

Relationship among Personality Traits, Extraversion & Agreeableness with Students Preferred Learning Styles at Higher Education

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Abstract

This correlational study has been conducted to establish association among students' personality traits; extraversion, agreeableness and their preferred learning styles at Higher Education. From province Punjab, all public university students were the population of the study. Total one thousand participants were engaged randomly for administering 'NEO-BFI' developed by Costa and McCrae (2010) and LSI inventory by Kolb and Kolb, (2005) simultaneously. Both instruments are standardized having 44-items, for measuring personality traits and the other having 10 factors, for measuring learning styles respectively. Pearson correlation coefficient was applied to analyze data for finding out the relationship between traits of personality and styles of learning. The results brought to light the fact that assimilating is the most preferred learning style of extraverts. Whereas assimilating, accommodating and diverging learning styles are preferred by students having agreeableness personality trait. The study has implications for designing instructional strategies satiating the most preferred styles of students having different personality traits.

Keywords: Personality Traits, Learning style, Higher Education

Introduction

Personality can be described as features that are a combined form of an individual's inborn temperament and behavioral patterns. These features of personality separate an individual from others (Stricker, Buecker, Schneider & Preckel, 2019; Dalpé, Demers, Verner-Filion, & Vallerand, 2019). There are several researches investigating personality traits' association with multiple behavioral dispositions, however, only few studies have established the relationship of learning styles of students with their personality traits (Tahriri, 2015). Common sense justifies that effective learning can't be achieved by simple efforts. To make learning process more effective, it is highly needed to act in accordance with certain learning styles. This way learners will be highly motivated in terms of cognition (Brown, 2000). Interference of personality traits, as a more abstract entity, surely affects the process of learning when it is considered that learning styles become habits of learners. Hence, to achieve specific objectives and goals, personality traits serve as a preparation (Hampson, 2019).

It can be stated that learning behavior is facilitated by traits of personality because personality traits are vital in motivating or demotivating a learner (Blickle, 1998).

With perception, attention, memory and thinking being the most important elements, learning can be reduced to processing information. Mental responses act as intermediators for managing learning stimulation because personality traits help in processing the information with unique style (Busato, 1998). This factor paves a way for a possibility of a significant relationship between personality traits and styles of learning.

Objectives of the Study

The study was designed to follow the following objectives:

- To investigate types of learning styles of university students
- To identify university students' personality traits

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- To investigate the association between extraversion personality trait and styles of learning (Assimilating, Converging, Diverging, and Accommodating) of university students.
- To explore the association of agreeableness personality trait and (Assimilating, Converging, Diverging and Accommodating) learning styles of participants.

Hypotheses of the Study

Following hypotheses were tested in the study:

- H₀₁:** The divergent style of learning is not significantly associated with agreeableness.
- H₀₂:** The converging style of learning is not significantly associated with agreeableness.
- H₀₃:** There is no significant association of agreeableness with assimilation learning style.
- H₀₄:** There is no significant association of agreeableness with accommodation learning style.
- H₀₅:** The divergent learning style has no association with extraversion personality trait.
- H₀₆:** The convergent style of learning has no association with extraversion personality trait.
- H₀₇:** The assimilating style of learning has no association with extraversion personality trait.
- H₀₈:** The extraversion has no association with accommodating style of learning.

Literature Review

Below are presented important aspects of study's scope, nature, and historical background of the phenomenon, diversity of personality traits, theoretical perspective and previous investigations related to the problem in brief.

Personality

An individual's consistent traits which are exhibited in different situations and times are called personality. To explain the different aspects of an individual's personality, multiple theories and models of personality have been formulated (O'Conner, 2007). 'Big Five' which is also known as 'five factor model' explains major personality characteristics or traits; openness, extraversion, agreeableness, conscientiousness and neuroticism, for an individual. Two out of five traits; agreeableness and extraversion were used by the researchers as independent or predictor variables in this study because the agreeableness and extraversion are most frequently found traits in people (Dalpé, et al. 2019; Schunk, 2008; Tahriri, et al. 2015).

As previous researches suggest, people who exhibit extraversion trait of personality are cheerful, assertive, active and dominative. They acquire energy from socializing and mixing with people (Stricker, et al. 2019). Whereas, individuals who exhibit agreeableness trait of personality possess positive nature and perceptions. They always focus on the positive aspects of changing situations (McCormick, 2019).

Agreeableness

It is previously explored that agreeable people exhibit higher level of accommodation. They always help and support others. They are very caring and thoughtful towards other individuals. Contrarily, individuals exhibiting low level of agreeableness are observed as unreliable, argumentative, self-centred, competitive and unfriendly (Bono, 2002).

