Personality Analysis and Educational Strategies of College Students based on Grounded Theory

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Abstract: *Personality traits refer to the characteristics of an individual that differ from others in terms of thoughts, personality, qualities, and attitudes. Their manifestations are mainly reflected in their language, behavior, and expression of ideas. The expression of personality tendencies varies among different individuals and stages. This article is aimed at specific age groups in universities, using grounded theory to analyze the composition of personality traits of college students. By establishing seven personality segments to analyze individual characteristics, it provides a new approach for a deeper understanding of individual characteristics of college students and the development of differentiated education programs.*

Keywords: Personality analysis framework, Personality fragments, Grounded theory, Educational strategies.

1. Current Personality Analysis Methods and Limitations

The commonly used personality analysis methods currently include cartel, MBTI, DISC, etc. Among them, Cartel's 16 personality tests can detect 16 personality traits; MBTI personality test, divided into four dimensions and 16 types, is mostly used for enterprise talent evaluation [1]; The DISC personality test mainly describes individuals from four main dimensions of traits: conductor, socializer, supporter, and corrector; The Nine Personality Test divides personality into nine types to study the characteristics of various personalities and the differences between different personalities; The well-known Holland Career Assessment divides personality into six dimensions: research-oriented, artistic, social, entrepreneurial, traditional, and realistic, by assuming that there should be an inherent correspondence between personal career interests and professions [2].

Although there are many existing personality analysis methods, there are still limitations in terms of coverage: firstly, there are differences in personality characteristics among different age groups and groups, and existing measurement methods do not distinguish this, lacking targeted personality assessment methods for college students in their age groups. Secondly, the existing evaluation methods have too much integration into the personality evaluation of adults in the workplace, lacking directional evaluation of the personality (psychological characteristics in attitude and behavior) of college students. The design of the methods lacks the participation of college students, and the measurement results cannot meet the educational goals of the university stage. Thirdly, personality displays are diverse and have multiple components. Adolescents in the age group of college students (18-22 years old) have not yet been finalized, and existing measurement methods often overlook that the personality traits of college students are composed of different character fragments. The comprehensiveness and systematicity of universities or college students using these measurement results to formulate educational methods or their own career plans are flawed.

2. The Composition of Personality Framework for College Students: Methods and Steps Based on Rooted Theory

The university stage is a crucial period for personal growth, where one is beginning to form, or is currently forming, a worldview and values, and its influence on personal growth is more prominent than other age groups. Understanding the current situation of the main components of one's personality, identifying different preferences within one's personality, and repairing deficiencies in one's personality in a targeted manner may help college students establish values that meet mainstream social requirements and personal characteristics, and improve their overall quality.

Firstly, based on the grounded theory research method and drawing on existing psychological techniques for personality research, a research design for structural items in personality analysis of college students is completed. Through comprehensive research on relevant parties, such as college students themselves, parents, university counselors, university professional course instructors, campus recruitment enterprises, etc., a preliminary summary of structural items for personality segments is completed.

Secondly, with the goal of cultivating college students who conform to contemporary mainstream values, we extract structural item data from personality segments, delete duplicate or ambiguous items, screen for effective structural items, classify all identified retained items based on their causal relationships and logical analysis ideas, and ultimately determine the retention of intellectual characteristics, psychological qualities, personality preferences, learning interests, behavioral tendencies, team roles, and planning awareness. A total of seven personality feature segments form the personality framework.

Thirdly, establish a total of 7 personality fragment analysis modules for A-G, and design a questionnaire based on the identified seven personality characteristic fragments. Among them, each module has three levels of indicators, and the first

level indicator corresponds to the corresponding personality characteristic segment A-G:

A-Ideological and moral characteristics, design 5 secondary indicators: collective consciousness, gratitude and reward, values, integrity and responsibility, legal concepts, a total of 13 tertiary observation points.

B-Psychological quality, design 4 secondary indicators: confidence, resilience, perseverance and perseverance, self-control, a total of 11 tertiary observation points.

C-Personality preference, design 5 secondary indicators: personality tendency, expressiveness, response to others' opinions, attitude towards others' evaluations, and expression methods, with a total of 12 tertiary observation points.

D-Learning interest, design 5 secondary indicators: learning attitude, learning habits, self-learning ability, self-evaluation of existing learning ability, innovative thinking, a total of 15 tertiary observation points.

E-Behavioral tendencies, design 5 secondary indicators: hands-on ability, behavioral habits, independence, interpersonal communication tendencies, and politeness habits, with a total of 15 tertiary observation points.

F-Team role, design 5 secondary indicators: cooperation awareness, communication ability, participation enthusiasm, viewpoint recognition, and individual role, with a total of 15 observation points.

