



The Relation Between Personality Type and Learning Style of Higher Education Students

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Key words: Personality type, learning style, higher education, ENFJ, ASVS

Abstract: The role of personality and learning style of students is an area that attracts research due to the high value and central role of academic excellence in the community. An investigation was done on students through an online personality test and a learning style instrument to determine if there is a relation between the personality and learning styles of the students who have enrolled at university. The data identified an Extravert, Intuitive, Feeling, Judging (ENFJ) personality type for the group and the group's learning style is Active, Sensing, Visual Sequential (ASVS). The data indicated a relation between the Extrovert Personality type and the Active Learning style; the Feeling Personality type and the Visual Learning style and the Judging Personality type and the Sequential Learning style. Knowledge about learning styles and personality types is a new fundamental tool at the service of universities. Universities may utilize these tools to provide thoughtful and deeper insights into students than have been previously utilized which will result in the best possible dividends for the university, students and the final consumer (employers).

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INTRODUCTION

Institutions of higher education are always searching for ways to make their educational initiatives more effective^[1]. With concerns for student's learning, they further indicated that universities are also under pressure to contribute more suitable and effective teaching methods and services. University educators need to find ways to understand their students and help them achieve their educational goals.

The idea of matching learning styles to personality profiles is not new^[2-4]. Numerous studies have found that learning styles and personality types were correlated with student's academic achievement^[5-11].

Kluckhohn and Murray^[12] concluded that every person, in certain ways is like no other person is like some other persons and is like all other persons. These differences and similarities may be tied to learning experiences. While individuals learn all the time, they do not all learn in the same way^[13]. Kolb^[14] who developed Kolb's Learning Style Inventory (LSI), declared that individuals develop a preferred style of learning because of a personally unique set of experiences. Learning style affects not only how one processes materials as one studies but also how one absorbs the information during an educational experience^[15]. The theories of learning styles deal with how individuals prefer to learn. Learning style is the way each person begins to concentrate on,

process, internalize and retain new and difficult academic information^[16, 17]. Aiken^[18] defined personality as a person's private, central and innercore. Included within this private core are an individual's motivations, attitudes, interests, beliefs, fantasies, cognitive styles and other mental processes. No two people are exactly alike; everyone is unique^[18]. One of most important personality theories is Psychological Type developed by Carl G. Jung (1875-1961) to explain some of the apparently random differences in people's behavior. According to Myers and McCaulley^[19], an understanding of personality type could help individuals relate learning activities to learning style. A way to determine learning style and personality is to administer known learning style and personality profile instruments and to match the results with known results from existing information.

As students have different personality types, learning styles and academic performance, these constructs play a significant role in creating graduates who will become great leaders for the country, thus, responsible for the country's economic and social development. The demand for continuous employability has also led to a renewed interest in the impact of the relation between the dispositional and psychological attributes of students, like their learning styles, personality types, academic performance and employability attributes. In this study, an investigation was done on students through a personality test and a learning style instrument to determine if there is a relation between the personality and learning style of students.

Literature review: Personality type and learning style will be the two main constructs used in this study. A brief description of each will follow:

Personality: According to the Oxford Dictionary, personality is considered to be a consistent trait of an individual's distinctive character qualities (Oxford Dictionary, 2014) and has been proposed to depict consistent emotional and motivational differences between individuals^[20]. Understanding personality is a key to unlocking general human qualities, for example, leadership, motivation and empathy, whether the purpose is self-development, helping others or any other field relating to people and how they behave. Hofstee^[21] defined personality as organized patterns of thoughts, feelings and behaviors. It is consistency in a person's way of being, his particular way of perceiving, thinking, acting and reacting as a person.

Aiken^[18] stated that personality is a person's private, central and inner core. Included within this single core are an individual's motivations, attitudes, interests, beliefs,

fantasies, cognitive styles and other mental processes. Therefore, no two people are exactly alike; everyone is unique.

Personality theory of Carl Jung: One of most fundamental personality theories is the psychological type developed by Carl G. Jung (1875-1961) to explain some of the apparently random differences in people's behavior. According to Carl G. Jung's theory of psychological types^[22], people can be characterized by: *their preference of general attitude: Extraverted (E) vs. Introverted (I), *their preference of one of the two functions of perception: Sensing (S) vs. Intuition (N), *and their preference of one of the two functions of judging: Thinking (T) vs. Feeling (F).

