



## PERSONALITY AND LEARNING STYLE: EVIDENCE FOR BIG FIVE TRAITS

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### Abstract

The study examined the relationships between Big Five traits and learning styles of college students. Participants were 360 undergraduate students who completed the NEO-FFI and the Inventory of Learning Processes (ILP). While FFI measured the Big Five personality traits, the ILP measured student's adoption of the four learning styles; Synthesis-analysis and Elaborative processing for reflective learning, and Methodical study and Fact retention for agentic learning. The data were analyzed by correlation and multiple regressions. The findings of the study were: (i) conscientiousness was positively and neuroticism was negatively associated with all four learning styles; (ii) both agreeableness and openness were positively associated with reflective learning styles; and (iii) extraversion is associated positively only with elaborative processing. The results of multiple regression analyses showed that respectively 37%, 26%, 35% and 9% of the variances of Synthesis-analysis, Elaborative processing, Methodical study and Fact retention were explained by the Big Five traits. The findings of study have implications for teachers in planning their instructions to the appropriateness of students' personality trait.

**Keywords:** Big Five Traits, Reflective learning style, Agentic learning style



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### Introduction

The Big Five framework of personality (Costa and McCrae, 1992) has emerged as a robust model for understanding the relationship between personality traits and various kinds of behaviors. Poropat (2009) reported that academic behavior of students was also no exclusion to this model. Farsides and Woodfield (2003) on the basis of the results obtained from a large group of college students (N=1320) reported that: (i) the level Conscientiousness trait in students was significantly correlated with their disciplined, organized, and achievement-oriented behavior; (ii) Students higher in Neuroticism were found as emotionally unstable lacking in impulse control and are prone to anxiety symptoms; (iii) Extraversion among college students was displayed through a higher degree of sociability, assertiveness, and talkativeness; (iv) Openness among them was reflected in their strong intellectual curiosity and a preference for novelty and variety; and (v) finally, agreeableness among the students resulted in being helpful, cooperative, and sympathetic towards others. They also proposed that these behavioral differences among the students arising from the Big Five traits change their attitudes towards academic behavior. They observed that these personality traits

were intricately tied to the motivational characteristics of students' learning. In view of such evidences, Miller (2007) reported that there were individual differences in learning styles related to their personality traits and recommended that educators go beyond the current emphasis on cognition and include these variables in understanding academic behavior of students.

Gadzella, Ginther, Masten, and Guthrie (2010), from further research on college students discovered complex links between their learning styles and personality traits. For instance, relative to shallow processors, deep processors are more likely to use appropriate study methods, draw conclusions effectively, and have a stronger internal locus of control. Deep processors are also more conscientious, intellectually curious, extraverted, and emotionally stable. On the other hand, Zhang (2013) reported that students who preferred a structured learning environment and intuitive processing are prone to anxiety and worry, whereas those preferring an activist and pragmatist style are more extraverted. All these evidences definitely point to relationships between personality traits of students and their adoption of learning styles which appear to be intricately connected. Therefore, in the current research, it was sought to fill this gap in the literature by directly examining relationships in view of the following objectives and hypotheses:

### **Objectives and hypotheses**

i. Students with high neuroticism experience anxiety, self-doubt, and negative emotionality and therefore are likely to be disengaged from the learning process and may not persist when facing difficulties. Hence, it was predicted that neuroticism would be negatively related with all four strategies.

ii. As extraversion is more context-specific, they would be adept in elaborate processing but no a priori predictions for how this dimension would be related with other learning styles had been proposed.

iii. Regarding openness, students who score high on this trait display a strong intellectual curiosity and were eager to learn. Because deep processing may be facilitated by curiosity, it was predicted that openness would be positively related with the reflective learning styles namely; Synthesis-analysis and Elaborative processing.

iv. Regarding agreeableness, due to the broadly beneficial effects of cooperative attitudes, it was predicted that agreeableness would be positively related with all four of the learning styles.

v. Conscientious students are likely to be high achievers as they have a strong work ethic and are more likely to use deliberate and focused learning strategies. Hence, it was predicted that conscientiousness would be positively associated with the agentic learning styles like methodical study and fact retention.

vi. Because openness and reflective learning styles enable students to gain more knowledge, it was expected that both would be positively associated.

## **Method**

Participants were 360 undergraduate college students, including equal number of boys and girls who completed the Five Factor Inventory (NEO-FFI) and the Inventory of Learning Processes (ILP). Students represented from several undergraduate colleges of Odisha having a variety of majors like Literature, Social Science, Education, Science and Commerce. The NEO-FFI consists of 60 items designed to assess the Big Five personality traits. It is the most widely used measure of Big Five personality traits with sound psychometric properties established by previous researchers (Costa and McCrae, 1992). The Inventory of Learning Processes (ILP, Schmeck, Ribich, and Ramanaiah, 1977) is a widely used 62-item measure that assesses two categories of learning styles: reflective and agentic. Reflective learning styles include synthesis-analysis (18 items) and elaborative processing (14 items), and agentic learning styles include methodical study (23 items) and fact retention (7 items).

