

The Relationship Between Individual Personality and Learning Ability: A Literature Review

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Abstract

This paper explores the complex relationship between personality traits and learning ability, examining how they influence each other. Through a review of existing literature, the article analyzes the connections between the Big Five Personality Model and theories of learning styles and intelligence, highlighting how different personality traits impact learning methods and academic performance. Additionally, it discusses the potential influence of learning ability on personality development. The paper emphasizes the practical significance of understanding this relationship for education, career development, and mental health, and calls for further longitudinal research and neuroscientific approaches to uncover the dynamic interactions between these factors.

Keywords: personality traits, learning ability, Big Five Personality Model, learning styles, intelligence theory

1. Introduction

It is well known that personality and learning ability are two topics of research in psychology. In psychology, personality is frequently described as the permanent features of an individual's ideas, feelings, and behaviours that identify them from one another (APA, 2023). Personality refers to a person's normal patterns of behaviour towards oneself and others, as well as consistent responses in various situations (Pervin & John, 1999). It encompasses both internal psychological qualities and exterior behaviour, reflecting a person's views, values, attitudes, motives, and habits (Allport, 1937). Research on personality can help predict individual behaviours and life outcomes (Roberts et al., 2007), guide personalized education and career development (Komarraju

& Karau, 2005), improve psychotherapy and counselling (Kotov et al., 2010), and improve the quality of life. Promote personal development and self-awareness (McCrae & Costa, 2003) and reveal social and cultural influences on individual behaviours (Heine & Buchtel, 2009). These findings help psychologists, educators, career counsellors, and individuals better understand and apply personality theory to improve quality of life and social functioning.

Learning ability is an individual's ability to acquire, retain, and apply knowledge or abilities. This capacity includes both cognitive and non-cognitive variables, such as motivation, emotional management, and learning techniques (Schunk, 2012). Learning ability is an important aspect of an individual's academic, personal, and professional growth. The capacity to learn is

necessary not just for academic achievement, but also for personal and professional growth (Schunk, 2012). Strong learning abilities may help people excel in academic settings, quickly learn new skills in their jobs, and continually improve and change in their personal lives (Ericsson, Krampe, & Tesch-Romer, 1993). Understanding and encouraging learning is thus crucial for educators, students, and professionals alike (Bransford, Brown, & Cocking, 2000; Sternberg & Grigorenko, 2000).

The above content is about the definition of personality and learning ability and the significance of research. Similarly, the link between personality and learning ability is an interesting area of research. Personality and learning ability are important issues to research because they have a broad impact on individuals and society. Understanding personality traits helps anticipate individual conduct and life outcomes in a variety of situations, allowing educators and career counsellors to construct tailored education and career development methods (Roberts et al., 2007). In addition, the ability to study and learn is essential for enhancing performance in academic and professional situations. Strong learning abilities can help individuals excel in academic settings, quickly acquire new skills in their careers, and continuously improve and grow in their personal lives (Schunk, 2012). Finally, the study of personality and learning ability can also improve psychotherapy and counselling, and reveal the influence of society and culture on individual behaviours, so as to promote cross-cultural understanding and communication and enhance social harmony in the context of globalization (Heine & Buchtel, 2009).

This research seeks to investigate the association between personality qualities and learning ability. The research will specifically address the two major challenges listed below. First, do personality qualities effect learning ability? This inquiry is based on the observation of various behaviours and responses displayed by individuals throughout the learning process, and it investigates the potential relationship between personality characteristics and learning ability. Second, can learning ability influence an individual's personality development? This question stems from an examination of the possible impact of learning ability on individual growth and development, with the goal of

delving thoroughly into how learning ability influences individual psychological features and behaviour patterns. This article intends to explain the complicated link between personality and learning ability via an in-depth examination of these two concerns, as well as to give theoretical advice and practical ideas for the domains of educational practice, career development, and psychology.

2. Theoretical Foundation of Personality and Learning Ability

Although the definitions of personality and learning ability have been stated in the discussion section above, because the definitions of personality and learning ability are relatively general, in order to clearly discuss the relationship between personality and learning ability, it is also necessary to make specific and clear explanations of the contents of personality and learning ability. Therefore, this section will further explain personality and learning ability based on some classical theoretical constructions.

