Relationship between College Students’ Academic Achievement and Wisdom: The Mediating Role of Openness Personality

Hao-Bin CHEN\textsuperscript{a}, Wen-Qian TANG\textsuperscript{\ast} and Yu-Fan CHEN\textsuperscript{b}

Jiangxi Science & Technology Normal University, Nanchang, China
\textsuperscript{a}chenganluo@163.com, \textsuperscript{\ast}1430488651@qq.com, \textsuperscript{b}1259774766@qq.com

Keywords: Wisdom; Academic achievement; Openness personality; College students.

Abstract. In order to examine the relationship between college students’ academic achievement, openness personality and wisdom, a total of 658 college students completed the academic achievement questionnaire, openness subscale and the wisdom development scale. The results suggested that there were significant positive relationships between academic achievement, openness personality and wisdom; academic achievement significantly predicted wisdom, openness personality played partially mediating role in the relationship between academic achievement and wisdom. The findings implied that academic achievement can not only directly predict wisdom but also indirectly predict wisdom via openness personality.

Introduction

Wisdom is one of the most important positive psychological qualities. In psychology, wisdom is defined as a mature personality that combines cognitive, reflective, and affective characteristic [1], as well as practical expertise about basic life affairs [2]. Wisdom includes not only cognitive factors such as thinking style, creativity, intelligence, but also non-cognitive factors such as openness experience, self-reflection, and emotional management [3]. Studies show that wisdom is closely related to individual intelligence, life experience, ability, knowledge, and personality traits. Wisdom is considered to be the result of the dynamic interaction of these cognitive and non-cognitive factors [4]. In the past, psychological research paid more attention to the relationship between academic achievement and student intelligence, and less on the impact of academic achievement on wisdom and its mechanism. This study will explore the relationship between academic achievement and wisdom, in order to provide empirical support for the promotion of college students’ wisdom.

Academic achievement refers to the knowledge and skills acquired after a certain period of study and training, and is an important indicator reflecting the development of individual mental capabilities. Studies found that students with high academic achievement generally have rich knowledge, experience and good logical thinking ability, and can make correct decisions and develop good problem solutions; their various cognitive abilities develop well, and in turn, good cognitive ability can promote excellent academic achievement [5]. Previous studies found that a students’ academic achievement is significantly positively correlated with intelligence. Academic performance can predict intelligence test scores. In adolescence, fluid intelligence and wisdom which related to knowledge will be rapidly developed [6]. It can be seen that academic achievement reflects the cognitive factors of wisdom to a certain extent, and academic achievement is closely related to the existence of individual wisdom. Although there were not research in the past to directly examine the relationship between academic achievement and wisdom of college students, studies have found that the wisdom of adolescents is significantly positively correlated with their GPA scores, and individual wisdom can significantly predict their academic achievement. Therefore, this study assumes that college students' academic achievement can significantly predict wisdom.

Openness personality reflects individual cognitive curiosity, imagination and aesthetic sensitivity. In many models of wisdom, openness has been identified as an important part of wisdom. Studies found that openness to experience, continuous absorption of new experiences and information, continuous updating of important and practical knowledge, and extraction of new knowledge, improve insight or thinking ability [7]. In the Big Five personality, openness is regarded as the most
important predictor of wisdom-related performance in personality, and it has important contribution to the accumulation of knowledge and judgment related to wisdom. Ardelt found that openness is the forerunner of wisdom because it enables people to learn from experience and others, and experience openness and wisdom are moderately positively correlated [8]. Staudinger and Pasupathi found that openness and wisdom-related performance are more relevant in early adulthood, and that the basic components of mental function have a greater impact on youth-related intelligence than in the middle-aged period [9]. Therefore, this study assumes that college students' openness personality can significantly predict wisdom.

Previous studies found that academic achievement is most significantly associated with openness personality in the Big Five personality [10]. Academic achievement is likely to affect wisdom through an openness personality. And individuals with high academic achievement are more likely to possess or develop intelligence-related characteristics, such as being curious, willing to accept new experiences, recognizing and accepting the uncertainty, self-reflection. At the same time, open-minded individuals have higher acceptance of new things and new ideas, and academic innovation ability is stronger. Therefore, college students with higher academic achievement may have greater motivation and opportunities in life than those with lower academic achievements to pursue the development of wisdom. Based on this, this study assumes that openness personality plays a mediating role between college students' academic achievement and wisdom.

