International Journal of Education and Science Research Review
Volume-1, Issue-2 April- 2014 ISSN 2348-6457

A Study of Aptitude and Neuroticism of the Students in Present Scenario

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Abstract
In present study investigated a relationship between aptitude and neuroticism, subjected on 100 students of X, XI and XII academic standard, from the data of REALM which is a career-counselling organization working in Delhi. All students assessed through Eysenck Personality Inventory (EPQ) and Aptitude test administered on individual. Personality inventory consists of 90 items in which Extraversion, Neuroticism, Psychoticism and Lie scale are covered. But the present study focused on only Neuroticism and Aptitude. In Aptitude test we assess seven dimensions of student's abilities i.e. verbal, numerical, spatial, perceptual, acuity, analytical and technical. This study shows the remarkable relationship (P>0.01) between neuroticism and in all level of aptitude sub-scales. Maximum number of average and good students has high extraversion and neuroticism, going towards inconsistency, impulsivity, emotional instability and inner conflict, our society producing neurotics instead of a balanced citizen. There are some lacunae in our system in which we are unable to develop and exploit the potentials of the students and they are not getting the right type of education. They want one thing, doing other and thinking another. That is why they are unable to give result oriented work and are in problem.
Key words: aptitude, personality, extraversion, balanced

Aptitude is variously defined as innate learning ability, the specific ability needed to facilitate learning a job, aptness, knack, suitability, readiness, tendency, natural or acquired disposition or capacity for a particular activity, or innate component of a competency.
For all present purposes, some people are "fitter" than others. It had been almost universally accepted-even by the environmentalist LOCKE- that some were born with more talent than others, and Galton's hereditary genius (1869) "**proclaimed that talent was not a gift of arbitrary (random) GODS but a natural, lawful phenomenon**."
Suppose that two persons of equal intelligence have the same opportunities to learn a job or develop a skill. They attend the same on-the-job training or classes, study the same material, and practice the same length of time. One of them acquires the knowledge or skill easily; the other has difficulty and takes more time, if they ever master the skill. These two people differ in aptitude for this type of work or skill acquisition.
A career aptitude test is developed to prevent future professionals or workers to make mistakes in their respective career path of choice and produce satisfied and successful ones that are best suited to and well screened for their career or job roles.
(Following World War I, psychological testing of aptitude began to play much of the role formely played by measures of educational accomplishment. American college admissions were based to a significant degree on the test devised by THURSTONE for the American Council of Education and its successor, the College Board Scholastic Aptitude test. Tests were given at about the 9th grade to identify pupils who should take algebra and foreign languages and so to embark on a college preparatory program. Those who did not show to advantage on these tests were not encouraged to aspire to higher education and sometimes were actively discouraged.)

We emphatically do not confine our interest to "aptitude tests" personality as well as ability influences response to a given kind of instruction or educational methods.. Non test variable (social class, ethnic background, educational) may serve as proxies for characteristics of the learner that are not directly measurable.

(The relation of anxiety to learning was the theme of Spence and his colleges (K.spence, 1958, J.spence& K Spence, 1966). Their theory led them to expect a curvilinear regression success in a particular learning task can have a arc-shaped regression on trait or state anxiety with performance relatively poor for high A's and low A's and relatively good at some intermediate level. Where along the A scale the arc reaches its highest point depends on the difficulty of the task and other conditions.

Eysenck's theory is based primarily on physiology and genetics. Although he was a behaviourist who considered learned habits of great importance, he considers personality differences as growing out of our genetic inheritance. He is, therefore, primarily interested in what is usually called temperament.

Temperament is that aspect of our personalities that is genetically based, inborn, there from birth or even before. That does not mean that a temperament theory says we don't also have aspects of our personality that are learned, it's just that Eysenck focused on "nature," and left "nurture" to other theorists.

