Factors Influencing on Students' Career Choices in Pakistan A Multivariate Analysis

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Abstract
The objective of this study is to explore the relationship between the factors effecting the decision of students 'career selection. Students mainly choose career according to their interests, demand of market, educational background, socio-economic background, opportunity, personality, motivation and environment. The students enrolled in first year of Intermediate, B.S, M.Sc. belonging to Gujrat city is considered the study target population. Taking the 5% margin of error a sample of 380 is suggested, for collecting the desired information according to the nature of population stratified random sampling is used .In reliability analysis the "Cronbach's Alpha" concluded that the variables included in the study are reliable and the confirmatory factor analysis, confirm our all factors. On the basis of these confirmed factors a model is developed for career selection by using Structure Equation Modeling. It is acknowledged that career selection of students is directly influenced by the motivation. It is concluded that most of students choose their career by choice and almost all the students revealed that their decisions are influenced by grades and Educational Background.

Keywords: Multivariate Analysis, Structure Equation Modeling, Confirmatory Factor Analysis, Career Choice

1-Introduction

Everyone in this world wants to be stable. In this regard one must choose a career for profession which one intends to continue throughout one's life. People may choose career according to their interests and the demand of time. Usually one wants to adopt such a career which would help him to get himself stable and also his nation and country in long run. In this regard parents and family also show concern. They urge the person to adopt such a career which would prove fruitful both financially and morally i.e. it should be respectable in the eye of masses.

The major component of secondary education program is the focus on career and career planning. With the advent of information technology, the emergence of post industrial revolution and competition of job Career choice has become a complex decision. In determining future plans students will make many important choices. This decision will impact them throughout their lives. The kind of occupation that they intend to pursue throughout their life will be determined by this choice.According to Basvage (1996), she asked a research question in her thesis: "What is it that influences students one way on other"? It shows that there are some factors that urged students to prefer one thing on other while choosing a career.

Brien had done a study in 1996, according to which, there is a saying written on the front door of Rindge high school of Technical arts, "Work is one of our greatest blessings. Everyone should have an honest occupation". And the selection of profession is dependent upon the career selection of students.

1.1 Factors those contribute in Career Choice

There are six main factors that affect career choice of students given below:

Environment,

Personality

Opportunity

Motivation

Educational Background

Socio-economic background

The broad opportunities that exist for life long profession. These professions (vocations) are set out in a structure of strategies moving toward personal goals. Fields of professional, educational, and sociological attempts are explored for the purpose of satisfying personal, social, economic, and intellectual aims.Career choice in this study is taken as choice of students about professional

degree and our concern is that what type of factors influencing upon their selection. Career choice is here taken into two spectrums given below:

Career by choice b) career by force/limitations

Career by choice means that student choose the career by their own choice. Choice is made according to their interest.

Career by force means that there are some restrictions on their choice and such as merit criteria or some other factors influence their choice as pressure e.g. Parents or any other oppose their choice on students to take as career.

According to the study of Super (1957), Thus a student, who has no value in education, in order to raise themselves above their parent's level, will likely be viewed as ungrateful by their parents. According to Britannica Encyclopedia (2002), the composite physical factors that make up our surroundings and in this way act upon us is known as environment. The factor of environment in career choice may influence the career that students choose. According to the Encyclopedia Britannica (2002), characteristic way of thinking, feeling and behaving is called personality. Personality is also a determining factor that may influence the chosen career that how students have seen themselves in a role. As Profession selection and job achievements depends upon career selection of student's so, students have to choose career according to their personality because they have to lead this career choice throughout their life.

According to Britannica Encyclopedia (2002), Origination of behavior is caused by forces acting on or within a person and what it is that move us is motivation. Motivation also plays a key role in determination of a career choice that the students idealize someone and want to make a choice for their career by following the person whom they idealize.

According to the National Commission's website Wisconsin-Stout (1989), in the findings of recent researches it is concluded that one of three college graduate could not find employment having a college degree.