## **Results**

Correlation analyses indicated a number of significant relationships (see [Table 1](#)). Specifically, consistent with our predictions, neuroticism was found to be negatively related with all the four learning styles. The skill of synthesis-analysis is found to be most hampered by neuroticism. Even fact retention as an agentic learning style was found to be seriously hampered by neuroticism trait. The overall conclusion that emerged from the findings is that neuroticism is a grossly negative trait inhibiting the practice of any form of learning style. Consistent with our hypothesis, extraversion is found to impact only the elaborative processing style while the other three learning styles were not being impacted by this trait. On the other hand, openness was positively related with the two reflective learning styles such as synthesis-analysis and elaborative processing and not with any of the agentic learning styles. Further also, openness trait was found to have very strong impact on the reflective learning styles showing correlations as high as 0.42 and 0.34. As predicted in the hypothesis, agreeableness trait is found to be consistently related with all the four learning styles and the strength of relationships with each of the learning styles was nearly same. Finally, it's a big

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deal about conscientiousness and methodological study sharing a correlation of 0.57. However, it was not predicted that conscientiousness could be positively related to both the reflective learning style. Conscientiousness was also found significantly related to fact retention, to identify this as the most useful trait for adopting different learning styles successfully. Hence, the findings clearly suggested for multiple regression analyses for the Big Five traits as each of the four learning styles.

First of all, the extent to which the Big Five personality traits predicted each of the four learning styles was examined (see Table 2). It was found that neuroticism, openness, and conscientiousness explained 37% of the variance in synthesis-analysis; openness and conscientiousness explained 26% of the variance in elaborative processing; openness and conscientiousness explained 35% of the variance in methodical study; and conscientiousness alone explained 9% of the variance in fact retention. Hence, the relevance of the findings are discussed below

**Table 1. Correlations between the Big Five personality traits and learning styles**

<b>Big Five Traits</b>	<b>Learning Styles</b>	<b>Elaborative Processing</b>	<b>Synthesis Analysis</b>	<b>Methodological Study</b>	<b>Fact Retention</b>
Neuroticism		-.21**	-.37**	-.19**	-.28**
Extraversion		.14**	.08	.06	.10
Openness		.42**	.34**	.07	.07
Agreeableness		.23**	.18**	.16**	.22**
Conscientiousness		.27**	.34**	.57**	.25**

Note: N ranges from 233 to 360

\*\* p<.01

**Table 2. Multiple regression analyses with the Big Five traits regressed on each of the four learning styles**

<b>Factor</b>	<b>Predictor</b>	<b>Beta</b>	<b>R<sup>2</sup></b>	<b>Adjusted R<sup>2</sup></b>
Synthesis-analysis	Neuroticism	-.33**	.37	.35
	Openness	.40**		
	Conscientiousness	.27**		
Elaborative processing	Openness	.38**	.26	.25
	Conscientiousness	.27**		
Methodological Study	Openness	.14**	.35	.36
	Conscientiousness	.56**		
Fact Retention	Conscientiousness	.27**	.09	.07

\*\* p<.01

## Discussion

The findings of the study established a number of interesting relationships between the Big Five personality traits and learning styles. Taken as a whole, these findings yielded some insights with potential practical implications on the dynamic interplay between

personality traits and learning styles. First, our personality results have several significant implications for students and instructors. Perhaps most notably, our results establish that being conscientious is critical for learning and performance. Conscientiousness was positively and significantly associated with all four learning styles. Thus, conscientiousness appears to facilitate a variety of effective learning strategies and may be an especially useful trait for attaining high levels of academic achievement. Students who are careless and do not study systematically are more likely to see their performances suffer. It is also found that both agreeableness and openness were positively associated with reflective learning styles. This suggests that, besides being conscientious, students may also benefit from being cooperative and intellectually curious. Instructors who are sensitized to the importance of these personality traits could design course assignments and testing methods that foster conscientiousness (e.g., requiring drafts of assignments to be submitted in small parts), agreeableness (e.g., supporting and rewarding cooperative behaviors), and openness (e.g., capturing students' imaginations by linking concepts to current events) among students.

In addition, results of regression analyses showed that conscientiousness predicted each of the four learning styles while openness predicted three of them. This suggests that students who are organized, disciplined, determined, and intellectually curious are more likely to use all four learning styles in maximizing their learning. Such students are likely to be very thorough, relate what they are learning to previous knowledge and to their own lives, and to study in a systematic way, thus, excelling on examinations. On the other hand, the negative relationships between neuroticism and all four learning styles suggest that students who are given to worry and anxiety are likely to disengage from the learning process and fail to organize and categorize what they are learning into meaningful units. To conclude, the results of the study make an important contribution to our understanding of academic behavior by identifying a number of linkages between personality traits and learning styles.

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