Pyrex Journal of Educational Research and Reviews

Vol 4 (2) pp. 12-36 June, 2019

http://www.pyrexjournals.org/pjerr

ISSN: 2550-7885

Full Length Research Paper

A comparative study on the factors of academic performance of Government and Private Colleges student's at Inter level: A case study of Gujranwala City

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Accepted 6th May, 2019

Abstract

To get education is the first obligation of the Muslims. The Holy Prophet (P.B.U.H) highly praised the value of education when He asked the Muslims to get knowledge even if they had to go to china. Education is a vehicle for getting factual, valid and reliable information. This study is to identify the factors that affect the academic performance of Government and Private College students at inters level in Gujranwala city. Students' academic performance is affected by different factors such as family factors, students' own factors, environment factors, parent's education and income etc. These factors directly or indirectly influenced on student's academic performance. But in this study, some new factors are used which motivates the students' to achieve his academic goal in an excellent manner. This study contributes to the existing body of knowledge by comparing the results of public and private college students on the basis of factors like demographic and socio economic status, intrinsic and extrinsic factors. Data is collected from 305 students. Results showed that College reputation, self-regulated learning, self-concept and academic motivation are important factors for academies not attended student's academic marks. Academic motivation, socio economic statuses are more important factors for predicting the academies attended student's academic marks. College administration, peer group and college facilities are less important factors for predicting academies not attended student's academic marks. College administration and college facilities are less important for predicting the academies not attended student's academic performances.

Keywords: College, Government, student, academic.

INTRODUCTION

The quality of education is an obligatory and inevitable agent for bringing change in a society. Education plays a vital role in human personality development. Education raises the productivity and efficiency of individuals and produces the skilled manpower that is capable of leading the economy towards the path of sustainable economic development. Education plays a crucial role in the social

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and economic development of the country. Quality of education in a country represents the quality of its nation. The spending on education is considered as an investment in human being improvement and upgrading. The developed countries spend a lot of money in education. But Pakistan is spending only 2.7% of its GNP on education Iqbal, 2012. Like other developing countries, the condition of education is not very well in Pakistan. Low level of investment in education is the main cause of this crisis Memon, 2007.

Factors Effecting Student's Academic Performance

Investigation of the most causative variable in quality of academic performance of student's is a complex and difficult job. To find out the effect of all influencing factors in a single study is almost not possible Farooq *et al.,* 2011. There are many factors effect on student's academic performance. But two main and comprehensive types of factors that affect student's academic motivation and academic performance a lot. These factors are intrinsic and extrinsic factors.

Intrinsic Factors

Intrinsic factors are those factors that effect on students' performance directly and internally. These factors are student's own skills and potentialities like communication skill, self-regulation learning and self-concept etc. Here some intrinsic factors are explained that effects on student's academic motivation and performance. Communication within the classroom with their teachers and class fellows play a significant role in enhancing the self-concepts of the student's. Researchers proved that there were significant correlation among parent's education and interpersonal communication skills. The student's who carry out their college works on time they do not feel burden.

They perform well in examination and get good marks. Good attendance is necessary for good academic performance. The regular attending classes help and support the student's in mental and physical comfort. Regular attending classes and doing college work on time is the keystone of academic success. The degree of success is depends upon the amount of time in which a student's engage himself/herself in learning activities. The engaged students show their curiosity to learn and show positive response to educational activities. The amount of time invested in education is positively correlated with students' academic performance Lilian, (2012).

Extrinsic Factors

Extrinsic factors are those factors that indirectly effect on student's academic performance. These factors are not student's own abilities. These factors motivate the students to get his academic goal. These factors are student's home environment, college reputation, peer group, college teachers, facilities available at college and college administration. These factors motivate the student's externally to achieve their academic goal. The academic performance of any child highly depends on its home environment. The academic performance of the students cannot be separated from the home environment in which the child grows up. There are many home factors such as family size, parent's education, parent's occupation, learning facilities available at home; family income, parent's involvement and parent's encouragement are possible factor of student's academic performance. The parents who have high expectations from their children, their involvement is also high in their children then those parents who have fewer expectations from their children. The students who have favorable home environment get more marks in examination then those who have unfavorable home environment Muola, 2010.

