



# Personality and Success Level Prediction of Individuals Using Soft Skills Measures and its Performance Evaluation

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In spite of significant development of research on personality with the Big Five Model in diversified areas, there is still much to be learned about the impact of personality assessment in predicting the life's success of an individual. Personality of an individual is an integration of attitudinal, behavioural and emotional characteristics. Personality traits which are unique characteristics or qualities are found to be prospective predictors of success of Individuals. The study has been carried out using the various statistical techniques of Statistical Package for Social Sciences (SPSS) and by means of an automated online Decision Support System (DSS). In the study, the prediction is achieved with the help of mathematical representation, design of framework and rules laid for various models. This is to incrementally identify the behaviour and success levels of students in their life beyond usual academic prediction through an integrated AMS, CSM and EIM with NEO PI-R and to enhance it. Also the researcher incrementally validated the variables considered for the study by calculating the performance and classification accuracy with training data and model accuracy with testing data. Students who learn and apply communication and emotional skills appropriately will certainly contribute to academic success, career success and success in life. For very many reasons and thanks to a wide range of abilities, it is observed that students with high emotional intelligence are more successful in life than those with lower Emotional Intelligence Quotient (EIQ) even if their classical IQ is average.

**KEYWORDS:** Evaluation, Individuals, Personality, Skills, Organisation, Performance, Soft skills, Success



## 1. INTRODUCTION:

The set of characteristics of an individual helps to predict one's success in life. If one has to be successful, it is necessary to improve one's strength and overcome one's weaknesses. It depends on identifying the personality characteristics of an individual. Hence understanding one's personality will help an individual to be successful in life. Personality is an assimilation of attitudinal, behavioural and emotional response model of an individual and assessment is the end result of gathering information about an individual intended to improve one's strengths and to rise above weaknesses. Personality assessment is the measurement of personal characteristics of an individual. Various personality psychologists have focused on different levels of personality analysis. Though analysis at each of these levels will most likely produce a different definition of personality, each of the levels also contributes in a valuable way to the total understanding of the nature of personality (Larsen and Buss 2005). An individual who rightly identifies his capabilities with the analysis of his personality, social background, academic, non-academic achievements and the impact of traditional influence can become an outstanding contributor for the social development by extracting his/ her maximum potential as an investment in the chosen field of operation in order to remain to be successful throughout. Personality traits, the distinguishing characteristics or qualities are found to be the potential predictors of success of individuals, if it is properly applied, one individual can certainly excel in future. Ehrenreich (1997) specifies that understanding personality and its disorders is essential to understand human behaviour and functioning. General characteristics of successful individuals tend to remain enthusiastic, optimistic, remain confident, certain and sure in their thoughts and actions. On the contrary, characteristics of unsuccessful people constantly lack confidence, pessimistic and rarely guess success as they have fear of failure and hence they do not make an attempt to fissure the task.

The personality assessment model, Big Five personality traits, Neuroticism, Extraversion, Openness to Experience Personality Inventory - Revised (NEO PI-R), is a comprehensive, empirical, data driven research finding model. The five broad factors of this model were discovered and defined by several independent set of researchers (Digman 1990). Basically, the Big Five personality traits from Costa and McCrae (1992) have emerged as a robust model for understanding the personality and various academic behaviors (Poropat 2009).

Personality assessment has been applied to individuals of various vocations, genders, students, professionals and cultures so as to identify their behaviors. Understanding of personality will help in many ways in predicting educational achievement, career development, and gender differences across vocations, across branches, across cultures etc. Moreover it is helpful in predicting cultural differences and is useful in analyzing the relationships of it with other models to have enhanced personality assessment. Recent advances in integrating other effective models with personality model have enhanced the assessment of individuals. These combined personality assessment models. The authors, Steinmayr and Spinath (2009) mention



that 'Need for achievement' as an individual's desire to master their skills, control or help them to achieve high standards.