G-planning awareness, design 4 secondary indicators: planning awareness, goal self-evaluation, goal acceptance, and execution, with a total of 12 observation points.

3. Analysis of Personality Fragment Data of College Students under Personality Framework

Based on the aforementioned 93 observation points, individual college students will be evaluated using the Likert Seven Scale on a scale of 1-7 based on the degree of conformity between the scenario described in each question and their own viewpoint. The higher the score given by the evaluator, the more the situation is in line with the scenario described in the question stem. A score of 1 indicates complete non conformity, while a score of 7 indicates complete conformity.

3.1 Arithmetic Mean of Data

The arithmetic mean is beneficial for viewing the concentration trend of the same problem from different perspectives. Calculate the arithmetic mean of all third level indicators Xmn based on their corresponding second level indicators Xm. This is the score value recorded for the secondary indicator Xm [i.e. $X_m=(X_{m1}+X_{m2}+... X_{mn})/n$]; Similarly, all secondary indicators Xm are arithmetic averaged based on their respective primary indicators X, which is the recorded score of the primary indicator X, [i.e. $X=(X_1+X_2+... X_m)/m.$]. For example, suppose the first level indicator "G-planning awareness" is composed of four second level indicators, G1, G2, G3, and G4, each of which is composed of three third level indicators. If the scores of the three third level indicators of G1 are 5, 6, and 7, then the score value of the second level indicator G1 is 6 [(5+6+7)/3]; If the scores for the other three secondary indicators G2, G3, and G4 are 5, 4, and 3, the arithmetic mean of the first level indicator "G-planning awareness" can be calculated as 4.5 [(6+5+4+3)/4].

3.2 Coefficient of Variation of Data

The coefficient of variation is beneficial for evaluating the stability of data by observing the degree of dispersion. [4] All primary indicators X have their coefficient of variation (CV) calculated to measure the degree of variation of each observation in the data, denoted as: $CV_X = \{[(X_1—\mu_X)^2+…+(X_m—\mu_X)^2]/m\}^{1/2}/\mu_X$. Among them, CVX represents the coefficient of variation of personality segment X, and Xm represents the secondary indicator of X, μ_X represents the arithmetic mean of all secondary indicators of X.

For example, if the first level indicator "G-planning awareness" is composed of four second level indicators, G1, G2, G3, and G4, with corresponding record scores of 6, 5, 4, and 3, then μ_G score is 4.5 [(6+5+4+3)/4], then $CV_G = \sqrt{[(6 − 4.5)^2 + (5 − 4.5)^2 + (4 − 4.5)^2 + (3 − 3.5)^2]/4}/ 4.5 = 0.24845$.

3.3 Ranking Values of Arithmetic Mean and Coefficient of Variation

Each personality segment is scored based on the arithmetic mean (i.e μ_x) Rank in descending order; Calculate the ranking of the coefficient of variation (CVx) for each segment in descending order. Obtain the corresponding ranking value S based on ranking $S\mu$ (x) And Scv (x), as shown in Table 1:

Table 1: Personality Fragment's μx and CVx rank figure

μx Ranking	First place	Second place	Third place	Fourth place	Fifth place	Sixth place	Seventh place
Assigned score	7	6	5	4	3	2	1
CVx Ranking	Seventh place	Sixth place	Fifth place	Fourth place	Third place	Second place	First place

Among them, when a segment (primary indicator) scores μ If X (or CVX) ranks the same, compare their CVX (or μ X), and use CVX (or μX) Ranking reverse determined as μ X (or CVX) ranking. For example, when μ A= μ When B, if CVA>CVB, then μ Ranking A < μ B ranking; Similarly, when CVA=CVB, if μ A > μ B. Then the CVA ranking is less than the CVB ranking.

When μ A= μB and CVA=CVB have the same ranking, the second level indicator method of comparing A and B is used. The second level indicators of A and B are compared in order of maximum score, minimum score, second highest score, and second lowest score (the minimum score can only be compared when the maximum score is the same until the second lowest score is compared). After confirming the sequence, determine in the same direction first μ Rank X and

then determine the ranking of CVX in the opposite direction.

3.4 Sorting of Personality Traits Preferences

The arithmetic mean and coefficient of variation constitute two evaluation indicators, size and stability, respectively. The two are interrelated but not necessarily related to each other, forming observation points for personality preferences. The relationship between them is non-linear, and the method of using two-dimensional space vectors is considered. [5] sets the two-dimensional evaluation space for personality fragments, where PX=(Px1, Px2), Px1 and Px2 representing respectively Ranking of μx and CVX respectively. The ranking value of CVX and the modulus of PX space vector can be regarded as the digital value of a college student's personality tendency in this dimension.