The good administrator keeps a vigilant eye on every activity that took place in college. In private colleges the administration charge the student's due to absence and call their parents on poor performance. The administration arranges parents' teachers meeting with regular interval. In private colleges principal listen the problems of student's and try to solve them as soon as possible but in government colleges the principal is out of reach of the student's that's why students' not performed well. The fame of the institution plays a significant role in motivating the students. The most positions in board examination are taken by private colleges. The private colleges give many facilities to their students but they charge heavy fees which majority of the people not afford. If the student's of particular college does not show good performance then that college's lose its reputation. This phenomena effect on student's motivations they lose their confidence and their performances are not well Martha, 2005.

Educational researchers proved that there are strong associations between quality of peers and academic success of the students'. A peer group influences the academic success in numerous ways such as by interaction in learning, share important knowledge, help in learning activities etc. The peer effects on academic performance of students' positively as well as negatively. If the peers quality is positive and high than their performances are statistically and economically significant. The friends with far above the ground abilities make the learning environment and process efficient, easy and interesting Paola and Scoppa, 2010.The government college's teachers are more qualified and experienced but they are not ready to deliver it honestly. On the other hand, in most private colleges teachers are not well educated. But private college's teachers

performed well due to loyalty to their duty, better financial support, effective use, regulation inquiry and assessment. So the performance of private college's students is better than Government College's students Ayodele and Ige, 2012.The environment of government colleges do not encourage the student's to learn deeply. The more than 90% teachers in government institutions are well trained but they are not ready to deliver their knowledge in government colleges, they deliver their knowledge in academies and in private colleges. The poor academic performance of student's is largely due to poor quality of teaching facilities in public institutions. The honesty of teachers in public colleges is unsatisfactory and unacceptable Ali, 2011.

Students' academic performance is highly associated with satisfaction with learning environment and comfortable facilities. The colleges which provide good learning facilities, the students' easily and actively engage him/her in learning activities. These engagements in learning activities positively and significantly influence their academic performance. The good academic grade of students is the combination of good quality of facilities and good quality of processes. The favorable environment of learning motivates both teachers and students' to work with full potential Mushtaq and Khan, 2012. Student's socio economic status is correlated with their academic achievement. High socio economic status families are more often successful in preparing their children for learning activities then low socio economic status families. Their children's performance is well because they are able to provide good quality of necessary educational facilities and equipments Memon *et al.,* 2010.The student's academic motivations are considered as an important feature of effective learning because the learner's actions and reactions to education related works determine the extent to which a student will go in education. The most powerful predictor of student's success or failure in colleges is the motivation Maure *et al.,* 2012.

RESEARCH QUESTIONS

To compare the factors effecting on the academic performance of Government colleges' and Private Colleges' students at inter level in Gujranwala city?
To see the impact of socio economic status on students' academic performance at inters level in Gujranwala city?
To compare the factors effecting on academic performance of academies attended students and not attended students at inter level in Gujranwala city?

Research objective

To compare the factors effecting on the academic performances of Private and Government colleges' students at inter level in Gujranwala city.

Sub objective

i). To see the impact of socio economic status on students' academic performance at inters level in Gujranwala city.
ii). To compare the factors effecting on academic performances of academies attended students and academies not attended students at inter level in Gujranwala city.

LITERATURE REVIEW

Private and Government Sector Contribution and Effectiveness

Raza (2010) compared the performance of public and private colleges through organizational climate which he means principals and teacher behavior. The results showed that private college's teachers and administrations were more responsible and good then government college's teachers and administrations.

Demographic and Socio Economic Factors

Jabbar *et al.,* 2011 examined the effect of demographic factors like gender, location of residence, family income, Parental education, family size on students' academic achievement. The results showed that there were significant difference exist between urban students' and rural students' academic marks. The majority of the students' who passed the exam had family income more than Rs. 15000. Akhtar (2012) conducted a research to check the socio economic status predicts the learning achievement of students'. The multistage stratified random sampling technique was adopted to collect samples.

The findings showed that family income, father and mother education were the strong predictor of students' academic performance. Ahmad and Khan (2012) conducted a research paper to determine the relationship between socio economic conditions and academic performance of the boy's students'. The findings of the study showed that divorce and family size negatively affected students' academic performance. Parent's participation, parent's educations, income and parents meeting with teachers were significantly connected with students' academic performance. Memon (2010) conducted a research to see the relationship between parents' socio economic status and students; academic performance.

The results showed that significant and positive relationships existed among father education, mother education, father profession, mother profession, family

income, area of residence, expenditures on children educations, facilities available at home and parent participation and students' academic performance.

