Exploring the Structure of Wisdom in Chinese Culture
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\textbf{Abstract.} 52 graduate students were selected as subjects in the experiment to explore the wisdom structure in Chinese culture. Multi-Dimensional Scaling and Hierarchical Clustering Program were used to analyze the classification results and structure of wisdom descriptive feature words. The results showed that wisdom descriptive feature words were divided into five categories: good moral character, good social ability, good personality, good thinking quality and good intellectual quality.

\textbf{Introduction}
In the 1980s, researchers created five fields of psychological wisdom research: (a) to explore the implicit definition of wisdom; (b) manipulating and measuring wisdom; (c) explaining the development mechanism of wisdom; (d) investigating the plasticity of wisdom; (e) applying knowledge related to wisdom in life situations [1]. In comparison, the study of wisdom in China is still at the stage of concept introduction and cross-cultural verification, indigenous and original studies are few. Based on the review of wisdom structure research at home and abroad, empirical methods are used to analyze the wisdom structure in Chinese culture to promote the equal dialogue between Chinese wisdom psychology and Western wisdom psychology.

The study of the wisdom structure in Western psychology has gone through three stages. First, in the 1970s and 1980s, researchers used multidimensional scaling and factor analysis to explore the implicit wisdom structure of layperson's mind, Clayton and Birren showed that wisdom consists of three dimensions: cognitive, reflection, and affection [2]; Sternberg found that wisdom consists of six dimensions: reasoning ability, intelligence, learning from thought and environment, judgment, ability to process information quickly, and insight [3]; Holliday and Chandler showed that wisdom consists of five dimensions: general ability, special understanding ability, judgment and communication skills, interpersonal skills, and social humility [4]. Second, in the early 21st century, for the psychological measurement of wisdom, the factor analysis was used to propose the wisdom structure of various explicit theory. For example, Ardelt's 3-D Wisdom Scale (3D-WS) divided wisdom into three measurement dimensions: cognition, reflection and emotion [5]; Webster's the Self-Assessment Wisdom Scale (SAWS) divided wisdom into five measurement dimensions: critical life experiences, reflections or reviews, emotional management, experience openness, and humor [6]; Brown and Greene's Wisdom Development Scale (WDS) divided wisdom into six dimensions of self-awareness, understanding others, judgment, life knowledge, life skills, and willingness to learn [7]. Third, in recent years, in order to promote the application of wisdom, researchers summarized various operational wisdom components based on previous research. For example, Bluck and Glück classified wisdom into five components: cognitive ability, insight, reflective attitude, caring for others and practical problem-solving skills [8]; Meeks and Jeste summarized six sub-components: pro-social attitude/behavior, social decision-making/practical knowledge in life, emotional stability, reflection/self-knowledge, values relativism/inclusiveness, understanding and effective handling of uncertainty/fuzziness [9].

Under the guidance of Western wisdom psychological research, domestic scholars have also carried out studies of the wisdom structure. Yang found that the wisdom structure of Taiwanese included four factors: ability and knowledge, kindness and compassion, openness and profundness, humility [10]. Zhang and Dong had shown that the wisdom structure of urban adults includes three dimensions: super-moderate style and outstanding cognitive ability, excellent interpersonal skills and rich knowledge and experience, self-control and self-knowledge ability and good character
traits [11]. Hu et al. proposed a five-dimensional implicit wisdom structure: cognitive engagement, practical engagement, interpersonal engagement, spiritual detachment, and positive mentality [12].

In general, researchers at home and abroad generally believe that: (a) wisdom is a multi-level and multidimensional holistic structure; (b) wisdom generally involves high-level cognitive abilities, knowledge experience or thinking strategies and other intellectual factors. And the moral qualities of motivation, action, and outcomes that tend to be good [13].

