the effectiveness of psychotherapeutic interventions. He is especially critical of the hormonal component of the real life test because, in addition to apparently increasing the desire for reassignment, the physical effects of hormones are not always reversible; for instance, after one to six months of treatment with estrogen the male-to-female candidate may experience irreversible testicular atrophy with permanent infertility. Rather than using the real life test as one of the initial steps in the process of sex-reassignment, Morgan encourages

professionals to "buy time" by, for example, encouraging electrolysis and/or voice training. He also suggests requiring the candidate to cross-live without hormone therapy for a period of at least six months.

Morgan is strongly in favour of "buying time" for two related reasons. The first of these reasons concerns the exploration of non-surgical options with the candidate, as was previously mentioned. The second is to allow an extended period of time for the assessment of the candidate. Thorough assessment is required in order to distinguish those whose request for sex-reassignment stems from major mental illness, homophobia or an inadequate personality. Morgan notes that of those individuals requesting reassignment, 10% are suffering from a major mental illness (eg., paranoid schizophrenia) and are best served by psychopharmacological interventions; 30% are homophobic homosexuals who are oriented towards reassignment rather than coming to terms with their homosexuality; and a final 20 to 25% are diagnosed as having "inadequate personalities" by which he means that these individuals "correctly perceive the need for a major change in their lives if they are to get any pleasure or satisfaction out of human interaction but incorrectly identify their need as being the external genitalia of the opposite sex" (Morgan, 1978, p. 277). Both of these latter two groups are thought to be best aided by means other than reassignment, and in particular, by psychotherapy. In conclusion then, Morgan has highlighted the importance of identifying not those who could benefit from sex-reassignment so much as those who could benefit only from sex-reassignment. The method he proposes for accomplishing this differentiation is one of determining whether the candidate has a major mental illness, is a homophobic homosexual, or has an inadequate personality,

and, if the candidate fits in none of these three categories, to consider sex-reassignment as an option.

Unfortunately the issues involved are too complex to be adequately dealt with using this simple subtractive formula. It is far from inconceivable that major mental illness, homophobic homosexuality and/or inadequate personality could co-exist with transsexualism. Indeed, it has been suggested that the attempt to live as the sex to which one does not feel one belongs could itself play a role in precipitating major mental illness in some cases (Fisk, 1978). Morgan's implicit assumption in his subtractive formula that these clinical syndromes are mutually exclusive and non-interactive entities is untenable, and undermines the approach he suggests.

The challenge to researchers and clinicians is that of devising a means of identifying those individuals for whom sex-reassignment is the treatment of choice, and indeed the only intervention from which they will likely benefit. The Harry Benjamin International Gender Dysphoria Association suggests that the goodness of fit of the candidate to the diagnostic criteria for transsexualism as listed in the DSM-III category 302.5x and quoted below serve as a guideline.

- A) Sense of discomfort and inappropriateness about one's anatomic sex.
- B) Wish to be rid of one's own genitals and to live as a member of the other sex.
- C) The disturbance has been continuous (not limited to periods of stress) for at least two years.
- D) Absence of physical intersex or genetic abnormality.
- E) Not due to another mental disorder, such as schizophrenia.

(DSM III, 1980, p. 263-4)

Clearly these criteria do little to alleviate the previously mentioned difficulties in differentiating those individuals who can benefit only from sex-reassignment.

Neither DSM-III nor other commonly used definitions of transsexualism and Gender Dysphoria Syndrome clearly implicate cross-gender identity as a characteristic of these syndromes; however, it is abundantly clear that such an identity is considered a major and important component. For instance, Pauly (1974) comments on the importance of establishing whether or not cross-gender identity has been firmly established, Meyer (1974) suggests that transsexuals do not experience a complete reversal (i.e., cross) of gender identity, and Davenport and Harrison (1977) report on gender identity change in a female adolescent. These are only a few examples of the frequent use of the concept of gender identity in discussions of transsexualism and Gender Dysphoria Syndrome. One could hypothesize that the absence of this concept from diagnostic criteria and definitions of these syndromes reflects the difficulties incurred in its assessment (Bradley, Steiner, Zucker, Doering, Sullivan, Finegan, & Richardson, 1978). Yet, since it is the irreversibility of gender identity, once it has been firmly established, which has been cited as necessitating medical rather than psychotherapeutic intervention (Benjamin, 1966; Green, 1974; Green & Money, 1969; Money & Ehrhardt, 1972; Money & Tucker, 1975; Pauly, 1969), what better criteria could there be for determining the suitability of a candidate for reassignment procedures?

Currently assessment of candidates for sex-reassignment does not include any direct attempt to measure gender identity itself. Assessment seems

oriented to data collection from four general areas which are: i) historical, ii) behavioral, iii) identity statements, and iv) psychological testing. Each of these will be discussed below.

Historical Data. A primary focus in the assessment of many reassignment candidates appears to be the gathering of historical information (eg., age of onset of apparent cross-gender identity, childhood activities, childhood interactions with parents, reaction to onset of puberty, and so on). The history of the candidate is compared to what is perceived as a "typical" history, and this is thought to assist in diagnosis (Ehrhardt, Grisanti, & McCauley, 1979; Freund, Langevin, Satterberg, & Steiner, 1977; MacKenzie, 1978). Despite the importance of obtaining such information for research purposes, facilitation of differential diagnosis (i.e., transsexualism versus homosexuality), and an indication of the stability and persistence of the individual's cross-gender identity, this assessment approach is open to many criticisms. First, there appears to be little, if any, baseline data regarding the items considered important; that is, it is unclear how common these experiences are in the general population, and so one cannot comment on their specificity and importance with regard to transsexuals. Second, any candidate who so desires can relatively easily present the appropriate history (Abel, 1979; Kubie and Mackie, 1968); as MacKenzie (1978) comments "...as long as the word was out that only classical transsexual histories were welcome, lo and behold, only classical cases appeared. Such is the pervasive influence of the underground press and the street grapevine that we would be wise to treat most historical information with the same

skepticism shown towards the ingestion histories of individuals with addictive problems" (p. 252). Even if these difficulties could be overcome, as indeed they might be with the collection of baseline rates and the acquisition of third party validation, two problems remain with the use of historical information in assessment. Retrospective data is very susceptible to unpurposeful distortion, particularly in the case of transsexuals, since many unconsciously modify their autobiographies to make them consistent with their identities (Kessler and McKenna, 1978). This alteration of history is to some extent likely to also be experienced by transsexuals' relatives and friends as they attempt to make the past and the present consistent and understandable. Finally, MacKenzie (1978) suggests that as professionals "we all have an understandable tendency to file information into predictable and familiar patterns and, therefore, can easily fall victim to this second self-fulfilling prophecy" (p. 252), which operates at a diagnostic level. In sum, the subjective nature and likely inaccuracy of historical information call into question its reliability and validity in the assessment of candidates for sex-reassignment.

Behavioral Data. The second major component of sex-reassignment assessments is behavioral measures. This category includes psychometric and clinical interview means of tapping present behavior considered relevant to the diagnostic question (eg., sexual behavior and orientation, cross-dressing) (Freund, Langevin, Satterberg and Steiner, 1977; MacKenzie, 1978; McCauley and Ehrhardt, 1980). This type of information may appear to assist in the differential diagnosis of homosexuals, transvestites and transsexuals; for example, typically transvestites experience sexual arousal

when cross-dressed while transsexuals do not (MacKenzie, 1978). The major criticism of this approach is that it is very susceptible to purposeful distortion on the part of the candidate; the willingness of many candidates to present whatever information that will attain them surgery is well documented (MacKenzie, 1978). The use of physiologic responses (i.e., penile volume and galvanic skin response) to erotic imagery has been suggested as a behavioral assessment technique as there is some indication that these autonomic responses may differentiate between male (to female) transsexuals and male homosexuals (Barr, 1973; Barr & Blaszczyński, 1976). Although similar techniques (eg., vaginal photoplethysmography) can be applied to biological females (Abel, 1979), there are no reports regarding their use for differentiating between female transsexuals and lesbians. Physiologic response, while not assessing gender identity directly, does have the advantages of being objective and difficult to fake. Should further research support the findings of differential autonomic responsivity in transsexuals, measurement of physiologic response would appear to be a useful assessment device, at least for differentiating between the transsexual and the homosexual. Another possibility in the behavioral realm is ratings of gender-specific motor behavior (Barlow et al., 1979); unfortunately, the relationship between such behavior and gender identity is unclear, and is questionable when one considers, for example, the case of the effeminate nontranssexual male.

Identity Statements. Virtually all clinicians either implicitly or explicitly include identity statements in their assessments of candidates

for sex reassignment. Some ask questions like "Have you ever felt like a woman when... (a variety of situations)?" (Freund et al., 1977, p. 519), or ask male candidates to rate the degree to which they feel like a woman dressed as a woman and when nude (Buhrich & McConaghy, 1977), while others are more subtle, asking about the candidate's identity in his/her fantasies or daydreams (MacKenzie, 1978). In either case, appropriate answers are simple for even the most unsophisticated candidate to fake. This criticism also applies to Barlow et al.'s (1979) Transsexual Attitude Scale as a method of assessment. Furthermore, Kessler and McKenna (1978) have presented a sound argument for the essential uselessness of direct questions about gender identity.

Psychological Test Data. The fourth area from which data may be collected when assessing sex-reassignment candidates is that of psychological testing. The focus in the use of psychological tests has been on discovering an existing test which discriminates between transsexuals and nontranssexuals. Hunt, Carr and Hampson (1981) administered the Wechsler Adult Intelligence Scale (WAIS), the Minnesota Multiphasic Personality Inventory (MMPI) and several subtests of the Halstead-Reitan neuropsychological battery (i.e., the Categories Test, the Tactual Performance Test (TPT), the Rhythm Test, the Speech Sounds Perception Test, the Finger Tapping Test, the Trails Test, and the Interpersonal Discrimination Task (IDT)) to twenty-two individuals who were diagnosed as transsexuals. There was no evidence to suggest the presence of any organic brain factor which might be associated with transsexualism. Patterns of scores on the WAIS did not differentiate transsexuals from normals, although all the subjects did fall within the

average to bright-normal range of intelligence. Scores on the MMPI (a tendency for elevation on the Masculinity-Femininity and Psychopathic Deviate scales) "do not provide convincing evidence of either a major psychopathological process or its etiological role in development of transsexualism" (Hunt et al., 1981, p. 75). Neither do these scores have a great deal of potential to assist in the attempts to discriminate between transsexuals and other sex-reassignment candidates, since they are far from atypical. Hunt et al.'s (1981) findings regarding the MMPI are in accord with those of Fleming et al. (1981). Finally, the small but statistically significant differences found between the scores of normal men and women on the IDT tend to also be found in transsexuals, and are consistent with their gender identity rather than their biological sex. In sum, then, the results of Hunt et al.'s (1981) research suggest that transsexuals cannot be clearly differentiated from nontranssexuals on the basis of scores on the WAIS, the MMPI, or a number of neuropsychological tests; measures of cognitive style (eg., IDT) may have some potential to differentiate transsexuals from normals, but it is not at present clear i) how reliable this finding is, and ii) whether scores on such measures will also differentiate transsexuals from, for example, homosexuals and transvestites.

Kenna and Hoenig (1979) found that scores on the Slater Selective Vocabulary Test, Cohen's factors, and the Terman-Miles Attitude Interest Analysis Test (M-F) showed male (to female) transsexuals to have a higher degree of "feminization" than normal controls, while the Wechsler-Bellevue Vocabulary Test and the Wechsler M-F Test did not show a clear trend of

"feminization". Kenna and Hoenig conclude that male transsexuals have a vocabulary which differs from that of normal males in the direction of greater "feminization". Unfortunately, since Kenna and Hoenig did not test feminine nontranssexual males, it is unclear whether this "feminization" of vocabulary reflects a female gender identity or a feminine sex role, and consequently the meaning and value of these findings are unclear; Kenna and Hoenig's comments that, for example, vocabularies reflect "role-specific interests and occupations" (p. 84) do suggest that sex role is the underlying construct measured. Buhrich and McConaghy's (1979) findings support those of Kenna and Hoenig (1979) in that the Information and Vocabulary subtest scores on the WAIS did not differentiate male transsexuals from transvestites, male homosexuals or male controls. The California Personality Inventory Femininity Scale did differentiate some transsexuals from the transvestites and homosexuals, and these two groups from the controls; however, it is undoubtedly a measure of sex role rather than gender identity.

Finally, the last of the "objective" tests used to evaluate transsexuals is the Body Image Scale, developed by Lindgren and Pauly (1975). These authors have identified body image dissatisfaction and distortion as a fundamental aspect of transsexualism. Their Body Image Scale represents an effort to quantify the transsexual's body attitude by asking the individual to rate thirty body parts on a five point scale of satisfaction. This Scale is very useful in identifying those individuals with an orientation to polysurgery (i.e., desiring multiple surgical procedures), and in evaluating the subjective psychological effects of surgery; however, its utility as

an assessment device is questionable because of its high transparency. It is blatantly obvious how one should respond if one wishes to undergo sex-reassignment.

A few projective tests have been used or proposed for use in the assessment of candidates requesting sex-reassignment procedures. Of these, the Franck Drawing Completion Test has not been found to be a useful discriminator as no significant differences were found between the scores of the controls, homosexuals, transvestites and transsexuals (Buhrich & McConaghy, 1979).

May has proposed that gender identity be assessed by means of the study of fantasy patterns. Having had subjects complete a TAT-like task, he has scored their productions for deprivation (i.e., movement from a more positive emotion or experience to a more negative emotion or experience) and/or enhancement (i.e., opposite of deprivation) themes or patterns. May has found significant differences between the fantasy patterns of males and females (both adults and children) in that men most often create enhancement (E) followed by deprivation (D) story patterns, while women's stories typically show the reverse pattern (May, 1966, 1969, 1971, 1975). A considerable body of work has been spawned by May's findings (eg., Cramer, 1980; Cramer & Carter, 1978) which indicates that May's D/E scores do not tap sex role, but a deeper level of sexual identification which was itself found to be related to the use of "masculine" and "feminine" defense mechanisms (Cramer and Carter, 1978). There is some suggestion that May's D/E score measure of gender identity is affected by acknowledged homosexuality in males as these men obtain more feminine scores (May, 1975). To my

knowledge May's approach has not been used in assessment of sex-reassignment candidates, and this apparent confound of gender identity and sexual orientation would somewhat contraindicate its use in such cases. May's fantasy measure of gender identity does appear to have potential, but requires further validation, particularly on homosexual, sex role atypical and transsexual subjects before it will be clear exactly what it assesses.

Recently Shill (1981) has used the Thematic Apperception Test (TAT) to "measure gender identity" in males by computing a score representing Castration Anxiety. He hypothesizes that high levels of Castration Anxiety are indicative of less secure gender identities, and thus by inference measures gender identity itself. Shill did find significantly higher Castration Anxiety scores in father-absent than in father-present college males, as he predicted, but despite the fact that many boys who have gender identity disturbances have physically or psychologically absent fathers (Rosen et al, 1977) and despite psycholanalytic theory, further construct validation is necessary before it will become clear whether or not Castration Anxiety is a valid measure of gender identity.

Finally, the Draw-A-Person Test has been used as a means of assessing gender identity in adults as well as children. In 1949 Machover stated "From the standpoint of sexual identification, it is assumed to be most normal to draw the self-sex first. From an empirical point-of-view, it is of interest that evidence of some degree of sexual inversion was contained in records of all individuals who drew the opposite sex first in response to the instruction, 'draw a person'." (p. 101). These few sentences provided a jumping off point for innumerable studies professing to prove

or disprove Machover's hypothesis. Those of relevance to this discussion are reviewed below.

There is some indication that normal adults tend to draw same-sex figures first when asked to "draw a person" (Buhrich & McConaghy, 1979; Fleming, Koocher & Nathans, 1979; Gravitz, 1966; McCauley & Ehrhardt, 1977). It appears from these studies that approximately 80 to 85% of normal adult males draw a male figure first, while more than half of normal adult females draw a female figure first. That fewer women produce same-sex drawings has been hypothesized to reflect the orientation to and valuing of the male in our culture (Gravitz, 1966); if this is the case, one might expect women to increasingly produce same-sex figures as society becomes more egalitarian and less sexist.

