

Evaluating personality

Student retention is the area of research concerned with determining the forces that shape student persistence in institutions of higher education. (McGuire, nd)

Persistence is a measure of endurance by students from term-to-term or semester-to-semester. It is based on continued enrollment from the fall term to the spring term of an academic year.

Early theories on retention were rooted in psychology, focusing on personal, individual characteristics. Starting in the mid-seventies the emphasis began to shift to a more sociological focus and more recently it has centered on the institutional context and its relationship to the students' integration. Unfortunately, too many studies tend to simply describe the differences between those students who leave and those who stay, while the best studies predict future behavior by explaining how these differences arise within the context of a specific institution.

The notion that personality relates in meaningful ways to the kinds of careers people select and their performance and satisfaction in those careers has a long and significant history in vocational psychology. In psychology, the patterns of behavior, thought, and emotion are unique to an individual, and the ways they interact to help or hinder the adjustment of a person to other people and situations is central to behavioural study. A number of theories have attempted to explain human personality. In his psychoanalytic interpretation, Sigmund Freud asserted that the human mind could be divided into three significant components—the id, the ego, and the superego—which work together (or come into conflict) to shape personality.

Trait theories have arisen in recent years, with the object of determining aspects of personality that compel an individual to respond in a certain way to a given situation. Gordon Allport delineated three kinds of traits with varying degrees of intensity: cardinal traits, central traits, and secondary traits. Raymond Cattell used a group of obvious, surface personality traits to derive a small group of source traits, which he argued were central to personality. Objections to trait theories point out that behavior is largely situation dependent, and that such traits as "honesty" are not especially helpful in characterizing personality and behavior. Despite such objections, trait theories have been popular models for quantifying personality. Paul Costa has postulated five basic dimensions of personality—introversion-extroversion, friendly compliance-hostile noncompliance, will, neuroticism, and openness to experience—and has developed a test to measure these traits.

Abraham Maslow and Carl Rogers supported a humanistic approach to personality, pointing out that other approaches do not factor in people's basic goodness and the motivational factors that push them toward higher levels of functioning. Researchers

offering biological approaches to personality have focused on the action of specific genes and neurotransmitters as determinants.

The two most popularly used personality measures are the Myers-Briggs Type Indicator, used in the consultancy and training world, and the five factor Revised Neuroticism Extroversion Openness Personality Inventory, which is one of the most heavily used measures in the academic research area on personality.

The Myers-Briggs Type Indicator is an assessment of personality based on Jung's theory of types. During the past decade, the test has received considerable attention and use in a variety of applied settings. The MBTI is a self-report questionnaire designed to quantify non-psychopathological personality types as postulated in Jung's psychodynamic type theory (Myers & McCaulley, 1985). Four dichotomous dimensions classify individuals either as extraverted (E) or introverted (I), sensing (S) or intuitive (N), thinking (T) or feeling (F), and judging (J) or perceiving (P). Combinations of the four preferences determine personality types. Each individual is classified in terms of one of 16 possible four-letter codes (such as ESFJ, ENFP, INTP, and ISFJ). Each type is said to define a specific set of behavioural tendencies, reflecting differences in attitudes, orientation, and decision-making styles. But the MBTI does have several limitations. First, the instrument gives no indication of one's values and motivations. And secondly, the MBTI does not measure pathology. For example, totally sane people and catatonic schizophrenics can have the exact same psychological type.

The NEO-PI-R in comparison to the MBTI, is a five-factor model of personality utilizing a hierarchical organization of personality traits in terms of five basic dimensions: Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness to Experience. Research using both natural language adjectives and theoretically based personality questionnaires supports the comprehensiveness of the model and its applicability across observers and cultures.

There are numerous similarities and differences between the NEO-PI-R and MBTI. A major distinction between the measures, is that the NEO-PI-R assesses personality traits and the MBTI assesses types. The NEO-PI-R assumes that there are five universal qualities, so called traits, and that individuals vary in the degree to which they possess those traits. As a result the, NEO-PI-R is focused on measuring individual's amount of each trait. MBTI on the other hand rather focuses on different qualitative categories, so called types, where individuals prefer one category over the other and where MBTI classifies people in to one of these categories (Quenk, 2000). Some observed similarities, are that both measures are limited to simply describing personality and not actually explaining it, which has been criticized from different sources (Carducci, 1998). Also both inventories have showed to be useful in many and quite diverse areas (Costa, 1996; De Raad & Perugini, 2002; Wurster, 1993).