Extraversion

Individuals exhibiting high level of extraversion direct their energy outwardly towards people and their surroundings. They are highly active in social environments. However, individuals showing low level of extraversion (otherwise known as 'introverts') always direct their energy inwardly towards their thoughts and new ideas. They are highly imaginative (Hendriks, 1999).

Learning Styles

An individual's way of gathering, processing and organizing data is called his learning style (Busato, 1998). Rollin (1990) said that learning styles are the different methods of learning exhibited by learners. He stated, "Most preferable situations for learners are the ones where learners can freely exhibit their own learning styles".

Kolb (1984) stated that, "learning styles are influenced by personality type, educational specialization, career choice, and current job role and tasks" (Kolb and Kolb, 2005, p. 9).

Kolb (1984) used the following terms for styles of learning

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

Converging

Individuals with converging style of learning exhibit higher logical analysis, problem solving and deductive reasoning skills. For reaching authentic information, they always use trial and error method. Feedback from experts and teachers is appreciated by them (Schunk, 2008).

Assimilating

Even though individuals with assimilating style of learning highly exhibit skills like problem-solving and plan making, they are short in skills used for practical studies and behaviors that concern practical ideas and values. Primary source of information for these individuals are experts and teachers. Traditional learning approaches are better for these individuals since they prefer learning by observing and listening (Suliman, 2006).

Diverging

Individuals with diverging style of learning always rely on making observations before taking actions. Well-developed thinking skills are exhibited by them and they are conscious of values and meaning behind everything (Schunk, 2008). When faced with a problem in learning process, these individuals take into account their own thoughts and feelings (Mir, 2012).

Accommodating

Individuals exhibiting accommodating leaning style are research-motivated and highly curious. They perfectly accommodate with other individuals (Lally, 2003).

Methodology

Design of the Research

The present study is a correlational research establishing possible association of two widely found personality traits; agreeableness and extraversion of university students with previously identified learning styles; assimilating, diverging, converging, and accommodating. The data on two major variables were collected through survey questionnaire. As “*correlational research involves collecting data to determine whether, and to what degree, are relationships/associations exist between two or more quantifiable variables*” (Gay, Mills & Airasian, 2012, p.196). The personality traits were taken as predictor variables while learning styles were regarded as criterion variables.

Independent Variable or Predictor

“*In a prediction study or analysis of concurrent or predictive validity, the variable on which the prediction is based (that is used to predict) is called as the predictor*” (Gay, Mills & Airasian, 2012, p.605). Predictor variables for this study were the traits of personality of the learners in Higher Education.

Dependent Variable or Criterion

In analysis of concurrent or predictive validity or a prediction study, the predicted variable (a complex variable in nature) is known as the ‘criterion variable’. It is the assumed “effect” in a non-experimental study. Another name commonly used for criterion variable is dependent variable. Even though these both terms aren’t exactly interchangeable. Because personality traits were used as predictor variables, learning styles were the criterion variables for this study.

Table 1

Traits of personality and styles of learning

| | | | | |
|---------------------|---------------|--------------|---------------|--------------|
| Predictor variables | Agreeableness | Extraversion | | |
| Criterion variables | Divergence | Convergence | Accommodation | Assimilation |

Population and Sample of the Study

The population of the study was university students at public universities in the province Punjab. Threats of internal validity in research were reduced by employing systematic random sampling technique (a useful method for getting an unbiased and representative sample). From the target population, the sample was selected by using random sampling. Ten universities (100 learners from each university) were selected randomly from district Lahore. The researchers handed over two questionnaires to each participant for identifying their preferred learning styles as per their personality trait.

Research tools

The standardized instrument (Costa & McCrae, 1983) was administered to identify personality traits; agreeable and extraversion. This Big Five inventory named as; agreeableness, openness, neuroticism, extraversion and conscientiousness has 44 items. It is a 5-point Likert-typed instrument with options

of; strongly disagree, disagree a little, neither agree nor disagree, agree a little and strongly agree. Whereas, learning styles were measured by a Learning style inventory (Kolb & Kolb, 2003). Both are standardized instruments with established validity and reliability. The learning style inventory tests “four learning styles; diverging, converging, assimilating and accommodating.” There are four dimensions including “reflective observation (RO), active experimentation (AE), abstract conceptualization (AC) and concrete experience (CE).” The 10 items have four options: a, b, c, d for ranking options. 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).

Validity

“Degree to which a test or instrument measures what it purports to measure” (Thomas & Nelson, 1996, p.57).