Performance on the Draw-A-Person Test does not appear to directly tap sex-role in males as it does not correlate with scores on the Femininity Scale of the California Personality Inventory (Buhrich & McConaghy, 1979) or with those on the Masculinity-Femininity Scale of the Minnesota Multiphasic Personality Inventory (Gravitz, 1969). Neither does it seem to be assessing sexual orientation: McCauley and Ehrhardt (1977) found that 87% of their lesbian sample drew a female figure first, Buhrich and McConaghy (1979) had 83% of their homosexual male sample draw a male figure first, and finally, Roback, Langevin and Zajac (1974) found no significant differences between heterosexual and homosexual males on the Draw-A-Person Test. From this finding coupled with an insignificant correlation between the Feminine Gender Identity Scale and the DAP, Roback, Langevin and Zajac concluded that

gender identity and sex choice of figure drawings on the DAP test are unrelated. An alternative to this conclusion is that, as has been previously argued, a) gender identity and sexual orientation are not directly related, and b) the Feminine Gender Identity Scale is itself a questionable measure of gender identity. Applications of the DAP test to transsexual or gender dysphoric adults have also been suggestive of this test's validity for assessing gender identity. McCauley and Ehrhardt (1977) found that 92% of their female-to-male transsexuals draw a male figure first, 63% of the male-to-female transsexuals in Buhrich and McConaghy's (1979) sample drew female figures first, as did 45% of their male transvestites, and Fleming et al. (1979) found that 67.5% of their biological male gender dysphorics drew female figures first, while 84.6% of the biological female gender dysphorics drew male figures first.

Taken as a whole these findings are supportive of the validity and utility of the Draw-A-Person test for assessing gender identity. Another advantage of the DAP test is that despite its categorization as a projective test, the dependent measure of sex of first figure drawn is an objective one. However, there are at least two major difficulties with using the DAP test to assess gender identity. The first of these is that the DAP test, with the dependent measure of sex of first figure drawn, is relatively transparent and consequently, easy to fake. Second, and perhaps more serious, is the high false positive rate that would accrue, particularly in the case of biological females, were the DAP test to be used to assess candidates for sex reassignment. It appears then that despite the support for the construct validity of the DAP test in assessing gender identity, it is not in its

present form sufficiently discriminative or non-transparent to make its use in diagnosis appropriate. Further research into the use of the DAP test with different dependent measures has the potential for being fruitful.

Throughout this review of the assessment of gender identity in adults it has been argued that a) present means of diagnosis are questionable theoretically and inadequate practically, b) traditionally diagnosis has not been based on assessment of gender identity, c) assessment of gender identity itself has the potential to clarify theoretical issues and assist in practical diagnostic concerns, and d) present means of assessing gender identity are either invalid or unreliable.

A series of quotations will perhaps clarify these issues:

Valid tests which are presently available do not afford such analysis. They assess the degree of conformity to a prescribed social stereotype of the male or female role. They do not assess more subtle psychological traits and erotic indications of gender identity. Interviews, utilizing various types of open-ended questions, are more reliable in this respect. At least until more sophisticated tests are developed, interviews must be relied upon to gather the complex kind of information about to be reported. (Money and Primrose, 1968, p. 472).

While it is inevitable that much of our historical information must continue to be obtained solely from the patient, all efforts should be extended to obtain third party validation. In addition, further work needs to be done to develop more objective criteria. Without these steps, we may continue to wander in a miasma of self-fulfilling prophecies which undermine scientific data collection and may lead to inadequate or harmful patient care. (MacKenzie, 1978, p. 261).

A patient's self-report is open to considerable distortion, as are the more obvious psychological questionnaires such as the MMPI and Body Image scores. Projective testing offers tantalizing possibilities ... but again

such tests are imprecise, heavily dependent on administration and scoring, and open to deception by the knowledgeable patient. (MacKenzie, 1978, p. 259).

In many cases, objective psychometric evaluation has been totally absent, and where available, it has typically been focused on a very narrow domain of functioning (eg. intelligence). In other studies the psychological measures utilized (eg., figure drawings, inkblots, etc.) have required an interpretive "leap of faith" which has introduced additional ambiguity to our assessments. (Derogatis, Meyer, and Boland, 1981, p. 157).

... the deeper level of gender identity is best assessed by tests that are relatively unstructured, somewhat ambiguous, and for which there are no obvious sex-stereotyped responses. (Cramer and Carter, 1978, p. 63).

The requirements for an acceptable measure of gender identity are that it

- a) taps gender identity rather than sex role or sexual orientation (i.e., is valid),
- b) does not rely on self-report data,
- c) is difficult to fake a certain type of response, either accidentally or purposefully (i.e., is neither simplistic nor transparent),
- d) is objective and does not require a great deal of interpretation or inference,
- e) can be compared to empirical base-lines (i.e., norms are available)
- f) is reliable, and
- g) clearly discriminates type and degree of gender identities.

At present no measure meets all of these requirements.

1.4 The concept of gender identity as a cognitive schema

Cognitive schemas can be thought of as conceptual structures which facilitate the organization of information in memory (Cantor & Mischel, 1977; Markus, Crane, Bernstein & Siladi, 1982). As such one would expect them to most clearly affect aspects of cognitive functioning (eg., processing

of information); indeed research on cognitive schemas has been oriented towards exploring this area rather than, for example, their effects on behavior in the real world.

As early as 1968 gender identity was explicitly hypothesized to be a cognitive schema. McClelland and Watt (1968) suggest that gender identity is "an unconscious schema ... the fundamental experience of one's self as a male or a female" (p. 237). While other authors have alluded to gender identity being a cognitive schema, it is only within the past five years that supportive empirical data have been forthcoming, perhaps having been encouraged by the upsurge in cognitive approaches over the last decade. Support for the notion of gender identity as a cognitive schema has arisen from developments in two areas of psychology in particular. The contributions of research in developmental and social psychology to the understanding of gender identity will be reviewed below.

Contributions from Developmental Psychology. In 1966 Kohlberg outlined the cognitive developmental theory of gender identity development, an alternative to the already established psychoanalytic and social learning theories, in which the child's active role in structuring his/her world according to his/her level of cognitive development is emphasized. Kohlberg presents this theory as one "which assumes that basic sexual attitudes are not patterned directly by either biological instincts or arbitrary cultural norms, but by the child's cognitive organization of his social world along sex-role dimensions" (p. 82). In particular Kohlberg suggests that "children develop a conception of themselves as having an unchangeable sexual identity at the same age and through the same processes that they develop conceptions

of the invariable identity of physical objects" (p. 83).

Kohlberg proposes that the process of developing a gender identity begins with the child hearing and learning the verbal labels "boy" and "girl", and that verbal learning of his/her own label occurs sometime late in the second year of life. However, at this age the correct self-labelling does not imply correct self-classification in a general physical category. For instance, to the child the label "boy" may just be a name (eg., like "Jimmy"); a child may recognize that there are other boys (other Jimmys) in the world without understanding the basic criterion for determining who is a boy and without realizing that everyone is permanently either a boy or a girl. In the third year the child can generalize his/her own sex label to others on the basis of a loose cluster of physical characteristics, and by the age of four this generalization is based primarily on clothing and hair-style. It is not until the age of five or six that the child is certain of the constancy of gender identity; at four the child says that the pictured girl could be a boy if she wanted or if she played boys' games, etc., while at age six or seven most children are certain that a girl could not be a boy regardless of changes in appearance and behavior (Kohlberg, 1966). Kohlberg suggests that the development and stabilization of gender identity is only one aspect of the general stabilization of constancies of physical objects that takes place between the ages of three and seven; his research suggests that the process of forming a constant gender identity is not a unique process determined by instinct, identification, or reinforcement, but rather, part of the general process of conceptual growth.

Support for and elaboration of Kohlberg's formulations have been provided by McConaghy (1979). McConaghy built on the work of Slaby and Frey (1975) who identified three sequential aspects of gender identity formation: i) identification (an awareness that two different sexes exist), ii) stability (an awareness that gender remains the same over time), and iii) constancy (an awareness that gender remains fixed across various situations and motivations). She identified two stages in the development of constancy of gender identity: an understanding of gender permanence, followed by an understanding of the genital basis of gender. In her study of Swedish school children she found that gender permanence and the genital basis of gender are distinct sequential aspects of gender understanding. McConaghy found a number of children who believed that gender could be changed by behavior, yet asserted in the abstract that gender was permanent; she suggests that these children are merely affirming a stereotype (i.e., the assertion that "girls cannot become boys" is similar to "girls cannot become racing car drivers"). In contrast, children who understand the genital basis of gender are thought to have acquired true constancy of gender identity, for which a prerequisite is the development of concrete operational thinking. Finally, McConaghy suggests that this true constancy of gender identity does not develop until age seven to nine, or even later.

Cognitive developmental theory has been subjected to a variety of criticisms. Maccoby and Jacklin (1974) have pointed out that it is not necessary for a child to have a concept of gender invariance in order for self-socialization into sex roles to begin; for instance, three year olds often have clear sex-typed preferences in toys, etc. These authors suggest

that it is impossible to discount the effects of this self-socialization on future development.

Another problem with the cognitive developmental formulation is its prediction that true constancy of gender identity does not occur until after age five or six at the earliest. This assertion stands in stark contrast to Money and Ehrhardt's (1972) well-substantiated, clinically-based conclusion that gender identity is usually firmly fixed by the age of three or four at the latest.

The work of Lewis and his colleagues (Lewis, 1979; Lewis & Brooks-Gunn, 1979; Lewis & Weinraub, 1979) on early social cognition and their subsequent theoretical formulations appear to have the potential to account for the available data more completely and parsimoniously than has the cognitive-developmental theory (Kohlberg, 1966). Prior to a discussion of this work, it is interesting to note Money and Ehrhardt's (1972) foreshadowing of Lewis and his colleagues' formulations. Money and Ehrhardt, while not providing supportive data, do suggest that:

The two gender schemas are, in the development of the ordinary child, similarly coded as positive and negative in the brain. The positive one is cleared for everyday use. The negative one is a template of what not to do and say, and also of what to expect from members of the other sex. (p. 164-5)

Lewis and Brooks-Gunn (1979) have studied the development of self (i.e., the concept of self) through investigating self-recognition, as it, by necessity, implies a concept of self. Their research has involved infants between the ages of nine and thirty-six months, and the measurement of four types of behavior emitted in response to pictorial, mirror-image

and videotape representations of persons, who vary along the dimensions of familiarity, age and gender (i.e., male or female). The four dependent measures, thought to be indicative of self-recognition, are: i) self-directed behavior, ii) verbal production, iii) comprehension, and iv) differential responding to different stimulus conditions. In the interest of brevity and in accordance with the more theoretical focus of this section, the specifics of Lewis and Brooks-Gunn's procedures and results will not be reviewed here; the interested reader is referred to these authors' comprehensive account of their own work (Lewis & Brooks-Gunn, 1979).

Lewis and Brooks-Gunn begin by distinguishing between the existential and the categorical self. The basic premise of the existential self is that the self exists as distinct from others; this self-other differentiation seems to occur just prior to the time that self and object permanence begin to emerge (i.e., at about eight months). Subsequent to the development of the existential self is the development of the self as object, or of the empirical/categorical self (i.e., self concept). The categorical self involves the categories by which the infant defines itself vis-à-vis the external world, and is subject to many lifelong changes. Specifically,

Ontogenetically, it should change as a function of the child's other cognitive capacities, as well as with changing social relationships. Some categories, like gender, remain fixed; others, like size, strength, and competence, change either by being added to or altered entirely. (Lewis & Brooks-Gunn, 1979, p. 11)

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outline four general periods of self development as occurring between birth and two years of age. It is the last of these four periods (i.e., 12 to 24 months) that is of particular interest here. Lewis and Brooks-Gunn's data have led them to suggest that during this period the basic self categories, which emerged between eight and twelve months, are consolidated. In other words, the categorical self is the focus of this developmental period.

These researchers hypothesize that one of these basic categories is gender, and proceed to provide data suggesting that gender is a social dimension which is acquired early. They note that,

The origins of social differentiation as a function of gender are not clear. Differences in physical attributes, in culture-related attributes, and in interactions with the social world, as functions of both the sex of the infant and the caregiver, exist. Whatever the basis of the differentiation, infants show gender knowledge by the onset of verbal labelling...We do not know at this time what form that knowledge takes, although we recognize that it must be limited by the child's general cognitive ability and amount of experience. Thus, although infants may demonstrate early gender knowledge, their knowledge is not in the same form as adult knowledge of gender... Clearly, with increasing age and cognitive capacity, the concept of gender becomes further articulated... One of the important consequences of the young child's knowledge of these early social dimensions is that the organism is able to "construct" a complex social world. (Lewis and Brooks-Gunn, 1979, p. 238-240)

With regard to this construction of the social world and its consequences, Lewis and Brooks-Gunn (1979) write,

...children's growing social cognition enables them to determine how to act under certain conditions. This social cognition, as we have attempted to show, centers around knowledge of self - in this case, children's gender and their knowledge of others' gender. It is important here to state that children acquire information

about others as well as themselves through the observation of the interactions of others which do not involve the self. Thus, I learn about myself, others, their relationships, and my relationship to them, both by interacting with them and by watching them interact... (which) provide the material the children use to construct the schema necessary to generate appropriate sex-role behavior.... This construction requires first that the child actively interacts with the world; second, that the child be able to differentiate between others on the basis of their gender, using such physical properties as size, hair length, facial features, and clothes. Finally, the child must be able to obtain knowledge about the cultural or familial behaviors which are deemed appropriate for the particular gender. This cognitive information requires a duality of self-other knowledge. Thus, children acquire knowledge about their own gender at the same time that they acquire knowledge about the gender of others. We believe these cognitive abilities are acquired early, and our data on attention and labeling seem to bear this out. (p. 269-270).

This data-based conceptualization of the development of gender identity is certainly reminiscent of Money and Ehrhardt's more hypothetical formulation. Furthermore, it is able to account for children's early self-socialization, in terms of sex role behavior, that was mentioned by Maccoby and Jacklin (1974).

Lewis and his colleagues' formulations (Lewis, 1979; Lewis & Brooks-Gunn, 1979; Lewis & Weinraub, 1979) are able to incorporate both the work of Money and Ehrhardt (1972) and the data cited by cognitive-developmental theorists (Kohlberg, 1966; McConaghy, 1979; Slaby & Frey, 1975). In part, this reconciliation is effected by distinguishing between "the development of self, that is, the development of the knowledge, whether known to the subject or not, that the self is different than others ... and that the self has attributes", (Lewis & Brooks-Gunn, 1979, p. 198), and the development of

knowledge of knowledge about the self (i.e., of the ability to reflect upon one's knowledge of oneself). Essentially, by providing data indicating that the self develops prior to one's ability to reflect on oneself, Lewis and his colleagues are suggesting that gender identity may become established without the child being consciously aware of it, and before he/she is able to reflect on or articulate it. In other words, gender identity may well be established at an early age, as is suggested by Money and Ehrhardt (1972), but remain an inaccurate and incomplete conceptualization (from the perspective of adults) until a much later age, as is hypothesized by the cognitive-developmental theorists (Kohlberg, 1966; McConaghy, 1979; Slaby & Frey, 1975).

One interesting aspect of Lewis and his colleagues' conceptualizations is their potential for reconciling the conflict between the bodies of research presented by Money and Ehrhardt (1972) and by the cognitive-developmental theorists. It would also be of value to explore the implications of the social cognition approach for interventions in the case of childhood gender disorders. Particularly noteworthy for this discussion though, is the emphasis of the social cognition formulation on the child's construction of its social world. Specifically, it is hypothesized that the child uses information "...to form schema used to differentiate others, and to locate the self vis-à-vis others ... one basis for differentiation and location of the self must be gender". (Lewis & Weinraub, 1979, p. 148). Lewis and his colleagues are suggesting, based upon their fairly extensive research, that the child begins at an early age to develop cognitive schemas for the dimension of gender; and that one of these schemas is used to locate and categorize him or herself on the basis of gender, which seems to be a reasonable

description of gender identity.