## **2. SIGNIFICANCE OF THE STUDY**

The personality related issues mentioned in section 1.2 can be easily addressed by considering the personality assessment models such as NEO PI-R, Achievement Motivation Scale (AMS), Communication Skills Measure (CSM) and Emotional Intelligence Scale (EIM) for the study. This study includes the application of each one of these models influences different characteristics of individuals. Hence the study has been carried out in this research through incremental approach. With the help of NEO PI-R, the in depth personality characteristics of the students can be predicted and improved by identifying their actions, ideas, values, level of competence, self-discipline, thought etc. The AMS motivates students to succeed in various competitions and to outshine in almost all activities related to him or her. As communicating the necessary message clearly and effectively is an important ability, CSM is considered to be a key model in deciding the success levels of students. For very many reasons and thanks to wide range of abilities, it is observed from the earlier reviews and from day to day life that students with high emotional intelligence tend to be more successful in life rather than those with lower Emotional Intelligence Quotient (EIQ) even if their classical Intelligence Quotient (IQ) level is moderate.

## **3. STATEMENT OF THE PROBLEM**

India is a vast and complex society with high population and is highly diversified in terms of behavior, language, emotions and way of being successful in life. Even between India's major cities, there are notable differences in behavior of individuals. The academic success that underpin the growth of Indian students are truly impressive, but in order to get a realistic perspective on life's success, the researcher needs to comprehend how Indian students behave, and to understand how likely the students' tend to be successful in life. Hence students in India especially in Chennai are considered as samples for this study. For the student survey, the researcher collected data from respondents in Chennai. The study covers behavior and success related attributes. Respondents included only Indian students whose age is between 18 and 20 and all are studying in I year engineering in various branches of study as their choice. As most of the students who stays in college hostel are inhibited, have home sickness, feel isolated, have friendship with negative personalities, face difficulty in studies, not performing well in examinations which in turn leads to failure in academics, results in frustration which ultimately demotivate them in taking drastic decision to end their life. Hence behavior, personality prediction is very crucial.

On one side, students joining an institution lack achievement motivation skills like skill achievement, social skill achievement, vocational achievement etc., and are easily tend to be



de-motivated in day to day life. Thus it is highly essential to analyse their achievement motivation levels.

#### **4. OBJECTIVES OF THE STUDY**

The objectives of the study, the introduction about the online Decision Support System (DSS), classification technique and CHsquare Automatic Interactor Detector (CHAID) algorithm to evaluate the performance of the variables considered for the study were also discussed in detail. This study documents the various considerations solely to the methodology of the study, essentially by providing the framework to achieve the research goals

#### **5. REVIEW OF LITERATURE**

The findings of the extant literature serve as potential building blocks for the present research to predict behavior and success of individuals. In this section, the related work on behavior is reviewed in detail. The students coming from various family background, mother-tongue, community, religion, medium-of-instruction, civic-status-of-native-place, civic-status-of-place-of-school etc., after their schooling, joins an engineering institution results in sudden shift to cope up with the new atmosphere. In order to help the students to stay effective, help the institution to maintain its efficacy, it is highly crucial to combine personality, achievement motivation, communication and emotional skills along with demographic characteristics incrementally to predict the students' behavior levels. In order to predict behavior and academic success of individuals, many models have been in practice earlier. These models are used either independently or in relationship with other model.

Some of the models are listed below.

- NEO PI-R
- NEO PI-R and Achievement Motivation Scale
- NEO PI-R and Communication Skills Measure
- NEO PI-R and Emotional Intelligence Measure

Amongst the survey type of approach in assessing various personality traits, the NEO Personality Inventory designed by Costa and McCrae (1985a) is the most ideal, validated and agreed upon model in predicting academic success and has gained lot of attention (Dollinger et al 2008).

It has been translated into very many different languages across the globe, and the structure of the translated versions has been replicated well in Dutch, German, Italian, Estonian, Finnish, Spanish, Hebrew, Portuguese, Russian, Korean, Japanese, French, and Filipino (Church and Lonner 1998).



There is an immense deal of empirical literature over the past decade providing evidence of its concurrent, construct, convergent, divergent, incremental, and predictive validity (Chamorro-Premuzic et al 2003).

### **Broader domains of Personality and Academic Success**

The five factors of NEO PI-R have been described as a comprehensive and universal trait structure for human personality (McCrae and Costa 2003). It has emerged as a robust model for understanding the relationship between personality and various academic behaviors as stated in (Poropat 2009). Past studies have shown that personality predicts academic performance (Duckworth et al 2005; Wagerman et al 2007).

### **Narrower domains of Personality and Academic Success**

The results of various past reviews states that from all five personality traits of NEO PI-R, Openness to Experience, the right ability of competence to confront and Conscientiousness, the idea of organizing, perseverance and motivation in behavior based on one's rationale enjoy an exclusive position and is adequate for researchers in education psychology (Costa and McCrae 1985a).