Personality theory seeks to describe and comprehend the enduring traits of a person's thoughts, feelings, and behaviours that distinguish each individual. Psychologists can use the systematic study of personality to anticipate individual behaviour patterns in a number of contexts and investigate the link between personality traits and life outcomes. The primary theoretical theories of personality are listed here, along with their features.

The Big Five Personality Model, often known as the Five-Factor Model (FFM), is one of the most well-known and used models in psychology. The model categorises personality into five dimensions, each with a set of associated qualities (McCrae & Costa, 1997). People with a high openness to experience are innovative, creative, and curious, and they enjoy trying new things and accepting new ideas; they are more engaged in the face of new experiences and information; and they are open to different viewpoints and cultural variety. People with high conscientiousness are typically well-organized, self-disciplined, responsible, goal-oriented, and hold high standards. They feel at ease in social circumstances, are eager to participate in a variety of social activities, and are easy to lead. Extraverts are socially active, enthusiastic, positive, and like interacting with others; they are at ease in social situations, are

eager to participate in a wide range of social activities and are easy to lead. People with high agreeableness are often empathic, helpful, and cooperative, they care about and consider others, they readily develop strong connections with others, and they demonstrate high levels of collaboration and empathy. Neuroticism, people with high emotional stability usually have stable emotions, strong ability to resist pressure, and less experience negative emotions. They show strong emotional control ability and psychological resilience in the face of pressure and frustration.

The Big Five Personality Model is one of the most widely recognized and applied personality models in psychology. There are several reasons why this model is widely used. First of all, the Big Five Personality Model was established based on a good deal of empirical study. Psychologists have found five personality dimensions which are consistent and stable all over the world, using factor analysis of huge quantities of data (McCrae & Costa, 1997). Especially, researches realized that the Big Five Personality Model are widely applicable across cultures. The cross-cultural consistency of Big Five Personality Model makes it extensively adapted to study and applications throughout the world (McCrae & Terracciano, 2005). Besides, The Big Five Personality Model shows great validity in predicting individual behaviour, professional performance, academic accomplishment, mental health and so on, which provides a reliable tool for researchers and practitioners to understand and predict how will people behave in a range of situations (Barrick & Mount, 1991). In addition, the Big Five Personality Model classifies disordered personality traits into five key dimensions which are both brief and comprehensive, which makes the model easy to use and also covering a cluster of distinct personality traits (John & Srivastava, 1999). In the end, the Big Five Personality Model has been widely applied in many fields, including clinical psychology, psychological evaluation, education and training and career assistance. In all, Big Five Personality Model is a widely used and important method for detecting and understanding individual differences (Costa & McCrae, 1992).

In addition to the Big Five Personality Model, there are also a few influential personality models in psychology which can offer frameworks for analysing personality from

different angles. The HEXACO model is an expansion of the Big Five Personality Model by classifying personality qualities into six different dimensions (Ashton & Lee, 2007). The first is honesty and humility. As humility hits, high scores are honest and modest, but low scores are selfish and dishonest. The second dimension is emotionality, similar to neuroticism in the Big Five Personality Model, which emphasizes individual responses to stress and negative emotions. The third dimension is extraversion, similar to extraversion in the Big Five Personality Model. The fourth dimension is agreeableness. Compared with the Big Five Personality Model, tolerance and understanding are more emphasized in HEXACO. The fifth and sixth dimensions are conscientiousness and openness to experience, both of which are similar to conscientiousness and openness to experience in the Big Five Personality Model. In addition, there are some personality theories that are quite different from the Big Five Personality Model. Recently, the MBTI theory of personality has gained a lot of attention. The MBTI is based on Carl Jung's theory of mental types, developed by Katharine Briggs and Isabel Myers. The MBTI divides personality into four dimensions, each consisting of two opposite traits: extraversion vs. introversion, sensing vs. intuition, thinking vs. feeling, judging vs. perceiving. By combining these dimensions, the MBTI classifies personality into 16 types. Each type has its own unique way of behaving and thinking, and each has its own strengths and potential areas for improvement (Myers, 1995).