There are some problems in the studies of wisdom structure. First, the definition of wisdom has not yet formed a consistent definition. Second, the current wisdom structure is still in the implicit theory discussion. Third, Western culture has always advocated the thought of “emphasizing knowledge” and “loving wisdom” since ancient times. Therefore, in order to construct a wisdom structure with good theoretical foundation and data support and Chinese cultural fit, this study will use a theoretically driven model, from top to bottom, having further empirical research on the structure of wisdom in Chinese culture.

Method

Participants

52 graduate students were selected to participate in the experiment. The effective data was 51, including 31 education majors (6 boys and 25 girls) and 20 psychology majors (5 boys and 15 girls), the average age is 24 years old.

Experimental Materials

In this experiment, 40 wisdom descriptive characteristics that can fully express the wisdom connotation were used as experimental materials to construct the category and structure of wisdom. The collection procedure was as follows: Firstly, 201 participants were selected through an open questionnaire. The subjects were asked to write at least 10 words describing the characteristics of "wisdom." Secondly, get the top 50 associative words with high frequency and representativeness. Finally, described the characteristic words with appropriate wisdom in the relevant literature, and then invited another 30 graduate students to assess the importance of feature words. After discussing with one expert, 40 wisdom descriptive characteristics with importance ≥ 4 points were selected as an experimental material. 40 words were randomly arranged and printed on the questionnaire, there was enough space for the subjects to fill in the results and reasons for classifying feature words.

Procedure

The experiment was conducted in the class, and the collective test was carried out. In order to promote the students to answer the questions carefully, the subjects were required to write the student number, and the time was limited to 15 minutes. Explained the experimental instructions, and ask the participants to read the following words carefully, and try to understand the meaning of these words, freely classify according to their own understanding of the semantics of each word, and write together words with similar or similar semantics. There is no right or wrong classification, and it can be adjusted repeatedly. As long as they feel reasonable, and must not miss or repeat it. They were not allowed to discuss each other during the period. After the participants completed the classification task, the questionnaire was returned.

Data Processing

The Excel table was used to convert the classification result into a 40×40 dissimilar matrix: if two words are grouped in the same category, they were recorded as 0 at the intersection of the two words, otherwise they were recorded as 1. After superimposing the results of all the subjects, the Multi-Dimensional Scaling and the Hierarchical Clustering Program in SPSS18.0 were used to analyze the classification results of the characters and conceptual structure.
Results

The experimental results show that 51 graduate students divided 40 wisdom descriptive features into 5 categories, accounting for 37% (19 persons), followed by 4 categories and 3 categories, accounting for 27% (14 persons) and 22% (11 persons). The average number of categories is 4.20. After the classification result was processed by the multidimensional scaling method, Stress=0.11, RSQ=0.95. The Stress value represents the goodness of fit of the structure map and the input data. The relationship between the Stress value and the fit degree is: greater than 0.20, not good; 0.10~0.20, okay; 0.05~0.10, good; 0.025~0.05, very good; 0~0.025, fully adapted. RSQ is the ratio of the variance of multidimensional scale data interpreted by the corresponding distance. The closer to 1, the better. From these two indicators, the conceptual structure of the wisdom description feature words fits well with the original data.

The semantic space of 40 wisdom description feature words includes two dimensions: (a) personality quality/intellectual thinking; (b) Intrinsic traits/external abilities. The clustering results of multi-dimensional scaling method and system clustering method are basically the same. 40 wisdom description feature words are divided into five categories, namely: (a) good moral quality: including kindness, kindness, honesty, fraternity, modesty, open-minded, tolerant, socially responsible, contributing to society; (b) good social skills: including good communication, guiding or inspiring others, charisma, good at managing emotions, good at summing up lessons learned; (c) Good personality quality: including perseverance and perseverance, courage to explore and explore, calm, decisive, far-sighted, strategic, wise, knowledgeable, and truthful; (d) good thinking quality: including smart, high wisdom, quick thinking, thoughtful thinking, good at speculation, strong logical operation; (e) good intellectual quality: including good at finding problems, having independent opinions, strong imagination, strong ability to innovate, strong curiosity, strong observation, judgment Strong, insightful, adaptable, reflective, and adaptable.

