

## Research Article

### A Descriptive Analysis of Relationship between Extraversion-introversion and Behavior and Lifestyle Patterns among Engineering Students in India

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**Abstract:** The present study focuses on a descriptive statistical analysis of the relationship between extraversion and introversion tendencies and various factors that can affect extraversion-introversion among engineering students in India. The factors included the native place, age, grades in English, use of social networking websites etc. The results indicated towards some interesting trends like more participants from cities, as compared to metros and villages being extraverts. The younger generation and people from North India were mostly extraverted while aging makes people introverted with time. More of those with better marks in English were extraverts and extraverts were able to speak more number of languages in general as well. A heavy use of Facebook for communication was found to be similar between extraverts and introverts. It was concluded that the study results can be used have better understanding of the relationship between extraversion/introversion and the different variables used in the study.

**Keywords:** Age, engineering students, EPQ, extraversion, facebook, introversion

## INTRODUCTION

The idea of introversion and extraversion first came from Sigmund Freud. Carl Jung who went on to develop this concept, tried to relate the different types of behaviors and corresponding personalities of people. According to Myers and Myers (1980) introverts focus mainly on inner thoughts while extraverts mainly focus on people and external activities. Burruss and Kaenzig (1999) argue that every individual possesses the qualities of both introversion and extraversion and shows both of them in their daily lives but still one of these dominates over the another overall and this can be practically observed by knowing their work preferences and how they react to stress. Eysenck (1965) tried to describe introverts and extraverts in the following way.

The typical extravert needs many friends, is very social, wants to talk with people, enjoys parties and does not prefer to study by himself. He demands excitement, takes risks and generally acts impulsively. He is dynamic with ready answers to questions and likes changes in general. Contrary to this a typical introvert is introspective, quite reserved for society, enjoys books rather than meeting people and has friends but not in large number, only close friends. He does not act on the spur of the moment. He likes to plan well in advance and has not got answers ready for instantaneous questions. He is generally very serious about matters of everyday life, tends to spend an ordered life and does not like excitement. There has

been a discussion from long time about extraversion or introversion being unitary personality dimension or having several factors making it.

Carrigan (1960) in her literature survey says that analyses of personality questionnaires of Guildford and Cattell show that there are at least two independent factors which account for the inter correlation between extraversion-impulsiveness variables. She suggests that these two factors might correspond to European conception of extraversion where emphasis is on weak superego controls and impulsiveness. These factors might also correspond to the American concepts where emphasis is on ease in interpersonal relations and sociability. Sparrow and Ross (1964) reported a significant correlation between impulsiveness and sociability which was previously reported by Eysenck and Eysenck (1963) suggesting that the two conceptions were closely related (Eysenck and Eysenck, 1969). Furthermore, it was observed by Eysenck and Eysenck (1967) that correlations between extraversion items were proportional to their loadings on the extraversion factor with subject's reactions on a physiological test which was devised on theoretical grounds. This theory was called the Cortical Arousal theory proposes that introverts have higher levels of cortical arousal while extraverts score less on cortical arousal.

So extraversion being a unitary factor in behaviour is opposed by predictions from a psychological theory as well as by correlations between primary factors.

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Eaves and Eysenck (1975) developed a model for environmental and genetic determinants of extraversion and for its main components like impulsiveness and sociability. Results of the experiments with this model suggested that neither extreme extraversion nor extreme introversion was favored by human evolution. Contrary to directional evolution in favor of increasing intelligence, increasing extraversion or increasing introversion did not contribute to better natural selection. A human species might need more extraversion at times and more introversion might favor its existence some other times.

Regional variations have been observed in extraversion, sometimes in accordance with culture and religion. The general belief is that in the US people are generally extraverted as the American culture rewards the extraverts, whereas introversion is many a times seen as an abnormality. In central European cultures and regions where religions like Buddhism prevail, it has been observed that introversion is rewarded more. Thus people are mainly introverted. Camperio Ciani *et al.* (2007) observed that people living on islands show behaviour more towards introversion. Huntsinger and Jose (2006) observed that Chinese Americans and European Americans more or less were similar on the scale of extraversion but still Chinese Americans showed more of introversion than European Americans.

Some studies about variation of extraversion in accordance to geographical locations have also been conducted in past. Rentfrow *et al.* (2008) tried to study the geographical variation in extraversion in US. It was observed that many personality dimensions did not show random distribution, instead they were clustered. And one such personality dimension was extraversion-introversion. Among Europe, Africa, Asia and US, Europe and US have shown more of extraversion than Africa and Asia. Some researchers have argued that emigration may be the reason for this. But there is no consensus on reason behind geographical variation of extraversion.