The three areas of preferences introduced by Jung are dichotomies (i.e., bipolar dimensions where each pole represents a different preference). Jung also proposed that in a person one of the four functions above is dominant-either as a function of perception or as a function of judging. Isabel Briggs Myers, a researcher and practitioner of Jung's theory proposed to see the judging-perceiving relationship as a fourth dichotomy influencing personality type^[23].

Personality instrument-Jung Typology test: Carl G. Jung (1875-1961) explained some of the apparently random differences in individual's behavior. The Humanmetrics Jung Typology Test™ (JTT™) and The Jung Typology Profiler for Workplace™ (JTPW™) instruments determine the expressiveness of each of the four personality type dimensions (Extraversion vs. Introversion, Sensing vs. Intuition, Thinking vs. Feeling and Judging vs. Perceiving).

Upon completion of the Jung Typology personality assessment questionnaire the person will obtain a 4-letter type formula along with the strengths of preferences and the description of his/her personality type, communication and learning style. The person will be able to discover careers and occupations most suitable for his/her personality type, along with examples of educational institutions where a relevant degree or training can be obtained (www.humanmetrics.com/personality).

Learning: Research on learning has resulted in the development of many learning styles theories and models^[24]. These theories and models have led to the creation of some learning style instruments which are believed to assist students in identifying how best they can learn and also assist lecturers in using the learning styles as the basis of their instruction^[25].

Learning style theory-Felder-Silverman's learning style model: Students have different preferences for receiving and processing information, using several learning styles. Keefe^[26] says that styles are 'characteristic cognitive, affective and psychological behaviors that serve as relatively stable indicators of how learners perceive, interact with and respond to the learning environment. Rosenberg^[27] wrote: 'Style can be defined as patterns of behavior and the approaches we regularly use with the aim of reaching particular goals.'

Apart from widely known learning style models such as Kolb, Dunn and Dunn or Gregorg, Felder-Silverman^[28] Learning Style Model gained popularity in recent years. This model explains the learning preferences of the students through focusing on different aspects of a learning process which were referred as perceiving and understanding the information. ILS of Felder-Soloman^[29] is based on the learning style model of Felder-Silverman, so that, it determines the learning preferences of the students in a very comprehensive way. ILS is also one of the most preferred learning style indexes by the adaptive educational hypermedia system developers^[30].

The researcher in the present study took on the model by Felder and Silverman^[28]'s to discover the participant's learning style for the reason that this model has a wide-ranging system of learning styles which help educators be more aware of the needs of the students and adjust their instruction accordingly. The model although it has its unique combination according to Felder and Spurlin^[31] is parallel with the other learning styles.

Felder and Silverman^[28]'s learning styles classification includes four dimensions on information: perceiving, participating, processing and understanding. These four dimensions classify the learners into sensible, sensitive, dynamic, insightful, visual, vocal, chronological and holistic. Sensible learners depends on concrete materials they learn best with details while sensitive learners are those that do not care about details they learn best with the use of abstract learning materials. They understand better through theories and fundamental meaning of things. Dynamic learners are actively performing with available learning materials. They learn best as they try things out by themselves. On the other hand insightful learners are often reflective of the materials on hand. Visual learners are those who learn by remembering every details of what they see they learn best through images and illustrations while verbal learners are more for the spoken materials and textual representations. Sequential learners are those who following a step by step process. They have linear learning progress and follows pattern in solving problem. Holistic learners employ holistic judgment practice and learn comprehensively in no time. Indiscriminate

absorption of varied learning resources even without prior consideration of their connectivity unexpectedly allows them to recognize the whole work.

Learning style instrument-the index of learning styles:

The ILS is an on-line instrument used to assess preferences on four dimensions (active/reflective, sensing/intuitive, visual/verbal and sequential/global) of a learning style model formulated by Richard M. Felder and Linda K. Silverman. The instrument was developed by Richard M. Felder and Barbara A. Soloman of North Carolina State University. The ILS may be used at no cost for non-commercial purposes by individuals who wish to determine their own learning style profile and by educators who wish to use it for teaching, advising or research.

ILS of Felder and Soloman^[29] is designed to assess the preferences of the learners for each of four dimensions of Felder-Silverman Learning Style Model^[29, 32]. It is defined as an online questionnaire and two important issues related to the index are highlighted.

Firstly, ILS results provide the preferences of the learners. Secondly, ILS results "provide an indication of possible strengths and possible tendencies or habits that might lead to difficulty in academic settings"^[29].

These two inventories-The Jung Typology test and the index of learning styles questionnaire-were chosen based on the information provided by The Myers & Briggs Foundation and Solomon and Felder that there appears to be a logical one-to-one correspondence between the items in each. It was hypothesized that a given preference in one's personality type would predict a particular preference in one's learning style.