The Spearman correlation analysis was performed on the coordinate values of the 40 wisdom description feature words. The results show that the dimension 1 (character quality/intellectual thinking) and dimension 2 (intrinsic trait/external ability) were not significantly correlated (r=-0.102, p>0.05), indicating that the subjects are based on semantic similarity. The two criteria for wisdom descriptive feature word classification are independent of each other.

Discussion

The experiment required the participants to classify the wisdom descriptive feature words from the semantic level according to the understanding of the wisdom description feature words, and obtained two dimensions of personality quality/intellectual thinking and intrinsic trait/external ability through multidimensional scale analysis. As a result of class analysis, intelligent feature words were divided into five categories: good moral quality, good social ability, good personality quality, good thinking quality and good intellectual quality. This is in line with the classification rules of classical theory, which holds that the concept consists of defining the relationship between features and features. The relationship between features and features is the basis for classification.

The five categories of wisdom feature words which constructed by experiments were consistent with the wisdom structure dimensions obtained by multidimensional scaling analysis in the past research on wisdom implicit theory. For example, Clayton and Birren used multidimensional scale analysis to obtain three dimensions: recognition Knowledge (knowledgeful, experienced, intelligent, practical, observative), reflection (reflective and intuitive), emotion (understanding human, compassionate, peaceful, humble) [2]. Sternberg used non-metric multidimensional scaling analysis to obtain six dimensions: reasoning ability, savvy, learning from the concept and environment, judgment, ability to process information quickly, and insight [14].

Moral quality refers to the psychological tendency or motivation to motivate and sustain an individual for the benefit of others or for their own benefit. It was proposed by Bluck and Glück [8] to care for others, the emotions in the Ardelt’s model [5], Brown and Greene proposed the
understanding of others [7], the pro-social attitudes/behaviors proposed by Meeks and Jeste [9], and the charity and sympathy proposed by Yang [10] are consistent. Ardelt and Oh argued that wisdom is not only a wise use of wisdom, but also a pro-social attitude and behavior, like love, others-centered and altruistic behavior [15]. Individual behavioral outcomes can enhance the well-being of oneself or others, consistent with the pursuit of public interest and positive effects as proposed by Yang [10].

Social ability refers individuals use good methods to deal with people and things, consistent with the emotional management, humility, patience and the modesty and low-key proposed by Yang [10]. This reflects the cultural characteristics of Chinese culture. For example, Yang found that Chinese culture emphasizes the humility and low-key characteristics of wisdom [10]. Zhang and Dong found that Chinese culture emphasizes the demure style and good personality traits [11].

Personality quality means that the individual must have sufficient practical knowledge and ability, and the rich factual knowledge and procedural knowledge of Baltes and Staudinger [16]. Berlin Wisdom Paradigm, and Webster [6], Brown and Greene [7] proposed the key life experience, life knowledge, life skills and other dimensions, and the ability and knowledge, openness and profound of Yang [10] are consistent.

The quality of thinking refers to the strategy that individuals must have a good way of thinking and creative problem solving. Grossmann and Kross [17] defined wise reasoning as "using certain types of practical reasoning to address important challenges in social life." Wisdom reasoning includes dialectical thinking and rational humility, such as adopting different perspectives. Be aware of the limitations of knowledge, make flexible predictions, and seek compromises.

Intellectual quality refers to the fact that an individual must have normal or even high levels of wisdom, consistent with the cognitive and reflective attitudes proposed by Bluck and Glück [8] and the cognitive and anti-thinking of the Ardelt's [5] model. Staudinger, Lopez, and Baltes [18] argued that wisdom is based on a certain level of wisdom, and wisdom is a wise use of knowledge.

This study showed that before the classification, there is no clear concept about "what is wisdom." The classification of wisdom words from the level of semantic analysis is mainly an understanding of the concept of wisdom implicit, reflecting the general sense. The concept or structure of wisdom in the minds of "laypersons," so the results of its classification are consistent with the dimensions of the wisdom structure in the study of wisdom implicit theory.

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