Contributions from Social Psychology. Recent study in social psychology has discernible roots in Kelly's (1955) formulation of personal constructs and in James' (1890) presentation of the self as an active agent, as it has been oriented towards investigating how a person organizes his or her psychological world. Similar to the developments discussed in the preceeding section, this orientation seems to arise in part from the increasing influence of cognitive psychology on the discipline as a whole.

T. B. Rogers, Kuiper and Kirker (1977) explored the degree to which the self is implicated in processing personal information using a levels of processing paradigm. The work of Craik and his colleagues (eg., Craik & Lockhart, 1972; Craik & Tulving, 1975) in the area of levels of processing had indicated that recall is best when the subject is induced to process stimulus words semantically and poorest when the words are subjected to processing on the basis of structure, with phonemic processing resulting in an intermediate degree of recall. Rogers et al. (1977) investigated the power of self-reference as an encoding device, using an incidental recall paradigm in which subjects had initially made different kinds of ratings on the stimulus words. Their results replicated those of Craik and his colleagues in that structural ratings of words (eg., assessing the size of type in which the word is printed) led to poorer recall than did phonemic ratings (eg., deciding whether the stimulus word rhymes with another word), which in turn produced poorer recall than did semantic ratings (eg., deciding whether the stimulus word means the same as another word). In addition, however,

Rogers et al. (1977) found that self-referent ratings (i.e., the subject deciding whether the stimulus word describes him or herself) resulted in better incidental recall than semantic ratings. These data supported the hypothesis that the self serves an active and powerful role in processing personal information.

Further evidence for this hypothesis comes from research using recognition memory tasks. In 1977 Rogers found that making self-referent decisions enhanced recognition memory; specifically, he found that subjects missed (i.e., did not recognize a word that had been presented) fewer words if they had initially made self-referent decisions about the words than if they had not made such decisions. A later study assessed the probability of committing a false alarm (i.e., "recognizing" a word that had not in fact been presented) in a recognition memory task (Rogers, Rogers, and Kuiper, 1979). Here it was found that the number of false alarms increased as the words presented became more highly self-referent. These results are supportive of Rogers and his colleagues' conceptualizations as outlined below.

Describing the self as "the abstracted essence of a person's perception of him or herself" (Rogers et al., 1977, p. 677), these authors hypothesize that the self serves as a superordinate schema for processing information. Specifically they suggest that "contact with the reservoir of history embodied in the self should provide considerable embellishment and richness to an incoming stimulus" (Rogers et al., 1977, p. 679), resulting in enriched input, and consequently, a stronger memory trace for the input. Rogers et al. conceive of the self as a well-structured, rich and powerful schema, a conceptualization which is supported by their data. They suggest "consideration

of how the various traits (i.e., subschemata) and specific elements (i.e., individual behaviors) are organized within this structure". (Rogers et al., 1977, p. 686). It is to this consideration that Markus (1977) has turned.

Markus (1977) selected subjects who appeared (based on self-rating scales) to have schemata in the domain of independence-dependence and compared them to subjects who did not appear to have self-schemata in this domain. Markus conceptualizes self-schemata as "cognitive generalizations about the self, derived from past experience, that organize and guide the processing of the self-related information contained in an individual's social experience" (Markus, 1977, p. 63). Consequently, she hypothesized that the existence of self-schemata in a particular domain would, with regard to that domain, i) facilitate the processing of information about the self, ii) contain easily retrievable behavioral evidence, iii) make possible confident self-predictions of schema-related behavior, and iv) result in the individual resisting counterschematic information. Markus compared the performance of her groups of Independents (i.e., those subjects who appear to have a self-schemata of themselves as independent), Dependents, and Aschematics (i.e., those subjects who do not appear to have a self-schemata on the independence - dependence dimension) on a variety of cognitive tasks. The data supported her hypotheses and provided "converging evidence for the concept of self-schemata, or cognitive generalizations about the self, which organize, summarize, and explain behavior along a particular dimension". (Markus, 1977, p. 75). Her data also suggest that individuals are somewhat idiosyncratic in the dimensions they choose

upon which to categorize themselves, in that some subjects appear to not have self-schemata for the independence-dependence domain.

Further evidence for the conceptualizations Markus outlined in 1977 (above) comes from a more recent study (Markus et al., 1982). For this research she and her colleagues selected subjects who described themselves as highly masculine, highly feminine, androgynous (highly masculine and highly feminine) or undifferentiated (low in both masculinity and femininity). The cognitive performances of these subjects in various information-processing tasks were then compared. The results paralleled those of her 1977 study in that, for example, the highly masculine subjects required shorter processing times for self-referent decisions regarding masculine attributes than for those regarding feminine attributes, recalled more masculine attributes, and so on.

The issue of the importance of self-schematas has also been addressed by Tunnell (1981). He hypothesized that self-schemata (i.e., characteristics central to one's self-concept) would serve as a major basis for evaluating others. To evaluate this primary hypothesis he used the Bem Sex Role Inventory (BSRI) to select androgynous and feminine women, and compared the idiosyncratic vocabularies they used to describe male and female acquaintances. The data supported his hypothesis in that the subject's self-schemata (i.e. perceptions of her own sex role) was reflected in the vocabulary she used to describe others; for instance, feminine women described others with significantly more terms connoting femininity than masculinity. These findings provide further evidence for the existence of self-schemata and their importance to an individual's construction of his or her world.

The research reviewed in the preceding pages suggests that the self serves as a superordinate schema for processing information (Rogers et al, 1977), and is comprised of a number of relatively idiosyncratic self-schemata which influence processing and retrieval of information about the self (Markus, 1977), and one's evaluations of others (Tunnell, 1981). These self-schemata are conceptualized as "cognitive generalizations about the self" (Markus, 1977, p. 64) and as "characteristics central to one's self-concept" (Tunnell, 1981, p. 1126), and are reminiscent of Lewis and Brooks-Gunn's (1979) description of the categorical self.

Lewis and Brooks-Gunn (1979) explicitly identify gender as a dimension for which the child develops a cognitive schema. In contrast, research in social psychology, using adult subjects, has emphasized the idiosyncratic nature of adults' cognitive schemas. Despite this, I believe a strong case can be made for the existence, or likely existence, of a cognitive schema for the dimension of gender in adults.

Lewis and Weinraub (1979) state that "given the universality of this differentiating feature - in all times and places male and females are at least in some physical way different - one basis for differentiation and location of the self must be gender" (p. 148). Kessler and McKenna (1978) take this line of thought one step further and assert that,

As we go about our daily lives, we assume that every human being is either a male or a female. We make this assumption for everyone who ever lived and for every future human being. Most people would admit that the cultural trappings of males and females have varied over place and time, but that nevertheless, there is something essentially male and something essentially female. It is a fact that someone is a man or a woman, just as it is a fact that the result of a

coin toss is either heads or tails, and we can easily decide the case by looking. Of course, the coin may be worn and we may have to inspect it very closely. Analogously, a person may not clearly be one gender or the other. But just as we assume that we can determine "heads" or "tails" by detailed inspection (rather than concluding that the coin has no heads or tails), we assume that we can do the same with a person's gender. (p. 1)

Further,

Gender very clearly pervades everyday life. Not only can gender be attributed to most things, but there are certain objects (i.e., people) to which gender apparently must be attributed. The immediate concern with doing this when we meet an ambiguous person illustrates the pervasive, taken-for-granted character of the gender attribution process. (p. 3)

The evidence is fairly clear that children do develop cognitive schemas for the dimension of gender. How conceivable is it that as one matures in a society where a person is either a male or a female, where gender does pervade everyday life, where men and women are typically physically different, one somehow loses that cognitive schema for gender? Does it not seem far more reasonable that this schema would become more complex and better articulated as one's cognitive abilities matured and one's social experiences accrued? Even if one were able to step away from the universality and cultural pervasiveness of gender, one would not be free of its influence. Our very language presses us to attribute gender to others and others to attribute it to us, and, while the influence of language on cognition has not been clearly articulated, there is a general consensus that it plays an important role (Slobin, 1974). Indeed, more than one author has specifically implicated language in gender identity development itself (eg., Abelson, 1979; Money & Ehrhardt, 1972).

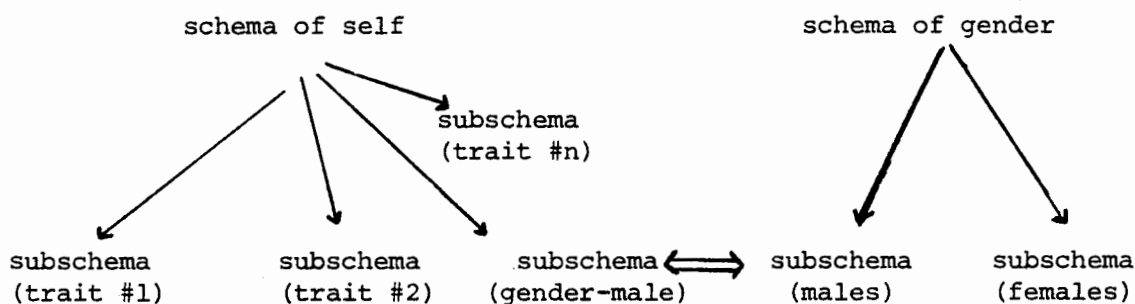
Rather than stubbornly adhere to the somewhat untenable position that as human beings mature they cease to categorize both themselves and others on the basis of gender, I have chosen to assume that this cognitive schema is retained. The question then becomes, in what form is this schema retained, or in what ways does it become more complex and better articulated?

It is at this point that one would expect idiosyncrasy to play a role, for despite a common culture each individual does obtain somewhat different information from which s/he then actively constructs, in his or her own way, a complex social world. One might expect that for some men, for instance, basic to being male is being sexually attracted to women, or being masculine (whatever that may mean to them), and perhaps to others being male may only mean having a body that is physically male. From looking at effeminate men, homosexual men and men whose biological sex is ambiguous, it becomes apparent that they vary as to what data they use in order to categorize themselves and other men as males. Likewise men may vary as to what factors are included in their cognitive schemas of females. Similarly, one would expect women's cognitive schemas of men and women to also be somewhat idiosyncratic.

In accord with the formulations of Lewis and his colleagues (Lewis, 1979; Lewis & Brooks-Gunn, 1979; Lewis & Weinraub, 1979), I am suggesting that the cognitive schema for the dimension of gender is actually comprised of two, perhaps complementary, schemas - one for "male" and another for "female". This notion of dual schemas is compatible with the theorizing of Money and Ehrhardt (1972) as well as with that of Lewis and his colleagues.

Indeed, it is difficult to conceive of a cognitive schema for the dimension of gender that does not in some way "compare and contrast" the accepted dichotomies of male and female.

The link between cognitive schemas for the dimension of gender and gender identity itself seems to reside in the degree to which either or both of the subschemas of "male" and "female" are embedded in the schema of the self. This is diagrammed below for the case of a person with a male gender identity.



To the extent that this person identifies himself as a man/male, one would expect the "males" subschema of his gender schema to be closely related to and have common elements with the "male" (gender) subschema of his self schema. Some of the implications of this conceptualization will be explored below.

- 1) Given that the self schema is well-structured, rich and powerful (Rogers et al., 1977), one would expect a subschema embedded in the self schema to be relatively more complex than a subschema not so embedded. In the above case, for example, one would expect the "males" gender subschema to be more complex than the "females"

gender subschema to the extent that the former is embedded in the self schema.

2) Following this line of reasoning, one would also expect information relevant to the embedded subschema to be more quickly processed, better recalled, and subject to fewer misses and more false alarms in recognition tasks than information not relevant to the embedded subschema (Markus, 1977; Markus et al., 1982; Rogers, 1977; Rogers, 1981; Rogers et al., 1977; Rogers et al., 1979).

3) By comparing complexity, processing speed, recall and recognition of the "males" and "females" gender subschemas, one ought to be able to ascertain the relative degree to which the gender subschemas are embedded in the self schema.

4) To the extent that one gender subschema appears, based on the above measures, to be embedded in the self schema while the other is not, the person identifies him or herself as a male or female (i.e., has a male or female gender identity).

5) While one could ascertain the relative strength of the "males" and "females" gender subschemas through the procedure noted in #3 (above), in order to comment on the degree to which a gender subschema is embedded in the self schema, one must be able to compare its complexity, processing speed and retrieval adequacy to that of either other self subschemas or other non-self subschemas.

One advantage of this conceptualization and its implications for the assessment of gender identity is that they potentially allow for the occurrence and measurement of confusion or conflict in gender identity. A

number of authors have commented on such issues as the bisexual identity of transsexuals (Gottlieb, 1978; Stoller & Newman, 1971), the ambivalence or ambiguity of gender identity experienced by transsexuals (Meyer, 1974), and the need to more accurately assess the degree of gender identity disturbance (Bradley et al, 1978). To be able to assess the relative and absolute strengths of the male and/or female gender identities would certainly be helpful.

This conceptualization is also compatible with Rosen and Rekers' (1980) recently published proposed taxonomy for sex and gender. Noting that "it is essential that our discussion of the diagnostic issues be based upon some careful theoretical distinctions" (p. 199), Rosen and Rekers proceed to present a careful, clear and thorough taxonomy for sex and gender. Gender identity itself is conceptualized as two independent continua, one of identification as a male and the other of identification as a female. One may thus have a male gender identity (strong male identity and weak female identity), a female gender identity, a conflicted gender identity (strong male and female identities), or an undifferentiated gender identity (weak male and female identities). In postulating two independent continua, this conceptualization of gender identity is parallel to Bem's (1974) of social sex role.

While neither the notion of gender identity as a subschema of the self schema (that is related to one or both of the subschemas of the gender schema) nor the taxonomy proposed by Rosen and Rekers (1980) have been put to empirical test, both appear at present to be useful ways to conceptualize gender identity, with viable implications for its assessment.

1.5 An attempt to develop a means of assessing gender identity

In the previous pages it has been argued that gender identity exists separate from biological sex, social sex role, and sexual orientation. It has been concluded that the devices for assessing gender identity which exist at present are, in the case of both adults and children, inadequate. Finally, it has been suggested that an assessment device designed to tap gender identity directly would be of use both in research and in the clinical milieu.

Gender identity has been conceptualized as the embedding of one of the subschemas of the gender schema in the gender subschema of the self schema. It has been suggested that, to the extent that this occurs, one would expect a greater complexity of the embedded gender subschema, and faster processing time, better recall, and fewer misses and more false alarms in the recognition of information related to that gender subschema. It is to the exploration of these suggestions that the present study is oriented.

Prior to the explicit detailing of the means and hypotheses of this research, some discussion of its limitations is in order. The present study is seen as the first in a series; it is of a primarily exploratory nature. Its goal is to investigate some possible means of assessing gender identity. Thus, it is not expected to develop a means of assessing gender identity which clearly meets all the criteria outlined on page 31 in one fell swoop. In addition, despite the emphasis in previous pages on the need for both relative and absolute measures of gender identity, the present study limits itself to investigating the relative strengths of the male and female

identities. This limitation is the result of methodological and time constraints.

In this research the relative strengths of the male and female gender subschemas will be investigated using a measure of complexity, and recall and recognition memory tasks.

The complexity of the figures drawn in the Draw-A-Person test will be one measure used to explore the relative strengths of the male and female gender subschemas. There is some support for the complexity of drawings reflecting cognitive complexity. For instance, Phillips and Phillips (1976) found a significant correlation between the sophistication of figure drawings (i.e., first figure drawn on the DAP test) and cognitive complexity, as measured by grid complexity. In addition Van Dyne and Carskadon (1978) present data which suggest that subjects do project themselves onto same-sexed figure drawings. These findings support the use of the complexity of figure drawings as a measure of the cognitive complexity of the gender subschemas. Using this measure, the following hypotheses will be tested:

1. a) Male subjects' drawings of male figures will be more complex than their drawings of female figures.
b) Female subjects' drawings of female figures will be more complex than their drawings of male figures.
2. a) Male subjects' drawings of male figures will be more complex than will female subjects'.
b) Female subjects' drawings of female figures will be more complex than will male subjects'.