Relation between personality and learning style: The literature concerning the relationship between personality and learning style contains conflicting results.

Yanardoner *et al.*^[33] indicated that the most frequently occurring learning style was 'assimilator' and the most frequently occurring personality trait was 'agreeableness' Finally, there was no significant relationship between the student's learning styles and their personality traits. Threeton and Walter^[34] revealed a statistically significant relationship between the realistic personality type and the accommodating learning style. Nami *et al.*^[35] investigated the relationship between personality traits and and Kolb learning style that among Bandar Abbas University of Medical Sciences was conducted. The results showed that there were significant relationships among the components of personality traits and their learning style. But there was no significant relationship between neuroticism and dutifulness. In addition, there is the significant negative relation between extraversion and converging learning style. And the desire for new experiences has a significant positive relationship with converging learning style. There is the significant

Table 1: Personality and learning style

Personality	Learning style
<p>Extravert: *I like getting my energy from active involvement in events; *I often understand a problem better when I can talk out loud about it and hear what others have to say</p> <p>Introvert: *I take time to reflect, so that, I have a clear idea of what I'll be doing when I decide to act; *I often prefer doing things alone or with one or two people I feel comfortable with</p> <p>Sensing: *I notice facts and I remember details that are important to me; *I like to see the practical use of things and learn best when I see how to use what I'm learning.</p> <p>Intuitive: *I'm interested in new things and what might be possible; *I like to work with symbols or abstract theories</p> <p>Thinking: *I like to find the basic truth or principle to be applied; *I look for logical explanations</p> <p>Feeling: *I believe I can make the best decisions by weighing what people care about and the points-of-view of persons involved in a situation</p> <p>Judging: *I seem to prefer a planned or orderly way of life and like to have things settled and organized</p> <p>Perceiving: *I seem to prefer a flexible and spontaneous way of life and I like to understand and adapt to the world rather than organize it</p> <p>(Information taken from MBTI basics-The Myers & Briggs Foundation)</p>	<p>Active: *Active learners tend to retain and understand information best by doing something active with it discussing or applying it or explaining it to others</p> <p>Reflective: *Reflective learners prefer to think about it quietly first; *Prefer working alone</p> <p>Sensing: *Sensing learners tend to like learning facts and be patient with details; *Sensors tend to be more practical and careful</p> <p>Intuitive: *Intuitive learners often prefer discovering possibilities and relationships; *Often more comfortable with abstractions and mathematical formulations</p> <p>Verbal: *Verbal learners get more out of words written and spoken explanations</p> <p>Visual: *Visual learners remember best what they see pictures, diagrams, flow charts, time lines, films, and demonstrations</p> <p>Sequential: *Sequential learners tend to follow logical stepwise paths in finding solutions</p> <p>Global: *Global learners tend to learn in large jumps, absorbing material almost randomly without seeing connections and then suddenly "getting it"</p> <p>(Information is taken from Learning styles and strategies (Solomon & Felder))</p>

negative relation between agreement and divergent learning style. And the desire for new experiences has a significant positive relationship with converging learning style.

According to Jenna Melvin in personality type as an indicator of Learning Style At University of Rochester in Center for Excellence in Teaching and Learning the following summary between personality and learning style (Table 1).

MATERIALS AND METHODS

Data gathering instruments: This study was quantitative in nature; utilizing two online questionnaires to determine the relationship between personalities and learning styles of students to determine if there was a relation between the personality and learning styles of students.

Both surveys were completed and scored online on the websites where they are available. Links to the surveys were distributed to students via. e-mail. Results were obtained by participants and submitted to the study.

As the inventories were used without emendation, the reliability and validity provided by the authors for their inventories were accepted as published.

Participants were informed of the goals of the study and what this study hoped to achieve and were assured of anonymity and confidentiality. Collecting of data was anonymous and confidential and no link to the names or identity to the findings will be possible after completion of the questionnaire, each student's name was decoded for

the study and confidentiality were maintained throughout the process. The data received from the students via. E-mail were entered into a Excel spreadsheet to be able to determine the personality types and learning styles for the group of WIL students.

The survey instruments

The surveys: The Jung Typology Test will be used to determine participant's personality types^[36]. <http://www.humanmetrics.com/cgi-win/jtypes2.asp>.