Extrinsic Factors

Tariq *et al.,* 2013, discovered the differences of the heads of private as well as public schools. The results showed that private schools heads having better qualification than public school heads. But the public school heads having more experience than private schools head. Private school heads paid attention to solve the problems while public school heads had reverse situation. Ogunshula and Adewale (2012) examined the relationship between home-based environment and academic performance of students. The findings showed that parents' qualification and health status are significantly correlated with academic performance.

Akhtar and Aziz (2011) investigated the relationship between academic success and peer pressure of university students. The results indicated that peer pressure and academic achievement has not significant negative relationship. The further results were indicated that male students' showed no significant correlation with peer pressure and parent's pressure. Khan *et al.,* 2010, determined the impact of institutions management training on students' learning environment. The data collected from 850 students, 340 teachers and 170 heads of the schools randomly. The findings revealed that training and learning outcome are correlated. The results also showed that the heads who select transformational leadership manner motivate and satisfy their teachers and improve the learning performance of students. Muola 2010 conducted a research paper to see the relationship between home environment and student's academic achievement motivation. The researcher considered parents encouragement, parent's education, family size, learning facilities at home and parent's occupation as a home environment factors. So that there were positive relationship exists between students' academic score and home environment factors.

Intrinsic Factors

Maure *et al.,* (2012) conducted a research paper and try to investigate how academic motivation and student's successes or failures are correlated. Study concluded that significant relationship exists between motivation and student's performance. Kusurkar *et al.,* (2012) found the relationship between motivation and academic performance of student's particular medicals students. The variables like relative autonomous motivation, study effort, study strategy and academic performance were included. The result showed that relative autonomous motivation negatively correlated with controlled motivation and positively correlated with autonomous motivation. Lilian (2012) conducted a research paper to explore the relationship between student's attitude, self-efficacy, effort and academic performance of social science students. The results indicated that attitude towards research method and statistics were significantly and moderately correlated with effort. Self-efficacy moderately and significantly correlated with academic achievement. The high and positive attitude towards subject the high would be the academic performance and vice versa also possible.

Ghamari (2011) showed the relationship between internal motivation and academic achievement. There were significant and positive relationship between internal motivation and student's academic achievement. Febrilia and Warroka (2011) conducted a research paper and constructed a structure equation modeling technique to determine the influence of positive and negative mood on learning process. The researcher argued that a positive mood did not guarantee that a positive mood always produced good concentration level. The researcher said that those students who showed more desire to learn they performed well in the examination. Afzal *et al.,* (2010) conducted a research paper and said that motivation of student's was an important factor on student's academic performance. The regression coefficient value showed that students' academic performance increased by 34% and 23% due to extrinsic and intrinsic motivation. The student's who were motivated more perform better than those who had less motivated.

RESEARCH METHODOLOGY

The target population of this study was the students of Gujranwala city colleges, who passed their intermediate examination from Gujranwala board in 2012. The sampled population of this study was all the Gujranwala city residents' students, who had been studied in government or private colleges of Gujranwala city and passed their intermediate examination from Gujranwala board in 2012. Due to cost, time and resource consideration the sample of 305 students selected for this study. Sample size was approximately matched with previous researches. The average sample size in previous researches was approximately 350 Afzal *et al.,* (2010) and Awan *et al.,* (2011].

Inclusion criteria

All the students' who passed their intermediate examination in first attempt from Gujranwala board in 2012 included in this study. The students must be lived in Gujranwala city and studied in government and private colleges of this city. Students who fulfilled this criterion were included in the study.

Table.1: Reliability Test Chronbach's Alpha

Chronbach's Alpha	Number of Items
0.970	67

Table.2: Percentages of Nominal Variables

Attributes	Categories	Frequencies	Percentages
Residential Area	Rural	126	41.3
	Urban	179	58.7
Discipline	F.Sc Engineering	107	35.1
	F.Sc Medical	51	16.7
	I.CS	57	18.7
	Commerce	58	19.0
	Arts	32	10.5
College Status	Government	170	55.7
	Private	135	44.3
Academy Status	Attended	156	51.1
	Not Attended	149	48.9

Table 3: Chi-Square Test of Association

Variables	Pearson Chi-Square value	P-value
Father Education→ Marks	29.446	0.000
Mother Education→Marks	21.327	0.000
Father Education →College status	26.199	0.000
Mother Education→College status	6.888	0.009
Family Monthly Income →College status	25.125	0.000
Family Monthly Income→Marks	21.061	0.000

Exclusion criteria

All the students' who had not passed their intermediate examination in first attempt from Gujranwala board in 2012 and not lived in Gujranwala city, were not included in this study. And the colleges, in which only one study program is offered and their students were also not included in this study.