Further, existing results concerning the relationship between the Big Five (NEO-PI-R) and academic achievement provide a wide range of coefficients. Some studies report

correlations up to .40 for Conscientiousness (Furnham, Chamorro-Premuzic, & McDougall, 2002) and up to .42 for Openness to Experience (Gakhar, 1986) or even up to .78 for Extraversion (Huq, Rabman, & Mahmud, 1986; see Table 1). These results suggest a remarkable impact of personality traits on academic achievement. Some authors report incremental validities of personality over and above academic ability tests (such as the SAT) and recommend using personality assessment for college admissions (e.g., Conscientiousness: Conard, 2006). Following these results, personality measures are promising predictors of academic outcome and should, therefore, be applied to university student admission. On the other hand, some studies report opposite relations and negative correlation coefficients down to $-.32$ for Extraversion (Giesen, Gold, Hummer, & Jansen, 1986) or $-.21$ for Openness to Experience (Gakhar, 1986). De Raad and Schouwenburg (1996) reviewed the role of personality traits in learning and education and assumed that Extraversion is negatively related to success at the university level. They drew a rather ambiguous picture regarding Agreeableness and concluded that constructive internalization of social norms is a positive factor in academic achievement (p. 325). De Raad and Schouwenburg state that Conscientiousness and Openness to Experience represent the traits that are a main psychological resource in learning and education and are valid in predicting college performance. High Neuroticism, on the other hand, leads to poorer college performance. There is empirical evidence for a negative correlation of the facet anxiety and academic achievement. Seipp (1991) found a validity of $\mu^{\wedge} \rho = -.212$ concerning anxiety and academic performance of children, adolescents, and adults. Goldberg (2001) found Conscientiousness to be a useful predictor of academic performance. He stresses the impact of certain aspects of Conscientiousness, including the need for achievement, organization, efficiency, carefulness, and dependability. In his view, Emotional Stability might be important, too, while Extraversion and Agreeableness have little influence on academic success (Goldberg, 2001). The purpose of this research is to further investigate the effectiveness of the NEO-PI-R in combating the problem of college/university dropout by assessment and matching of personality type to suitable majors.

2. Statement of the Problem

Student attrition typically refers to the number of students who do not complete their program of studies. These "dropouts" are viewed as failures by the academic institutions and reduce the "graduation rate" typically measured by everyone from the academic institutions themselves, to the accrediting agencies to the national publications (e.g., U.S. News & World Report).

One of the most notable models designed as a treatment to student attrition, and addresses the issue of retention, is that of Tinto. The origin of Tinto's (1975) conceptual model is rooted in the foundation of Durkheim's (1897) suicide theory as well as Spady's (1970) model of the student dropout process. Spady (1971) elaborated on Durkheim's conclusions and subsequently outlined the presumed role that the social structure

played in the retention process. Soon afterwards, Tinto, borrowing liberally from Spady's and Durkheim's conclusions, fine tuned the details and elaborated upon their work.

Tinto coordinated massive amounts of research on the theory of student retention, integration and departure, focusing primarily upon the role that the institution of higher education played in influencing the institution's academic and social systems. Of particular concern was the process of interaction between the students' attributes, skills and dispositions and students' departure. Tinto, in his college fit model, noted that the greater the congruence between the values, goals and attitudes of the students and those of the college, as well as between the students' capabilities and the colleges' demands, the more likely a student is to persist in college.

Tinto, V. (1975) "Dropout from Higher Education: A Theoretical Synthesis of Recent Research" *Review of Educational Research* vol.45, pp.89-125.

Because of the complex nature of attrition patterns, each college/university needs to determine the extent of its own attrition problem and to determine how the institution can be more helpful to students as they pursue their educational goals.

Kennedy and Powell (1976) opined that dropout is a phenomenon caused by learners' characteristics (educational background, personality, motivation, aptitude and so on) and life circumstances (occupation, relationship with family and peer group, health and so on).

During the last several decades, researchers have investigated relationships between numerous predictors and academic performance. Mouw and Khanna (1993) indicate that the prediction of academic success in college has become "a large scale operation." Important within the educational system, similar predictions are important in industrial research, as recent studies indicate the predictive ability of grades vis-a-vis job performance (Roth, BeVier, Switzer, & Schippman, 1996). Many employers screen job applicants based on a minimum grade point average threshold, or consider grades as a heavily weighted criterion when analyzing resumes (Reilly & Warech, 1993).