The inventory consists of 72 general statements to which participants will answer (online) "yes" or "no" based on whether or not they felt the statement reflected their personality. Personality types given by this test identify one's preferences for each of the four dichotomies. (Retrieved from <https://www.coursehero.com/file/p5d65ie/intuition-thinking-vs-feeling-and-judging>).

The index of learning styles questionnaire from North Carolina State University will be used to determine participant's preferred learning styles^[37]. <https://www.engr.ncsu.edu/learningstyles/ilsweb.html>.

The questionnaire consists of 44 questions, each with two possible answers. Participants will select the answer that they felt best reflected their learning style. Learning style preferences were displayed along four scales, one for each of the pairs of learning styles mentioned previously. Scales ranged from 1-11. As with the personality type results, both the learning style preferences and the degree to which participants preferred each will be recorded.

Table 2: Demographics of the population

Sex	Age (Years)	Home language	Race	Provinces
11 male	18-20 [23]	Afrikaans [8]	Black [29]	Setswana [17]
24 female	21-25 [9]	English [0]	Coloured [6]	Northern Cape [28]
	26-30 [2]	Others [10]	White [0]	North West [3]
	31-33 [0]			Eastern Cape [0]
	34 and above [1]			Other [4]

The four scales described in the study of learning styles are active vs. Reflective learning, Sensing vs. Intuitive learning, visual vs. Verbal learning and Sequential vs. Global learning.

These two inventories were chosen because based on the information provided by The Myers and Briggs Foundation and Solomon and Felder, there appears to be a logical one-to-one correspondence between the items in each. The four differences represented in the analysis of personality types are extra version vs. Introversion, Sensing vs. Intuition, thinking vs. Feeling and Judging vs. Perceiving (Retrieved from <https://www.coursehero.com/file/p5d65ie/intuition-thinking-vs-feeling-and-judging>).

The four scales described in the study of learning styles are active vs. Reflective learning, Sensing vs. Intuitive learning, Visual vs. Verbal learning and Sequential vs. Global learning (Table 2).

Population: The target population for this study was students who enrolled at university in 2014. There were 40 registered students for the 2014/2015 academic year.

The demographic characteristics (gender, age, home language, race and province) of 32 students who completed their studies in 2016.

The demographic information of the students shows that more than half (50%) of the students were female and the rest male. The 18-20 years age group were in the majority and mainly represented the students who had matriculated the previous year (2013). The majority of the students home language (17) is Setswana and their race is Black (29). The majority (28) of the students are residents of the Northern Cape.

The data identified an Extravert, Intuitive, Feeling, Judging (ENFJ) personality type for the group (Fig. 1). Extraverts like getting their energy from active involvement in events. They often understand a problem better when they can talk out loud about it and hear what others have to say.

Intuitives are interested in new things and what might be possible. They like to work with symbols or abstract theories. Feeling believe they can make the best decisions by weighing what people care about and the points-of-view of persons involved in a situation. J. Judging seem to prefer a planned or orderly way of life and like to have things settled and organized. They seem

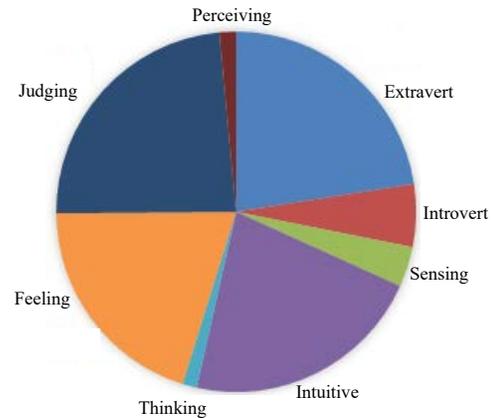


Fig. 1: Personality types

to prefer a flexible and spontaneous way of life and they like to understand and adapt to the world rather than organize it.

Personality of ENFJ's: ENFJs are the compassionate 'pedagogues' of civilization. They have tremendous charisma by which many are drawn into their nurturant guidance and/or grand schemes. Many ENFJs have tremendous power to manipulate others with their remarkable interpersonal skills and unique salesmanship. But it's usually not meant as manipulation-ENFJs generally believe in their dreams and see themselves as helpers and enablers which they usually are. ENFJs are global learners. They see the big picture. The ENFJs focus is extensive. Some can rearrange an amazing number of responsibilities or projects simultaneously. Many ENFJs have tremendous entrepreneurial ability.

ENFJs are organized in the arena of interpersonal affairs. Their offices may or may not be cluttered but their conclusions (reached through feelings) about people and motives are drawn much more quickly and are more tough.