In addition, one would expect that previous findings regarding the sex of the first figure drawn would be replicated. Thus, it is expected that approximately 80% of the male subjects will draw a male figure first, while approximately 50% of the female subjects will draw a female figure first.

Subjects will complete a self-referent decision task, following which incidental recall or recognition memory will be tested. With increasing use of the self schema in processing information one would expect better incidental recall, and fewer misses and an increased number of false alarms in the recognition task. Thus the following hypotheses will be tested:

3. a) Male subjects will recall more male gender words than female gender words.
b) Female subjects will recall more female gender words than male gender words.
4. a) Male subjects will recall more male gender words than will female subjects.
b) Female subjects will recall more female gender words than will male subjects.
5. a) Male subjects will make more inaccurate inclusions (i.e., "recalling" a word that was not presented) of male gender-related words (eg., "son", "husband") than of female gender-related words.
b) Female subjects will make more inaccurate inclusions of female gender-related words than of male gender-related words.

6. a) Male subjects will recall a male gender word first of the gender words.
b) Female subjects will recall a female gender word first of the gender words.
7. a) Male subjects will miss (i.e., word was previously presented but is not recognized) more female gender words than male gender words.
b) Female subjects will miss more male than female gender words.
8. a) Male subjects will miss more female gender words than will female subjects.
b) Female subjects will miss more male gender words than will male subjects.
9. a) Male subjects will have more false alarms (i.e., word was not previously presented but is "recognized") to male gender words than to female gender words.
b) Female subjects will have more false alarms to female gender words than to male gender words.
10. a) Male subjects will have more false alarms to male gender words than will female subjects.
b) Female subjects will have more false alarms to female gender words than will male subjects.

2. METHOD

2.1 Subjects

Sixty male and sixty female students in the College of Arts and Sciences at the University of Saskatchewan served as subjects in this study, which was run between April and June, 1982. The average age of the male subjects was 22.9 years (range: 18-35), and of female subjects, 20.7 years (range: 18-33). All subjects volunteered to participate in an experiment involving cognitive functioning; no remuneration was involved.

2.2 Procedure

Subjects were tested in groups varying in size from one to ten persons and comprised of approximately equal numbers of males and females. All testing sessions were conducted by a male experimenter (the author).

Upon entering the testing room subjects were provided with a soft lead pencil with an eraser, and a test booklet. They were informed that:

This is an experiment which attempts to tap cognitive functioning using a variety of methods; there will be a number of different tasks for you to do. In front of you is the booklet in which you will make your responses, which will be anonymous. Now for the first task...

The first component of this experiment was the administration of the Draw-A-Person test to all subjects. Subjects were instructed as follows:

... I want you to draw a person. You will have a maximum of ten minutes to do your drawing. I will tell you when your time is up. If you finish your

drawing before your time is up you may go on to the next page. Are there any questions? ... (in response to questions subjects were told to "draw a whole person" and that "the task has nothing to do with your ability to draw"; other questions were answered with "that is up to you" or by a repetition of the instructions) ... Please start now and draw a person on the first page of your booklet.

When ten minutes had elapsed subjects who had not yet done so were asked to turn to the next page of their booklets. Here they were asked to identify the sex of the person they drew by circling "male" or "female". Since subjects may draw figures of indeterminate sex (Rierdan & Koff, 1981), they were provided with the opportunity to indicate uncertainty as to the sex of their figure. Subjects were then requested to draw a person of the opposite sex to the one they had just drawn, and were allowed a maximum of ten minutes to complete this task. For this second figure drawing subjects were timed individually to ensure that they spent no more than ten minutes on the task. When ten minutes had elapsed for a given subject s/he was requested to turn to the next page of his/her booklet.

Subjects who completed their figure drawings in less than the allotted amount of time upon turning to the next page in their booklets found themselves requested to complete the Bem Sex Role Inventory (BSRI). Data from the BSRI were being collected as pilot work for another study and were not

analyzed in this study. Shortly after subjects had completed both human figure drawings, the experiment continued as outlined below.

The next task for all subjects was one involving self-referent judgments. For one-half of the male and one-half of the female subjects these judgments were made on a list of forty words, while for the other half of the subjects a list of eighty words was used. In both conditions each word was presented for five (5) seconds followed by a .7 second interstimulus interval. The words were presented visually using a slide projector. The subjects were instructed as follows:

... I am going to show you some words which might describe you. For each of the words I show you I want you to decide whether it does describe you. I want you to indicate whether it describes you by circling "yes" or "no" on the page in front of you. Are there any questions? ...

After every tenth item subjects were informed of the number of the upcoming item in order to ensure that they not lose their place on the response sheet.

The subjects who were first exposed to the list of eighty words undertook an incidental recall task. They were instructed that:

... On the next page I want you to write down as many of the words I showed you as you can. You may write them down in any order you wish. Are there any questions? ... Turn to the next page in your booklet and write down as many of the words as you can remember ...

Subjects were allowed five minutes to complete this task.

The subjects who were exposed to the list of forty words then undertook a recognition task. They were shown a list of eighty words, thirty-nine of which were words they had been previously shown. Each word was presented visually for five seconds, with a .7 second interstimulus interval. Subjects received the following instructions:

... Now I am going to show you some more words. Some of these are words that I have just shown you and others are new words. For each word I want you to decide if it was one of the words I showed you or not. Turn to the next page of your test booklet. If the word that appears on the screen is one that I have already shown you, I want you to circle "old". If it is a new word, I want you to circle "new". Are there any questions? ...

Again, after every tenth item subjects were informed of the number of the upcoming item.

After subjects had completed the recall or recognition task they were asked to complete the BSRI if they had not already done so, and to complete an information sheet indicating their age and sex. Subjects were then debriefed.

2.3 Materials

Stimulus Words. The stimulus materials consisted of a total of eighty-two words drawn from Thorndike and Lorge's (1944) listings. The frequency with which these words occur in written English varies from one to over one

hundred occurrences per one million words (Thorndike & Lorge, 1944).

Seventy-six of these words were chosen according to the following criteria: i) nouns, ii) one or two syllables in length, iii) potentially self-descriptive, iv) unambiguous in meaning, v) not derogatory (eg., "idiot"), vi) not beginning with a capital letter, and vii) not implying gender (eg., "uncle", "actress"). These nouns represent four general categories: i) general (eg., "person", "infant"), ii) "personality" types (eg., "dreamer", "rebel"), iii) occupations (eg., "cashier", "student"), and iv) pastimes (eg., "cyclist", "dancer"). Approximately one-third of the words were from each of the first two categories, with the final third being comprised of words from the third and fourth categories in approximately equal numbers. These seventy-six words served only as distractor items and consequently no attempt was made to control for frequency; however, they were formed into thirty-eight pairs of words matched for frequency to facilitate list construction.

The remaining six words were the critical items in this study. They consisted of three words related to the male gender (i.e., "male", "man", and "guy"), and three related to the female gender (i.e., "female", "woman", and "girl"). Examination of the data presented by Thorndike and Lorge (1944) and by Howes (1966) suggests that the following pairs of words appear with comparable frequency in the English language: male-female, man-girl, and guy-woman.

List Construction. The eighty word list used in the incidental recall condition (see Appendix A) was constructed using seventy-four distractor words and the six gender words. The distractor words were selected by

randomly discarding one of the thirty-eight pairs of words and then using the remaining thirty-seven pairs (i.e., seventy-four words). The gender words appeared in the list as items 15, 25, 35, 45, 55 and 65, and the distractor words were randomly assigned to the other positions. The gender words were assigned to their positions such that "male" and "female" words were presented alternately, and such that the natural pairs (eg., man-woman) did not follow each other. Under these limitations the gender words could occur in twelve different orders. Eight of these orders were used in the study; four in which a male (female) word appeared first were randomly chosen. The positioning of the distractor words remained constant.

The stimulus list of forty words used in the recognition condition consisted of thirty-eight distractor words and two gender words (see Appendix A). The distractor words were randomly assigned to their positions, while the gender words occupied positions 15 and 25. The thirty-eight distractor words were comprised of one word, randomly chosen, from each of the thirty-eight pairs of words matched for frequency. The two gender words used were matched for frequency of occurrence and did not constitute a natural pair. Due to these limitations the words "male" and "female" could not be used in the stimulus list. As a consequence the stimulus list contained either the words "guy" and "woman" or "man" and "girl", with their order of presentation counterbalanced. Each of the four possible orders for the gender words was used twice, while the order of the distractor words remained constant.

The test list of eighty words used in the recognition condition was randomly chosen from among the eight lists used in the recall condition.

The same test list was used for each group of subjects tested in the recognition condition.

Response Materials. Each subject made his or her responses in a booklet which consisted of: two blank pages for the figure drawings, a page on which the sex of the first figure was indicated, an instruction page, the Bem Sex Role Inventory, a page(s) for responses in the self-referent task, and a page(s) for responses in the incidental recall or recognition tasks. The information sheets on which subjects indicated sex and age were not attached to the booklets, and were distributed at the end of the experiment.

3. RESULTS

3.1 Draw-A-Person Test

Draw-A-Person Test data were collected from each of the sixty male and sixty female subjects. For each subject the sex of the first figure drawn, indications of uncertainty, and complexity scores for each figure were tabulated.

First figure drawn. Disregarding indications of uncertainty, the sex of the first figure drawn by each subject was noted. The expected replication occurred in that 83.3% of male subjects and 55.0% of female subjects drew a same-sexed figure first ($\phi = 0.40$; $\chi^2 = 19.17$; $p < .001$).

Indication of uncertainty. Nine subjects (7.5%), five males and four females, indicated uncertainty as to the sex of the first-drawn figure. Since this sample is quite small no statistical analyses were conducted on

it; however, there do not appear to be any striking differences between this sample and the subjects as a whole in terms of age, first figure drawn, complexity scores or performance on the other tasks.

Complexity scores. Each figure drawn was scored for complexity using the Goodenough-Harris Point DAP scoring system (Harris, 1963). Since Harris provided separate scoring scales for male and female figures, in order that figure complexities could be compared both male and female figures were scored using a modified version of Harris' scoring scale for male figures (see Appendix B). The following modifications were made: i) addition of clarifications and examples from Harris' female figure scoring scale where appropriate, ii) addition of four items from the female figure scoring scale which were not represented on the male figure scoring scale, iii) omission of the items appearing on the scoring scale for male figures that relate to motor-coordination, directed lines, drawing technique and freedom of movement rather than to figure complexity, and iv) utilization of the clarifications suggested by Phillips, Smith and Broadhurst (1973) where appropriate. Thus each figure received a complexity score out of a possible total of 63. All scoring was conducted such that the rater was blind to the sex of the subject who had drawn the figure.

The drawings of ten male and ten female subjects were randomly selected for use in assessing inter-rater reliability. An independent rater scored these forty drawings using the modified scoring system described above. The product-moment correlation between the scores assigned by the two raters was 0.94.

The complexity scores were then subjected to a 2x2 analysis of variance with sex of subject serving as the between-subjects factor and sex of figure as the within-subjects factor. Only the main effect of the sex of subject factor reached significance ($F(1,118) = 9.92$; $p < .005$), indicating that female subjects drew more complex figures than did male subjects (see Appendix C for means, standard deviations, and ANOVA Summary Tables). There was no support for the hypotheses (1a and b, 2a and b) that subjects would tend to draw more complex same-sexed figures.

3.2 Recall condition

Thirty male and thirty female subjects participated in this condition. For each subject data were collected regarding the gender of the first gender word recalled, the number of words of each gender that were recalled, and the number of gender-related words which, while not presented, were "recalled".

Number of gender words recalled. A total of six gender words was presented to the subjects; three subjects (one male and two females) recalled all six words, and one female subject recalled no gender words. The number of gender words recalled was analyzed using a 2x2 analysis of variance (Sex of Subject X Gender of Words) (see Appendix C for $\bar{X}$ s, SDs, and ANOVAS). Only the interaction attained significance ($F(1,58) = 9.44$; $p < .005$); this interaction and the means obtained are displayed in Figure 1. Tests of simple main effects indicated support for Hypotheses 3b and 4b in that female subjects did recall more female words than male words ($F(1,58) = 32.51$; $p < .001$), and also recalled more female words than did male subjects

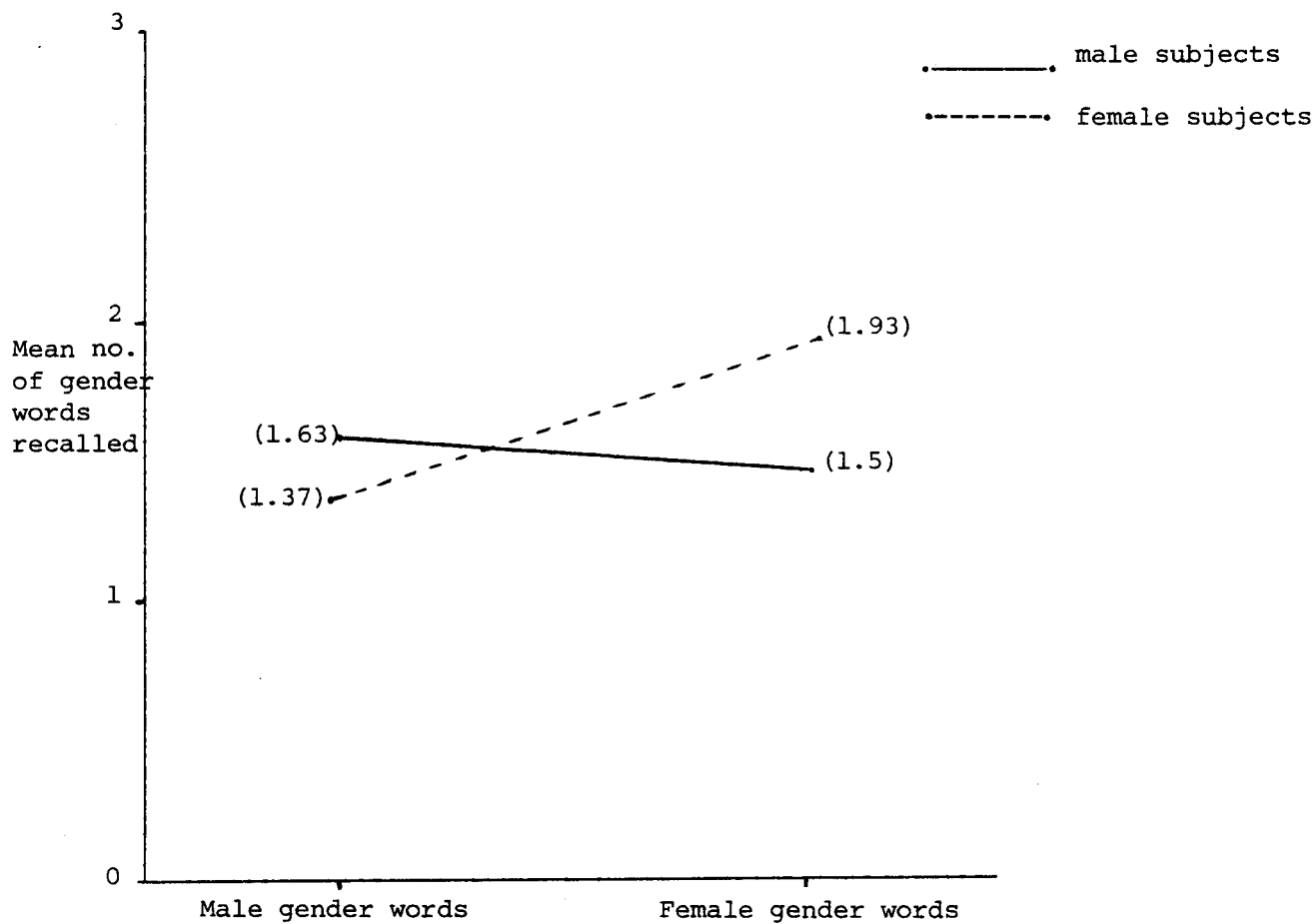


Figure 1. Mean numbers of male and female gender words recalled by male and female subjects.

($F(1,58) = 5.04$; $p < .05$). Hypotheses 3a and 4a, those concerning male subjects, were not supported by the data; these pairs of means, while differing in the hypothesized direction, did not attain statistical significance.