Michael Borchert (2002) opportunities are choices in one's life which are exposed either in a subtle or obvious manner. These choices or paths give the individual a selection between two or more results. The results of one's choosing may or may not exceed one's present abilities.

In selection of a career, opportunity is a shaping factor for students to choose any field. Opportunity contains the variables like Demand of market, industry trends and Economic and self-satisfaction.

Socio-economic background also plays an important role in determination of career choice for students because many students have to budget their education according to their family income.

Educational background of a student also impact on the selection of career because many times career selection is based on merit criteria which are usually based on previous degree marks. Educational background is further divided into sub factor that is: previous degree and schooling.

A case study made by Brien (1996), six students of different high schools wanted to enroll themselves into a program titled Work bound. Work bound is considered an opportunity only some students during their high school experience can avail the opportunity of "work bound". Edwards and Quinter (2011) investigated that career choice is a complex decision for students since it determines the kind of profession that they expect to follow in life. As students try to make career choice while in secondary school, they face problem of matching their career choices with their skills and school performance. Mustafa, et al. (2004) investigated that the influences on career choices of the MBA students from three countries at micro-individual, meso-institutional and relational and macro-structural levels, questioning the obvious supremacy of 'free choice' in the context of determined forms of structural constraints in career markets. The study draws on the findings of a cross-national survey involving Britain, Israel, and Turkey, using the career choice dimensions designed by Özbilgin and Healy (2003).

Schnabel, U., et al.(2002) determined that despite the historical trend in all Western societies to increase educational participation irrespective of students' social origin, there is a strong correlation between parents' education, socioeconomic background and the career choice of their offspring. Eileen M. et al.(2004) explored that the under representation of women in the information technology (IT) workforce, coupled with increased cultural diversity emanating from the globalization of the IT sector, highlights a problem both for the research and the practice domains of the IT field. Peter A. Spanger (2000) explores in his study that the attitudes, processes, and influences on high school students as they make their career decisions. Evidenced by the high college dropout rate and frequent career changes observed in young adults the needs and wants of the students were not being met. Loven T. et al. (2003) the purpose of the study was to identify factors influencing the career choice behaviors of students who graduated from an urban agricultural education program. A secondary purpose was to identify factors that discriminated between individuals who choose careers in agriculture and those who do not.

Pilot Mudhovozi and Regis Chireshe (2012) stated in their study that the socio-demographic factors that anchor career choice among psychology students at the University of Venda in South Africa. Falojogun V. and Bamidele T. (2008) the study explored factors affecting career decisions among secondary school youth education. The data collected were analyzed using t-test and Multiple Regression Analysis. Adkintonide and Olunatosin (2011) Stated that the teacher characteristics that influence students' choice of teaching as a career among secondary school students in Osun state, Nigeria. Date, J. Morra, et al. (2009) examined that medical students have had a declining interest in family medicine as a career. Some studies have shown a small inverse relationship between debt levels and primary care, but it is unclear how students

perceive remuneration in different specialties and how these perceptions might influence career choice. According to Cavanaugh (2002) Students can be urged to take part in their career choice, planning is compulsory to require students to submit an explanation of their ideas for some post-secondary education or training to school officials; or at least explain their future career lines in detail. According to the study of Natalie (2006) life context, personal abilities, natural propensity and academic achievements are the factors those impact on selection about career of students.

Motope, S. and Makotose, A.B. (2007) the purpose of this research was to identify the factors, which influence the female engineering students' career choice in the beginning of the twenty-first century. Thomas P. Dick and Sharon F. Rallis, (1991) women continue to be disproportionately underrepresented in science and engineering fields. A model for career choice is proposed that includes both the direct and indirect effects that socializers can play in determining career choices. Duffy and Dick (2009)research on the role of spirituality and religion in career development although limited in scope has suggested that such factors relate positively to desirable career development outcomes such as career decisions.