ENFJs know and appreciate people. They are apt to neglect themselves and their own needs for the needs of others. They have thinner psychological boundaries than most and are at risk for being hurt or even abused by less sensitive people. ENFJs often take on more of the burdens of others than they can bear. Their TRADEMARK is: "The first shall be last". This refers to the open-door policy of ENFJs. For example: An ENFJ colleague always welcomes others into his office regardless of his

own circumstances. If another person comes to the door, he allows them to interrupt the conversation with their need. While discussing that need, the phone rings and he stops to answer it. Others drop in with a ‘quick question’.

Learning styles of ENFJ’s: An ENFJ’s interest in a subject is driven by the answer to the question, “Is this helpful to people?” The more they see a topic to be advantageous to others, the greater their interest in the topic and the greater their desire to actively engage in it and apply what they learn. Their interest in studying the material is motivated by their desire to find solutions to people-related issues. ENFJs easily and quickly pick up new material, especially when it is delivered on a theoretical basis. Concrete information is also well received by individuals of this type. ENFJs are capable of grasping material lacking strong logical connection. For example, learning the rules of the road is no more difficult for them than grasping some theory. As a rule, they develop a great depth and breadth of understanding of new material. Learned material is better retained when a significant portion of it is devoted to highlighting the topic’s connection and relevance to people.

ENFJs are capable of independently learning expansive and complex material. They are good at both retention of information on a logical basis and mechanical memorization, although, the latter is less effective. ENFJs are able to precisely recall learned information, whether or not it is all conceptually related. ENFJs can benefit from studying both independently and in a group setting. ENFJs are able to actively apply acquired knowledge and skills to their work. They can apply it to concrete tasks or creatively develop it in a given direction. Working with material they have learned, understood and internalized brings them great enjoyment.

ENFJs are able to remain very stable when experiencing a high level of learning related stress. They prefer to evenly distribute their efforts in learning new material, although, they are capable of learning through short periods of overexertion.

The data identified the following regarding learning styles of this group: The group’s learning style is Active, sensing, visual sequential (Fig. 2).

Active students tend to retain and understand information best by doing something active with it discussing or applying it or explaining it to others. Sensing students tend to like learning facts and be patient with details. They tend to be more practical and careful.

Visual students remember best what they see pictures, diagrams, flow charts, time lines, films and demonstrations. Sequential students tend to follow logical stepwise paths in finding solutions.

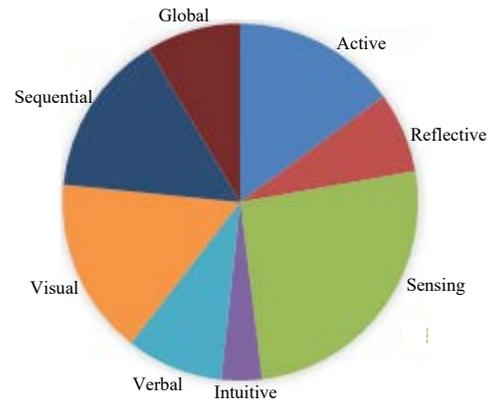


Fig. 2: Learning styles

Table 3: Conclusion

Personality	Learning style
Extrovert	Active
Introvert	Reflective
Sensing	Sensing
Intuitive	Intuitive
Thinking	Verbal
Feeling	Visual
Judging	Sequential
Perceiving	Global

ENFJs often find themselves in occupations that require good interpersonal skills to establish productive collaboration as well as to establish or maintain effective work process. ENFJs one of the most “universal” personality types and they build successful careers in a broad range of organizations and occupations. There are many ENFJs found among mid- and high-rank management roles. Sales, various social services, counseling, teaching, healthcare, community care as well as legal and paralegal services are just some of the examples of favourable occupations for ENFJs (Table 3).

CONCLUSION

Therefore, the conclusion of this research was the data indicated a relation between the extrovert personality type and the active learning style extroverts and active students prefer being actively involved to understand a problem by discussing or applying it or explaining it to others. The feeling personality type and the visual learning style feeling and visual students care about the points-of-view of persons involved in a situation and remember best what they see pictures, diagrams, flow charts, time lines, films and demonstrations. The judging personality type and the sequential learning style. Judging and sequential students prefer to follow logical stepwise paths in finding solutions.

Knowledge about learning styles and personality types is a new fundamental tool at the service of

universities. Universities may utilize these tool to provide thoughtful and deeper insights into students than have been previously utilized. Which will result in the best possible dividends for the university, students and the final consumer (employers).

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