Eysenck initially conceptualized personality as two, biologically-based categories of temperament:

Extraversion/Introversion: Extraversion is characterized by being outgoing, talkative, high on positive affect (feeling good), and in need of external stimulation. According to Eysenck's arousal theory of extraversion, there is an optimal level of cortical arousal, and performance deteriorates as one becomes more or less aroused than this optimal level. Arousal can be measured by skin conductance, brain waves or sweating. At very low and very high levels of arousal, performance is low, but at a more optimal mid-level of arousal, performance is maximized. Extraverts, according to Eysenck's theory, are chronically under-aroused and bored and are therefore in need of external stimulation to bring them up to an optimal level of performance. Introverts, on the other hand, are chronically over-aroused and jittery and are therefore in need of peace and quiet to bring them up to an optimal level of **performance.**

Neuroticism/Stability: Neuroticism or emotionality is characterized by high levels of negative affect such as depression and anxiety. Neuroticism, according to Eysenck's theory, is based on activation thresholds in the sympathetic nervous system or visceral brain. This is the part of the brain that is responsible for the fight-or-flight response in the face of danger. Activation can be measured by heart rate, blood pressure, cold hands, sweating and muscular tension (especially in the forehead). Neurotic people, who have low activation thresholds, and unable to inhibit or control their emotional reactions, experience negative affect (fight-or-flight) in the face of very minor stressors - they are easily nervous or upset. Emotionally stable people, who have high activation thresholds and good emotional control, experience negative affect only in the face of very major stressors - they are calm and collected under pressure.

Further research demonstrated the need for a third category of temperament:

Psychoticism/Socialisation: Psychoticism is associated not only with the liability to have a psychotic episode (or break with reality), but also with aggression. Psychotic behaviour is rooted in the characteristics of tough-mindedness, non-conformity, inconsideration, recklessness, hostility, anger and impulsiveness. The physiological basis suggested by Eysenck for psychoticism is testosterone, with higher levels of psychoticism associated with higher levels of testosterone.

Successful professionals in their field of practice both enjoy what they prefer to do, and have a good match of their strengths (personality and aptitude) in different aspects, innate and developed skills and abilities with the role that they play in their respective careers. On the other end, there

are also unfortunate unhappy and unsuccessful professionals who are practicing for the sake of practicing the profession, without much fun, enjoyment, direction and career satisfaction. By statistics, those who were not able to get a good match of their personal desires, on how they to self actualize in the society, as well as those who failed to recognize their strengths as relevant characteristics in a specific profession turned out to be unsuccessful, unhappy, negligent and frustrated with the path they took. This is one of the reasons that career aptitude tests are made and are being administered to incoming high school and college students.

Maintaining the balance between abilities and personality

If we can maintain the balance within ourselves (i.e. aptitude and personality) which is the biggest achievement and further us can enhance our performance tremendously. For that, firstly we should know about our strength and weaknesses. Then our education system should be like that it can develop our potential at fullest.

Students were administered a sleep habit questionnaire and the Junior Eysenck Personality Inventory (JEPI) at both junior high schools in Taipei. For the JEPI, high and low neuroticism was operationally defined as scores that were one or more standard deviation above or below the sample mean, respectively. The findings support the hypothesis that a high neuroticism score is associated with going to bed late on school days, short sleep duration, different sleep habits, sleep problems, and impaired daytime function in comparison with a low neuroticism score.

Objectives of the study

- A study of significant correlation between neuroticism and all sub scales of aptitudes.
- A study of what are the differences between neuroticism and other personality factors as Eysenck Personality Inventory.
- A study of how to create good relation between aptitudes and personality.
- A study of what is the role of Teachers & Parents in present education system.

METHODOLOGY OF STUDY:

This deal with the population, sampling procedure, tools of the study, and its analysis, infect the manner in which his investigation has been conducted.

SAMPLE

In the present study the sample consisted of 100 students of X, XI and XII academic standard, from the data of REALM which is a career counselling organization working in Delhi.

