

Human Figure Drawing (HFD) Test is affected by Cognitive Style

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Abstract

The drawing figures are widely managed as an ideal instrument for self-expression. HFD test (Human Figure Drawing) is an abbreviated test which was developed with the aim to evaluate various psychological states, especially assessing the psychic status including psychiatric illness and personality state. Thus, the reliance on the drawings must be proven that it has no bias due to cognitive differences between subjects. In the present study it is demonstrated that drawing tests are influenced, to a certain extent, by the subject's cognitive style. Although the study was limited here, the results indicate the need for re-examination of the reliability limits of the Test.

Keywords: Human figure drawing; Cognitive style; Projective test; Psychodiagnostic

Introduction

The medical field has its relevance as a tool for decision-making relating to the differential diagnosis, type of treatment required and prognosis. In this perspective, the psychological assessment purposes are to identify the psychological and neurological repercussions caused by the disease or injury process [1]. In opposed to medical tools, one of the central assumptions during this procedure is the use of assessing personality in an unconscious mind. From a psychoanalytic perspective an indirect approach such as projective drawing is an effective instrument that helps in viewing the inner world, unconscious defenses and conscious resistance. Moreover, Projective drawing test is a tool that allows also achieving information concerning the sensitivity and maturity of the patient, as a part of integrated personality and his inter-personal interaction with the environment [2]. In recent decades, a widespread use with projective tests as a tool for psychodiagnostic and neuropsychological assessments has become popular. Today there is no doubt that drawing test is a tool that allows getting information about the vulnerabilities, the maturity of the patient's personality integration and inter-personal interaction with his environment [3].

Goodenough [4] has already reported in the twenties of the last century on many clinical findings that can be produced by children's drawings and deduce the mental states beyond the level of intelligence. The test can also provide a lot of information about cognitive function, since it requires visual-spatial skills, attention and concentration and accurate perception of visual stimuli. HFD test (Human Figure Drawing) is an abbreviated test which was developed several decades later, with the aim to evaluate various psychological states, such as psychosocial status [5]. The practice of using human figure drawings (HFDs) to assess intellectual and psychological ability is pervasive among psychologists and therapists in many countries [6]. Recently a positive relationship was found between the size of the painting and the self-esteem of students in secondary division. Also found a positive correlation between the size of a cartoon character and its details and the degree of self-esteem in men [7].

Historically, DAP test (draw a person) or HFD was developed as a tool that allows assessing the level of intelligence of children. Actually, much earlier [4] reported numerous clinical findings which it is possible to draw beyond the level of intelligence. Consequently, Makower has expanded the use of DAP test tool that allows getting a personal information about the patient [8]. And then, one of the most significant studies were done in the context of a test attests to the reliability of the

DAP / HFD by showing a significant correlation with other drawing tests. Despite the frequent use, there is controversy about the utility test for clinical use [9]. Koppitz [10] has defined an objective signs of emotional indicators that reflect the concerns or fears of the child. This test can also provide neurological information about the cognitive function of the subject such as agnosia and apraxia because they require skills and visual spatial, spatial orientation, attention, concentration and accurate perception of the visual stimulus lenders motor functions [11]. In light of studies that have found differences in elderly demented individuals in HFD test vs. healthy subjects; a study was conducted in an adult population to see if you can raise the validity of the test that examines dementia (MMSE) test using HFD. The subjects were asked to draw a man and a body painting particles were tested in comparison with a list of parts that the absence may predict dementia. They concluded that although test HFD cannot replace the existing tests for dementia, but it contributes to raising sensitivity and integration of the findings [11]. It was well proven that art activities are considered as suitable for creating a context through which a patient can upload your feelings and to express himself [7]. However Goodenough [4] has suggested that artistic qualities per se of the drawing are a negligible factor. However, there may be cognitive variables which now the tendency is to ignore them projective test, particularly the test of HFD.

Cognitive styles are attributed to individual differences in the way people perceive, think, learn and interact with their environment. Witkin [12] by definition, cognitive style affects how information is represented, so the information will be represented in different ways depending on the style of cognitive and this will also affect how information processing and reaction [13]. One of the cognitive style delegates is the verbal and visual axis. Accordingly, when visual individuals are processing information, they are spontaneity experiencing mental sequence of images representing the information, or mental visual information

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then arises associatively. By contrast, when verbal individuals read, see or hear something, they process information literally or by verbal associations. For example, verbal people can represent verbal thoughts by writing words on a page, while visual people with sketches. Verbal people are creating images if they try, but it is not a natural situation for them [14]. Accordingly, it is common for example to associate designer as of visual thinking ability, when representations that serve them are not only verbal, but also have a variety of shapes and patterns [15]. Evidence of this assumption was by correlating acceptance tests for Architecture by their cognitive style. Candidates were given the task of designing a week before the interview and were asked to create a model town with a conceptual design. After the interview we examined their cognitive style using a computerized task. Results demonstrated that cognitive style is strong and reliable predictor of success in the admission tests, as well as success in the first year of study design [16]. Additionally, studies found that the distribution between verbal and visual is not dichotomous but axis sequence, and only about 20-30% of the population has a visual cognitive style, while the majority has a verbal style [17,18].