RESULTS AND DISCUSSION

Reliability Analysis

All factors are reliable and significant for further statistical analysis. The extrinsic factors and intrinsic factors reliabilities are tested separately. The reliability value is 0.970. The data is reliable and important for further statistical analysis. The value is shown in table Table.1 in appendix.

Descriptive Statistics

In that study 41.3% rural and 58.7% are urban respondents and majority of the male students chose F.Sc Pre-Engineering. The 55.7% students studied in government colleges and 44.3% students studied in private colleges. The 51.1% students studied academy

Table 4. Co-relational Analysis

Variables	Correlation Value	P-Value
Marks and Mother education	.473	0.000
Marks and Father education	.422	0.000
Marks and Family Income	.473	0.000
Marks and Family size	-0.121	0.034
Marks and Birth order	-0.139	0.015

Table.5: Two sample T-test for Equality of Mean

Variables	t-value	P-Value
Residential area and Marks	-3.748	0.000
College status and Marks	11.262	0.000
Academy status and Marks	2.940	0.004
Residential Area and Income	-3.563	0.000
College status and Family Income	6.427	0.000
College status and Paid Fee	15.766	0.000

with college studies shown in Table 2 frequencies and percentages of nominal variables in appendix

Chi-Square Test of Association

Table.3 shows the association between categorical variables in appendix. All the relationships are significant such as marks are associated with father education and mother education. The association between parent's education and marks are significant. The parents whose education is above matrix their children marks are also high. Similarly parental education is highly associated with college choice. The above matrix educated parents more selective for private colleges to their children. The higher educated parents selected private colleges more for their children. The table also shows that family income and students marks are highly associated with each other, the higher the family's monthly income the higher the marks of their children. The results are consistent with Jabbar *et al.,* (2011) and Hijazi and Naqvi, (2006).

Coefficient of Correlation Analysis

Table.4 shows the correlation analysis results in appendix. The father and mother education is significantly and positively correlated with their children academic performance. The educated parents provide efficient and effective environment to their children and guide them how to improve their study skills in a comprehensive way. The family income is also positively and significantly correlated with student's academic performance. The families which have high income provide sufficient and good facilities to their children so their children's perform better in exams and get good marks. But family size and birth order are negatively and significantly correlated with student's academic performance. The families which have large members their children's academic performance is not good because their basic needs are not fulfilled in a dynamic manner. Similarly birth order is high their academic performance is also not good because large families have not sufficient facilities and their parents are also not well educated. The current study findings are consistent with findings of Jabbar *et al.,* (2011) and Ahmad and Khan, (2012).

Two Independent Sample T-tests

Table.5 shows the results of two independent sample t-tests in appendix. The tables shows the importance of

Table 6: Analysis of Variance

Category	N	Mean Marks	Levene's Test P-Value	F-Statistics	P-Value
Lower Class	41	50.8780			
Middle Class	85	56.4471	0.100	24.118	0.000
Upper Middle Class	142	62.6056			
Upper Class	37	68.5676			

Artificial Neural Network

Table 7.1: Case Processing Summary

Sample	N	Percentage
Training	**220**	**72.1%**
Testing	**85**	**27.9%**
Total	**305**	