Inaccurate inclusions of gender words. Five subjects, three males and two females, each "recalled" one gender-related word which was not in fact presented. In each case this word was "boy". Consequently, while male subjects do appear more likely to inaccurately "recall" a male rather than a female gender-related word as hypothesized (5a), so, contrary to the prediction (5b), do female subjects.

Gender word first recalled. It was hypothesized that subjects would recall a same-sexed gender word first of the gender words (6a and 6b). This hypothesis was supported: 80% of male subjects recalled a male word first, while 75.9% of female subjects recalled a female word first ($\chi^2 = 18.45$; $p < .001$). In addition, the product-moment correlation between the sex of the subject and the gender of the first gender word recalled equalled 0.56.

3.3 Recognition condition

For each of the thirty male and thirty female subjects in this condition the numbers of misses and false alarms on male and female gender words were tabulated. Error scores were chosen for analysis because previous research (Rogers, 1977) has indicated that signal detection types of dependent variables do not reveal significantly different results from error scores when performance levels are close to that of the "perfect" observer. In this study no subject made all possible errors and 36.7% of subjects made no errors at all. This level of performance justifies the use of error scores in the analysis, but also leads one to view the results of the analysis with some caution since one third of the sample is not represented in the data.

A 2x2x2 analysis of variance (Sex of Subject x Gender of Word x Type of Error) was applied to the error scores (see Appendix C for $\bar{X}$ s, SDs, and ANOVAs). A significant main effect for the Type of Error factor was obtained ($F(1,58) = 15.84$; $p < .001$). This main effect was not interpreted since a significant interaction was also obtained for Gender of Word x Type of Error ($F(1,58) = 10.38$; $p < .005$); tests of simple main effects indicated that female words are missed more often than male words ($p < .01$), and that subjects are more likely to false alarm than to miss on male words ($p < .001$). Another significant two-way interaction occurred between the Sex of Subject and Gender of Word factors ($F(1,58) = 5.63$; $p < .05$); tests of simple main effects showed that male subjects committed more errors on female words than did female subjects ($p < .05$), and that male subjects made more errors on female words than on male words ($p < .05$).

Hypotheses 7 to 10 inclusive are all concerned with simple simple main effects, thus presupposing a three-way interaction. Since in this condition the three-way interaction was not statistically significant, these hypotheses could not be tested.¹

3.4 Post-hoc analysis

As was noted previously, the mean ages of male and female subjects were 22.9 and 20.7 years respectively. To investigate the possibility that this age difference might have influenced the results obtained, post-hoc analyses were conducted comparing the performance of the youngest male subjects with that of the oldest male subjects. These analyses did not reveal any meaningful differences between the performance of these two groups of

subjects, suggesting that the results obtained in this study are not an artifact of the difference in the mean age of male and female subjects.

4. DISCUSSION

This section will begin by discussing separately the results of each of the experimental conditions. More global and integrated comments, and suggestions for further research will follow.

4.1 Draw-A-Person Test

The expected replication of the percentages of male and female subjects who drew same-sexed figures first did occur. These percentages, then, continue to be a reliable finding in adult males and females.

In addition to this replication, the Draw-A-Person Test condition certainly spawned some interesting and unexpected findings. First, while it is of minimal importance to this study, it is intriguing that 7.5% of the subjects indicated uncertainty as to the sex of the first figure they drew. Rierdan and Koff (1981), who first provided subjects with the opportunity to indicate uncertainty, found that 8% of the 461 children in grades 5-9 whom they tested did express uncertainty about the sex of the figure they had drawn. Rierdan and Koff found that neither age nor sex seemed related to these indications of uncertainty, as was also the case in this study. They suggest that the uncertainty represents a conceptual classification dilemma, reflecting the child's "indefinite or ill-defined notion of sexual identity" (p. 257). If this suggestion is accurate, it is indeed thought provoking that essentially the same percentage of young adults also

express uncertainty. While it may be that the expression of uncertainty is indicative of tenuous conceptualizations about males and females, there are alternative explanations for this phenomenon. One possibility is that subjects who indicate uncertainty have been particularly strongly influenced by the instruction to "draw a person" and have done just that. If this is the case, then these subjects may be different from those who do not indicate uncertainty in that: a) they were influenced in such a manner by the instruction, and b) they were capable of drawing a human figure without clearly conceptualizing it as male or female. An alternative explanation is that subjects who indicated uncertainty were so focussed on the motor components of drawing that they had few cognitions about what they were drawing. At present these three explanations are equally viable. In future studies questioning of subjects who express uncertainty and correlating expressions of uncertainty with other measures ought to shed some light on the phenomenon.

The second curious finding in this condition is that, overall, female subjects drew more complex figures than did male subjects. While this sex difference has been noted in children (Scott, 1981), it was not expected to occur in an adult sample. It has been suggested that girls' superiority is "due to accelerated general development, more 'docility' and studiousness, better attention to detail, and greater social interest and skills." (Scott, 1981, p. 486). The apparent persistence of this sex difference is provocative. As to its etiology, one can speculate on the long-term cognitive consequences of sex role stereotyping and/or physiological predispositions, perhaps influenced by prenatal hormones, to particular cognitive styles or strengths.

Investigation of whether this sex difference occurs in sex role atypical subjects and/or in those who were exposed to hormonal excesses or deficits in utero has the potential to increase our understanding of this persistent sex difference.

Finally, the lack of support for the hypotheses regarding greater complexity of same-sexed figure drawings warrants discussion. This notable lack of results appears to arise from two problem areas. First, there is immense variability in subjects' complexity scores, which resulted in exceedingly large error terms, and a consequent increase in the magnitude necessary in order for the treatment effect to attain statistical significance. Using analysis of covariance might have alleviated this difficulty, however, problems arise in the selection of a reliable and valid covariate measure (i.e., a measure of drawing skill or of typical degree of complexity in drawing). The second source of error became apparent during debriefing and subsequent discussion with subjects. Subjects varied widely in their approach to and experience during the task; for instance, some subjects commented on having drawn one figure from memory while sketching someone else in the room for the other. Other subjects said that the first figure drawn was "just a person", and the second was more detailed because of their attempt to make it clearly male or female. Both practice and fatigue effects were also mentioned. Much of this variability could have been avoided by using a different procedure; for example, one could test subjects individually and instruct them as to which sex to draw first. The disadvantages of this procedure are that one obtains no information on the sex

of the first figure drawn or on uncertainty, and that one is no longer using the established Draw-A-Person Test. Unfortunately, the existing Draw-A-Person Test does not appear compatible with the eradication of this second source of error. If complexity scores are to be further investigated with any degree of success, then most likely a departure from the Draw-A-Person Test and the selection of an appropriate covariate measure must both be undertaken.

4.2 Recall condition

Of particular interest in this condition is the finding that female subjects do recall more female than male gender words, as hypothesized, but that male subjects do not exhibit a similar enhanced recall of male gender words. Three viable interpretations or understandings of these results will be presented.

Based upon the theoretical approach outlined earlier in the study, these data suggest that the majority of female subjects do have the female gender subschema embedded in the self schema, and that the majority of male subjects do not have the male gender subschema similarly embedded. Since the extent to which one (or both) of the gender subschemas was embedded in the self schema was conceptualized as representing gender identity, these results would indicate that the majority of female subjects have female gender identities, while most male subjects have confused or conflicted gender identities. Some indirect support for this interpretation comes from: i) the greater prevalence of male-to-female transsexualism (Pauly, 1981), ii) the increased likelihood of errors in the psychosexual development

of males resulting from the necessity for an additional component (i.e., testosterone) if masculinization is to occur (Green, 1974; Money & Ehrhardt, 1972), and iii) the purportedly more difficult developmental task facing males in the establishment of gender identity, since frequently a shift in identity is required from the initial identification with the mother (Green, 1974). Given that these factors provide only theoretical and indirect support for the interpretation, it does seem a little premature to conclude that most of the male subjects had confused or conflicted gender identities.

A second interpretation of the results is based upon a concern that arose while developing the methodology for this study. This concern was that perhaps, by the time that adulthood has been reached, both subschemas of the gender schema are so well-developed that any additional complexity arising from one of them being embedded in the self schema will be minimal and difficult to detect. Looking only at the data for male subjects this concern would appear to have been substantiated. Why is it then that female subjects do recall more female than male gender words? Indeed, this finding seems almost paradoxical; given our male-oriented culture and the typical valuing of what is male over what is female, would one not expect female subjects to recall at least equal numbers of male and female gender words? Yet perhaps it is just this male focus of society that results in enhanced recall of female words by female subjects; perhaps it is the very pervasiveness of "man" which makes what is "female" so salient to women. Let me draw a parallel: frequent comment is made on the apparent greater salience of sexual orientation to homosexuals than to heterosexuals; one might conjecture that this difference has its roots in the oppression suffered by homosexuals

by virtue of their homosexuality, in the difficulty inherent in developing a homosexual identity in a heterosexually oriented society, and in others' tendency to perceive a person's homosexuality as the most important or definitive aspect of his or her personality. Similarly, women have experienced oppression as a result of their sex, have had the task of developing a female identity in a male-oriented culture, and have been perceived as most importantly defined by their sex. These experiences might well result in the female gender subschema of the self schema having a salience and centrality to female subjects that the male gender subschema does not have to male subjects, as the data suggest. Just as one would not conclude that homosexuals are more strongly identified as homosexuals than heterosexuals are as heterosexuals, it could be invalid to conclude from these data that the female subjects were more strongly identified as females than were the male subjects as males.

Finally, a third interpretation of these results revolves around the possibility that male subjects were less affected by or responsive to the self-referent instructions or task. Spence and Helmreich (1978), for instance, have found overall differences between males and females in the extent to which they have instrumental and expressive personality traits. Instrumental or agentic traits, found more commonly in males, are associated with competition, activity and independence, while the expressive or communal traits, more associated with females, include emotionality, sensitivity and a concern with others. Such personality traits may well be reflected in overall cognitive style differences between men and women; some sex

differences in cognitive style have been reported in the literature (eg., Hunt, Carr, & Hampson, 1981). One could argue that women may be generally more able to utilize the self-reference experience to facilitate recall due to a more subjective, people-oriented focus. Males, on the other hand, generally exhibiting a cognitive style compatible with a more instrumental orientation, may be more focussed on the impersonal and analytic, and thus less easily able to use the self-reference experience as a recall facilitator. Regardless of its causation, if male subjects are generally less affected by or responsive to the self-reference instructions or task, then one would expect to find evidence of this in other research which has used a self-referent paradigm. A review of this literature reveals that in most studies the sex of the subjects has not been included in the analyses (Kuiper & Rogers, 1979; Markus, 1977; Rogers et al., 1977; Rogers et al., 1979; Tunnell, 1981). Of the remaining three studies, one (Rogers, 1977) involved a self-referent task followed by a recognition test; here no significant effects for sex were obtained. Furthermore, neither Bem (1981) nor Markus et al. (1982) found sex differences in the response latency data obtained during the self-referent task. The latter's other experiment (Markus et al., 1982) appears to be the only instance wherein sex differences in recall following a self-referent task have been analyzed, and thus the only one directly comparable to the present study. In a footnote these researchers state that while the patterns of results for male and female subjects were the same, the differences obtained were greater in female subjects than in male subjects. Thus, Markus et al.'s findings are supportive of the interpretation that the absence of differential recall of male and female gender words

exhibited by male subjects in this study may result from male subjects' recall being typically less affected by the self-referent experience than is female subjects'. However, to further complicate matters, Markus et al.'s findings might also be considered supportive of the second interpretation presented (i.e., that the gender subschema is more central and salient to female subjects), since the self-referent task in their experiment involved masculine and feminine characteristics.

At present it is unclear which of these three interpretations is most accurate and useful. Some suggestions for further research aimed at testing these interpretations will be outlined shortly.

Finally, the results of the analysis of the first gender word recalled are encouraging. To this point the sex of the first figure drawn on the Draw-A-Person Test had appeared to be the best discriminator between male and female gender identification, and first gender word recalled seems to be more successful than the Draw-A-Person Test in this discrimination. First gender word recalled and the Draw-A-Person Test have comparable results for male subjects; in the case of female subjects, 55.0% drew a female figure first, while 75.9% recalled a female gender word first - an improvement of 37%. Although in its present form the first gender word recalled measure would have too high a false positive rate to be relied upon in clinical practice (and indeed, it is doubtful that a simple dichotomous measure will ever fulfill clinical assessment needs), these findings are encouraging and thought-provoking.

4.3 Recognition condition

Given that over one-third of the subjects in this condition made no errors, the utility and appropriateness of attempting to interpret and draw conclusions from these data are extremely doubtful. Consequently, rather than discuss the results, some methodological suggestions will be highlighted. In retrospect, it appears that two types of modification would have facilitated obtaining more useful results in this condition. First, the insertion of a distractor task between the recognition stimulus list and the test list would likely have resulted in more subjects making errors. It may be, however, that, with so few critical words, errors (i.e., false alarms and misses) are too gross a dependent measure. The addition of response latencies and confidence ratings as dependent measures would increase the chances of procuring informative results.

4.4 Conclusions

The primary aim of this study was to explore the efficacy of three particular means to assess gender identity. Hypotheses about performance in these three conditions, the Draw-A-Person Test and recall and recognition tests following a self-referent task, were based on the conceptualization of gender identity as the embedding of the male or female subschema of the gender schema in the self schema. Apparently due to methodological difficulties, neither the Draw-A-Person Test nor performance on the recognition task produced data particularly relevant to either the attempt to assess gender identity or judgments as to the value of the conceptualization. Performance on the recall task, however, was more encouraging; the dependent measure of

first gender word recalled was an improvement on that of first figure drawn in the Draw-A-Person Test, and female subjects did exhibit differential recall of gender words, as hypothesized. These findings in the recall condition provide direction for further research and some support for the utility of the conceptualization of gender identity that is presented in this study.

It is suggested that further research be focussed on approaches which use the self-referent paradigm, since the methodological difficulties with the Draw-A-Person Test do not appear easily surmountable. With regard to the recall condition, following replication, research could reasonably progress in at least two directions. One involves the exploration of the interpretations provided for the absence of differential recall in male subjects; for instance, a comparison of the relative effectiveness of a self-referent task (involving non-gender and non-sex-role stimulus words) in enhancing subsequent recall in male and female subjects, and an investigation of the correlation between instrumental or agentic traits and enhancement of recall resulting from the self-referent experience, are two options. The second direction involves the use of other dependent measures in the recall condition (eg., response latency). Furthermore, approaches using recognition tasks ought not be discarded simply because of this study's failure to obtain useful results with such a task. The alteration of some aspects of the procedure and the utilization of finer dependent measures (eg., response latency, confidence ratings) in the recognition task may prove fruitful.

Ultimately it may be both necessary and desirable to study the role of affect in an individual's gender identity. Not only might one wonder about the feasibility of measuring cognitive complexity differences in gender

subschemas in adults, but also, some authors have suggested an affective component to gender identity; for example, McClelland and Watt (1968) describe gender identity as involving pride and confidence, as well as security, in one's membership in the male or female sex, and Lothstein (1979) has commented on the roles of disgust and envy for the biologically same and other sexes in transsexualism. Fortunately, some beginning thoughts on the affective component in the self-referent paradigm have already been presented (Rogers, 1980); hopefully, in the coming years a methodology for its investigation will develop.

Finally, encouragement for continuing to approach the assessment of gender identity through using cognitive schemas and for considering the relevance of affect comes from recent research concerning the psychological self-perceptions of male transsexuals. Skrapec and MacKenzie (1981) write:

Results suggest that the basis for transsexualism is a higher order, abstracted sense of gender, rather than a function of actual behavioral descriptions ... Such an abstract sense of maleness/femaleness may serve as the self-evaluative determinant for the transsexual.

(p. 366)

In conclusion, carefully thought-out extension of the research begun in this study has the potential to lead to the development of measures of the strength of gender identity(ies). The utility of such measures, both clinically and in research, is undeniable.