Openness domain referred to as "Intellect," emphasize its connection to creativity, abstract thinking, depth of thought, and other intellectual qualities. Moreover, the domains such as neuroticism, extroversion, and agreeableness have not been elaborated as much as the factors of Openness and Conscientiousness in the researches done on educational operation in the past (Conard 2006). Therefore in sum, the narrower domains are more powerful and effective predictors than all five, broader domains (Lounsbury et al 2002). Moreover, narrow traits have higher predictive validities (Paunonen et al 2001a; Paunonen et al 1999; Anita et al 2011). Narrower traits seem to demonstrate a clear connection to certain aspects of academic success (Petrides et al 2005; Thoresen et al 2004).

In addition, Openness to Experience has been linked with academic success in school (Shuerger et al 1987) and in university, at an undergraduate De Fruyt et al 1996) level. The personality trait of Openness to experience is positively correlated with verbal scores on the Scholastic Aptitude Test (Nofle and Robins 2007). Also the personality factor more consistently and appropriately associated with academic performance is Conscientiousness as stated in (Bidjerano and Dai 2007; Blickle 1996; Busato et al 2000; Costa and McCrae 1992; De Raad and Schouwenburg 1996; Nofle and Robins 2007; Diseth 2003). Studies have replicated this relationship in school (Wolfe and Johnson 1995) as well as in undergraduate (Goff and Ackerman 1992) education.



## **6. RESEARCH GAP**

Most of the research works were related with judging academic success of students by choosing the related parameters like GPA, Higher Secondary Grade Point Average (HSGPA), Intelligence Quotient (IQ), Scholastic Aptitude Test (SAT) Scores etc., either by considering NEO PI-R alone or combined with AM or with EI. These studies predict only the academic success of individuals and were not predicting the success of individuals in their life. Also as students finds it difficult to interact effectively in a standard English language right from first semester till getting suitable placement during campus interviews, it is felt that communication skills play a vital role. Hence this is also addressed in this research work.

## **7. OVERALL RESEARCH METHODOLOGY**

The research methodology including data capturing and pre-processing of data; various overall architectures of the existing and proposed models; and complete data analysis that are being used in the following studies are discussed as follows.

### **Data Capturing and Pre-Processing**

Data sources are broadly classified as primary data and secondary data. Primary data was obtained from students by administering the questionnaire in person through an online automated DSS. Secondary data for the research was obtained from published reports of the industry, magazines, newspapers, text books and from previous research and journal papers. The data related to narrower domains of NEO PIR, four domains of AMS, four domains of CSM and five domains of EIM are captured and combined for incremental prediction of behaviour and success levels of students. It is then used to validate with the classification model to find the performance accuracy and model accuracy of the study variables.

Final data collection was done during the period Dec'2010 to Feb'2011. Respondents were asked to give their options corresponding to all four models considered for the study through an automated online decision support system (online DSS).

### **Proposed Classification Model**

Given a collection of records with a set of attributes and one of the attribute as class called as training set is used to build the model. A training set is a set of data used in various areas of social science to discover potentially predictive relationships. It is widely used in machine learning, areas of artificial intelligence, intelligent systems, genetic programming and statistics. In all these fields, a training set is often used in conjunction with a test set. The test set is used to determine the accuracy of the model in order to validate it. Separating data into training and testing sets is a crucial part of evaluating data mining models. Typically, when we separate a data set into a training set and testing set, two-third of the data is used for training purpose and the remaining one-third of the data, a smaller portion of it is used for





testing purpose. By using similar data for both training and testing purpose, the effects of data discrepancies can be minimized. Also, it helps to understand the characteristics of the model in a better manner.

Subsequent to a model being processed by using the training set, the model will be tested by making predictions against the test set. Because the data in the testing set already contains known values for the attribute that you want to predict, it is easy to determine whether the model's guesses are correct.

Classification tree analysis is one of the main techniques used in data mining. It is widely used in applied and diversified fields such as to diagnose in the field of medicine, to structure data in computer science area, to classify in botany and to arrive at a decision or conclusion in psychology area. It is often used to display graphically, helping individuals to understand and interpret it easier.