TOOLS OF THE STUDY:

Eysenck Personality Inventory (EPQ) by Eysenck & Eysenck and Aptitude test by Jim Barret and Geoff Williams administered on individual and group basis. Personality inventory consists of 90 items in which Extraversion, Neuroticism, Psychoticism and Lie scale are covered. But the present study focused on Neuroticism, Extraversion and Aptitude. In Aptitude test we assess seven dimensions
of student's abilities i.e. verbal, numerical, spatial, perceptual, acuity, analytical and technical.

Results:

Table No. I: Percentage Score of Aptitude vs. Neuroticism

Aptitude	excellent	Very good	Good	average	Below Average	Not performed	Total no. Of students
	9	26	31	27	6	1	100
Personality variable							
High Neuroticism	7	14	16	17	6	Psychopathology diagnosis	60
	77%	54%	51%	63%	100%		60%

Table No. II: Mean & SD score of Different Dimension of Aptitude

Aptitude Dimensions	Mean	S.D.
Verbal(V)	16.71	4.22
Numerical(N)	12.49	4.47
Spatial(S)	34.92	10.31
Perceptual(P)	19.77	4.21
Acuity(Ac)	50.97	15.91
Analytical(Ana)	9.16	3.98
Technical(Tech)	8.94	4.215

Table No. III: Mean & SD Score of Four Dimension of Personality

Personality dimensions	Mean	S.D.
Extraversion(E)	13.57	4.628
Neuroticism(N)	13.21	4.861
Psychoticism(P)	5.44	3.137
Lie Scale(L)	9.91	3.654

Table No. IV: Co-relation ® between Neuroticism and aptitude dimensions

Personality dimension	Aptitude Dimension	R Value	Probability
Neuroticism	Verbal(V)	.73	P>0.01
Neuroticism	Numerical(N)	.69	P>0.01
Neuroticism	Spatial(S)	.67	P>0.01
Neuroticism	Perceptual(P)	.65	P>0.01
Neuroticism	Acuity(Ac)	.64	P>0.01
Neuroticism	Analytical(Ana)	.71	P>0.01
Neuroticism	Technical(Tech)	.66	P>0.01

Interpretation & Discussion

Current study shows that 60% of total population have high value of neuroticism which shows the mental instability in the students. Maximum percentage of high neuroticism found in below average aptitude students (100%) and excellent aptitude students (77%). Out of total students one of the guy is suffering from psychopathology and he was not able to perform on aptitude test. Till date he is not doing anything in his career. Second category of high N is the category of average aptitude students i.e. 63%. Third category of high N which is more than 50% is category of good and very good aptitude students.

By combining all these results we find 60% of the students have high value of N of different aptitude. This result shows that most of the students are anxious, depressed, guilt feelings, low self esteem, tense, moody and having lack of autonomy.

Neuroticism, according to Eysenck's theory, is based on activation thresholds in the sympathetic nervous system or visceral brain. This is the part of the brain that is responsible for the fight-or-flight response in the face of danger. Activation can be measured by heart rate, blood pressure, cold hands, sweating and muscular tension (especially in the forehead). Neurotic people, who have low activation thresholds, and unable to inhibit or control their emotional reactions, experience negative affect (fight-or-flight) in the face of very minor stressors - they are easily nervous or upset.

Emotionally stable people, who have high activation thresholds and good emotional control, experience negative affect only in the face of very major stressors - they are calm and collected under pressure.

Now we discuss the various dimensions of aptitude Battery i.e. Verbal ability, numerical ability, spatial ability, perceptual ability, acuity ability, analytical ability and technical ability.

Verbal ability: This measures your degree of comfort with the English language. The verbal ability tests measures the level of comprehension to words and ideas both on oral and written language. This strength is the ability to reason with words. This is often connected with literary careers but is also a very important attribute in those careers which involve the ability to find the right word at the right time as copywriter. **This ability is more influenced by the schooling pattern and social environment.**

Numerical ability- This ability is similar to, but not the same as, mathematical ability. It is the ability to think in numbers rather than the ability to manipulate them. **Thinking in numbers is the more hereditary but ability to manipulate again influenced by schooling and self practise.**

Spatial (visualization)- This is the ability which enables to visualize a solid 3- dimensional object when given limited 2-dimensional information. It is the cornerstone of understanding technical drawings, layout and the relationships between objects in space. In Human-Computer Interaction, differences in spatial visualization ability lead to certain users performing more efficiently than others at information search and information retrieval. This performance difference does not mean that users with low spatial visualization ability cannot find information, but that they tend to be slower at doing so. **Spatial visualization ability is also not completely static; it can be improved with practice. Out of 69 students have high spatial abilities, 35 are girls.**

Perceptual (Scientific ability)- (This ability requires you to 'see' abstract information and to make sense of it. It is one of the cornerstones of scientific thinking).