REFERENCES

- Abel, G.G. What to do when non transsexuals seek sex reassignment surgery. Journal of Sex and Marital Therapy, 1979, 5 (4), 374-376.
- Abelson, A.G. Development of psychosexual concepts in relation to expressive language performance. Psychiatry, 1979, 42, 274-279.
- American Psychiatric Association. Diagnostic and statistics manual of mental disorders (3rd ed.). 1980.
- Barlow, D.H., Abel, G.G., & Blanchard, E.B. Gender identity change in transsexuals: Follow-up and replications. Archives of General Psychiatry, 1979, 36, 1001-1007.
- Barr, R.F. Responses to erotic stimuli of transsexual and homosexual males. British Journal of Psychiatry, 1973, 123, 579-585.
- Barr, R.F., & Blaszczyński, A. Autonomic responses of transsexual and homosexual males to erotic film sequences. Archives of Sexual Behavior, 1976, 5(3), 211-222.
- Bem, S.L. The measurement of psychological androgyny. Journal of Consulting and Clinical Psychology, 1974, 42, 155-162.
- Bem, S.L. Sex role adaptability: One consequence of psychological androgyny. Journal of Personality and Social Psychology, 1975, 31, 634-643.
- Bem, S.L. Gender schema theory: A cognitive account of sex typing. Psychological Review, 1981, 88(4), 354-364.
- Benjamin, H. The Transsexual Phenomenon. New York: Julian Press, 1966.
- Bradley, S.J., Steiner, B., Zucker, K., Doering, R.W., Sullivan, J., Finegan, J.K., & Richardson, M. Gender identity problems of children and adolescents: The establishment of a special clinic. Canadian Psychiatric Association Journal, 1978, 23, 175-183.
- Buhrich, N., & McConaghy, N. The discrete syndromes of transvestism and transsexualism. Archives of Sexual Behavior, 1977, 6(6), 483-495.
- Buhrich, N., & McConaghy, N. Tests of gender feelings and behavior in homosexuality, transvestism and transsexualism. Journal of Clinical Psychology, 1979, 35(1), 187-191.
- Cantor, N., & Mischel, W. Traits as prototypes: Effects on recognition memory. Journal of Personality and Social Psychology, 1977, 35(1), 38-48.

- Craik, F.I.M., & Lockhart, R.S. Levels of processing: A framework for memory research. Journal of Verbal Learning and Verbal Behavior, 1972, 11, 671-684.
- Craik, F.I.M., & Tulving, E. Depth of processing and the retention of words in episodic memory. Journal of Experimental Psychology: General, 1975, 104, 268-294.
- Cramer, P. The development of sexual identity. Journal of Personality Assessment, 1980, 44, 604-612.
- Cramer, P., & Carter, T. The relationship between sexual identification and the use of defense mechanisms. Journal of Personality Assessment, 1978, 42, 63-73.
- Davenport, C.W., & Harrison, S.I. Gender identity change in a female adolescent transsexual. Archives of Sexual Behavior, 1977, 6(4), 327-339.
- Derogatis, L.R., Meyer, J.K., & Boland, P. A psychological profile of the transsexual II. The female. Journal of Nervous and Mental Disease, 1981, 169(3), 157-168.
- Ehrhardt, A.A., Grisanti, G., & McCauley, E.A. Female-to-male transsexuals compared to lesbians: Behavioral patterns of childhood and adolescent development. Archives of Sexual Behavior, 1979, 8(6), 481-490.
- Fisk, N.M. Five spectacular results. Archives of Sexual Behavior, 1978, 7(4), 351-369.
- Fleming, M.Z., Cohen, D., Salt, P., Jones, D., & Jenkins, S. A study of pre- and postsurgical transsexuals: MMPI characteristics. Archives of Sexual Behavior, 1981, 10(2), 161-170.
- Fleming, M.Z., Jenkins, S.R., & Bugarin, C. Questioning current definitions of gender identity: Implications of the Bem Sex-Role Inventory for transsexuals. Archives of Sexual Behavior, 1980, 9(1), 13-26.
- Fleming, M.Z., Koocher, G., & Nathans, J. Draw-A-Person test: Implications for gender identification. Archives of Sexual Behavior, 1979, 8(1), 55-61.
- Freund, K., Langevin, R., Satterberg, J., & Steiner, B. Extension of the gender identity scale for males. Archives of Sexual Behavior, 1977, 6(6), 507-519.
- Freund, K., Nagler, E., Langevin, R., Zajac, A., & Steiner, B. Measuring feminine gender identity in homosexual males. Archives of Sexual Behavior, 1974, 3(3), 249-259.

- Gottlieb, A. Three atypical results. Archives of Sexual Behavior, 1978, 7(4), 371-375.
- Gravitz, M.A. Normal adult differentiation patterns on the figure drawing test. Journal of Projective Techniques and Personality Assessment, 1966, 30, 471-473.
- Gravitz, M.A. Direction of psychosexual interest and figure drawing choice. Journal of Clinical Psychology, 1969, 25, 311.
- Green, R. Sexual Identity Conflict in Children and Adults. Baltimore: Penguin Books Inc., 1974.
- Green, R. Sexual identity: Research strategies. Archives of Sexual Behavior, 1975, 4(4), 337-352.
- Green, R., & Money, J. Transsexualism and Sex Reassignment. Baltimore: John Hopkins, 1969.
- Harris, D.B. Children's Drawings as Measures of Intellectual Maturity. New York: Harcourt, Brace, & World, Inc., 1963.
- Harry Benjamin International Gender Dysphoria Association. Standards of care: The hormonal and surgical sex reassignment of gender dysphoric persons. Galveston: University of Texas Medical Branch, 1979.
- Howes, D. A word count of spoken English. Journal of Verbal Learning and Verbal Behavior, 1966, 5, 572-604.
- Hunt, D.D., Carr, J.E., & Hampson, J.L. Cognitive correlates of biologic sex and gender identity in transsexualism. Archives of Sexual Behavior, 1981, 10(1), 65-77.
- James, W. Principles of Psychology. New York: Holt, 1890.
- Jay, K., & Young, A. The Gay Report: Lesbians and Gay Men Speak Out About Sexual Experiences and Lifestyles. New York: Summit Books, 1977.
- Kelly, G.A. Psychology of Personal Constructs. New York: Norton, 1955.
- Kenna, J.C., & Hoenig, J. Verbal tests and transsexualism. Acta Psychiatrica Scandinavica, 1979, 59, 80-86.
- Kessler, S.J., & McKenna, W. Gender: An Ethnomethodological Approach. New York: John Wiley & Sons, 1978.
- Kohlberg, L. A cognitive-developmental analysis of children's sex-role concepts and attitudes. In Maccoby E.E. (Ed.), The Development of Sex Differences. Stanford: Stanford University Press, 1966.

- Kubie, L.S., & Mackie, J.B. Critical issues raised by operations for gender transmutation. Journal of Nervous and Mental Disease, 1968, 147, 431-443.
- Kuiper, N.A., & Rogers, T.B. Encoding of personal information: Self-other differences. Journal of Personality and Social Psychology, 1979, 37(4), 499-514.
- Lerner, H.E. Adaptive and pathogenic aspects of sex-role stereotypes: Implications for parenting and psychotherapy. American Journal of Psychiatry, 1978, 135, 48-52.
- Lev-Ran, A. Gender role differentiation in hermaphrodites. Archives of Sexual Behavior, 1974, 3(5), 391-424.
- Lewis, M. The self as a developmental concept. Human Development, 1979, 22, 416-419.
- Lewis, M., & Brooks-Gunn, J. Social Cognition and the Acquisition of Self. New York: Plenum Press, 1979.
- Lewis, M., & Weinraub, M. Origins of early sex-role development. Sex Roles, 1979, 5(2), 135-153.
- Lindgren, T.W., & Pauly, I.B. A body image scale for evaluating transsexuals. Archives of Sexual Behavior, 1975, 4(6), 639-656.
- Lothstein, L.M. Psychodynamics and sociodynamics of gender-dysphoric states. American Journal of Psychotherapy, 1979, 33(2), 214-238.
- Maccoby, E.E., & Jacklin, C. The Psychology of Sex Differences. Stanford: Stanford University Press, 1974.
- Machover, K. Personality Projection in the Drawing of the Human Figure: A Method of Personality Investigation. Springfield: Charles C. Thomas, 1949.
- MacKenzie, K.R. Gender dysphoria syndrome: Towards standardized diagnostic criteria. Archives of Sexual Behavior, 1978, 7(4), 251-262.
- Markus, H. Self-schemata and processing information about the self. Journal of Personality and Social Psychology, 1977, 35(2), 63-78.
- Markus, H., Crane, M., Bernstein, S., & Siladi, M. Self-schemas and gender. Journal of Personality and Social Psychology, 1982, 42(1), 38-50.
- May, R. Sex differences in fantasy patterns. Journal of Projective Techniques and Personality Assessment, 1966, 30, 576-586.

- May, R. Deprivation-enhancement patterns in men and women. Journal of Projective Techniques and Personality Assessment, 1969, 33, 464-469.
- May, R. A method for studying the development of gender identity. Developmental Psychology, 1971, 5(3), 484-487.
- May, R. Further studies on deprivation/enhancement patterns. Journal of Personality Assessment, 1975, 39, 116-122.
- McCauley, E.A., & Ehrhardt, A.A. Role expectations and definitions: A comparison of female transsexuals and lesbians. Journal of Homosexuality, 1977, 3(2), 137-147.
- McCauley, E.A., & Ehrhardt, A.A. Sexual behavior in female transsexuals and lesbians. Journal of Sex Research, 1980, 16(3), 202-211.
- McClelland, D.C., & Watt, N.F. Sex-role alienation in schizophrenia. Journal of Abnormal Psychology, 1968, 73(3), 226-239.
- McConaghy, M.J. Gender permanence and the genital basis of gender: Stages in the development of constancy of gender identity. Child Development, 1979, 50, 1223-1226.
- Meyer, J.K. Clinical variants among applicants for sex reassignment. Archives of Sexual Behavior, 1974, 3, 527-558.
- Money, J., & Ehrhardt, A.A. Man and Woman, Boy and Girl. Baltimore: John Hopkins, 1972.
- Money, J., & Primrose, C. Sexual dimorphism and dissociation in the psychology of male transsexuals. Journal of Nervous and Mental Disease, 1968, 147(5), 472-486.
- Money, J., & Tucker, P. Sexual Signatures: On Being a Man or a Woman. Toronto: Little, Brown & Co., 1975.
- Morgan, A.J. Psychotherapy for transsexual candidates screened out of surgery. Archives of Sexual Behavior, 1978, 7(4), 273-283.
- Pauly, I.B. The current status of the change of sex operation. Journal of Nervous and Mental Disease, 1968, 147(5), 460-471.
- Pauly, I.B. The adult manifestations of male transsexualism. In Green, R., & Money, J. (Eds.), Transsexualism and Sex Reassignment. Baltimore: John Hopkins, 1969.
- Pauly, I.B. Female transsexualism. Archives of Sexual Behavior, 1974, 3(6), 487-526.

- Pauly, I.B. Outcome of sex reassignment surgery for transsexuals. Australian and New Zealand Journal of Psychiatry, 1981, 15, 45-51.
- Phillips, C.J., Smith, B., & Broadhurst, A. The Draw-A-Man test: A study of scoring methods, validity and norms with English children at five and eleven years. Journal of Child Psychology and Psychiatry, 1973, 14, 123-135.
- Phillips, W.M., & Phillips, A.M. Similarity between complexity on role construct repertory technique and articulation on Draw-A-Person test for patients and non-patients. Perceptual and Motor Skills, 1976, 43, 1256-1258.
- Raymond, J.G. Transsexualism: An etiological and ethical analysis. Dissertation Abstracts International, 1977, 38(2-A), 858-A.
- Rekers, G.A. Assessment and treatment of childhood gender problems. In Lahey, B.B., & Kazdin, A.E. (Eds.), Advances in Clinical Child Psychology (Vol. I). New York: Plenum Publishing, 1977.
- Rekers, G.A., Bentler, P.M., Rosen, A.C., & Lovaas, O.I. Child gender disturbances: A clinical rationale for intervention. Psychotherapy: Theory, Research, and Practice, 1977, 14, 1-8.
- Rekers, G.A., & Mead, S. Early intervention for female sexual identity disturbance: Self-monitoring of play behavior. Journal of Abnormal Child Psychology, 1979, 7(4), 405-423.
- Rekers, G.A., & Milner, G.C. Sexual identity disorders in childhood and adolescence. Journal of the Florida Medical Association, 1978, 65, 962-964.
- Rekers, G.A., & Varni, J.W. Self-regulation of gender-role behaviors: A case study. Journal of Behavior Therapy and Experimental Psychiatry, 1977, 8, 427-432.
- Rierdan, J., & Koff, E. Sexual ambiguity in children's human figure drawings. Journal of Personality Assessment, 1981, 45(3), 256-257.
- Roback, H.B., Langevin, R., & Zajac, Y. Sex of free choice figure drawings by homosexual and heterosexual subjects. Journal of Personality Assessment, 1974, 38, 154-155.
- Rogers, T.B. Self-reference in memory: Recognition of personality items. Journal of Research in Personality, 1977, 11, 295-305.
- Rogers, T.B. Models of man: The Beauty and/or the Beast? Personality and Social Psychology Bulletin, 1980, 6(4), 582-590.

- Rogers, T.B. A model of the self as an aspect of the human information processing system. In Cantor, N., & Kihlstrom, J. (Eds.), Personality, Cognition, and Social Interaction. Hillsdale: Lawrence Erlbaum Associates, 1981.
- Rogers, T.B., Kuiper, N.A., & Kirker, W.S. Self-reference and the encoding of personal information. Journal of Personality and Social Psychology, 1977, 35(9), 677-688.
- Rogers, T.B., Rogers, P.J., & Kuiper, N.A. Evidence for the self as a cognitive prototype: The "false alarms effect". Personality and Social Psychology Bulletin, 1979, 5(1), 53-56.
- Rosen, A.C., & Rekers, G.A. Toward a taxonomic framework for variables of sex and gender. Genetic Psychology Monographs, 1980, 102, 191-218.
- Rosen, A.C., Rekers, G.A., & Friar, L.R. Theoretical and diagnostic issues in child gender disturbances. Journal of Sex Research, 1977, 13(2), 89-103.
- Scott, L.H. Measuring intelligence with the Goodenough-Harris Drawing Test. Psychological Bulletin, 1981, 89(3), 483-505.
- Shill, M. TAT measures of gender identity (castration anxiety) in father-absent males. Journal of Personality Assessment, 1981, 45(2), 136-146.
- Shively, M.G., & DeCecco, J.P. Components of sexual identity. Journal of Homosexuality, 1977, 3, 41-48.
- Skilbeck, W.M., Bates, J.E., & Bentler, P.M. Human figure drawings of gender-problem and school-problem boys. Journal of Abnormal Child Psychology, 1975, 3(3), 191-199.
- Skrapec, C., & MacKenzie, K.R. Psychological self-perception in male transsexuals, homosexuals, and heterosexuals. Archives of Sexual Behavior, 1981, 10(4), 357-370.
- Slaby, R.G., & Frey, K.S. Development of gender constancy and selective attention to same-sex models. Child Development, 1975, 46, 849-856.
- Slobin, D.I. Psycholinguistics. Glenview: Scott, Foresman and Co., 1974.
- Spence, J.T., & Helmreich, R.L. Masculinity and femininity: Their psychological dimensions, correlates, and antecedents. Austin: University of Texas Press, 1978.
- Steiner, B. Personal communication, 1981.

- Stoller, R.J., & Newman, L.E. The bisexual identity of transsexuals: Two case examples. Archives of Sexual Behavior, 1971, 1(1), 17-28.
- Thorndike, E.L., & Lorge, I. The Teacher's Word Book of 30,000 Words. New York: Columbia University Teachers College, 1944.
- Tunnell, G. Sex role and cognitive schemata: Person perception in feminine and androgynous women. Journal of Personality and Social Psychology, 1981, 40(6), 1126-1136.
- Unger, R.K. Toward a redefinition of sex and gender. American Psychologist, 1979, 11, 1085-1094.
- Van Dyne, W.T., & Carskadon, T.G. Relationships among three components of self-concept and same-sex and opposite-sex human figure drawings. Journal of Clinical Psychology, 1978, 34(2), 537-538.
- Weatherhead, A.D., Powers, S., Rodgers, D., Schumacher, O.P., Ballard, L.A., & Hartwell, S.W. Sex reassignment program: The Cleveland Clinic Foundation. Archives of Sexual Behavior, 1978, 7(4), 377-381.
- Weinberg, G. Society and the Healthy Homosexual. Garden City: Anchor Books, 1972.
- Wise, T.N., & Meyer, J.K. The border area between transvestism and gender dysphoria: Transvestic applicants for sex reassignment. Archives of Sexual Behavior, 1980, 9(4), 327-342.
- Wolfe, B.E. Behavioral treatment of childhood gender disorders: A conceptual and empirical critique. Behavior Modification, 1979, 3, 550-575.