In summary, this study takes college students as the objects, and tests the relationship between academic achievement, openness personality and wisdom and its mechanism. This study assumes that: (1) there is a significant positive correlation between academic achievement, openness personality and wisdom of college students; (2) openness personality plays a mediating role between academic achievement and wisdom.

Method

Participants

658 college students were selected as the objects. 338 (51.4%) in the sophomore year, 320 (48.6%) in the third year; 362 (55%) in boys and 296 (45%) in girls; the average age is 20.37±1.46.

Measures

The Wisdom Development Scale. The scale was compiled by Brown and Greene, which includes seven dimensions of self-awareness, emotional management, altruism, motivational participation, judgment, life knowledge and skills. It contains 61 items, uses Likert 7 points [11]. In this survey, the internal consistency coefficient of the total scale is 0.95, and the internal consistency coefficients of the seven dimensions are 0.75, 0.85, 0.85, 0.86, 0.77, 0.86, and 0.89. Confirmatory factor analysis showed that the factor load of all projects was between 0.56 and 0.81, and the fitting indices were $\chi^2/df=4.41$, RMSEA=0.07, NFI=0.97, CFI=0.98, IFI=0.98, GFI=0.97.

Academic Achievement Questionnaire. It includes 1 item and uses Likert 5 points, the participants were asked to evaluate their academic performance based on their overall academic performance in the past two semesters. Previous studies showed that students' subjective feelings about academic performance closely related to objective test scores.

Openness Personality Scale. The openness personality scale in the NEO Five-Factor Inventory (NEO-FFI) of Costa and McCrea, including 12 items, uses Likert 5 points [12]. The internal consistency coefficient of the openness personality subscale in this measurement was 0.64.

Data Processing

Data processing was performed using SPSS19.0 and AMOS17.0.
Results

Common Method Deviation Test

The results showed that there were 18 factors with eigenvalue greater than 1, and the first factor explained the variation of 24.67%, less than 40% of the critical standard, indicating that there is no serious common method bias in this study.

Correlation Analysis of Academic Achievement, Openness Personality and Wisdom

Descriptive statistics and Pearson correlation analysis of academic achievement, openness personality and wisdom are shown in Table 1.

Table 1. Descriptive Statistics and Correlation Analysis of Each Variable.

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>Academic achievement</th>
<th>Openness personality</th>
<th>Wisdom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic achievement</td>
<td>3.07</td>
<td>0.93</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Openness personality</td>
<td>3.56</td>
<td>0.53</td>
<td>0.12**</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Wisdom</td>
<td>4.80</td>
<td>0.79</td>
<td>0.32**</td>
<td>0.39**</td>
<td>—</td>
</tr>
</tbody>
</table>

Note: * indicates p<0.05, ** indicates p<0.01, and *** indicates p<0.001.

It can be seen from Table 1 that the academic achievement and wisdom of college students are significantly positively correlated (r=0.32, p<0.01); openness personality and wisdom are significantly positively correlated (r=0.39, p<0.01); academic achievement and openness personality was a significant positive correlation (r=0.12, p<0.01).

A Test of the Mediating Role of Openness Personality in Academic Achievement and Wisdom

According to the mediation effect test process, the direct effect model and path of academic achievement to wisdom are first analyzed. The results show that the model fit index is good: \( \chi^2/df = 4.23, RMSEA=0.07, NFI=0.92, CFI=0.93, IFI=0.93, GFI=0.95 \); path analysis results show that academic achievement is significantly positive predictive wisdom (\( \beta=0.41, p<0.001 \)), academic achievement explains 10.4% of the wisdom variation.

Based on the direct effect model of academic achievement on the influence of wisdom, the openness personality is used to construct a relationship model between the three variables. The results show that the model fitting indices CFI, NFI, IFI and GFI are greater than 0.91, 3<\( \chi^2/df <5 \), RMSEA<0.08, indicating that the model fits well (see Table 2). From the path relationship, academic achievement is significantly positive predictive of openness personality (\( \beta=0.16, p<0.001 \)), openness personality significantly predictive wisdom (\( \beta=0.34, p<0.001 \), indicating that openness personality plays a partial mediating role between academic achievement and wisdom. Further, the deviation-corrected percentile Bootstrap method was used to extract the significance of the mediation effect of 2000 samples. The results show that the 95% confidence interval for the indirect effect of academic achievement through openness personality to wisdom is [0.003–0.066], excluding 0, indicating that the mediating effect is significant, the mediating effect is 0.06, accounting for 14.63% of the total effect.

