

Are personality traits and learning styles correlates? Evidences from university students

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Abstract

The purpose behind this correlational study was to establish the relationship between students' learning styles and two of the personality traits i.e. conscientiousness and neuroticism. For this research, the population consisted of all the public university students from province of the Punjab. Multi-stage sampling technique was used to select 1,000 students from 10 universities of Punjab. 'NEO-BFI' developed by Costa & McCrae in 2010 (having 44-items for measuring personality traits) and LSI developed in 2005 by Kolb & Kolb (consisting of 10 factors for measuring learning styles) were used simultaneously to collect the required data. Both these instruments were standardized. Pearson correlation was applied for analyzing the data to find out the relationship between styles of learning and traits of personality. The study concluded that conscientiousness trait of personality was strongly correlated with the assimilating, accommodating and converging styles of learning and neuroticism trait of personality was strongly related with the diverging and accommodating styles of learning.

Keywords: personality traits, conscientiousness, neuroticism, learning styles, higher education

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Introduction

After the combination of an individual's inborn temperament and behavioral patterns, the features that are formed can be described as that individual's personality (Zimmerman, 2000; Stricker, Buecker, Schneider & Preckel, 2019; Dalpé, Demers, Verner-Filion, & Vallerand, 2019). These features are the basis on which that individual is separated from rest of the individuals. Personality has been the topic of social research for many decades and the interest of the researchers has not waned yet. It has not only been explored to the core of its very traits, but the association of its traits with several other behavioral dispositions has also been explored. Yet even after all these decades of research on personality, the relationship between personality types and learning styles is still not brought to the light (Tahriri, 2015). Mere efforts are not enough to enhance the process of learning can be justified by the common sense. For an effective change in the betterment of learning process, acting in accordance with the learning style of a person is just as much vital as the knowledge and understanding of his/her learning style. Acting in accordance with the learning style of a learner will keep him motivated in terms of cognition (Brown, 2006). Because learning styles are considered to be the habits of learners, the interference of personality traits (a more abstract entity) surely affects the learning process, making personality traits the only preparation needed for achieving specific goals and objectives (Caligiuri, 2000; Hampson, 2012). Hence, it can be put to the conclusion that the learning behavior is facilitated by the traits of personality (Blickle, 1998).

Learning is a basic task of processing information. The most important elements of this task are perception, memory, attention and thinking. The intermediates for managing learning stimulation are mental responses (Busato, 1999). This very fact paves a way for the possibility of an existing relationship between these both mentioned variables.

Objectives of the study

These following objectives were under consideration when this study was designed:

- To investigate the relationship between conscientiousness personality type and styles of learning (Diverging, Assimilating, Converging and Accommodating) of participants.
- To explore the relationship of neuroticism personality type and learning styles (Assimilating, Diverging, Converging and Accommodating) of participants.

Hypotheses

Following hypotheses were put under test during the study:

H₀₁: There is no significant relationship exists between the converging style of learning and the conscientiousness personality type.

H₀₂: There is no significant relationship exists between the diverging style of learning and the consciousness personality type.

H₀₃: There is no significant relationship exists between the assimilating style of learning and the consciousness personality type.

H₀₄: There is no significant relationship exists between the accommodating style of learning and the consciousness personality type.

H₀₅: There is no significant relationship exists between the converging style of learning and the neuroticism personality type.

H₀₆: There is no significant relationship exists between the diverging style of learning and the neuroticism personality type.

H₀₇: There is no significant relationship exists between the assimilating style of learning and the neuroticism personality type.

H₀₈: There is no significant relationship exists between the accommodating style of learning and the neuroticism personality type.

Literature Review

The important aspects of study's scope, nature and historical background are listed briefly below with the diversity of personality types, previous investigations related to the problem and theoretical perspective.

Personality

Every individual, when put in different situations and times, showcases a consistent set of traits. This consistent set of traits is that individual's personality type. To put in the simplest of words, personality of a person is all about how he reacts in different situations. This personality, however, is a much complicated term than one might think it to be. It has its own different aspects, provided everyone has a contrasting and unique personality. Now to explain the different aspects of an individual's personality, over the decades, multiple theories and models on personality have been formulated by the researchers (O'Conner, 2007). 'Big Five' is one of these models. It is also known as the 'Five Factor Model'. And, if you haven't guessed already, as the name suggests, it is focused on the five major traits of the personality. These said traits are "Conscientiousness, Neuroticism, Agreeableness, Extraversion and Openness" (Dalpé, et al. 2019; Schunk, 2008; Tahriri, et al. 2015). These traits are the measure of an individual's personality. Say, how much open, agreeable, neurotic, conscientious or extrovert he/she is. In this study, the present study that is, however, only two out of these five traits were the focus as the independent or predictor variables. Based from the work, research work, that has been conducted in past, we have come to identify people who fall within conscientiousness and neuroticism traits of personality as people who are organized and insecure respectively (Stricker, et al. 2019; McCormick, 2019). To put in

better words, people within conscientiousness trait of personality are responsible and extremely conscientious of their work and work choices. Neurotic people, people who fall within neuroticism trait of personality, however, are insecure about their work. These, neurotic people, are plagued with self-doubts and mistrust that are focused towards all their work choices and work relations with others.