FOOTNOTES

1

There is some controversy over whether multiple comparison tests ought to be performed in this case. When multiple comparison tests were conducted, only one significant difference between means occurred; male subjects missed female words more often than they missed male words ($p < .05$).

APPENDIX A

Recall and Recognition (Test) List

1. cousin	21. jester	41. tutor	61. youth
2. mortal	22. adult	42. youngster	62. first-born
3. teller	23. winner	43. tenant	63. clerk
4. intern	24. artist	44. kid	64. swimmer
5. fighter	25. _____	45. _____	65. _____
6. child	26. pilot	46. drummer	66. lodger
7. worker	27. chef	47. grown-up	67. rebel
8. smoker	28. doer	48. joker	68. skater
9. human	29. poet	49. blond	69. lover
10. thinker	30. whistler	50. mimic	70. roommate
11. usher	31. talker	51. wit	71. realist
12. cyclist	32. student	52. scholar	72. gardener
13. tenant	33. voter	53. dreamer	73. infant
14. critic	34. leader	54. neighbour	74. genius
15. _____ ¹	35. _____	55. _____	75. driver
16. mentor	36. baby	56. reader	76. mystic
17. minor	37. imp	57. typist	77. person
18. friend	38. cynic	58. lender	78. spouse
19. shopper	39. renter	59. seeker	79. giver
20. cashier	40. comic	60. walker	80. helper

¹Gender words inserted in blanks.

Recognition Stimulus List

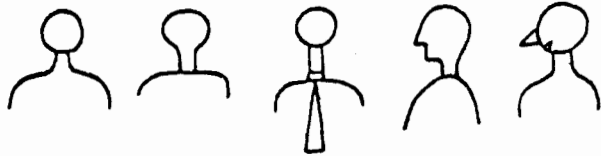
- | | |
|------------------------|---------------|
| 1. typist | 21. rebel |
| 2. gardener | 22. worker |
| 3. joker | 23. walker |
| 4. cashier | 24. youngster |
| 5. swimmer | 25. _____ |
| 6. neighbour | 26. person |
| 7. renter | 27. leader |
| 8. lover | 28. genius |
| 9. minor | 29. scholar |
| 10. mystic | 30. lender |
| 11. cyclist | 31. dancer |
| 12. comic | 32. thinker |
| 13. cousin | 33. tenant |
| 14. student | 34. jester |
| 15. _____ ¹ | 35. doer |
| 16. fighter | 36. driver |
| 17. spouse | 37. tutor |
| 18. shopper | 38. child |
| 19. voter | 39. poet |
| 20. whistler | 40. seeker |

¹Gender words inserted in blanks.

APPENDIX B

Scoring for the Draw-A-Person test

<u>ITEM</u>	<u>DESCRIPTION</u>
1. Head present	Any clear method of representing the head. Features alone, without any outline for the head itself, are not credited for this point.
2. Neck present	Any clear indication of the neck as distinct from the head and the trunk. Mere juxtaposition of the head and the trunk is not credited.
3. Neck, two dimensions	Outline of neck continuous with that of the head, of the trunk or of both. Line of neck must "flow" into head line or trunk line. Neck interposed as pillar between head and trunk does not get credit unless treated definitely to show continuity between neck and head or trunk or both, as by collar, or curving of lines.

Credit*No Credit*

4. Eyes present Either one or two eyes must be shown. Any method is satisfactory. Credit in mature drawings attempting perspective, any indication of the eye by contour of the profile as:



ITEMDESCRIPTION

5. Eye detail: brow
or lashes

Brow, lashes or both shown.

Full face: *Credit*



Profile: *Credit*



No Credit



*If both eyes shown, both to have brow or
lashes₁

6. Eye detail:
pupil

Pupil shown. Credit any clear indication of the pupil or iris as distinct from the outline of the eye. Both pupils must appear if both eyes are shown.

7. Eye detail:
proportion

The horizontal measurement of the eye must be greater than the vertical dimension. This requirement must be fulfilled in both eyes if both are shown; one eye is sufficient if only one is shown. In profile drawings, any triangular forms which approximate the examples below are credited.

Profile: *Credit*



No Credit



8. Eye detail:
glance

Full Face: The eyes obviously glancing. There must be no convergence or divergence of the two pupils, either horizontally or vertically.

Credit

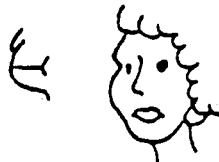


Profile: The eyes must either be shown as in the preceding point, or, if the ordinary almond form is retained, the pupil must be placed toward the front of the eye rather than in the center. The scoring should be strict.

ITEMDESCRIPTION9. Cheeks₂

Credit modeling or "shading" on cheeks or at mouth corners. Credit also "cosmetic cheeks" - circular spots on cheeks. In drawings which attempt perspective, credit any indication in contour of face.

Credit



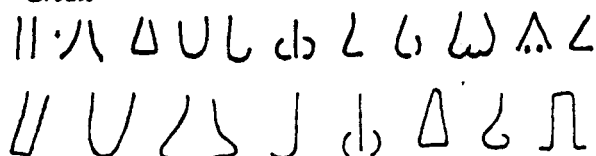
10. Nose present

Any clear method of representation. In "mixed profiles", the score is plus even though two noses are shown.

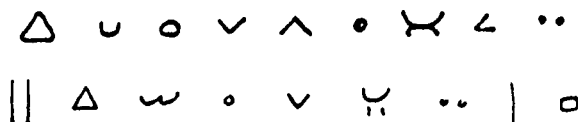
11. Nose, two dimensions

Full Face: Credit all attempts to portray the nose in two dimensions, when the bridge is longer than the width of the base or tip.

Credit



No Credit



Profile: Credit all crude attempts to show the nose in profile, provided tip or base is shown in some manner. Do not credit simple "button".

Credit



No Credit



ITEMDESCRIPTION

12. Bridge of nose

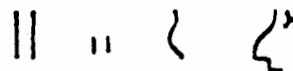
Full Face: Nose properly placed and shaped. The base of the nose must appear as well as the indication of a straight bridge. Placement of upper portion of bridge is important; must extend up to or between the eyes. Bridge must be narrower than the base.

Credit*No Credit*

Profile: Nose at angle with face, approximately 35-45 degrees. Separation of nose from forehead clearly shown at eye.

Credit*No Credit*13. Nostrils shown₂

Any attempt to portray nostrils as holes, dots, or to show "wings".

Credit*No Credit*

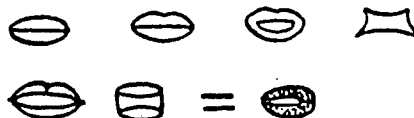
ITEMDESCRIPTION

14. Mouth

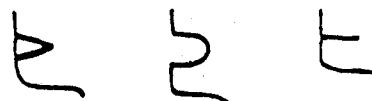
Any clear representation.

15. Lips, two
dimensions

Two lips clearly shown.

Full Face: *Credit*

Profile:

Credit*No Credit*16. Both nose and
lips in two
dimensions

Bonus point given when Items 11 and 15 are passed. See preceding items for accepted forms.

17. Both chin and
forehead shown

Full Face: Both the eyes and mouth must be present, and sufficient space left above the eyes to represent the forehead; below the mouth to represent the chin. The scoring should be rather lenient. Where neck is continuous with face, placement of mouth with respect to narrowing of lower portion of head is important. The sketches below illustrate mouth placement.

Credit*No Credit*

ITEMDESCRIPTION

Profile: The point may be credited when the eyes and mouth are omitted, if the outline of the face shows clearly the limits of the chin and forehead. Score leniently if forehead is covered by hat brim; more strictly if covered by hair.

18. Projection of chin shown; chin clearly differentiated from lower lip

Full Face: Modeling of chin must be indicated in some way, as by a curved line below the mouth or lip, or point of chin indicated by appropriate facial modeling, or dot or line placed below mouth near lower limit of face. Beard obscuring chin does not score. There must definitely be an attempt to show a "pointed" chin to credit this item. This point is credited most frequently in profiles.

Credit

Items 18 and 19



Item 19 but not 18



Item 18 but not 19



19. Line of jaw indicated

Full Face: Line of jaw and chin drawn across neck but not squarely across. Neck must be sufficiently wide, and chin must be so shaped that the line of the jaw forms a well-defined acute angle with the line of the neck. Score strictly on the simple oval face.

Credit

ACUTE ANGLES

No Credit

ITEMDESCRIPTION

Profile: Line of jaw extends toward (but not all the way to) the ear or across the neck.

Credit



No Credit



20. Hair I

Any indication of hair, however crude.

21. Hair II

Hair shown on more than circumference of head and more than a scribble. Nontransparent, unless it is clear that a bald-headed man is portrayed. A simple hairline across the skull on which no attempt has been made to shade in hair does not score. If any attempt has been made, even in outline or with a little shading, to portray hair as having substance or texture, the item scores.

Credit



No Credit



Profile: Mass dependant in back.

Credit



22. Hair III

Any clear attempt to show cut or styling (eg., use of side burns, a forelock, or conformity of base line to a "style"; or indention at temple, or bangs, or shaped at lower ends, or both). When a hat is drawn, credit the point if the hair is indicated in front as well as behind the ear, or if hairline at back of neck or across forehead suggests styling. General "style" achieved. Distinctly better design than Item 21.

ITEMDESCRIPTION

23. Hair IV

Hair shaded to show part or texture, or to suggest having been combed, or brushed, by means of directed lines. Item 23 is never credited unless Item 22 is; it is thus a "high-grade" point. Superior style achieved.

Caution: Score strictly; superior style may be achieved with outline sketching, but this does not score. Directed lines to indicate hair texture must appear, and be better than "coloring in".

Credit



No Credit



24. Ears present

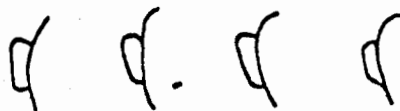
Any indication of ears. Credit this item if hair appears to cover ears.

25. Ears present:
proportion and
position

The vertical measurement must be greater than the horizontal measurement. The ears must be placed somewhere within the middle two-thirds of the head. Credit this item if hair appears to cover ears.

Full Face: The top of the ear must be separated from the head line, and both ears must extend from the head.

Credit

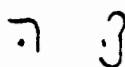


No Credit

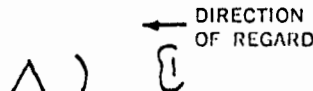


Profile: Some detail, such as a dot, to represent the aural canal must be shown. The shell-like portion of the ear must extend toward the back of the head.

Credit



No Credit



← DIRECTION
OF REGARD

ITEMDESCRIPTION

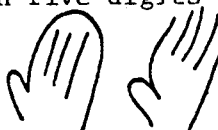
26. Fingers present

Any suggestion of fingers, separate from hand or arm. In drawings by older children, where there is a tendency to "sketch", credit this point if any suggestion of fingers occurs. Mitt hand does not score even if thumb is shown.

27. Correct number of fingers shown

If both hands are shown, the correct number on each is necessary, unless there is a clear attempt to portray hand activity which would conceal the correct number. Credit drawings produced by older children who try a "sketching" technique, even though five digits may not be definitely discerned.

Credit



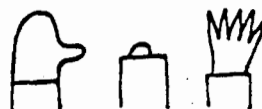
28. Detail of fingers correct

"Grapes" or "sticks" do not score. Length of individual fingers must be distinctly greater than width. In well-executed drawings, where hand may appear in perspective, or where fingers are indicated by "sketching", credit this point. Credit also those cases in which, because the hand is obviously clenched, only the knuckles or part of the fingers appear. This last will occur only in high-quality drawings where there is considerable use of perspective.

*"Detail" includes correct number of fingers in less mature drawings, but not in those where perspective or sketching accounts for the full number not being shown.₁

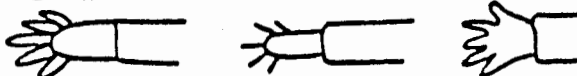
29. Opposition of thumb shown

A clear differentiation of the thumb from the fingers. Scoring should be very strict. The point is credited if one of the lateral digits is definitely shorter than any of the others (compare especially with little finger), or if the angle between it and the index finger is not less than twice as great as that between any two of the other digits, or if its point of attachment to the hand is distinctly nearer to the wrist than that of the fingers. Conditions must be fulfilled on both hands if both are shown, unless hand is grasping something; one hand is sufficient if only one is shown. Five digits are necessary for thumb to score. Fingers must be present or indicated; "mitt" hand does not score unless subject is definitely shown in winter garb, wearing mittens.

ITEMDESCRIPTION*Credit**No Credit*

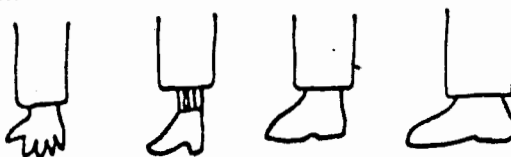
30. Hands present

Any representation of the hand, apart from the fingers. When fingers are shown a space must be left between base of fingers and edge of sleeve or cuff. Where no cuff exists, arm must broaden in some way to suggest palm or back of hand as distinct from wrist. Characteristic must appear on both hands, if both are shown. "Mitt" hand with thumb does not score unless figure obviously is wearing mittens.

Credit*No Credit**Marginal Credit*

31. Wrist or ankle shown

Either wrist or ankle clearly indicated as separate from sleeve or trouser. A line across the limb to indicate the end of sleeve or trouser is not sufficient here.

Credit*No Credit*

*Limb must be two-dimensional; both wrists or both ankles must be shown for credit.₁

ITEMDESCRIPTION

32. Arms present

Any method of representation clearly intended to indicate arms. Fingers alone are not sufficient, but the point is credited if any space is left between the base of the fingers and that part of the body to which they are attached. The number of arms must also be correct, except in profile drawings when only one arm may score.

33. Shoulders I

Full Face: A change in the direction of the outline of the upper part of the trunk which gives an effect of concavity rather than convexity. The point is scored rather strictly. The ordinary elliptical form is never credited, and the score is always minus unless it is evident that there has been a recognition of the abrupt broadening out of the trunk below the neck which is produced by the shoulder blade and the collar bone. A perfectly square or rectangular trunk does not score, but if the corners have been rounded, the point is credited.

Credit



No Credit



Profile: The scoring should be somewhat more lenient than in full-face drawings, since it is more difficult to represent the shoulders adequately in the profile position. A profile drawing, in this connection, should be understood to mean one in which the trunk, as well as the head, is shown in profile. If the lines forming the outline of the upper part of the trunk diverge from each other at the base of the neck in such a way as to show the expansion of the chest, the point is credited.

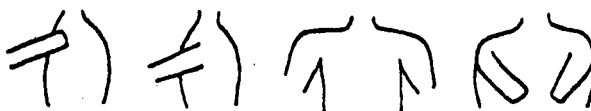
ITEMDESCRIPTION

34. Shoulders II

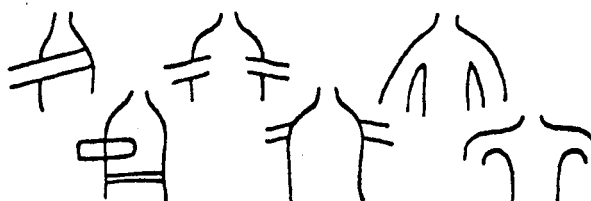
Full Face: Score more strictly than previous item. Shoulders must be continuous with neck and arms, and "square", not drooping. If arm is held from the body, the armpit must be shown.

Profile: Shoulder joint in approximately correct position. Arm must be represented by double line.