## 8. DATA ANALYSIS

Analysis involves determining what the results of the research show and decides on the actions to be followed. In any **empirical research**, a thorough analysis of the research instruments is essential to establish that the Success Prediction, Performance Accuracy Classification Algorithm (CHAID) Data Automatic Success Prediction / Model Accuracy Classification Tree/Table Testing Training.

Empirical findings accurately reflect the proposed constructs. SPSS-19, the Statistical Package for Social Sciences was used for data analysis. The SPSS Statistics is a software package used for statistical analysis. It was originally called as Statistical Package for the Social Sciences and later modified as Statistical Product and Service Solutions. It was first released in the year 1968. This software includes various statistical techniques as follows:

**Descriptive statistics:** Frequencies, Explore, Descriptive, Descriptive Ratio Statistics, Cross tabulation.

**Bivariate statistics:** Means, ANOVA, Correlation, Nonparametric tests, t-test.

**Prediction for finding numerical outcomes:** Linear regression.

**Prediction for identifying groups:** Discriminant Analysis, Factor analysis, cluster analysis and many more.

SPSS is among the most widely used programs for statistical analysis in social science. It is mostly used by psychological researchers and educational researchers. Moreover, individual's working in government, market researchers, companies doing survey analysis, health researchers and others. It can read and write data from ASCII text files including hierarchical files, spread sheets, databases and other statistics packages. It can also read and



write to external relational database tables via Open Database Connectivity (ODBC) and Structured Query language (SQL). The statistical output will be available in a proprietary file format supporting pivot tables.

This output can be exported to text or Excel, PDF, Microsoft Word and to other formats. Alternatively, the generated output can be captured as SPSS dataset, tab-delimited text, PDF, HTML, XML or as a variety of graphic image formats such as JPEG, BMP etc. In this study the individual reports are exported to Excel files.

The various statistical techniques used in this thesis are the reliability analysis, frequency distribution, hierarchical regression model, ANOVA, Pearson correlation coefficient to know the improvement in the model, classification etc.

The consistency is the one which shows the degree to which an instrument will give similar results for the same students at different times. Cronbach's alpha, the coefficient of internal consistency, was first named alpha by Lee Cronbach in the year 1951. It is widely used in social sciences, education, psychology, business, nursing and other disciplines. It is used to estimate the reliability of the variables utilized for the study. Thus, the reliability can take on values of 0 to 1.0, inclusive with 0.7 being an acceptable value. In statistics, the frequency distribution of variables is an arrangement of the values that one or more variables considered in a sample.

Each and every entry in the frequency table of the study has the frequency or count of the occurrences of values within a particular group or interval. In this way, this table summarizes the distribution of values found from the sample.

In order to estimate the various relationships among the variables, dependent and independent variables are used. The hierarchical multiple regression, a variant of the basic multiple regression procedure allows us to specify a fixed order of entry for variables. The demographics variables in block 1 are entered together, followed by the variables considered for the study related to each contribution can be incrementally given as a predictor in subsequent blocks. While evaluating the output in the various research contributions, the change in R<sup>2</sup> indicates a way to estimate how much predictive power was added to the model by the addition of another variable in the next step. Then the significance is tested in each step of the hierarchical regression. The coefficients table is useful when our predictors are found to be statistically significant. The beta (B) is the weight that we could multiply each individual score on the independent variables by, in order to obtain that individual's predicted score on the dependent variable.

The data analysis also includes the Analysis of Variance (ANOVA) to verify an improvement in each model to predict the outcome variable; ANOVA is a particular form of



statistical hypothesis testing heavily used in the analysis of experimental data. It is used for multiple purposes in psychology domain. It is used to compare the means of more than two Samples. Two types of ANOVA are one-way ANOVA and two-way ANOVA and three ways ANOVA. In this study, we consider One-way ANOVA as we consider only factor for the study. Correlation between variables is a measure of how well the variables are related. The results could be between -1 and 1. A result of -1 indicates that there exists a perfect negative correlation between the two values. The result of 1 indicates that there is a perfect positive correlation between the two variables. The result of 0 indicates that there is no linear relationship between the two variables. Pearson's correlation( $r$ ), a measure of the linear correlation, the dependence between two variables X and Y, ranging between +1 and -1 inclusive is widely used in the sciences as a measure of the strength of linear dependence among two variables. It was developed by Karl Pearson from the idea initially introduced by Francis Galton in 1880s (Rodgers et al 1988; Stigler et al 1989).