Learning ability theory tried to explain the differences in how people learn, retain, and apply information and skills. These theories help us understand why and how people show different behaviours and generate various results when learning. In this section, learning ability are divided into two parts, learning style theory and intelligence theory, which help explain individual differences from different points of view. Learning style theory focuses on individual preferences for information reception and processing (Kolb, 1984; Fleming, 2001), and intelligence theory focuses on the diversity of cognitive abilities and explains how different types of intelligence works in professional and education. The following part is some of the major theories and models of learning style and intelligence.

Kolb's Learning style model is based on

experiential learning theory and four kind of learning styles are summarised in his model, they are concrete experience (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE). These styles provide a continuous learning cycle, in which people can begin at any time and pass through different phases (Kolb, 1984). In addition, Kolb divides students into four categories by different combinations of the four learning styles: divergent (concrete experience and reflective observation), assimilative (reflecting observation and abstract conceptualization), convergent (abstract conceptualization and active experimentation), and adaptable (concrete experience and active experimentation). By contrast, Fleming's VARK model divided learning styles into four categories: visual, auditory, read/write, and kinaesthetic. Each learning style reflects learners' preferences for information acquisition and processing (Fleming, 2001). Visual learners tend to learn through visual information such as images, charts and diagrams, aural learners prefer to gain information by auditory information such as lectures and discussions, read/write learners prefer to learn from text information reading and writing, and kinaesthetic learners learn by practical operation and experience the best.

In the aspect of intelligence theory, Howard Gardner's Multiple intelligence theory challenges the traditional view of single intelligence and holds that intelligence is multi-dimensional. He first proposed seven types of intelligence in 1983, and later added two more, bringing the total to nine (Gardner, 1983; 1999). These nine abilities are linguistic intelligence (the ability to process language and text), logical-mathematical intelligence (the ability to reason logically and perform mathematical calculations), spatial intelligence (the ability to understand and manipulate spatial relationships), bodily-kinaesthetic intelligence (the ability to solve problems through physical movements), musical intelligence (the ability to understand and create music), and interpersonal intelligence. In addition, Sternberg proposed the theory of triadic intelligence theory, dividing intelligence into three main components (Sternberg, 1985). Analytical intelligence, which involves the ability to analyse, evaluate, judge and compare information, this intelligence is similar to what is

measured by conventional intelligence tests. Creative intelligence, which involves the ability to imagine, invent, and create novel solutions; and practical intelligence, which involves the ability to deal with everyday practical problems, known as "street wise".

3. Existing Research on the Relationship Between Personality and Learning Ability

The theoretical framework of personality and learning ability has been elaborated in the previous part. Then, what are the specific links between the two, why are there such links, and what is the significance of these links to practice? This section will discuss the above aspects. Besides, in the previous part of theoretical construction of personality, three personality theories are specifically explained. However, in order to make the discussion more focused and not confused and considering the universality of the application of personality theory, this section only chooses the Big five Personality Model as the main theoretical basis of personality theory to discuss the relationship between personality and learning ability. In terms of learning ability, as above, this chapter will also discuss the relationship between personality and learning style and intelligence.

In terms of learning style, different dimensions of the Big Five Personality Model are associated with different learning styles. Individuals with high Openness to Experience usually show a strong sense of curiosity and innovation, they tend to enjoy exploring new knowledge and experiences, and show interest in complex and abstract concepts. These characteristics make them more suitable for visual and kinaesthetic learning styles, with visual learners preferring to acquire information through diagrams, images, and videos, while kinaesthetic learners learn through practice and experience (Fleming, 2001). This preference makes people with high openness more likely to benefit from multiple sensory inputs when exploring and understanding new information. Conscientiousness is closely related to both literacy and aural learning styles. Individuals with high conscientiousness usually have high organizational skills and planning, and they show strong self-discipline and persistence in the learning process (De Feyter et al., 2012). Read/write learners tend to learn through reading and writing, and they like to organize and master information through notes and books. Auditory learners prefer to acquire