Conscientiousness

Individuals falling under this personality type are known to be persistent in their work. They are courageous and have an organized sense in their working. They take full responsibility of their work. They put all their efforts towards achieving their goals with proper planning (Joy & Hicks, 2004). It goes without saying that they are extremely conscientious about their life choices. Say it be work choices or any other personal choices.

Neuroticism

Individuals under this personality type are known to live in an anxious state of mind. They are continuously haunted by the ghosts of bad decisions they have made in the past, making them dread the decisions they have to make in the future. This anxiety and dreadfulness leads them to live in a consistent negative state of anger, nervousness and irritation. And this consistent negative state inevitably leads them to a lifelong phase of depression (Barrick & Mount, 2001). Needless to say that the choices these people, neurotic people, make are always haunted by negative emotions. And this, inevitably, leads all these choices to take dead end road.

Learning styles

The specific way in which data is gathered, organized and processed by an individual is called his/her learning style (Busato, 1998). It goes without saying that just like personality every person has a unique (different) learning style too. And, much like personality, learning style has its own different aspects too. Rollin (1990) put it in more simple words by saying that the methods of learning exhibited by learners are their learning styles. To state it in even simpler words, the way in which a learner learns something is his/her way of learning (his/her learning style). It was also stated by him, Rollin, that the most preferable situations for learners are the ones where they are freely allowed to showcase their specifically preferred learning styles. And why wouldn't it be that way? Everyone, every person, loves to be in situations - both in mental and physical terms- that he/she is familiar with. Kolb (1984) stated that, "learning styles are influenced by personality type, educational specialization, career choice, and current job role and tasks" (Kolb & Kolb, 2005, p. 9).

Following terms were in use by Kolb (1984) for styles of learning:

- (AC/AE) Converging
- (CE/AE) Accommodating
- (AC/RO) Assimilating
- (CE/RO) Diverging

Converging

Learners with this style of learning showcase higher logical analysis in problem-solving. They take time to contemplate their problems and think their way through these problems by logical reasoning. They have an admirable set of deductive reasoning skills and have a special preference for trial-and-error method. They always keep in check the authenticity of information handed over to them and absolutely loathe rumors and gossip. Feedback from experts and teachers is not only proved to be highly effective regarding their learning styles but is also proved to be highly appreciated by these learners (Schunk, 2008). Feedback from experts and teachers gives them another whole new perspective over their work and work problems. This new perspective, goes without saying, even helps them in the long term too time and time again.

Assimilating

Learners under this style of learning are innately skilled plan-makers and problem-solvers. To put in simpler words, it is a big part of their nature to skillfully look at the given options and make appropriate plans after specifically required arrangements. However, practical studies and behaviors that concern practical ideas and values are not their field of expertise. These learners prefer to get their information only from the primary sources (experts and their teachers). Whether the information that is handed over to them is authentic or not does not have any particular say in the way these, assimilating learners, learn. And because these learners have a special preference for observance in their process of learning, traditional learning approaches are proved highly effective for these learners (Suliman, 2006).

Diverging

Learners with diverging style of learning rely heavily on thorough observance before taking actions. They have innate thinking skills and are conscious of the values and meaning behind everything (Schunk, 2008). Often enough these learners are found to take in account their own thoughts and feelings when faced with a problem in their process of learning (Ahmad, Mir & Farooq, 2012). To put in better words, these learners are known to keep a stern check over their mental health, their mental state, while making decisions. Their emotions and mental needs can easily be found channeled in their decisions and work inputs.

Accommodating

Learners under accommodating style of learning have innate curiosity and are highly research motivated. They are easygoing in team work and group projects. As the name suggests, they perfectly accommodate with other learners (Lally, 2003). Their innate curiosity leads them towards so many learning opportunities. And the bigger part here is the fact these learners, accommodating learners, really do benefit from these learning opportunities. When in group work, these learners try to guide others best to their knowledge and in turn try to learn the best from them. Working with these learners can be an amazingly benefitting experience.

Hence, it can be concluded from the given statements of different researchers that not all the learners have the same way of learning or the same traits of personality, for all the learners have their own personality and different styles of learning. Some learners may be extroverts while some may be introverts, and some learners may have assimilating way of learning while some may have an accommodating way of learning, suggesting that all the learners have individual differences in their personality and learning styles.

