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Original Article

Planes of Being According to the Temperament and Character model of Personality Measured by a Controlled Word Association Test

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Abstract

Objective: The psychobiological personality model described by Cloninger, well-known as the Temperament and Character model, incorporates five personality layers or planes named as: sexual plane, material plane, emotional plane, intellectual plane and spiritual plane. To the best of our knowledge there is no experimental investigation in this regard and actually no practical and rapid measurement for planes of being (or personality layers). The current study proposes a rapid quantitative measurement of planes of being based upon a controlled word association test and reports the pilot results obtained from a sample of academic students.

Materials & Methods: Eighty four academic students completed a demographic questionnaire and then completed a controlled word association test, designed based upon Jung's theory with defined words, each word strongly related to one plane of being. The five planes of being were scored based upon the selected options by the subject, as well as the delays and paused intervals. A dominant plane of being was determined thereafter.

Results: The dominant plane of being for most subjects was the emotional plane, which could be expected due to the characteristics of the studied population and the theories for psychosocial growth.

Conclusion: Therefore, a quantitative measure for personality layers is introduced with preliminary promising results. This measure could be used and be validated further in future research and even in clinical practices.

Keywords: Personology, Personality Layers, Temperament and Character, Controlled Word Association, Psychoanalysis, Jung

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Introduction

The normal personality model well-known as the "Temperament and Character" model is being more and more practical in psychiatry and personolgy. This model is actually obtained from Cloninger's psychobiological description about personality, which also incorporates five consecutive layers of personality named as *"Planes of being"*. The five layers or planes are further divided into five sub-planes producing a 5*5 matrix with 25 brain-based modules including "most of the information about personality", and relating personology with mental growth [1-3]. Farmer et al stated that the concepts of planes of being were not

clearly determined and they were not aware of any investigation about planes of being [4] and to the best of our knowledge, this comment is still true. Though efficient inventories were introduced for measurement of temperament and character (TCIs) [5-7], there is no consistent method for measurement of planes of being; except that psychiatrists, psychologists and particularly psychoanalysts may have inferential understanding of the planes of being of their patients according to their clinical setting.

The concept of planes of being formulizes the movement of human thoughts and the dominant concerns of individuals.

This concept categorizes nearly any humane concern into five planes (or layers). The consecutive planes of being are described as follows: The first plane of being is the sexual plane which includes sexual concerns, child birth, generation and related preferences and tendencies. The second plane of being is the material plane which includes activities related to power and possession, particularly money, income, profit, social rank, objective achievements, and also stabilities and challenges in this regard. The third plane of being is the emotional plane which includes feelings, humane bonds and attachments, dependence, communications and interactions even with other creatures. This plane implies a sense of agreeableness and consistence. The forth plane of being is the intellectual plane which includes thoughts, cultural constructs, problem solving, arrangements in mind, ingenuity, industry, productivity and immaterial heritages. The highest plane of being is the spiritual plane which includes concerns about ontology, super-nature, meaning, ultra-mundane, wholism and what exists beyond individual being. This plane implies a sense of world-hood and related roles and assignments [1-4, 8, 9]. It might be possible to get access to the planes of being of individuals in the course of a "word association test".

Jung's word association test is a powerful technique for psychoanalysis as well as mind related research. This test was introduced for the first time by Galton in 1880 and then completed by Carl Gustav Jung [10, 11]. The aim of this technique is to investigate the cognitive facet of the individual, through semantic memory and the related behaviors. Jung presented a theory about the information obtainable by the word association test the information implying collections of related ideas, feelings and experiences which are subjected to a group in the unconscious, a group called complexes. Complexes play important roles in the design and implementation of behaviors. Generally, processing a concept related to one complex spontaneously activates the processing of other related concepts in that complex synchronously. This memory function occurs repeatedly during lifelong daily experiences [12]. The "word association test" actually simulates similar processings, by activating complexes through presenting words (trigger words) and revealing other aspects of the same complex through the associated words. It is important that the subject should mention, as quickly as possible, the first word that comes to his/her mind. As Jung explains, using words is similar to acting or creating situations. When a word is given to the individual, it is like presenting a real thing and ask the individual to think, behaves and respond. Then if the individual pauses, actually being unable to make prompt and fluent responses to a trigger word, in fact, there might be a difficult related complex, and this is well defined in aproper word association test [13]. Thus, word association tests could reveal concerns and unconscious thoughts of individuals.