information through listening and discussion (Fleming, 2001). People with high conscientiousness are more likely to adopt these systematic and structured learning methods, thus improving their learning efficiency. Extraversion individuals usually have strong social skills and communication skills, they tend to enhance learning through interaction and cooperation, and these individuals are more suitable for aural learning styles. Because they like to acquire and process information through discussions, lectures, and group activities (Furnham et al., 2011). People with high extroversion perform well when they participate in discussions and team work, and this interactive learning environment helps them better understand and retain information. Individuals with high agreeableness are generally good at cooperation and team work, and they show positive contributions in cooperative learning and group tasks (Hakimi et al., 2011). This trait makes them perform well in cooperative based learning environments. Although agreeableness does not correspond directly to specific learning styles, its emphasis on cooperation and mutual aid is valuable in many learning situations. Emotional stability (Neuroticism) is associated with a variety of learning styles. People with high emotional stability are generally better able to manage their emotions and display better coping strategies in the face of learning stress (Chamorro-Premuzic & Furnham, 2003), they are able to adapt to a variety of learning styles, including visual, auditory, reading and writing, and kinaesthetic learning styles. Because they are able to maintain a focused and positive attitude, they reduce the negative impact of anxiety and mood swings on learning outcomes (Zeidner, 1995).

Similarly, there are many connections between intelligence and personality. The relationship between Openness to experience and intelligence is particularly significant. Individuals with high openness tend to be curious and creative, and they tend to accept new ideas and explore complex concepts, which is closely related to introspective and natural intelligence in Gardner's theory of multiple intelligences (Gardner, 1983). People with high openness show higher cognitive flexibility and creative thinking when solving problems, which helps them excel in science, art and other fields that require innovative thinking (DeYoung et al.,

2005). The relationship between Conscientiousness and intelligence can be understood in terms of analytical and practical intelligence in Sternberg's triad theory of intelligence. People with high conscientiousness excel in task management and execution, and they usually have good self-discipline and organizational skills, a trait that allows them to apply knowledge and skills efficiently (Sternberg, 1985). People with high conscientiousness tend to perform well in academic Settings because they are able to develop detailed study plans and follow them rigorously, resulting in enhanced academic achievement (Poropat, 2009). Extraversion is linked to intelligence in interpersonal interactions and teamwork. According to Gardner's multiple intelligences theory, individuals with high extroversion perform well in social interaction and teamwork, and they usually have strong interpersonal intelligence (Gardner, 1983). People with high extroversion are able to understand and apply knowledge more effectively through active participation in discussions, cooperative learning, and group activities, which is especially important in learning environments that require frequent communication and collaboration (Furnham et al., 2011). Although the direct relationship between agreeableness and intelligence is less significant than that between other traits, in teamwork and social interaction, individuals with high agreeableness can promote common learning and intellectual development through harmonious cooperative environment (Hakimi et al., 2011). Neuroticism is closely related to emotional intelligence. Individuals with high emotional stability are better able to manage and regulate emotions, thereby maintaining efficient cognitive function under stress (Matthews et al., 2002). They are able to cope effectively with negative emotions in the face of academic stress and challenges and maintain a focused and positive attitude towards learning, which is essential for academic and professional development (Zeidner, 1995).

The above contents are elaborated from the direction of the influence of personality on learning ability, and conversely, learning ability will also have an impact on the shaping of personality to a certain extent. In terms of learning style, visual and kinaesthetic learners acquire information through images, videos, practical operations, etc. This diverse learning

experience can broaden their horizons, stimulate curiosity and creativity, and thus enhance their openness (Fleming, 2001). These learning styles promote exploration and innovation, traits that are important components of openness to experience. Both read/write and aural learners usually adopt structured and planned learning methods, such as note-taking, reading literature, listening to lectures, etc. This learning method requires a high level of self-discipline and organizational ability, thus enhancing individual conscientiousness (Fleming, 2001). Through constant self-management and task completion, these learners develop a high sense of responsibility and diligence. Cooperative learning and team projects can promote communication and cooperation among individuals and enhance their social communication ability and team spirit (Hakimi et al., 2011). Through the spirit of mutual assistance and understanding cultivated in cooperative learning, individuals' habitability can be improved, which makes them show more friendly and cooperative attitudes in social interaction. Extroverted learners learn through discussions, lectures and group activities. This interactive learning environment can enhance their social skills and self-confidence (Furnham et al., 2011). Individuals who have high score on extroversion will receive more positive feedback and social rewards in such environment, thus further strengthening their extroversion traits in turn. In terms of intelligence, Gardner's multiple intelligence theory emphasizes individual intelligence from various aspects, such as introspective intelligence and natural intelligence. By developing these kinds of intelligence, individuals are able to understand the world more critically and increase their receptivity to knowledge and experiences, and then increasing their openness (Gardner, 1983). Cultivation of interpersonal intelligence can improve individuals' social skills and empathy, which helps to enhance their agreeableness (Gardner, 1983), with understanding and respect of the feelings of others, individuals will show more cooperation and kindness in social interactions. Analytical and practical intelligence in Sternberg's triadic intelligence theory emphasize task management and executive ability, which are closely related to conscientiousness (Sternberg, 1985). Individuals can develop a strong sense of responsibility and self-discipline by completing tasks and solving