Thus, in order to find the correlation between the variables considered for the study so as to find the relations between them.

The risk estimation to know the risk associated with it, mean difference and incremental improvement in success measure, an outcome in each add-on assessment when combined with existing NEO PI-R are also incorporated in this research work.

A histogram is a graphical representation showing a visual impression of the distribution of data. It consists of tabular frequencies, shown as adjacent rectangles, erected over discrete intervals (bins), with an area equal to the frequency of the observations in the interval. This representation is used for analysis in the following studies, Study 5 and The Q-Q Plot is a graphical representation for comparing two probability distributions with observed value and expected normal of success measure. It is represented by plotting their quantiles against each other. The detrended Q-Q Plot is also a graphical representation used to show the differences between the observed and expected values of a normal distribution.

Normal distributions are extremely important in statistics, and are often used in the natural and social sciences. If  $\mu = 0$  and  $\sigma = 1$ , the distribution is called the standard normal distribution. All normal distributions are symmetric and have bell-shaped density curves with a single peak.

## **9. ANALYSIS OF VARIANCE TO SHOW IMPROVEMENT**

From the extant studies, it is observed that ANOVA is found to be most useful and frequently used statistical technique in psychological research. It is a suitable form of statistical hypothesis testing widely used in the experimental data analysis. The ANOVA to show improvement in each model are illustrated in the following table,



### Mathematical Representation of AMS

The AMS consists of 40 questions with four groups of 10 questions in each domain as already introduced (section 1.3). The mathematical representation of AMS is given below.

Step 1: Obtain and calculate achievement motivation group scores for all questions of k domain for each of user 'u' denoted by  $AGSc_{k,u} = \frac{\sum_{i=1}^n \text{mark}(q)_i}{N}$ ;  $k=1..4$ ;  $u=1, 2..N$

Where N = number of participants in the study; amark-achievement mark; i-iterating variable; q-question.

Step 2: Predict various ranges of achievement motivation in each group for user 'u' denoted by  $AGR_{k,u}$ . Low;  $AGSc_{k,u} < 25$

$AGSc_{k,u} = \text{Average}$ ;  $25 < AGSc_{k,u} < 30$  High;  $AGSc_{k,u} > 30$

Where  $k = 1, 2..30$ ;  $j = 1, 2..8$ ;  $u = 1, 2..n$

Step 3: Calculate overall achievement motivation scores of users by combining all four groups for user 'u' denoted by  $OASc_u = \frac{\sum_{k=1}^4 AGSc_{k,u}}{4}$

Step 4: Predict overall achievement motivation range of user 'u' denoted by  $OAR_u$ . Low;  $OASc_u < 61$   
 $OASc_u = \text{Average}$ ;  $61 < OASc_u < 91$  High;  $OASc_u > 91$

AMS scores thus collected from the students, identifies that these cores along with the success levels predicted with NEO PI-R and AMS is found to be adequate and reliable. For each item in AMS, students must choose any one of the three statements as option and accordingly suitable weightage with 1, 2 and 3 as scale values will be awarded.

The achievement motivation ranges of the students namely low, average and high for all four domains are thus found out. The minimum scale value is 40 and the maximum is 120 and thus higher the score, higher the achievement motivation and lower the score, lower the achievement motivation is predicted.

### Students Success Measure

Here the student success measure is incrementally studied by considering all three models NEO PI-R, AMS and CSM. With narrower domains of NEO PI-R such as Openness to Experience and Conscientiousness, the success levels were classified as Less-Successful, Moderately Successful and Highly-Successful.

### SUCCESS PREDICTION USING EIM

The combined success measure by integrating all four models were predicted through the rules formulated from the various ranges of behaviours identified from the chosen narrower domains, motivational levels arrived through AMS, communication levels predicted through CSM and the emotional levels predicted through EIM. The success measure, Students-Success-N-A-C-E (Students-Success with narrower domains of NEO PI-R, AMS, CSM and

EIM) thus estimated is then classified as less successful (represented by value 1), moderately successful (represented by value 2) and highly successful (represented by value 3).