The current study proposes a method for rapid and quantitative measurement of personality layers or planes of being by a controlled word association test, and reports the related results obtained from a sample of academic students. Quantitative measurement of planes of being facilitates future research about planes of being and could introduce beneficent assessments in psychiatric and psychological clinical practice.

Materials and Methods

Subjects

Eighty-four academic students in various fields and stages of medical sciences were incorporated as a sample of contemplative individuals with various concerns and thoughts, and probably some with more advanced and higher thoughts and concerns. Demographic characteristics of participants are summarized in Table 1.

After brief explanation of the research, informed consent was obtained. The current investigation was approved by the Ethics Committee of the Azad University- Tabriz Branch.

Table 1. Demographic characteristics of recruited subjects.

Demographics	Subjects	Relation with dominant plane of selected options (P value)	Relation with dominant plane of paused intervals (P value)
Age	25.27 ± 2.82 years	0.198	0.208
Male- Female	24-60 (28.6% - 71.4%)	0.285	0.445
Single- Married	68-10 (81.0% - 11.9%) 6 (7.1% unspecified)	0.633	0.573
Education	17.76 ± 1.45 years	0.157	0.637

Procedures

All subjects completed a demographic questionnaire and then completed the word association test. Word association test was performed according to Jung's theory with pre-designed trigger words and options, in order to perform the *controlled word association test*. A list of words was determined by the authors, each of them being strongly related to one of the mentioned "planes of being". A Visual Basic software composed by the authors was used to perform the word association test in the way that *a trigger word*, related to one of the planes of being, was presented to the participant, together with 12 fixed options as *the dependent related words* or *the associated words*; the options consisted of two neutral words and two words for each of the five planes of being. The options were fixed, so that the participant's attention was focused only on the trigger word.

Calculations and Statistical Analysis

Planes of being in this study were determined by two distinct methods: based upon selected options and based upon paused intervals. Each time a trigger word appeared for the participant and he/she selected one of the twelve options (which were unchanged during the test) the software detected the plane of being which was strongly related to the selected option. Eventually the plane with the most frequently selected options was determined as the "dominant plane based on the selected options". Also the software recorded the paused interval when the volunteer made from the appearance of each trigger word until option selection; then based on the plane of being which was strongly related to the trigger word, that relevant plane was scored. Eventually the plane that the volunteer obtained the

longest paused intervals was determined as the "dominant plane based on the paused intervals". Accordingly, the percentages of people who showed their dominant planes as each of the five consecutive planes of being, were described.

The software of SPSS (statistical package of social sciences) was used and significance was considered as P values less than 0.05. Descriptive analysis was used as well as non parametric analysis for correlation of the dominant plane of being obtained by the two methods mentioned above, and analysis of variance (ANOVA) for comparing the demographic characteristics of individuals with various dominant planes of being.

Results

The dominant plane of being in this study was measured by two ways, based on the selected options and based on the paused intervals. It is of note that in paused intervals, about half of the subjects had the longest pauses for the neutral options. Therefore, determining the dominant plane based on the paused intervals, the paused intervals for neutral trigger words were omitted. However, the two types of dominant planes of being determined in subjects had a very significant relation in nonparametric analysis (P=0.000). In 24% of participants, both dominant planes of being were the same. Figure 1 illustrates the plane of being in the volunteers and evidently, a similar pattern exists in the distribution of planes determined by both methods. Interestingly, in both methods emotional plane was the dominant plane in a high percentage of participants.

There was no significant relation between the dominant planes of being (both types) and the demographic characteristics including age, gender, marital status and years of education (P = 0.157-0.637).
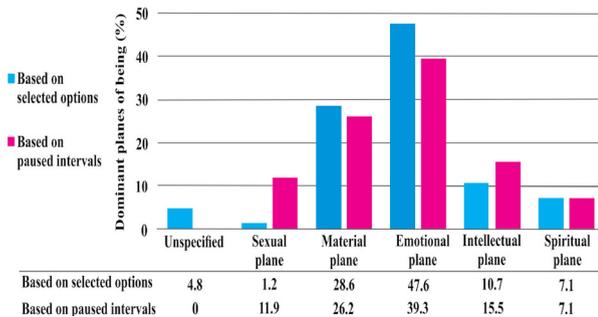

	Unspecified	Sexual plane	Material plane	Emotional plane	Intellectual plane	Spiritual plane
Based on selected options	4.8	1.2	28.6	47.6	10.7	7.1
Based on paused intervals	0	11.9	26.2	39.3	15.5	7.1

Figure 1. The percentages of participants with their dominant plane of being in each of the five planes of being, based on selected options and based on paused intervals.