Methodology

The present correlational study find out a possibility of relationship between two of the widely known personality traits; conscientiousness and neuroticism of learners with learning styles. Needless to say, these learning styles are “Accommodating, converging, assimilating and dissimilating”. Standardized tools (Big five personality Inventory and Kolb’s Learning Style Inventory) were used for collecting data in this correlational study.

Learners from the Punjab province’s public universities were the population for this study. Employ of Multistage random sampling technique, for getting representative and unbiased sample, researcher selected 10 Universities of Lahore district conveniently and 100 participants from each university randomly was used for reduction of the internal validity threats. Further, students were selected randomly from different academic programs and were distributed both standardized questionnaires to determine their ‘Big Five Personality Traits’ and their Kolb’s learning styles.

3.3 Research tools

For identifying personality traits; conscientiousness and neuroticism, the standardized instrument administered was Costa and McCrae’s ‘Big Five Inventory’ (1995). This inventory has 44 items on conscientiousness, neuroticism, openness, agreeableness and extraversion. It is a 5-point Likert-typed instrument (consisting of options; strongly disagree, disagree a little, neither agree nor disagree, agree a little & strongly agree). And to identify the learning styles of the learners, ‘Learning Style Inventory’ by Kolb (2004) was used. This inventory tests four learning styles; converging, assimilating,

diverging and accommodating on four dimensions of “reflective observation (RO), active experimentation (AE), abstract conceptualization (AC) and concrete experience (CE)”. The 10 items in the inventory has four options (a, b, c and d) to help in ranking. The validity and reliability for both these instruments is established. Both standardized instruments are published and do not employ copy right rules. Further the use of instruments was supported by “rule of fair use doctrine” mentioned by (John & Srivastava, 1999, pp. 102-138).

3.4 Validity of the Instruments

As researcher used standardized instruments but still to ensure the content validity of the instruments researcher took reviews from the experts and other researchers from the related areas. The face validity of the instrument was also determined by taking reviews from subject specialists of the fields and required changes were made as per their suggestions.

3.5 Validity and reliability of ‘Big Five inventory’

According to Elisabeth, Juliana & Frank (2012), “Cronbach’s alpha for the five scales was as follows: Neuroticism = .66, Extraversion = .76, Openness = .58, Agreeableness = .44, Conscientiousness = .60” (pp 355-359). For the reliability value of Cronbach’s alpha, the factors ranged from .44 to .76, declaring the scale was moderate in reliability. The current scale has been used in recent previous researches successfully (Denissen, et al. 2019; Waddell, 2019).

3.6 Learning Style inventory’s validity and reliability

Kolb inventory on learning styles (Kolb, 2005) was used as a measuring tool in this study for determining the learning styles of the learners. Conoley and Cramer (1989) stated that, “the internal consistency and the test-retest reliability, both showed high scores. The reliability testing for the revised edition included 982 graduate and undergraduate students. The four sections; concrete experience, reflective observation, abstract conceptualization and active experimentation had a Cronbach Alpha rating; .82, .73, .83, .78 respectively” (Kolb,2016, p.1).

3.7 Data collection

The target sample was 1000 students for this study. Researcher distributed and collected both of the questionnaires herself. Additional students were given questionnaires by the researcher to hit the mark of 1000 students when return rate of the questionnaires was 87%.

3.8 Data analysis

Data that was obtained for making conclusions, on interval scale, was analyzed by applying Pearson correlation with an Alpha value of 0.05.

Analysis

Data was analyzed by using inferential statistics (correlation) with personality traits (conscientiousness and neuroticism) as predictor variables and learning styles (assimilating, converging, accommodating & diverging) as criterion variables. For determining the combined significance of these variables, correlation statistics with probability level of 0.05 was used. Findings were also tabulated by the researcher

Table 4.1

Pearson Correlation between Conscientiousness (personality type) & converging, diverging, assimilating and accommodating (learning Styles)

		Conscientiou sness	Conver ging	Diverg ing	Assimila ting	Accommod ating
Conscientiou sness	Pearso n Correla tion	1	.899**	-.024	-.103**	.128**
	Sig. (2- tailed)		.000	.460	.002	.000
	N	943	943	943	943	943

The Pearson correlation between conscientiousness (personality type) and converging (style of learning) is shown in the table given above. There is strong positive relationship between these two variables, as the values of r is (.899) with the p -value ($.000 < .01$). The Pearson correlation between conscientiousness (personality type) and diverging (style of learning) is shown in the table given above. There is no relationship between these two variables, as the values of r is (-.024) with insignificant p -value ($.460 < .01$). The Pearson correlation between conscientiousness (personality type) and assimilating (style of learning) is shown in the table given above. There is no relationship between these two variables, as the values of r is (-.103) with the p -value ($.002 > .01$). The Pearson correlation between conscientiousness (personality type) and accommodating (style of learning) is shown in the table given above. There is minimal positive relationship between these two variables, as the values of r is (.128) with the p -value ($.000 < .01$). so, it is concluded that conscientiousness has significant positive relationship with converging style of learning and no relationship with diverging, assimilating and minimal positive relationship with accommodating style of learning.