Fisher, et al.(1994) study examined the personal, social, and institutional factors that facilitated the career development and career choice of 11 African-American and 9 Latino juniors and seniors (12 females and 8 males) who were attending a large Midwest university and who had successfully identified and acted on their vocational plans. In the study by Weiler (1977), it has been shown that consultants cannot 'do it all.' That are the counseling realities that counselors cannot only solve the problem of career selection of students here in this study it is discussed what counselors can and cannot do. Lankard (1996) in his study says that the process of family interaction and its influence on the children can have a long-term impact on the latter's selection of choice. Badura et al. (2001) state that each person undertaking the process is influenced by several factors including the context in which they live in, their personal aptitudes, social contacts and educational accomplishment. According to Oyamo and Amoth (2008) studies in Kenya shows the results that there is impact of area and motivation on selection of any career by students. Hewitt (2010) in his study shows that there are two types of factors that influence career choice which can either be inherent (fundamental) or extrinsic or both. Study by Greenberger (2000), is about the selection of career according to gender which shows that there are some typical criteria's for males and females to do any job.

1.2-Objectives of study

Main objective: To determine the factors those influence on career selection.

Secondary objectives:

Explore and measure the possible relation between confirmed factors by using correlation analysis.

Confirm the factors by confirmative factor analysis those affect the decision-making process of College students about their future career choice.

Make the path analysis and develop the model for career selection of students by using structure equation model for the confirmed factors of career choice.

Measure the direct, indirect and overall effect of different factors related to the career selection by using SEM.

2- Material and Methods

It is a cross-sectional study. The aim of this study is to find the determinants and influences on students' career choicesso cross sectional study design was selected. The population of study is consisted of all the students who had enrolled in first semester of B.S and M.Sc., Semester Fall 2012 and are studying at University of Gujrat Hafiz Hayat Campus and students who are enrolled in first year of intermediate, Graduation and Post-Graduation those are studying at Fatima Jinnah College, Marghzar College, and Zamindar College. Stratified random sampling technique has been applied in this study, in order to ensure the adequate representation of population. Students enrolled in University of Gujrat and strength of Marghzar College, Zamindar College and Fatima Jinnah College were different when the data collected so we consider proportional allocation. Total number of students who had recently chosen the career was 7528. A sample of 380 students is selected from population of 7528 students. Yamane (1967) calculates the sample size using the following formula: $n = N/1+Ne^2$ Here e is level of significance; and we consider 0.05 for our study. Firstly, stratification is down Institute wise and secondly, degree wise.

Sample size									
1st Stratification	According to institute								
	UOG		Marghzar College		F.J College		Zamindar college		
	182		47		52		99		
2nd Stratification	According to Degree enrolled								
	B.S	M.Sc.	Inter.	Post-Grad.	Inter	Post-Grad.	Inter	Grad	Post-Grad.
	125	57	45	2	50	2	50	31	18

Fact-finding discussions were held with students and university lecturers and then questionnaire, developed which is used for our study purpose. This self-made questionnaire consisted of two parts first part of the questionnaire is about demographic information (age, gender and area etc.) and second part contains factors those are supported through literature. Accordingly 380 students were asked to self-assess their career selection. Respondent's answers to each question are

calculated in terms of frequency and percentages. Multivariate statistical techniques (Confirmatory analysis, Structure equation modeling) are used to fulfill the primary and secondary objective of the study by using Statistical Package for the Social Sciences (SPSS-16.0) and STATISTICA 7.0v.

3. Results and Discussion:

As data under study is qualitative, so the assumption of Normality is not compulsory. So, we use Spearman's Correlation between total scores of constructs. Result indicates that correlation between the all the constructs is significant and positive.

The purpose of Confirmatory Factor Analysis (CFA) is to confirm the underlying factors. In this research there are six latent variables / factors in which there are many observed variables that are explaining the correlation. In CFA model there is no need to distinguish between dependent and independent variables. Here we can see that our six factors are confirmed because the p-value is significant for each variable.