Reliability

“The degree to which a test or measure produces the same scores when applied in the same circumstances” (Nelson, 1996, p. 64).

Validity and Reliability of ‘Big Five Inventory’

According to Elisabeth, Juliana and 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).

Learning Style Inventory’s Validity and Reliability

Kolb Learning Style Inventory (Kolb, 2005) was used as a measuring tool in this study to determine 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).

Data Collection

With return rate of around 87%, questionnaires were distributed and collected personally by the researcher. To complete the target sample of 1000 students, more students were given questionnaires by the researcher.

Data Analysis

For making conclusions, data was obtained on interval scale. It was analyzed by applying Pearson correlation at 0.05 Alpha value.

Analysis

Inferential statistics (correlation) was used for analysing data. Predictor variables in the study were traits of personality (agreeableness and extraversion) while criterion variables in the study were styles of learning (assimilating, diverging, accommodating and converging). To determine the combined significance (that there is a presumed relationship between traits of personality and styles of learning), correlation statistics was used. Findings were described in the tabulated form by the researcher. .05 was the level of probability for correlation.

“Correlation is a statistical technique that is used to measure and describe a relationship between two variables. Usually the two variables are simply observed as they exist naturally in the environment- there is no attempt to control or manipulate the variables. The resulting data could be used to determine whether there is a relationship between two variables, but it simply observes what occurs naturally. A correlation is a numerical value that describes the direction of the relationship between two variables, either the relationship is positive or negative” (Gravetter & Wallnau, 2010, p. 521).

Table 2

The relationship of Agreeableness trait with diverging (learning Style)

| | | Agreeableness | Diverging |
|---------------|---------------------|---------------|-----------|
| Agreeableness | Pearson Correlation | 1 | .242* |
| | Sig. (2-tailed) | | .010 |
| | N | 943 | 943 |

Significant correlation at the 0.05 level (2-tailed).*

This table identifies that a significant but low relationship was established in agreeableness and diverging style of learning with $r (.242)$, $p=.010 < .05$.

A low but positive relationship between diverging style of learning and agreeableness trait of personality was observed. The hypothesis, H_{01} : “there is no significant relationship between agreeableness trait of personality and diverging style of learning” was rejected.

Table 3

Relationship for agreeableness trait with Converging learning Style

| | | Agreeableness | Converging |
|---------------|---------------------|---------------|------------|
| Agreeableness | Pearson Correlation | 1 | .017 |
| | Sig. (2-tailed) | | .599 |
| | N | 943 | 943 |

Insignificant correlation at the 0.05 level (2-tailed).**

This table shows insignificant association of converging style with agreeableness trait as $r (.017)$, $p=.599 > .05$. It is obvious that students having agreeableness trait have no preference to learn with convergence. The Hypothesis, H_{02} : “there is no significant relationship between agreeableness trait of personality and converging style of learning” was accepted.

Table 4

Relationship of Agreeableness trait and Assimilating Style of learning

| | | Agreeableness | Assimilating |
|---------------|---------------------|---------------|--------------|
| Agreeableness | Pearson Correlation | 1 | .701** |
| | Sig. (2-tailed) | | .000 |
| | N | 943 | 943 |

Significant correlation at the 0.05 level (2-tailed).**

Table no 4 shows the relationship between assimilating style of learning and agreeableness trait of personality and shows significant difference with $r (.701)$, $p=.000 < .05$. A substantial positive relationship between assimilating style of learning and agreeableness trait of personality is noted. It was found that assimilating style of learning was the most preferable style of learning for people having agreeableness trait of personality. The Hypothesis, H_{03} : “There is no significant relationship between agreeableness trait of personality and assimilating style of learning” was rejected.

Table 5

Relationship of Agreeableness trait and accommodating style of learning

| | | Agreeableness | Accommodating |
|---------------|---------------------|---------------|---------------|
| Agreeableness | Pearson Correlation | 1 | .697** |
| | Sig. (2-tailed) | | .000 |
| | N | 943 | 943 |
| | N | 943 | 943 |

Significant correlation is at the 0.05 level (2-tailed).**

Table no 5 reveals a fairly strong association of accommodating style of learning and agreeableness trait of personality with $r (.697)$, $p=.000 < .05$. It indicates that the accommodating style of learning was a preferred style of learning for people having agreeableness trait of personality. The Hypothesis, H_{04} : “There is no significant relationship between agreeableness trait of personality and accommodating style of learning” was rejected.