Thus, the central focus of this study would be to examine the effectiveness of the NEO-PI-R as a predictor of academic performance.

3. Proposed Solution

Hypothesis: We propose that student persistence can be effectively evaluated through the use of a refined model which utilizes the Revised Neuroticism-Extroversion-Openness –Personality Inventory (NEO-PI-R) as a more accurate and reliable measure in comparison to the Myers-Briggs Type Indicator (MBTI) in assessing personality types and using the assessment to predict degree choice.

Therefore, our aim is to develop a model of assessment and matching that will determine whether students have selected their best-suit choice of a degree programme and more importantly, will students persist with that choice.

The best-suit aspect (assessment and matching respectively) is key to the process of evaluating individual personality and traits because it is a provision of enlightenment and an aid in the choice of a programme. As such, the NEO-PI-R five factor model will be used as opposed to the MBTI four factor model. Furthermore, software will be utilized as the method to effectively and efficiently matching personality assessments with suitable degree programmes.

4. Significance of the Study

What is a malleable education? It is the rich knowledge an individual obtains from their major that has now shaped them into the person they are or wish to be. Choosing a major in college/university is an important decision, and not one to take lightly. The choices an individual makes now can affect the career choices he/she will have after graduation.

Globally, it is becoming more and more important to have a college degree. As the job market becomes more competitive, companies are requiring more qualifications from their applicants. This is an important reason why one should go to college/university and pick a college major that suits their strengths, personality, and interests.

Every year, a substantial number of college students join the growing ranks of students who fail to complete their college education. Attrition/dropout may occur in a variety of manners, including those students who "flunk out", those who transfer to other institutions, those who switch courses within institutions, those who withdraw, and those who significantly reduce their workload.

Even with the advent of theoretical models of college student attrition, the problem still persists. These models have been developed by several researchers to identify and analyze the numerous variables that impact a student's decision to remain in college or drop out (Bean & Metzner, 1985; Spady, 1970, 1971; Tinto, 1975).

Tinto's model for college student attrition continues to be the most widely recognized and tested model. Tinto believed that a student's tendency to stay in college was related to the degree to which the student felt integrated into the social and academic life of the college. But the model places no practical emphasis on the variable of individual attributes which may play a vital role in determining personality type.

With this said our research lies in the development of a theoretical and practical model to further examine the importance of such an assessment as we seek to enrich the area of academia and in return, vastly increase employability and opportunities for graduate students.

5. Methodology

The project is divided into four major phases:

foundational research

analysis and design of the refined model for the reduction of the dropout rate

implementation and testing of selected best-fit of the refined model

evaluation and verification of the developed model

Phase 1: Foundational Research

This phase involves extensive research in the areas of student persistence, student attrition, student retention, psychology, personality and traits. The objective of this phase is to increase our knowledge of the aforesaid research areas towards the development of a model to evaluate persistence. The outputs of this phase will collectively form the system requirements for the implementation of the model.

Phase 2: The Formulation of the Refined Model

In this phase, we seek to apply our conceptual findings uncovered in Phase 1 in the design of a refined model. During this phase we look at efficient ways to combine our findings into an effective model to assess personality type, match personality type with degree and evaluate persistence.

Phase 3: The Implementation of the Refined Model

In this phase, the formulated model will be implemented with the utilization of appropriate computer technologies. The objective of this phase is to develop an operational prototype of the refined model for mapping personality to a degree major.

Phase 4: Evaluations and Verifications

This phase will involve testing of the developed model to determine its effectiveness. The sample population will comprise of students in their first year of various degree majors within the Faculty of Natural Science to evaluate whether they possess the required personality traits to persist with the major that they have chosen to pursue. During this stage, the data will be collected using appropriate prototypes (developed or previously existing). Next, a process of statistical data analysis will be performed to verify accuracy and reliability of the model. Finally, a presentation on the findings will be delivered.

6. Deliverables

Our research will be aimed at developing and delivering a refinement of an electronic medium to evaluate our hypothesis that student persistence can be effectively evaluated through the use of a refined model that assesses and matches personality types to degree choice.

7. Schedule

8. Resource Requirements & Budget

A sample population for testing the model.

Twenty networked computers with internet access

Access to the internet and journals

Observation facilities

\$ 12,000 for refreshments