Parameter estimate, standard error, T-statistics and Probability level of each variable of the factor "Educational background", "educational background" , "socio-economic background" "Opportunity" are "personality" and "Environment" are confirmed as their p-value is significant.

Goodness of fit indices is given for each factor in CFA to check the overall significance of factors. Here most of the Goodness of fit criteria's are fulfilled for all factors and all the factors have significant P-values which indicate that all the factors are confirmed. Chi-Square is the fundamental Goodness of fit measure used in CFA. It supports our estimated model of all the variables. Goodness of fit index (GFI) is absolute goodness of fit measure. In factor of educational background, GFI value is 0.981 and AGFI value is 0.955which supports estimated model. Another measure to assess the GOF of estimated model is Root Mean Square Error of Approximation. Recommended range of RMSEA is less than 0.08. In educational background factor, the value of RMSEA is 0.035. All the important Goodness of Fit measures indicate that all the variables are confirmed for the factor. In Socio-economic Background factor, value of GFI is0.956, value of AGFI is 0.911, which fulfills the criteria and supports the variables present in the factor. In opportunity factor ratio of chi-sq. to its d.f is 2.084 less than 3, value of GFI is 0.984, and value of AGFI is 0.984, and value for RMSEA is 0.054. Entire criteria's are according to recommendations, so these all variables are confirmed for this factor. In factor of personality value of GFI is 0.999, value of AGFI is 0.991and value of x^2/d.fis 0.1989 and all the recommended criteria's are fulfilled for this factor, so the variables of that factor are confirmed. In factor of motivation value of GFI is 0.967; value of AGFI is 0.935and value of RMSEA is 0.076and all the recommended criteria's are fulfilled for this factor, so the variables of that factor are confirmed. In factor of Environment value of GFI is 0.964, value of AGFI is 0.99161and all the recommended criteria's are fulfilled for this factor, so the variables of that factor are

confirmed. According to the results of Confirmatory Factor Analysis all the underlying variables are confirmed. So, we can say that these confirmed factors are playing role in determination of career of students.

The structure Equation Modeling is used to predict the career selection of students.

3.1-Path Diagram of Fitted Model:

The path diagram of structure equation modeling with effective goodness of fit index was obtained including factors