### Classification and model accuracy with two models

Model	Risk Estimate	Classification Accuracy	Mean Difference	Model Accuracy
NEO PI-R	8%	92%	0.067%	99.933%
NEO PI-R with AMS	5.2%	94.8%	0.83%	99.17%

The probable chance of classifying risk involved by misclassifying the correctly classifying instances for NEO PI-R alone is found to be 8% against 5.2% risk involved when AMS is added with NEO PI-R. The classification accuracy with NEO PI-R alone is found to be 92% whereas with NEO PI-R and AMS, it is found to be 94.8% with an increase of 2.8% and thus by adding AMS to an existing NEO PI-R, the combined model more accurately predicts in an enhanced way. By calculating the mean difference between the actual and observed instances of testing data, almost 99.933% model accuracy is found with NEO PI-R alone and 99.17% model accuracy is produced with NEO PI-R with AMS.

The success levels found using narrower domains of NEO PI-R with Openness to Experience and Conscientiousness were categorized as Less-Successful, Moderately Successful and Highly-Successful. In this categorization and prediction, around 83.4% of the conscientiousness students and 20.1% of the openness to experience students were predicted to be highly-successful in academics.

With the rules framed and applied to narrower domains of NEO PI-R, the success measure, SS-N, almost 58% of the students are identified as highly-successful, 37.4% of the students are identified as moderately-successful and 4.7% of the students are categorized as less successful in academics, career and life too. By adding AMS to NEO PI-R to find the combined success measure, SS-N-A, around 49.6% of the students were classified as highly successful, 47.7% of the students were identified as moderately successful and 2.7% of the students were found to be less successful in life. Thus, the combined prediction in the study intensely predicts the students at all levels compared to prediction through NEO PI-R in isolation.

### Testing of Developed Model

The values found for the parameters used in the regression model are substituted in Equation (3.1) in order to generate Equation (4.2). The target variable Students-Success with NEO-Achievement-Predicted (Students-Success-N-A-P) was found using SPSS for the test data with 222 instances in order to test the generated, hierarchical regression model. It

resulted in the prediction of Students-Success-N-A-P with 6 instances as Less Successful holding prediction value 1.50. There are 92 instances as Moderately Successful with prediction values ranging from 1.65 to 2.49. Moreover 124 instances as Highly Successful with prediction values ranging from 3.04 to 3.33. It is arrived with the already computed regression model for train data.

## 10. FINDINGS

All the above findings are thus grouped and generated as a report for all students. From this report, major domains that include the facets with narrower domains have been chosen. Following this behavioural prediction and behavioural ranges, rules have been formulated in order to predict the life's success level which is beyond the usual finding of academic success of students.

With the knowledge of data mining technique, the total sample (N=974) taken for the study is divided into two-third of the data with (N=752) as training data and one-third with (N=222) as testing data. The results found using various statistical techniques through Statistical Package for Social Sciences version 19 (SPSS 19) are discussed below.

The correlation between Students-Success-N and the two NEO domains, TO-g and TC-g with  $r = .826$  shows that there is a strong, positive correlation between the scores on success measure, Students-Success-N and the combined score of the other two, TO-g and TC-g as a way to assess how well one item's score is internally consistent with composite scores from all other items that remain.

In the first contribution, as a first step, the importance of behavioural analysis is studied here in order to determine the success levels of students in their life ahead of academics. It was carried out with the invention of novel and complete mathematical representation, framework, development and implementation of online decision support system and rules for NEO PI-R, being the first model that is in existence. This research helps in general to identify the behaviours of an individual with personality traits such as Openness to Experience and Conscientiousness by considering an array of demographic information. This is further verified with the first semester examination results. The success outcome of it inferred that around 26% of the students are further moved from highly successful category of behavioural assessment to moderately successful category of it thereby enhancing the success prediction from behavioural assessment that is followed in practice. The consistency is the measure which identifies the degree to which an instrument will give similar results for the same students at different times. It is found that by using reliability statistics, the Cronbach's alphas for all the variables chosen for the study are found to be greater than or equal to 0.7. Thus, the reliability can lie from value 0 to 1.0 considering the boundary values with 0.7 being an acceptable alpha value.



This research also resulted in identification of various behavioural and success ranges of students. In order to predict the success level of students and to find a suitable model, the hierarchical regression was used as a statistical technique. In all these four combinations, from the statistical analysis, the final model was chosen as the best model to predict the students' success as both predictors are found to be statistically significant. The regression equation thus found from the regression model was then tested with the testing data set, N=222.