Table 6

The relationship of Extraversion trait with diverging style of learning

| | | Extraversion | Diverging |
|--------------|---------------------|--------------|-----------|
| Extraversion | Pearson Correlation | 1 | .625** |
| | Sig. (2-tailed) | | .000 |
| | N | 943 | 943 |

Significant correlation at the 0.05 level (2-tailed).**

Table no 6 presents a strong relationship of extraversion with diverging style of learning with $r (.625)$, $p=.000 < .05$. A strong positive relationship of diverging style of learning and extravert personality was found. It indicates that the diverging style of learning is a preferred style of learning for extravert students. The Hypothesis, H_{05} : “There is no significant relationship between extraversion trait of personality and diverging style of learning” was not accepted.

Table 7
The relationship of Extraversion trait and converging style of learning

| | | Extraversion | Converging |
|--------------|---------------------|--------------|------------|
| Extraversion | Pearson Correlation | 1 | .892** |
| | Sig. (2-tailed) | | .000 |
| | N | 943 | 943 |

Correlation is significant at the 0.05 level (2-tailed). **

Table no 7 presents association of converging style of learning and extraversion trait with $r (.892)$, $p=.000 < .05$. A significant strong positive relationship of converging style of learning and extraversion trait of personality is observed. It is concluded that converging style of learning is the most favorite style of learning for extravert university students. The Hypothesis, H_{06} : “There is no significant relationship between extraversion trait of personality and converging style of learning” was not accepted.

Table 8
Relationship of Extraversion Trait and Assimilating Style of Learning

| | | Extraversion | Assimilating |
|--------------|---------------------|--------------|--------------|
| Extraversion | Pearson Correlation | 1 | -.081* |
| | Sig. (2-tailed) | | .013 |
| | N | 943 | 943 |

Correlation is significant at the 0.05 level (2-tailed).*

Table no 8 identifies the association of assimilating style of learning and extraversion with $r (-.081)$, $p=.013 < .05$. A significant but very low negative relationship of assimilating style of learning was traced with extraversion trait of personality. It may be said that extravert students may learn through assimilating style, however, they do not prefer it. The hypothesis, H_{07} : “There is no significant relationship between extraversion trait of personality and assimilating style of learning” was rejected with minimal evidence.

Table 9
Relationship of Extraversion trait with accommodating style of learning

| | | Extraversion | Accommodating |
|--------------|---------------------|--------------|---------------|
| Extraversion | Pearson Correlation | 1 | .061 |
| | Sig. (2-tailed) | | .061 |
| | N | 943 | 943 |

Significant correlation at the 0.05 level (2-tailed). **

Table no 9 shows a minimal relationship of accommodating style of learning and extraversion trait with $r (.061)$, $p=.061 > .05$. It is obvious that extravert students may not prefer to learn with accommodating style. The hypothesis, H_{08} : “There is no significant relationship between extraversion trait of personality and assimilating style of learning” is fairly accepted.

Discussion and Conclusions

Discussion

It is frequently discussed by researchers that individuals are unique in their personality built and these personality qualities influence their leaning styles. If all students are placed in the same environment and are not catered for their individual interests, abilities and potential, they may not exhibit required learning quality. Unfortunately, centuries old collective styles of instruction are still vogue in our universities (Huang, 2019). As Shahri, Javadi and Esmael (2015) investigated that there are multiple relationships among students’ academic achievement, their personality traits and their learning styles, the current study has established strong relationships of personalities and learning styles like established by Rollins (1990).

The present research tried to identify association among agreeableness and extraversion personality traits with divergent, convergent, assimilation and accommodation learning styles. The current study is in line with Pornsakulvanich’s (2012) study who found that agreeable students learn with collaboration, discussion and problem solving. The present study confirmed that students having extravert personality are eager to learn with accommodating styles.

The current study finds results matching to Mahyuddin (2011) who established association of agreeable students with all the learning styles including divergent, convergent, assimilation and accommodation, however, the current study does not find relationship of convergent learning style

with agreeable trait of personality. The study concluded like Grierson (2014) that the most preferred style of learning of agreeable students are assimilation and accommodation.

Conclusion

Following conclusions and recommendations were extracted with the help of findings above:

A strong positive association/relationship has been established based on the study for agreeableness personality trait with assimilating, accommodating and diverging learning styles. Therefore, the specified strategies of creative and critical thinking, relational and analogical scenarios and collaborative learning strategies could be beneficial for agreeable students at universities for their quality learning. A substantial relationship of converging, diverging and assimilating learning styles is established with personality trait of extraversion. Extravert students may learn comfortably with challenging activities, analogies, real life experiences, reflections, problem solving, group activities and discussions. Thus, creative activities may help them learn in depth concepts and have mastery over the subject.

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