1 Motivation 2 Personality 3 Environment4 Socio-economic background 5Opportunity

6 Educational background 7 Career selection

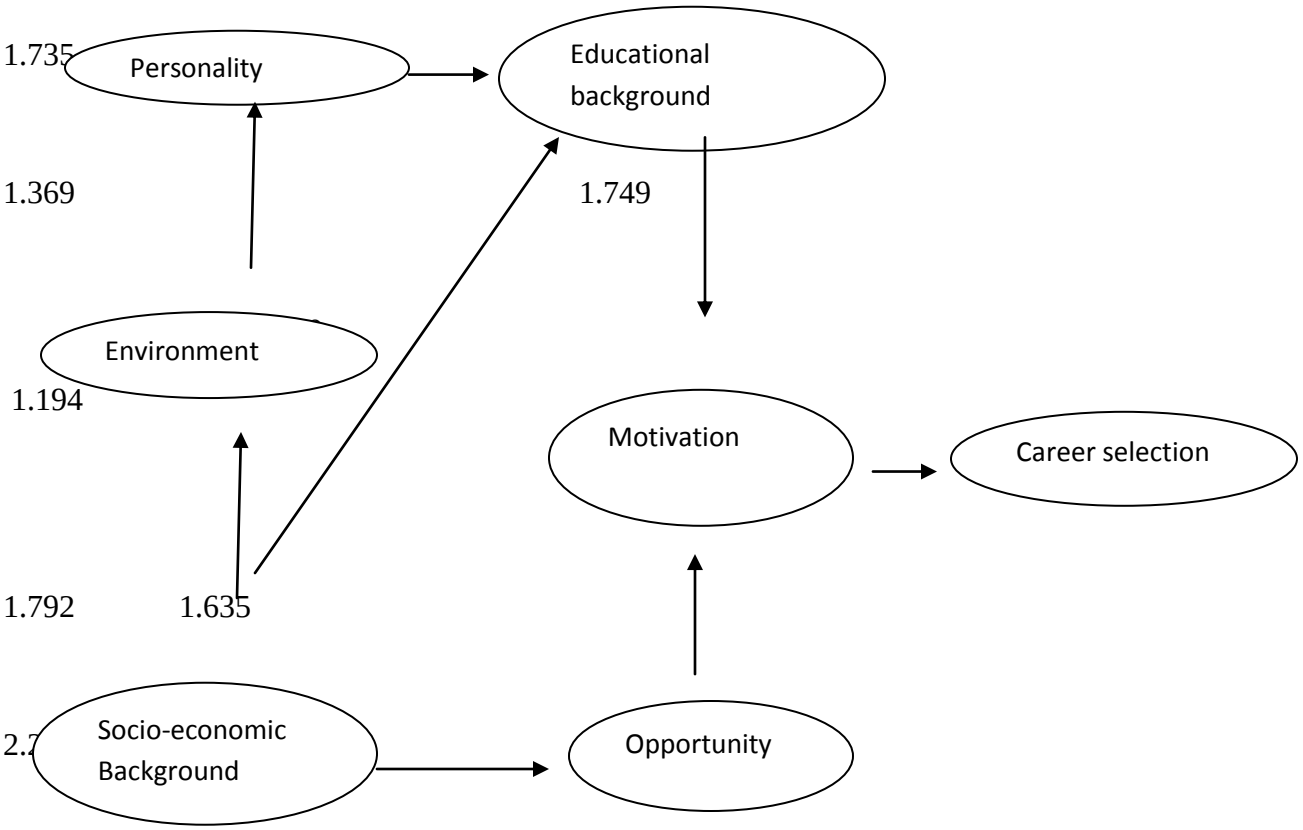

Figure: IPath diagram for SEM

Goodness of fit indices is given for the model to check the overall significance of model. Here almost all criteria's are fulfilled for the model, as model has the significant p-value. The value of

GFI is 0.942 and value of AGFI is 0.930 which supports estimated model. Another GOF of estimated model is Root Mean Square Error of Approximation. Recommended range of RMSEA is less than 0.08. In estimated the value of RMSEA is 0.0749 which meets the recommended criteria. So, the model predicted through SEM is a good fitted model.Here we estimates the equations obtained from the confirmed paths of Structure Equation Model. Parameter estimates of the paths are used to compute the equation.

Y=1.194 X6

X6=2.230X1+1.635X5

X6=2.360X1+1.749X4

X6= 1.735 X3+ 1.749X4

X6= 1.369X2+1.735X5+1.749X4

X6=1.792X1+1.369X2+1.735X5+1.749X4

Where X1= Socioeconomic Background, X2= Environment, X3= Personality, X4= Educational Background, X5=Opportunity, X6= Motivation and Y= Career selection

With the help of structure Equation Modeling we can conclude this model on the logical ground that educational background and opportunity affect the motivation of students directly, the research shows a significant correlation between Motivation and Career selection.All the factors are positively related to the career selection. These relationships are confirmed by the past studies conducted by the different researchers on different factors.