Based on previous studies relating the linkage between cognitive style and design capabilities [16,19,20] it was assumed, here, that there will be differences in the number of the drawn items in HFD on basis of verbal-visual tendency, and that cognitive style is an intervening variable in HFD test results. Hypothesis was that individuals with visual cognitive style will be presenting more information in HFD test, including organs and accessories and thus will be ranked higher than verbal cognitive style individuals.

Methods

Subjects

The study involved a total of 70 healthy subjects (according to personal report) aged 20-30, undergraduate students in the department of Psychology and Behavioral Sciences at University of Ariel. The study was conducted in accordance with departmental ethics committee requirements. All subjects signed a consent form and after execution they were rewarded through a coupon which underlying degree requirements.

Tools

Test HFD: The participant was provided with a pencil and blank sheet of paper and was told to make the best possible drawing of the whole figure of a man. The test was not timed. To include subject's drawing in the study it must contain of basic organs (body, head, eyes, mouth, nose, legs, and arms). We based on [11] body details list of the human figure drawing. Each item was calculated for the total points beyond the basic items (body, head, eyes, mouth, nose, legs, arms), and each organ / item worth one point.

Visual/Semantic categorization test: Is designed to assess the participant's cognitive style [17] consists of twenty-four stimuli. Each stimulus includes four words items, with two types of exceptions: one item (of the four item words) is exceptional on functionally basis and the other exceptional item is on visually basis. For example, in the cluster, 'WATERMELON; BALL; CARDS; BALLOON', the 'WATERMELON' is exceptional functionally (all the other three are games or toys), and the 'CARDS' is exceptional visually (the other three are characterized by a spherical shape; in Hebrew there is a special word for 'playing cards'). It is important to emphasize that during the explanations that were given to the participants, it did not include information about the existence of the two exceptions. For each participant a functional-semantic/

visual indexing was calculated [16] indicating cognitive-style type and intensity was calculated as well. The index – called the cognitive index – was calculated according to the formula $(S - V)/(S + V)$: sum of the semantic selections (S) minus sum of visual choices (V), divided by sum of semantic and visual answers together. The index values range from (1) to (-1); a negative result indicates the presence of a visual style, while a positive result points to the dominance of a semantic style. Accordingly, as much as the index is closer to the extreme values of the scale, a clear and significant thinking style is reflected.

Results

Consistent with previous research, and according to the *Visual/Semantic Categorization Test (VSCT)*; [17,18], out of seventy individuals only eighteen of them (25.7%) were with visual cognitive style tendency, and the other 52 individuals were with verbal/semantic cognitive style. Comparing the HFD quantity of items drawn by each cognitive style group revealed a significant difference ($t(68) = 2.0$; $p = 0.05$), when the visual group drew an average of slightly more items (16.7 ± 2.4) than the verbal cognitive style group (15.1 ± 2.7).

Examining the relationship between the intensity of cognitive style and amount of detail painted by the participants revealed a significant correlation ($R = 0.25$; $p = 0.04$), so that the as far as a participant has a stronger visual style he/she is drawing more detail when drawing human, and vice versa. As the participant with more verbal cognitive power, so he is drawing fewer details.

Discussion

Projective analytic theory is based on the assumption that deep and often unconscious feelings and motives may be accessed through various means of self-expression. Drawing tests (HFD and House Tree Person (HTP) tests) are widely used as part of projective tests for assessment of psychological state. The drawing of human figure is widely managed as an ideal instrument for self-expression [21]. The popularity of the test is not questionable due to its easy administration and scoring. Though the interpretation of the test is targeted to psychic aspect of the person, researchers have found the test as effective in assessing neurological intactness, visual-motor coordination [22], cognitive development [23] and learning disabilities. Thus, reliance on the drawings must be proven that it has no bias due to cognitive differences between subjects. In the present study it is demonstrated that drawing tests are influenced, to a certain extent, by the subject's cognitive style. The findings are consistent with previous studies that found an association between cognitive style and visual design capabilities high [15,16], and artistic abilities [24]. The differences obtained in the present study were clear, distinct and significant. It can be argued that, despite the apparent significance, the differences are not large. However, it should note that the test here was very shallow and relied only on the quantity of drawn items. Of course that in order to better understand the contribution of cognitive style it requires to thorough research with not only the quantity but also the quality of details and its projection on emotional conclusions. The results are important through the conceptual level, although of course study is limited by the small subject's number so it is expressed in a relatively small amount of visual subjects.

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