Discussion

The current investigation reports introduction and preliminary successful utility of a novel measure of personality layers or planes being, determining them in the Temperament and Character personality model described by Cloninger. The method was designed as a controlled word association test with implications from Jung's theory. The obtained results seemed consistent and rational and the dominant plane of being for most academic students was the emotional plane.

The method was designed as a controlled word association test with pre-determined words, each word strongly related to one of the five planes of being. A study by Shono and colleagues in 2016 [14] systematically reviewed word association test since its inception in order to validate it in a verity of ways, ultimately concluding that a word association test with a controlled structure yields the best results. In the current research, such structure was used. Thereupon, software was designed to present the controlled words (triggering words) of the association test to the volunteer and gave him/her a fixed list of controlled options to choose, as each triggering word appeared. Each time the volunteer chose an option as associated with the triggering word, the plane of being related to the selected option was recorded. Moreover, the delay made by the volunteer until he/she made the selection (the delay induced by the triggering word) was recorded together with the plane of being related to triggering word, and as explained in the theories of the word association [10, 12, 13, 15], the longer delays were interpreted as important findings denoting considerable related concerns, here probably related to that plane of being. The scores of selected options as well as recorded delays yielded a novel quantitative measurement of planes of being with promising initial results.

Clues for efficiency of the current measurement of the planes of being in this research could be discussed as follows: first, the dominant plane of most of the volunteers was successfully detected by the present method, in a way that the score of this dominant plane differed outstandingly from the scores of the other planes. Notably, in most of the volunteer's emotional plane was the dominant plane, reflecting the considerable concerns about feelings and inter-personal issues, and this could be considered consistent and appropriate for the studied population (more explanations discussed in the last paragraph). Second, the dominant plane in most volunteers, determined by two different scores mentioned above, show remarkable similarity and a highly significant relationship (P = 0.000). Once more, the principles for Jung's words association test ought to be considered: performance of the word association actually progresses into the sub-conscious and unconscious domains. The word, associated by the individual, when performed quickly enough, implies the concepts intervened in the sub-conscious, and in case of ridiculous and unrelated associations, to the unconscious domain. These associations are related to complexes, inducing existing concerns to the individual, even when he/she is unaware, therefore the outstanding pauses and delays due to a specific triggering word, could point to unconscious complexes. For this reason, the software performing the current test, used two algorithms based upon the mentioned principles: the first algorithm determined the dominant plane by the scores of the selected options, and the second algorithm determines the dominant plane based on the paused intervals. It could be reasoned that selected options actually scores the sub-conscious concerns, while the paused intervals possibly scores the deeper unconscious concerns [13]. However, processes, concerns and complexes found in the sub-conscious and unconscious often have similarities, though necessarily they are not the same [3].

The concept of "layers" in personality is becoming popular in recent studies. While personality layers root strongly in

psychoanalysis theories, modern neuropsychological methods are introduced for quantifying such layers and aiding the more beneficent understanding of mental and behavioral mechanisms [16-18]. The current study follows similar concepts based on personality theory of Cloninger which lies upon deep scientific, psychoanalytic and philosophic knowledge.

The participants of the current study are young academic students, representative of a population assumingly with more advanced mental concerns and on the path of personality growth. The fact that most of these participants claimed having no major mental disease and actually pose more than average function and cooperation, they are considered as having no serious psychiatric pathology, and the obtained results could be posited as yielded from a nearly normal and nearly mature study group. Thereupon, the emotional plane as the dominant plane of being in this group is quite expected. This plane is describing as a transition from lower planes to the higher planes of being. This is actually a clue for efficiency of the current measurement for planes of being, as explained above. It is also relatively consistent with theories of psychosocial growth. According to Erikssonian theory of psychosocial growth [1, 19], young individuals, in the age range of the participants of the current study, are in the stage of "intimacy versus isolation" simply bringing their dominant concerns towards the humane feelings and attachments, thoroughly in line with the emotional plane of being.

Conclusion

In the current study, a controlled word association test, according to Jung's theory, was designed based upon the planes of being (or personality layers) described in the Cloninger's theory of personality. Therefore, a quantitative measure for personality layers is introduced with preliminary promising results. This measure could be used and be validated further in future research and even in the related clinical practices.

Acknowledgements

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