Table 2. Model Fitting Index of Academic Achievement, Openness Personality and Wisdom.

<table>
<thead>
<tr>
<th></th>
<th>( \chi^2 )</th>
<th>df</th>
<th>( \chi^2/df )</th>
<th>RMSEA</th>
<th>CFI</th>
<th>NFI</th>
<th>IFI</th>
<th>GFI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>228.74</td>
<td>51</td>
<td>4.49</td>
<td>0.07</td>
<td>0.93</td>
<td>0.91</td>
<td>0.93</td>
<td>0.94</td>
</tr>
</tbody>
</table>
Discussion

The Relationship between Academic Achievement, Openness Personality and Wisdom

The results show that academic achievement and wisdom are significantly positively correlated. This may be because students with high academic achievement are rich in knowledge and experience, and are eager to understand deeper truths, so that knowledge and ability related to wisdom develop better and have the opportunity to pursue and develop wisdom. Studies show that among college students, academic level and educational expectations are positively correlated with knowledge related to individual and wisdom. There is a significant positive correlation between openness personality and wisdom, which is consistent with previous researches. Ashton, et al. found that individuals with high openness personality are more curious in their experience, more flexible in thinking, and more motivated to engage in intellectual activities, which allows them to expand their horizons of knowledge and thus improve the growth of wisdom [13]. In addition, academic achievement is significantly positively correlated with openness personality, which supports previous researches. Farsides and Woodfield found that there is a significant correlation between rigor, openness, neuroticism, extroversion and academic achievement in the Big Five personality [14]. In general, there is a significant positive correlation between academic achievement, openness personality and wisdom of college students. This indicates that the better academic achievement, the higher the degree of openness of experience, and the higher the level of wisdom.

The Role of Openness Personality in the Relation between Academic Achievement and Wisdom

The results of this study have shown that academic achievement can positively and significantly predict wisdom. This may be because college students have higher academic achievement, and their cognitive skills such as knowledge and mental skills develop better, which in turn affects or promotes the growth of wisdom. According to Berlin's wisdom paradigm theory, as a typical example of the development of expertise and skills, wisdom is acquired by individuals through long-term and serious learning and practice processes and efforts to pursue superior motivation [2]. This also supports the wisdom of “knowing and gaining wisdom” in Chinese traditional culture. As long as a person continuously accumulates knowledge and makes appropriate creative transformation, he can gradually obtain it through the path of “changing knowledge into wisdom”. Therefore, it can be determined that academic achievement is an important predictor of wisdom.

This study further introduces openness personality into the relationship between academic achievement and wisdom, and examines the mediating role of openness personality. The results show that academic achievement can significantly predict wisdom, and academic achievement can influence wisdom indirectly through openness personality. The reason may be that college students with good academic achievement are usually enlightened, full of curiosity, and thus the more likely they are to increase their interest in learning knowledge and experience, the more they can grow their knowledge and talents, and thus the better opportunities to improve, correct, and update the basic and practical knowledge and insights about life that are important factors in the development of wisdom [4]. Ardelt found that openness to experience is an important resource for individuals to eventually develop into high-level wisdom [8]. Staudinger and Pasupathi found that intelligence and personality have a greater predictive effect on adolescent wisdom, and the integration of personality and intelligence has a greater impact on the wisdom of adults [9]. This effectively supports the theory of wisdom development mechanism: the growth of wisdom requires integration of cognition, self-reflection, openness to various experiences, and recognition and acceptance of uncertainty.

The openness personality only plays a partial role in the influence of academic achievement on wisdom, indicating that there may be multiple mediating factors in the mechanism of academic achievement affecting wisdom. In other words, the influential factors of wisdom have complex characteristics, and a single mechanism cannot fully explain the influence of academic achievement on wisdom. Previous studies found that there are a large number of preconditions that influence the development of wisdom in early adulthood. The antecedent variables of wisdom are likely to be based on the coordinated integration of several characteristics, such as cognition, motivation,
interpersonal and spirituality [15]. Therefore, future research should consider the mechanism of role of other cognitive and non-cognitive factors on the impact of academic achievement on wisdom.

Acknowledgement

This research was financially supported by the Postgraduate Innovation Fund of Jiangxi Provinclal Department of Education (Jiangxi Science & Technology Normal University, YC2019-S414).

References