There are many factors which could be attributed to have an effect on extraversion-introversion tendencies like life spent in city, town, metro or village; the age of participants; grades which participants obtained in English while being in High Schools; number of languages they could speak other than their mother tongue etc. Our study tries to measure the net effect of these factors on extraversion-introversion through survey results. It also tries to explore the variation in extraversion-introversion depending on the different geographical locations of India from which the students had come to study in the university. Activity level on social networking websites like Facebook, a new dimension which could affect extraversion-introversion has also been taken into consideration in this study.

## METHODOLOGY

The present study aimed to enquire the extraversion and introversion tendencies of the male and female engineering students of India. Since VIT University, Vellore, has engineering students from all the different regions of India, the sample presents a good overall picture of the nation. The following factors were considered for the study:

- Life spent in big cities (metros), smaller cities (cities), towns and villages
- Age of the participants
- High school grades in English
- The number of language spoken other than the mother tongue
- Facebook profile visibility
- Regions of India the participants were from

The study was conducted with the help of a total number of 249 subjects, of which 44 were females and 205 were males. The subjects were selected randomly from a total number of almost 20 thousand students studying in Vellore Institute of Technology, Vellore, Tamil Nadu. All the participants were undergraduate engineering students in various years of their courses and were specializing in various majors of their studies. They belonged to different departments like School of Biosciences and Technology, School of Mechanical and Building Sciences etc. Students hailed from different geographical locations of India and were categorized into four different regions North, South, West and East/North East of India depending on which state they belonged to. Family backgrounds and educational backgrounds of all the participants were also different.

The participated subjects are belong to following states of different regions of India.

**North region:** Punjab, Uttar Pradesh, Uttarakhand, Delhi, Haryana

**South region:** Kerala, Tamil Nadu andhra Pradesh

**Eastern/north-east region:** Assam, Tripura, West Bengal, Orissa, Bihar, Jharkhand

**West region:** Goa, Maharashtra, Gujarat, Rajasthan

**Central region:** Madhya Pradesh, Chhattisgarh

A The Eysenck Personality Questionnaire (EPQ) was provided to each engineering student to check their level of extraversion. Some of the questions included were:

- Do you enjoy social gatherings?
- Are you mostly outgoing?
- Do you enjoy meeting new people?
- Do you know how to get people to have fun? Do you make friends easily?

EPQ, created by Eaves and Eysenck (1975), is widely used to measure the extent of introversion/extraversion in the subjects.

Another questionnaire containing questions regarding the educational background, family background and questions related to the age of candidate, languages they could speak apart from their mother language, the medium of instruction in their school, their performance in second language in school and in college etc were included. The participants were also asked to write their Facebook profile links that could help us to know the privacy level used by them.

Data analysis and interpretation was done by SPSS and Microsoft Excel. Correlations among different variables were checked by forming percentage tables.

### RESULTS AND DISCUSSION

After the analysis of the data the following results were obtained.

**Life spent in big cities (metros), smaller cities (cities), towns and villages:** As can be observed in Table 1, the male students who lived in cities were generally the most extraverted (64.21%) while those living in villages were the least extraverted (50%). The reason for the difference in tendency can be attributed to the way people are brought up in different societies and the way they interact with social elements. Not surprisingly people in villages are generally introvert because the education system in villages lags far behind compared to metros, towns and cities where students are encouraged for speaking, mingling with other

people, presenting themselves in front of strangers and many such occasions and opportunities where they come out of their comfort zone and talk to new people.

What is peculiar in the result is that cities show more percentage of extraverted males (64.21%) than metros (60.97%). This is probably due to the fact that in small cities people are not so busy and generally they have open networks for other people in their society. They can easily join new groups, they can easily make new friends and find it comfortable to mix with strangers even as number of people is lesser than metros and talking to strangers is not considered so risky while in metros people are busy following their own routine and consider talking to strangers as something which can be sometimes exposing themselves to risks of fraud and crime. According to a research by Psychological marketing firm PYCO Inc. done in 2012 (Newswire, 2012), it was observed that in U.S. small cities like Keota had higher percentage of extraverts than larger cities like New York. For female students it was observed that their population also followed the same trend as male students i.e., more percentage of extraverts were seen in cities (62.5%) and metros (50%) while data was not sufficient for villages and towns.