The classifying risk involved due to misclassification of the correctly classifying instances for NEO PI-R alone is found to be 8% against 5.2% risk involved when AMS is added with NEO PI-R and 5.1% risk found when CSM is added with AMS and NEO PI-R and only 3.8% risk when EIM is added with CSM, AMS and NEO PI-R. Model accuracy of 99.93%, 99.17%, 99.63% and 99.7% respectively was incrementally achieved from all four contributions. It indicates the effectiveness of various tools with testing data.

Students who learn and apply excellent attitudinal, motivational, communicational and emotional skills appropriately will certainly contribute to academic success, career success and success in life. For very many reasons and thanks to a wide range of abilities, it is observed that students with high emotional intelligence are more successful in life than those with 150 lower Emotional Intelligence Quotient (EIQ) even if their classical IQ is average.

This research helps in understanding the vital role in integrating the success achieved through narrow domains of big five personality traits with achievement motivation, communication skills and emotional intelligence in order to have the combined success. The combination of these four analyses will invariably lead to higher levels of success at academics, carrier and life satisfaction among students.

This study includes that the institution may try to implement behavioural analysis, year-wise as students are tending to be erratic. This success level analysis helps the students to know their behaviour variations, in executing the task according to their institution's expectations. This helps the institution to know their students' behaviour fluctuations, which is highly required in balancing their behaviours so as to sustain the efficacy of an institution. It also helps the student counsellor to design and allocate the academic work according to student's behaviour in order to maintain the desired goal of an institution. Corporates seeking a diverse workforce without compromising the integrity of their selection policies may also find comfort in using personality assessments as a part of their process when the same analysis is carried out in pre- final year. By measuring these personality qualities, the concerned authorities can get a better brainwave about each student. Students who learn and apply communication and emotional skills appropriately will certainly contribute to academic success, career success and success in life. For very many reasons and thanks to a wide range of abilities, it is observed



that students with high emotional intelligence are more successful in life than those with lower Emotional Intelligence Quotient (EIQ) even if their classical IQ is average.

## **11. CONCLUSION**

The purpose of the study was to describe and predict student behaviour and success levels. This study provides the details of research methodology and procedure and provides a justification of the research methodology. The focus of this study was on the development of models and analysed methods employed commonly for all four research contributions to be dealt in following studies to assess the behaviour and success levels. This study also describes the statistical methods employed for data analysis, includes validity, reliability. The next study describes the behaviour and success prediction of students using narrower domains of NEO PI-R. It also discusses the hypotheses, results and explanations, performance and model accuracy of study variables and suggests suitable recommendations.

In the first study, the researcher has given an insight and discussed various personality related issues. The significance, the problem statement, and literature survey for the study were also included. Moreover, it identified the research gaps to be addressed in the current research work and given introduction about the online DSS, CHAID algorithm to find the performance accuracy those are vital for the study. Also, it identifies the model accuracy with the help of testing data.

## **12. SCOPE FOR FURTHER RESEARCH**

This study proposes two additional models namely CSM and EIM to predict the behaviour and success levels of students. Further research could be enhanced by adding few more parameters along with these models. It could also be extended to employees in diversified industries, doctors, lawyers and to any other individual. The overall, present study contributes to the literature in predicting the behaviour and success of students by developing communication and emotional intelligence models. Based on this research, one can provide counselling to modify the personality and success levels of students. However, it is advisable to do further research to effectively use it to analyse their personalities and success levels in detail.

During this work, several important observations have been made related to aspects concerned with behavioural and success prediction of students and some suggestions are listed here. The counsellors may preferably follow a fixed format for identifying the emotional weak students. Various soft skills programmes can be organized frequently for all the students. Attempt can be made in grooming the behavioural, motivational, communicational and emotional intelligence level of the students to convert the less, moderately successful to highly successful. Institution can take some steps to constantly enhance and boost the emotionally weak students. Rewards can be given to those students who outshine in emotions and show upward shift in success levels. In particular, in order to improve the students' soft skills, the





institution may try to implement this combined analysis, year-wise as students' behaviour may tend to fluctuate.

This study also lays foundation for add on measures and highlights several potential strategies for educators. This dissertation provides performance assessment of students only from Anna University, Chennai. In future, it can be further extended, strengthened and used in large extent to study and analyse not only students, but also to study the employees of diversified corporate, faculties of various universities, specialized professionals (Advocates, Doctors, Chartered Accountants) etc.

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