Perceptual learning is the process of learning improved skills of perception. These improvements range from simple sensory discriminations (e.g., distinguishing two musical tones from one another) to complex categorizations of spatial and temporal patterns relevant to real-world

expertise (e.g., reading, seeing relations among chess pieces, knowing whether or not a ray image shows a tumor).
Sensory modalities may include visual, auditory, tactile, olfactory, and taste. Perceptual learning forms important foundations of complex cognitive processes (i.e., language) and interacts with other kinds of learning to produce perceptual expertise. Underlying perceptual learning are changes in the neural circuitry. **The ability for perceptual learning is retained throughout life.**

Acuity (management skill)-This is the ability to do routine tasks quickly and with great accuracy. It is one of the few aptitudes that can increase noticeably with practice but the results will give a realistic guide as to how easy you find this kind of task compared with others.

Analytical ability (This is the ability to make logical, factual connections and to impose a structure on what sometimes appears to be chaotic information. This ability can also be improved by hard practise. Generally, genetics, education, upbringing and test-taking skills all play a part in a high IQ or analytical ability.

Technical abilities- This test reveals the naturalness with which you cope with the world around you. It has more to do with your basic reaction to a practical problem than your learnt responses. It is also one of the most important abilities in the range of skills needed by engineers.
Results of Table no. 4 shows there is high level of co-relation between the neuroticism and the various dimensions of aptitude of the students. If we relate the verbal ability with high N, then it is realised that language is totally dependent variable of environment. We are teaching bi-language till early child hood. On the other hand, it is proved that the education of the child should be in mother tongue up to 10 years of age.
On the analysis of second dimension of aptitude i.e. numerical is also the combination of heredity and schooling pattern. Third dimension of aptitude is spatial ability which is more related to biological but can be improved. Therefore, Aptitude is variously defined as innate learning ability, the specific ability needed to facilitate learning a job, aptness, knack, suitability, readiness, tendency, natural or acquired disposition or capacity for a particular activity, or innate component of a competency.

Conclusion:
Our present education system does not support the innate learning capacity or potential of the child. This results in high N in maximum of the students which affects their performance.

Suggestions:
While genetics provide a person with the capacity to learn, general good health and a stimulating environment are also necessary to build a person's intelligence. In addition, a solid education provides factual knowledge, increases vocabulary and provides the opportunity to practice analytical and computation skills.
We urge the social planner to be concerned not with running a fair competition but with running a talent development operation that will bring everyone somewhere near his or her highest level of contribution.
Aptitude measures and educational methods should form a mutually supporting system. Educational programs need to be designed for the student who does not fit the conventional instruction, and classification. Procedures need to be designed to choose the right participants for each such program.
The old mandate was ‘The institution is given Try to pick persons who fit it”. This needed mandate is “Try to design enough treatments so that everyone will be able to succeed in one of them, and route the person into a treatment he fits”. That is an entirely different sort of “equality of opportunity”.

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About Author:

The 1st author (Ms. Hemlata) is working as a psychologist and career counsellor for the last 12 years. She started data collection and preparing frame-work of the project on career counselling, in year 1999. She observed that the students are not getting right guidance and information from the society. Due to that, their neuroticism is high and they are unable to develop & tap their potentials. She has also been curious to assess the relationship between neuroticism and aptitude of the students that is why she writes this paper from her work-experience. 2nd author (Dr. Rakesh) is also working as a clinical psychologist with 1st author.