**Age of the participants:** The age of the participants (Table 2) show a special relation with the tendency of being extravert. It was observed that the more no. of males (60.43%) who were very young i.e., in the age group of 16-20, were quite extraverted but more of those who belonged to the age group 21-25 were

Table 1: Life spent, extraversion, gender cross tabulation

	Extraversion							
	Extravert		Introvert		No tendency		Total	
	(%)	N	(%)	N	(%)	N	(%)	N
<b>Gender</b>								
Male								
Life spent metro	60.97	25	14.63	6	24.40	10	100	41
City	64.21	61	11.58	11	24.21	23	100	95
Town	58.18	32	10.91	6	30.91	17	100	55
Village	50.00	7	21.43	3	28.57	4	100	14
Female								
Life spent metro	50.00	5	20.00	2	30.00	3	100	10
City	62.50	15	4.170	1	33.33	8	100	24
Town	66.67	4	00.00	0	33.33	2	100	6
Village	50.00	2	00.00	0	50.00	2	100	4

N: Number of student

Table 2: Age, extraversion, gender cross tabulation

		Extraversion							
		Extravert		Introvert		No tendency		Total	
		(%)	N	(%)	N	(%)	N	(%)	N
<b>Gender</b>									
Male									
Age	16-20	60.43	84	13.67	19	25.90	36	100	139
	21-25	65.08	41	9.52	6	25.40	16	100	63
	26-30	33.33	1	0.00	0	66.67	2	100	3
Female									
Age	16-20	48.57	17	8.57	3	42.86	15	100	35
	21-25	100.0	9	0.00	0	0.00	0	100	9

Table 3: Grades english school gender extraversion cross tabulation

		Extraversion						Total	
		Extravert		Introvert		No tendency			
Gender		(%)	N	(%)	N	(%)	N	(%)	N
Male									
Grades english school	100-80	61.11	66	10.19	11	28.70	31	100	108
	79-60	63.85	53	14.46	12	21.69	18	100	83
	59-40	38.46	5	23.08	3	38.46	5	100	13
	39-0	100.00	1	0.00	0	0.00	0	100	1
Female									
Grades english school	100-80	62.97	17	3.70	1	33.33	9	100	27
	79-60	52.94	9	11.76	2	35.30	6	100	17

Table 4: Language spoken other than mother language, extraversion, gender cross tabulation

		Extraversion						Total	
		Extravert		Introvert		No tendency			
Gander		(%)	N	(%)	N	(%)	N	(%)	N
Male									
Language spoken other than mother language	1	58.44	45	14.29	11	27.27	21	100	77
	2	64.61	42	10.77	7	24.62	16	100	65
	3	58.62	17	17.24	5	24.14	7	100	29
	4	63.63	7	9.10	1	27.27	3	100	11
	>4	75.00	6	12.50	1	12.50	1	100	8
	None	53.33	8	6.67	1	40.00	6	100	15
Female									
Language spoken other than mother language	1	55.55	10	5.55	1	38.90	7	100	18
	2	36.36	4	9.10	1	54.54	6	100	11
	3	100.00	5	0.00	0	0.00	0	100	5
	4	0.00	0	0.00	0	100.00	1	100	1
	>4	100.00	1	0.00	0	0.00	0	100	1
	None	75.00	6	12.50	1	12.50	1	100	8

extraverted. Twenty one to twenty five years is the age where students are supposed to get more social in their classes, events, sports, programs, parties, journeys and on many other occasions. Extraversion percentage starts to decline once the age increases, i.e., in the age group 26-30 we could observe a decline in the no. of extraverts. Probably because people start taking responsibilities of their life more in this age and start preparing for a safe future which leaves them with little free time for being social and outgoing.

The observation we made for the male participants was on the same line as observed by Stenberg *et al.* (1990). He concluded that extraversion was negatively correlated with age. That means people tend to be more introvert with increasing age. Lucas and Donnellan (2009) also observed that extraversion and openness were negatively associated with age. Data for female participants was not enough to come to a conclusion but there were more extraverts (100%) for the age group 21-25 than for the age group 16-20.

**High school grades in english:** Both male and female participants (61.11 and 62.97%) who scored higher marks in the English exams in their schools were observed to be largely fall in the category of extraverts while those who scored lower marks were generally introverts (Table 3). The reason for this can be attributed to many factors. One of them can be the

different types of schooling. Students who did their schooling from institutes where they were taught not necessarily in English and many times in Hindi and other local languages would be generally introverts as our another table just made it evident that students from villages were generally introverts. It's a common fact that schools in villages and very small towns very often do not make English as the exclusive medium of teaching.

Another reason can be that English language as a subject needs a practice of it which can be done better if people speak to their peer groups and friends. Extraverts tend to get social easily and talk more than introverts which sometimes can help them in attaining better proficiency in English language and thus better grades. Zafar and Meenakshi (2012) observed that extraverts tend to socialize more and thus they use the opportunity to use their second language learning inside and outside class room also which helps them in learning the second language (here English) more than introverts.