Total direct and indirect effect of Educational background, Socio-economic background, motivation, Environment, Opportunity and personality on motivation of students

SB ⟶ OP ⟶ MOT = (2.230) (1.635) = 3.6460

SB ⟶ EB ⟶ MOT = (2.360) (1.749) = 4.1276

PER ⟶ EB ⟶ MOT = (1.735) (1.749) =3.0345

EN ⟶ PER ⟶ EB ⟶ MOT=(1.369) (1.735) (1.749) = 4.2017

SB ⟶ EN ⟶ PER ⟶ EB ⟶ MOT = (1.792) (1.369) (1.735) (1.749) = 7.4444

Total direct and indirect effect on motivation is 3.6460+4.1276 +7.4444+4.2017+3.0345 =22.514

Total direct and indirect effect on career selection

SB ⟶ OP ⟶ MOT ⟶ CS = (3.6460) (1.194) = 4.3533

SB ⟶ EB ⟶ MOT ⟶ CS= (4.1276) (1.194) = 4.9283

PER ⟶ EB ⟶ MOT ⟶ CS = (3.0345) (1.194) = 3.62319

EN ⟶ PER ⟶ EB ⟶ MOT ⟶ CS=(4.2017) (1.194) = 5.0168

SB⟶EN⟶PER⟶EB⟶MOT⟶CS= (7.4444) (1.194) =8.8886

Total direct and indirect effect of Educational background, Socio-economic background, motivation, Environment, Opportunity and personality through motivation of students on Career selection is:4.3533+ 4.9283 + 8.8886+5.0168+3.62319 = 26.81019. These results indicate that the factors under study have great influence on career selection of students. Factor influence upon career selection through motivation is 26.81019.

4. Conclusion

The study examined the effect on career selection of students, when they are choosing a career. Relationship among all the factors is computed through correlation analysis, which indicates that there exists a significant relationship between all six independent variables effecting upon career selection of students. Factors that are explored from the review of literature are confirmed by using CFA and then a path analysis is developed for these confirmed factors to measure the model for career selection of students by using SEM. Here the model results that Motivation have a direct relation with selection of career. The findings present a picture which confirms that the Educational Background, Socio-economic Background, Environment, Personality as well as Opportunity and motivation have influence upon career selection of student's. Almost all of the students expressed their perception that motivation is most important in selection of career.

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Appendices

Appendix-A

Table A-1: Spearman's correlation between total scores of constructs

Spearman's rho		E.B	S.B	Opp.	Pers.	Mot.	Envoi.
E.B	Correlation Coefficient	1	.329**	.313**	.298**	.121**	.357**
	Sig. (2-tailed)	.000	.000	.000	.000	.019	.000
S.B	Correlation Coefficient	.329**	1	.382**	.336**	.209**	.388**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
Opp.	Correlation Coefficient	.313**	.382**	1	.313**	.267**	.356**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
Pers.	Correlation Coefficient	.298**	.336**	.313**	1	.307**	.430**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000
Mot.	Correlation Coefficient	.121**	.209**	. 267**	.307**	1	.307**
	Sig. (2-tailed)	.019	.000	.000	.000	.000	.000
Envoi.	Correlation Coefficient	.357**	.388**	.356**	.430**	.307**	1
	Sig. (2-tailed)	0.000	0.000	.000	.000	.000	.000

** shows the high level of significance.

Appendix-B

Confirmatory Factor Analysis (CFA) and Structure Equation Modeling (SEM)

Table B-1: Model Estimates (Educational background)

	Parameter Estimate	Standard Error	T Statistic	P-Value
Educational background[A_1]	0.704	0.078	9.037	0.000
Educational background[A_2]	1.070	0.080	13.322	0.000
Educational background[A_3]	0.626	0.078	8.049	0.000
Educational background[A_4]	0.766	0.081	9.461	0.000
Educational background[A_5]	0.417	0.082	5.071	0.000
Educational background[A_6]	-0.260	0.076	-3.443	0.001

Table B-2: Model Estimates (Socio economic Background)

	Parameter estimate	Standard Error	T statistics	P-Value
Socio-economic Background[B_1]	0.953	0.071	13.501	0.000
Socio-economic Background[B_2]	1.084	0.070	15.522	0.000
Socio-economic Background[B_3]	0.390	0.073	5.354	0.000