Table 4.1

Pearson Correlation between Neuroticism (personality type) & converging, diverging, assimilating and accommodating (learning Styles)

		Neuroticism	Converging	Diverging	Assimilating	Accommodating
Neuroticism	Pearson Correlation	1	-.045	.073*	.063	-.133**
	Sig. (2-tailed)		.171	.026	.052	.000
	N	943	943	943	943	943

The Pearson correlation between neuroticism (personality type) and converging (style of learning) is shown in the table given above. There is no relationship between these two variables, as the values of r is (-.045) with p-value (.171 = .01). The Pearson correlation between neuroticism (personality type) and diverging (style of learning) is shown in the table given above. There is slightly positive relationship between these two variables, as the values of r is (.073) with the p-value (.026 > .05). The Pearson correlation between neuroticism (personality type) and assimilating (style of learning) is shown in the table given above. There is minimal positive relationship between these two variables, as the values of r is (.063) with p-value (.05 > .01). The Pearson correlation between neuroticism (personality type) and accommodating (style of learning) is shown in the table given above. There is no relationship between these two variables, as the values of r is (-.133) with p-value (.000 > .01). so, it is concluded that neuroticism have no relationship with converging, diverging, assimilating and accommodating style of learning.

Discussion and Conclusions

Discussion

The fact that all the individuals have unique personalities, and that these personalities have an influence on their learning styles, is universally acknowledged and accepted by the researchers for many years now. It is necessary to keep in-check the learning styles and personality traits of the learners when the target is to create an effective learning process. When all the individuals (with different learning styles and personality traits) are placed in the same environment and are taught under the same circumstances, their individual interests and abilities are usually overlooked in the process. This overlooking of their individual interests and abilities inevitably results in the diminishing of their learning processes. But, much to the researcher’s disappointment, educational institutes are still using the centuries old collective style of instructions (Huang, 2019). As it was investigated by Shahri, Javadi and Esmael (2015) that the relationships learners’ academic achievements, their personality types and their learning styles exist in multiple

forms, the present study has established that there are strong relationships between personality types and learning styles, as was established by Rollins (1990). The present research was conducted in hopes of finding an existing relationship between personality types (conscientiousness & neuroticism) and learning styles (assimilating, accommodating, converging & diverging) of the learners. In 1999, a research was conducted by Furnham, Jackson and Miller that brought to light the (statistically) significant relationships between personality types (psychotics, extroversion and neuroticism) and Kolb's styles of learning. It showed that the main personality types are intertwined with the styles of learning to a much greater extent. Moreover, a significant relationship between conscientiousness personality type and learners' academic achievement was found in the 1999 by Busato's research. Another research was conducted by the Elham, Hosseini and Ebrahimi (2016) on both these variables at college level. It was found by this research that majority of the learners who preferred assimilating learning style were under the dimensions of both conscientiousness and neuroticism personality types. Just a year later, Komarraju, Karau, Schmeck and Avdic (2011) stated in the results of their research that all the styles of learning are in positive relation with the conscientiousness personality type and are in negative relation with the neuroticism personality type.

5.2 Conclusion and Recommendations

Findings that are given above can be boiled down into following of these recommendations and conclusions:

- The conscientiousness personality type was found in relationship with the converging and accommodating styles of learning. Therefore, learning activities that involve group work and team tasks are more appreciable for individuals with conscientiousness trait of personality. Provided, they take full responsibility of the work they are given. Not only do they take the full responsibility of their work, they make conscience decisions for the whole group (or team) that they are working with based on their logical deductive reasoning skills. They thoroughly contemplate the situations that they are in and accommodate with others to find their way out of these problems.
- The neuroticism personality type was found in relationship with two styles of learning; diverging and assimilating. Therefore, learning activities and strategies that are planned for these individuals must make sure that the depression and anxiety of these learners isn't provoked and that these learners are given enough of a chance to build their own self confidence (to start trusting in their own selves) before they ever start getting dependent on others. Group works or team tasks, that is to say, is not their cup of the tea. Provided, they

might get dependent over others that they are accommodating with for making decisions for them. This, in longer term, even destroys any chance of self-confidence these individuals might have.

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