**Number of languages spoke other than mother tongue:** When it comes to the relationship between the number of languages spoken and the level of extraversion, specific trend is not visible. But it can be noticed that more of both male (75%) and female participants (100%) who spoke more languages other

Table 5: Facebook profile visibility, extraversion, gender cross tabulation

		Extraversion						Total	
		Extravert		Introvert		No tendency			
Gender		(%)	N	(%)	N	(%)	N	(%)	N
Male									
Facebook profile visibility	Yes	61.22	90	12.93	19	25.85	38	100	147
	No	62.16	23	10.81	4	27.03	10	100	37
	Does not exist	57.14	12	14.29	3	28.57	6	100	21
Female									
Facebook profile visibility	Yes	65.38	17	7.70	2	26.92	7	100	26
	No	62.50	5	0.00	0	37.50	3	100	8
	Does not exist	40.00	4	10.00	1	50.00	5	100	10

Table 6: Region of India, extraversion, gender cross tabulation

		Extraversion						Total	
		Extravert		Introvert		No tendency			
Gender		(%)	N	(%)	N	(%)	N	(%)	N
Male									
Region of India	North	70.96	44	11.30	7	17.74	11	100	62
	South	51.28	20	12.82	5	35.90	14	100	39
	East/north-east	52.09	25	12.50	6	35.41	17	100	48
	West	55.56	20	22.22	8	22.22	8	100	36
	Central region	80.00	16	0.00	0	20.00	4	100	20
Female									
Region of India	North	75.00	9	8.33	1	16.67	2	100	12
	South	52.94	9	5.89	1	41.17	7	100	17
	East/north-east	66.67	6	00.00	0	33.33	3	100	9
	West	0.00	0	25.00	1	75.00	3	100	4
	Central region	100.00	2	0.00	0	0.00	0	100	2

than their mother tongue were extraverts and the percentage of extraverts increase in the groups of people with increasing number of non mother tongue languages they can speak (Table 4). The reason can probably be found in the second language learning tendency in extraverts. Extraverts like meeting new people, attend social gatherings, explore new societies and cultures and thus are ready to learn new languages coming outside their comfort zone while introverts generally avoid crowd and meeting lots of people which gives them fewer opportunities to interact with people who speak non native languages. Extraverts are ready to take risk of opening their mouth and make a fool of themselves in front of other people sometimes while introverts are too sensitive to make mistakes while speaking. Introverts will generally try to acquire best proficiency in a fewer language than knowing many languages.

**Facebook profile visibility:** There was no clear distinction, as given in Table 5, among the participants who used Facebook with visible profiles, those who used Facebook with invisible profiles and those who did not use Facebook at all. This indicates that both extraverts and introverts show almost same level of likeness for social networking sites. But this could generally be for different reasons. It can be hypothesized that extraverts use social networking sites because they always want to keep in touch with their friends and groups for which Facebook provides a very convenient and friendly platform. The reason why introverts also show the same level of affection to

social networking websites perhaps can be that they do not prefer to interact with people directly face to face or on voice. Rather they would just like to login to a virtual meeting place on internet where they see no risk in talking with people and making friends who won't bother them in real life. And in fact they might use Facebook to spend time alone and away from real life crowd and social gatherings. Similar observation was made by Kuss and Griffiths (2011) that extraverts use online social networking for social enhancement while introverts uses the same for social compensation.

**Regions of India the participants were from:** As per Table 6, the male (70.96%) and female (75%) participants from Northern regions of India had the highest percentage of extraverts compared to people from Southern and Eastern regions of India. Data was not sufficient to make an analysis for Western regions of India (Table 6). The reason for this distinct result is difficult to ascertain but one possible reason can be that Northern India has been under foreign attacks from a long time while southern India seldom experienced it. The social make up of northern India has kept changing from time to time. Societies have transformed. New people have been added to and many people have emigrated from their native place to another place e.g., in Punjab people are very extravert and they often immigrate to foreign countries for a job and better earning. While southern and eastern India has been a conservative and more static society. Their culture has

been preserving in nature and people are generally introverts at their individual level too.

### CONCLUSION

This study successfully indicates at the relationship between extraversion/introversion and various external factors. Environment in which a person is brought up was observed to have an influence on his/her extraversion tendencies. People brought up in small cities were seem to be most extraverted while more of those from villages and metro cities were introvert. Younger generation was mostly extraverted while aging makes people introverted with time. It was clearly observed more of those with better marks in English were extraverts and extraverts were able to speak more number of languages in general as well. A very modern attempt to relate likeness for Facebook and extraversion was made which found that both extraverts and introverts use Facebook to the same extent but probably for different reasons. Finally a trend of south Indians being little introvert while compared to north Indians was observed while a comparison was made for extraversion and the people coming from different regions of India.

Thus, this study throws light on effect various factors on a student's personality. Although, in an academic setup, usually extraversion is considered a preferred trait, this study by no means suggests that an introvert has no advantage in the academics. Various other factors like intelligence, interest, motivation, the quality of instruction etc., probably have a far greater role to play. However, the importance of the study lies in the fact that it is one of the few studies on personality research conducted in India and has analyzed the relationship extraversion/introversion has with some newly emerging trends in modern India propelled interstate migration and information technology.

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