Socio-economic Background[B_4]	0.419	0.078	5.382	0.000
Socio-economic Background[B_5]	0.482	0.070	6.908	0.000
Socio-economic Background[B_6]	0.256	0.076	3.377	0.001
Socio-economic Background[B_7]	0.307	0.085	3.598	0.000

Table B-3: Model Estimates (Opportunity)

	Parameter estimate	Standard Error	T statistics	P-value
Opportunity[C_1]	0.299	0.101	2.972	0.003
Opportunity[C_2]	0.274	0.094	2.925	0.003
Opportunity[C_3]	0.215	0.092	2.340	0.019
Opportunity[C_4]	0.304	0.093	3.282	0.001
Opportunity[C_5]	0.830	0.149	5.561	0.000
Opportunity[C_6]	0.459	0.107	4.296	0.000

Table B-4: Model Estimates (Personality)

	Parameter estimate	Standard Error	T Statistics	P-value
Personality[D_1]	0.422	0.088	4.802	0.000
Personality[D_2]	0.560	0.099	5.673	0.000
Personality[D_3]	0.666	0.094	7.058	0.000
Personality[D_4]	0.724	0.100	7.264	0.000

Table B-5: Model Estimates (Motivation)

	Parameter estimate	Standard Error	T statistics	P-value
Motivation[E_1]	0.312	0.095	3.303	0.001
Motivation[E_2]	0.715	0.080	8.974	0.000
Motivation[E_3]	0.681	0.081	8.457	0.000
Motivation[E_4]	0.586	0.077	7.636	0.000
Motivation[E_5]	0.410	0.086	4.779	0.000
Motivation[E_6]	0.354	0.085	4.175	0.000
Motivation[E_7]	0.258	0.087	2.952	0.003

Table B-6: Model Estimates (Environment)

	Parameter estimate	Standard Error	T statistics	P-value

Environment[F_1]	0.262	0.080	3.298	0.001
Environment[F_2]	0.762	0.077	9.827	0.000
Environment[F_3]	0.619	0.079	7.813	0.000
Environment[F_4]	0.727	0.78	9.302	0.000
Environment[F_5]	0.579	0.081	7.148	0.000
Environment[F_6]	0.312	0.091	3.421	0.001

Table B-7: Measures of Goodness of Fit Criteria's of Confirmatory Factor Analysis

Recommended criteria's							
Factors	x^2	d.f	P-value	x^2 /d.f	GFI	AGFI	RMSA
			< α	<3, 2-5	>0.90	>0.90	<0.80
Educational background	21.494	9	0.0000	2.388	0.981	0.955	0.035
Socio-economic background	67	14	0.0000	4.7857	0.956	0.911	0.95
Opportunity	18.760	9	0.027	2.084	0.984	0.984	0.054
Personality	0.3978	2	0.082	0.1989	0.999	0.997	0.000
Motivation	46.66	14	0.0000	3.3328	0.967	0.935	0.076
Environment	41.61	9	0.0000	4.6233	0.964	0.916	0.099

Table B-8: Model Estimates of Structure Equation Model

Variables	Parameter estimate	Standard error	T statistics	Prob. level
Socio-economic background ->Environment	1.792	0.214	8.384	0.000
Environment ->Personality	1.369	0.313	4.375	0.000
Personality ->Educational background	1.735	0.854	2.032	0.042
Education ->motivation	1.749	0.329	8.154	0.000
Socio-economic background-Education	2.360	0.316	7.465	0.001
Socio-economic background -> Opportunity	2.230	0.242	9.211	0.000

Opportunity-> Motivation	1.635	0.415	6.764	0.000
Motivation ->Career selection	1.194	0.560	-2.133	0.033

Table B-9: Measures of Goodness of Fit Criteria's for Structure Equation Modeling

	x^2	d.f	x^2 /d.f	P -value	RMSEA	GFI	AGFI
CFA Model	89.225	6	14.8708	0.000	0.0749	0.942	0.930
Recommended					≤0.08	≥.90	≥.90