Credit



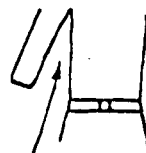
No Credit



35. Arms at side or engaged in activity

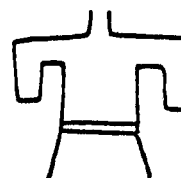
Full Face: Credit this point when at least one arm is down at the side, making an angle of no more than 10 degrees with the general vertical axis of the trunk, unless the arms are engaged in some definite activity, such as carrying an object. Credit when hands are in pockets, on hips, or behind back.

Credit



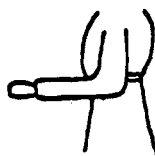
10° OR LESS

No Credit



Profile: Credit if hands are engaged in definite activity, or if upper arm is suspended even though forearm is extended.

Credit



No Credit



*Credit is not given to immature drawings where the object is obviously an addition to arms drawn

ITEMDESCRIPTION

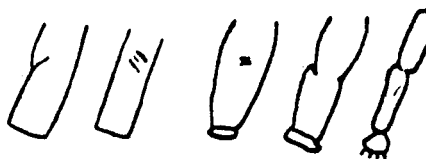
stiffly out from body; or where the attributed action (eg., "man waving") is probably an interpretation rather than an intention in immature drawings.₁

36. Elbow joint
shown

There must be an abrupt bend (not a curve) at approximately the middle of the arm. One arm is sufficient. Modeling or creasing of the sleeve is credited.

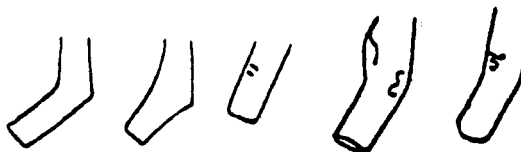
Full Face:

Credit



Profile:

Credit



No Credit



*Credit a one-dimensional arm where the bend indicates jointing and not merely the addition of a hand.₁

37. Legs present

Any method of representation clearly intended to indicate the legs. The number must be correct: two in full-face drawings; either one or two in profiles. Use common sense rather than a purely arbitrary scoring. If only one leg is present, but a rough sketch of a crotch is included score the item. On the other hand, three or more legs, or a single leg without logical explanation should be scored minus. A single leg to which two feet are attached is scored plus. Legs may be attached anywhere to the figure. Credit where long skirt hides legs or feet.

ITEMDESCRIPTION

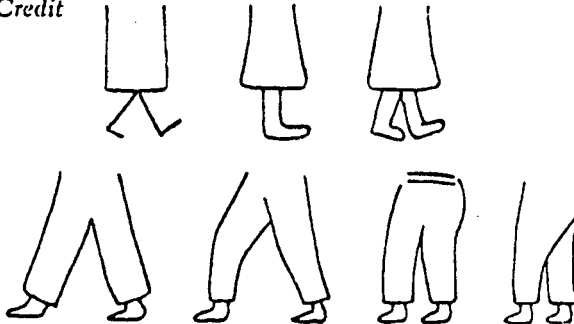
38. Hip I

Full Face: Crotch indicated. This is most frequently shown by inner lines of the two legs meeting at point of junction with the body.

Credit

*Trunk must be two-dimensional, otherwise two legs meeting at the point of junction with the body is almost the only possible arrangement. A two-dimensional trunk with one-dimensional legs may be credited.₁

Profile: Credit when legs form angle, as in walking. Credit in standing figure, when one leg is shown, or when two appear in true profile.

Credit

39. Hip II

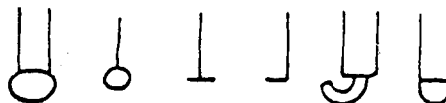
Preceding item earned with credit to spare. Drawing gives a better idea of the hip than required for passing preceding item.

40. Knee joint shown

There must be, as in the case of the elbow, an abrupt bend (not curve) at about the middle of the leg, or, as is sometimes found in very high-quality drawings, a narrowing of the leg at this point. Knee length trousers are not sufficient. Crease or shading to indicate knee is scored plus.

41. Feet I: any indication

Feet indicated by any means: two feet in full-face; one or two in primitive profile. In the case of a long gown, credit this item.

Credit

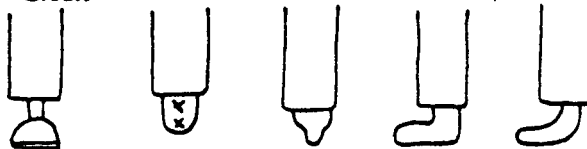
ITEMDESCRIPTION

42. Feet II:
proportion

Full Face: The feet and legs must be shown in two dimensions. Feet must not be "clubbed"; that is, the length of the foot must be greater than its height from sole to instep. The length of the foot must be not more than one-third or less than one-tenth the total length of the leg. The item is also credited in full-face drawings in which the foot is shown in perspective, longer than wide, provided the foot is separated in some way from the rest of the leg, and not merely indicated by a line across the leg.

Full Face:

Credit



No Credit



Profile: Horizontal dimension of fore-part of foot must be greater than vertical dimension. In the case of a long gown, credit only when foot is indicated in some way, as by the tip appearing beneath the edge of the gown, etc.

Credit



No Credit



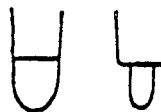
43. Feet III:
detail

Any one item of detail such as lacing, tie, strap, or shoe sole indicated by a double line. In the case of a long gown, do not credit unless foot is shown.

44. Feet IV:
heel

Any clear method of indicating the heel. In full-face drawings, credit the item arbitrarily when the foot is shown as below, provided there is some demarcation between the foot and the leg. In the profile, the instep must be indicated.

Credit

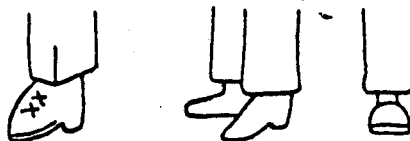


ITEMDESCRIPTION

45. Feet V:
perspective

Foreshortening attempted in at least one foot.

Credit



No Credit



46. Placement of
feet appropriate
to figure₂.

Full Face: Feet turned "in" or "out", or in perspective. Do not credit primitive feet.

No Credit



Profile: Credit both feet turned in direction of head. Do not credit when feet are absent, except where long gown hides feet.

47. Attachment of
arms and legs I

Both arms and legs attached to the trunk at any point, or arms attached to the neck, or at juncture of head and trunk when neck is omitted. Do not credit if either arms or legs are missing. Credit where dress hides legs and/or feet. If the trunk is omitted, the score is always zero. If the legs are attached elsewhere than to the trunk, regardless of the attachment of the arms, the score is zero. If only one arm or leg is shown, either in full-face or profile drawings, credit may be given on the basis of the limb that is shown. If both arms and legs are shown, the members of each pair must be attached approximately symmetrically. Credit where long dress hides legs and/or feet.

Credit



ITEMDESCRIPTION

48. Attachment of
arms and legs II

Legs attached to the bottom of the trunk or skirt and not continuous with vertical line or drape of the skirt. Credit this point if both feet and legs are hidden by long gown.

Credit



No Credit



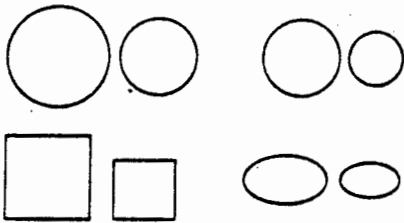
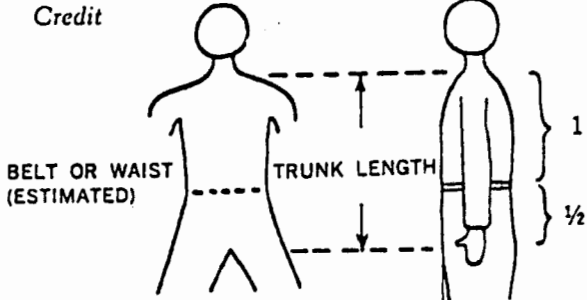
Arms attached to the trunk at the correct point. Do not credit if arm attachment occupies one-half or more of the chest area (neck to waist).

Full Face: When Item 33 is plus, the point of attachment must be exactly at the shoulders. If Item 33 is zero, the attachment must be exactly at the point which should have been indicated as the shoulders. Score very strictly, especially in those cases where Item 33 is zero.

Profile: Do not credit if both the lines delineating the arm extend from the outline of the back, or if the point of attachment either reaches the base of the neck, or falls below the greatest expansion of the chest line.

49. Trunk present

Any clear indication of the trunk, either one or two dimensional. Where there is no clear differentiation between the head and the trunk, but the features appear in the upper end of a single figure, the point is scored plus if the features do not occupy more than half the length of the figure; otherwise, the score is zero, unless a cross line has been drawn to indicate the termination of the head. A single figure placed between the head and the legs is always counted as a trunk, even though its size and shape may suggest a neck rather than a trunk. A row of buttons extending down between the legs is scored zero for trunk but plus for clothing unless a cross line has been drawn to show the termination of the trunk.

<u>ITEM</u>	<u>DESCRIPTION</u>
50. Trunk in proportion, two dimensions	Length of the trunk must be greater than breadth. Measurement should be taken at the points of greatest length and of greatest breadth. If the two measurements are equal, or so nearly so that the difference is not readily determined, the score is zero. In most instances the difference will be great enough to be recognized at a glance, without actually measuring.
51. Proportion: head I	Area of the head not more than one-half or less than one-tenth that of the trunk. Score rather leniently. See below for a series of standard forms of which the first is double the area of the second in each pair.
	
52. Proportion: head II	Head approximately one-fourth trunk area. Score strictly; over one-third or under about one-fifth fails the item. Where crotch is not shown, as in some profiles, consider belt or waist at about two-thirds down total trunk length.
	<i>Credit</i> 
53. Proportion: face	Full Face: Length of head greater than its width. Should show a general oval shape. Profile: Head definitely elongated. Face longer than "dome" of skull.
54. Proportion: arms I	Arms at least equal to the trunk in length. Tips of hands extend to middle of hip but not to knee. Hands need not necessarily extend to or below the crotch, especially if legs are unusually short. In full-face drawings, both hands must so extend. Score by relative lengths, not position, of arms.

<u>ITEM</u>	<u>DESCRIPTION</u>
55. Proportion: arms II	Arms taper; forearm narrower than upper arm. Any tendency to narrow the forearm except right at the wrist, is credited. If both arms show clearly, tapering must occur in both.
56. Proportion: legs	Length of the legs not less than the vertical measurement of the trunk nor greater than twice that measurement. Width of either leg less than that of the trunk.
57. Proportion: limbs in two dimensions	Both arms and legs shown in two dimensions. If the arms and legs are in two dimensions, the point is credited, even though the hands and feet are drawn in linear dimension.
58. Limbs: proportion ₂	Length of arms and legs greater than width. When arms score, credit the item even if feet are concealed by long dress.
59. Clothing I	Any clear representation of clothing. As a rule the earlier forms consist of a row of buttons running down the center of the trunk or of a hat, or of both. Either alone scores. A single dot or small circle placed in the center of the trunk is practically always intended to represent the navel and should not be credited as clothing. A series of vertical or horizontal lines drawn across the trunk (and sometimes on the limbs as well) is a fairly common way of indicating clothing, and should be so credited. Marks to indicate pockets or sleeve-ends also get credit.
60. Clothing II	At least two articles of clothing (as hat and trousers) nontransparent; that is, concealing the part of the body which they are supposed to cover. In scoring this point it must be noted that a hat which is merely in contact with the top of the head but does not cover any part of it is not credited. Buttons alone, without any other indication of the coat, are not credited. Two of the following must be present to indicate coat: sleeves, collar or neckline, buttons, or pockets. Trousers must be clearly intended by belt, fly, pockets, cuff, or any separation of feet or leg from bottom of trouser leg. Foot as an extension of leg does not score, when a line drawn across the leg is the only way of indicating the separation of foot and leg. Dress must be

<u>ITEM</u>	<u>DESCRIPTION</u>
	indicated by hemline and neckline. Note: Dress is considered the equivalent of two articles of clothing.
61. Clothing III	Entire drawing free from transparencies of any sort. Both sleeves and trousers must be shown as distinct from wrists or hands and legs or feet.
62. Clothing IV	At least four articles of clothing definitely indicated. The articles should be among those in the following list: hat, shoes, coat, shirt, collar, necktie, belt, trousers, dress, skirt, jacket, sport shirt, overalls, socks (pattern). Note: Shoes must show some detail, as laces, toe cap, or double line for the sole. Heel alone is not sufficient. Trousers must show some features such as fly, pockets, cuffs. Coat or shirt must show either collar, sleeves, pockets, lapels, or distinctive shading, as spots or stripes. Buttons alone are not sufficient. Collar should not be confused with neck shown merely as insert. The necktie is often inconspicuous and care must be taken not to overlook it, but it is not likely to be mistaken for anything else. Dress must show hemline and neckline. Dress is considered the equivalent of two articles of clothing.
63. Clothing V	Costume complete without incongruities. This may be a "type" costume (e.g., cowboy, soldier) or costume of everyday dress. If the latter, it should be clearly recognized as appropriate; e.g., sport shirt on man, cap appropriate to hunting outfit, overalls for farmer. This is a "bonus" point, and must show more than necessary for Item 62.

1 - Phillips, Smith & Broadhurst (1973)

2 - Draw-A-Woman Scale (Harris, 1963)

APPENDIX C

Means and standard deviations: Draw-A-Person Test complexity scores

Group	Mean	Standard deviation
Male subjects		
Male figures	37.20	11.23
Female figures	36.92	11.20
Female subjects		
Male figures	42.07	8.78
Female figures	42.93	8.44

Means and standard deviations: Number of gender words recalled

Group	Mean	Standard deviation
Male subjects		
Male words	1.63	0.77
Female words	1.50	0.57
Female subjects		
Male words	1.37	0.81
Female words	1.93	0.83

Means and standard deviations: Number of recognition errors on gender words

Group	Mean	Standard deviation
Type of error: Misses		
Male subjects		
Male words	0.00	0.00
Female words	0.37	0.49
Female subjects		
Male words	0.07	0.25
Female words	0.10	0.31
Type of error: False alarms		
Male subjects		
Male words	0.47	0.63
Female words	0.47	0.63
Female subjects		
Male words	0.53	0.73
Female words	0.33	0.66

ANOVA Summary Table: Draw-A-Person Test complexity scores

Source	Sum of Squares	df	MS	F	p
Between subjects	22919.80	119			
Sex of subject	1776.71	1	1776.71	9.92	p < .005
Subject w. groups	21143.09	118	179.18		
Within subjects	2475.50	120			
Sex of figure	5.11	1	5.11	0.25	ns
Sex of subject x Sex of figure	19.83	1	19.83	0.96	ns
Sex of figure x Subjects w. groups	2450.56	118	20.77		
Total	25395.30	239			

ANOVA Summary Table: Number of gender words recalled

Source	Sum of Squares	df	MS	F	p
Between subjects	43.09	59			
Sex of subject	0.21	1	0.21	0.28	ns
Subject w. groups	42.88	58	0.74		
Within subjects	27.51	60			
Gender of word	1.41	1	1.41	3.62	ns
Sex of subject x Gender of word	3.68	1	3.68	9.44	p < .005
Gender of word x Subjects w. groups	22.42	58	0.39		
Total	70.60	119			

ANOVA Summary Table: Number of recognition errors on gender words

Source	Sum of Squares	df	MS	F	p
Between subjects	22.58	59			
Sex of subject	0.27	1	0.27	0.71	ns
Subject w. groups	22.32	58	0.38		
Within subjects	49.00	180			
Gender of word	0.15	1	0.15	0.79	ns
Sex of subject x Gender of word	1.07	1	1.07	5.63	$p < .05$
Gender of word x Subjects w. groups	10.78	58	0.19		
Type of error	6.02	1	6.02	15.84	$p < .001$
Sex of subject x Type of error	0.07	1	0.07	0.18	ns
Type of error x Subjects w. groups	21.92	58	0.38		
Gender of word x Type of error	1.35	1	1.35	10.38	$p < .005$
Sex of subject x Gender of word x Type of error	0.07	1	0.07	0.54	ns
Gender of word x Type of error x Subjects w. groups	7.58	58	0.13		
Total	71.58	239			