issues on a regular basis. The triadic intelligence theory also includes episodic intelligence, which emphasises individual adaptability and emotional regulation in a variety of situations (Sternberg, 1985), individuals with situational intelligence are more capable to cope with stress and issues, which means lower the neuroticism.

4. Conclusion

The study of the relationship between personality and learning ability has great practical significance, the studies in this field do not only help us understand individual actions and psychological systems, but also provide practical recommendations in areas such as education, career development, and mental health. In education, understanding students' personality traits and learning styles may help teachers develop more adapting teaching strategies in the classroom, for example, students with high openness to experience may tended to inquisitive learning and creative activities more, and students with high conscientiousness may do better in organised and task-oriented learning contexts (De Young et al., 2005). Educators can improve student academic achievements and engagement by matching teaching methods to students' personality traits. Further, establishing strong learning abilities and approaches can increase students' self-esteem and academic accomplishment, and then promoting personality development overall (Bandura, 1997). In career development, understanding the link between personality traits and learning ability can help to put forward more effective career advices and training programmes. Individuals with high level on conscientiousness will thrive in task management and execution, as well as in vocations which need a high level of self-discipline and organisational abilities (Poropat, 2009). Individuals with high levels of openness to experience may be better capable to creative work contexts. Career guidance professionals can improve job happiness and performance by analysing people' personality characteristics and learning ability (Sternberg, 1985). In the realm of mental health, research has demonstrated that the interaction between learning ability and personality qualities has a major influence on an individual's mental health. Individuals with low emotional stability (high neuroticism) are more likely to experience worry and tension during the learning process. These people's emotional stability and overall

mental health can be enhanced by honing their learning skills, particularly those for dealing with stress and managing emotions. Furthermore, effective learning strategies and self-management abilities can boost individuals' self-efficacy and life happiness (Zeidner, 1995). Exploring the relationship between personality and learning ability can also help in cross-cultural understanding and educational justice. Personality characteristics and learning styles may change across cultural contexts, and understanding these differences allows educators and policymakers to create more inclusive and accommodative educational policies, ensuring that all learners can learn in the suitable environment for them (Gardner, 1983).

Although there are many existing researches in the field of understanding the relationship between personality and learning ability, the current researches also have several limitations. Many studies focus exclusively on western cultural contexts, ignoring differences in personality traits and learning ability in other cultures (Gardner, 1983), and this cultural bias limits the generalization of these theories, which makes them hard to apply in different cultural contexts. Also, the existing researches are nearly cross-sectional, making it difficult to fully explain the causal relationship and dynamic changes between personality and learning ability (Matthews et al., 2002), this is a methodological limitation. Future research can explore long-term relationship between these two factors by conducting a longitudinal study, which will help to gain a better understanding on the dynamic changes in people's personality and learning ability through life and the important impacting elements at different stage of development. Besides, future research should concentrate on using the methods of neuroscience and genetics to uncover the biological mechanism of personality and learning ability (De Young et al., 2005), it can be learnt more about how changes in brain activity during learning affect personality traits by utilising brain imaging tools. According to research, personalised education practices can dramatically increase students' academic performance and mental health. Moreover, educational interventions adapted to different personality traits can help students overcome learning difficulties and improve academic achievement, which not only improving

learning experience but also providing strong evidence for establishment of educational policies and practices even.

Thus, future study should also consider how to use these results in growth of the learners. Understanding the relationship between personality and learning ability can help design more targeted vocational training programs to enhance employees' vocational skills and satisfaction, which is of great significance for career development and organizational management. In conclusion, while the current study gives useful insights, additional in-depth and extended research is required to overcome existing constraints and provide a more solid theoretical foundation for practical applications.

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