After determining the ranking values of the arithmetic mean and coefficient of variation, search for the preferences of the personality segments X (i.e. 7 primary indicators) of the test subjects, and calculate the preference values PX for each primary indicator one by one, $P_X = \sqrt{S_{\mu X}2 + S_{CV(X)}2}$. Among them, SX and SCV (X) are the ranking values of X's recorded scores and coefficient of variation in all primary indicators, respectively. For example, suppose the scoring value G of the first level indicator "G - planning awareness" (i.e μ G) Ranked 4th out of all 7 primary indicators, its coefficient of variation (CV (G) ranks 5th out of all 7 primary indicators. According to the ranking table, SG and SCV (G) are 4 and 3, respectively, $P_G = (4^2 + 3^2)^{1/2} = \sqrt{16 + 9} = 5$. Similarly, obtain the preference values PX for all seven personality segments and sort them based on this. Therefore, the position of X in a certain segment of the seven personality segments (i.e. the seven primary indicators) in the ranking indicates the outstanding level of performance of the subject in that item. For example, assuming that "G-planning awareness" is more prominent (highest or lowest) in the evaluation results, "planning awareness" is the strongest or weakest personality segment among the personality traits of the subject.

4. Analysis and Educational Strategies Based on the Personality Framework of College Students

The formation of personality tendencies is related to various factors such as the family background, life experience, and educational environment of the parties involved. The university era plays an important role in transmitting, absorbing, and restarting individual growth. For most people, it is also the last opportunity to fully learn and improve before entering the workplace from their youthful student years, and any previous characteristics may change at this stage. A comprehensive understanding of personality tendencies will help schools, families, society, and college students themselves to have a more comprehensive understanding of college students, adopt corresponding educational strategies, and better adapt to society in the future.

Firstly, by obtaining 7 different preference values PX, the personality segments of the tested college students will form three regions, and a framework portrait of their personality tendencies will be obtained: the most strongly expressed

region is the first and second regions of PX; The weakest performance is in the third category of regions, which are the sixth and seventh positions of PX; The third, fourth, and fifth positions of the other PX are typically classified as Class II regions.

Secondly, personality traits themselves cannot be evaluated based on their strengths and weaknesses. Targeted strategies should be adopted in conjunction with the personal and social development needs of college students. If a certain personality tendency is something that both personal and social development are particularly concerned about, it should be considered a "key focus type". If a certain personality tendency is something that at least one party pays special attention to in personal or social development, it should be considered a "conventional type of attention". Overall, the priority level for improving "key focus types" is higher than that of "regular focus types".

Thirdly, based on the personality tendency framework, different types of attention should adopt different strategies. Among them, one type of area is a strong performance area that should be maintained as the main focus; The second category area is a general area that should be strengthened; The third category of areas is a weak performance project, and it is necessary to pay special attention. First, identify the weakest areas from the corresponding observation points to make up for the shortcomings, and then overall improve to the level of the second category of areas. Subdivided into different types of attention, the urgency within the scope of "regular attention types" is not as high as that of "key attention types". The urgency within "regular attention types", in descending order, is only focused on social development, only on personal development, and when both social and personal development are not particularly focused on. The specific strategy is shown in Figure 1:
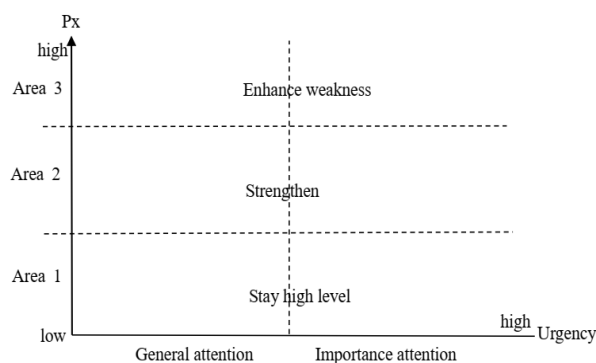
Figure 1: Different personality preferences-type of attention education strategies

Finally, when adopting corresponding educational strategies for different individuals, two key points must be emphasized: on the one hand, the areas with the weakest performance must have a bottom line awareness. Although personality tendencies do not matter whether they are good or bad, it is important to note that personality segments with lower PX values are the weakest areas of individual performance among college students. Unless these weak values are objectively higher than the average level of most people, weakness is only caused by the absolute number of characters in all seven personality segments of the individual. Otherwise, special attention should be paid to meeting the minimum social

requirements, such as legal awareness in ideological characteristics. On the other hand, personality fragments establish a basic portrait of the personality framework of college students. When implemented to individuals, the 93 observation points display vastly different situations, requiring the participation of schools, families, and even college students themselves. The specific methods and measures vary from person to person [6].

Acknowledgement

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