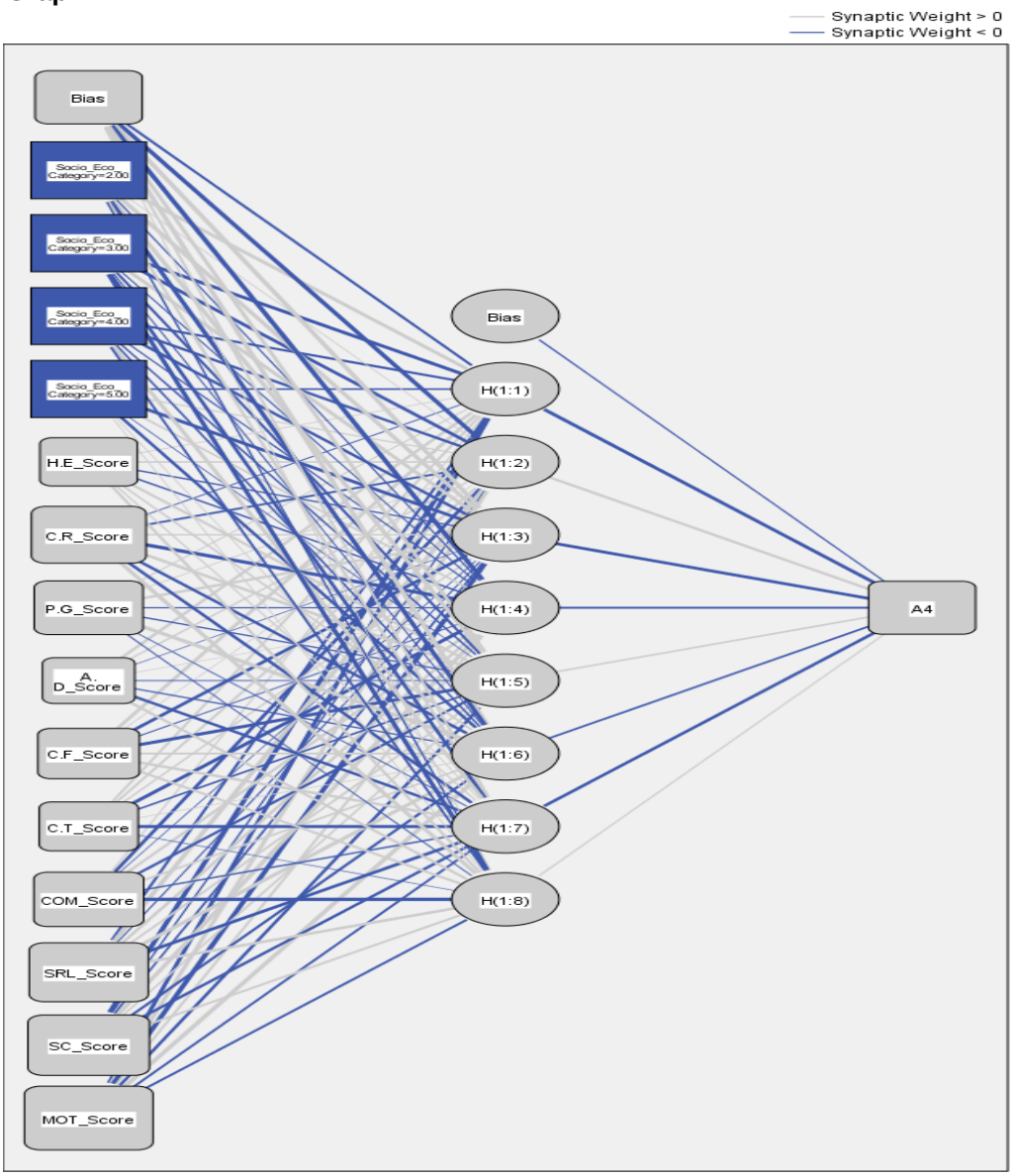
Table 7.2: Network Information

Input Layer	Hidden	Output Layer
1) Home Environment 2) College Reputation 3) Peer Group 4) College Administration 5) College Facilities 6) College Teachers 7) Communication Skill 8) Self Regulation Learning 9) Self Concept 10) Motivation Socio Economic Status 11) Lower Class 12) Middle Class 13) Upper Middle Class 14) Upper Class	1 Hidden Layer Number of Units in Hidden Layers = 8 Hyperbolic Tangent Activation Function	Percentage of Marks obtained in exam Number of Units= 1 Hyperbolic Tangent activation function
Activation Function Adjusted Normalized Rescaling Method for Covariates		Adjusted Normalized Rescaling Method for Scale Dependent

demographic and socio economic status in education. The urban students perform better than rural students because they have good facilities of education. Their fathers and mothers are well educated. The educational institutions are also near to their homes. The college status also effects on student's academic performance.

The private college's students get more marks than government colleges students. There are significant difference exist between their mean marks values of government and private colleges' students' academic performance. The students who attended academy for preparation along with college education their marks are

Graph 7.1



significantly different and higher from those students who not attended academy for extra preparation. The students who studied in private colleges, their family's monthly income are also higher than those students who studied in Government College and their family's monthly income is also less. The huge difference also exists between college's annually fee of government and private colleges. Private colleges charged more fee than government colleges. There are significant difference exist between Government College's fee and private college's fee.

Analysis of Variance (ANOVA)

The Analysis of variance Table.6 shows that there were significant difference exist between socio economic status categories and achieved marks of the students. The mean marks of Upper class students are high because their parental education is very high. Their monthly family income is high. Their father occupations are also well. The lower class students get low marks because their parental education is not well. Their family income is also low and their father occupation is also not good. The results are consistent with Memon (2010) and Akhtar and Aziz (2011).

Artificial Neural Networks

Table 7.3: Parameter Estimates

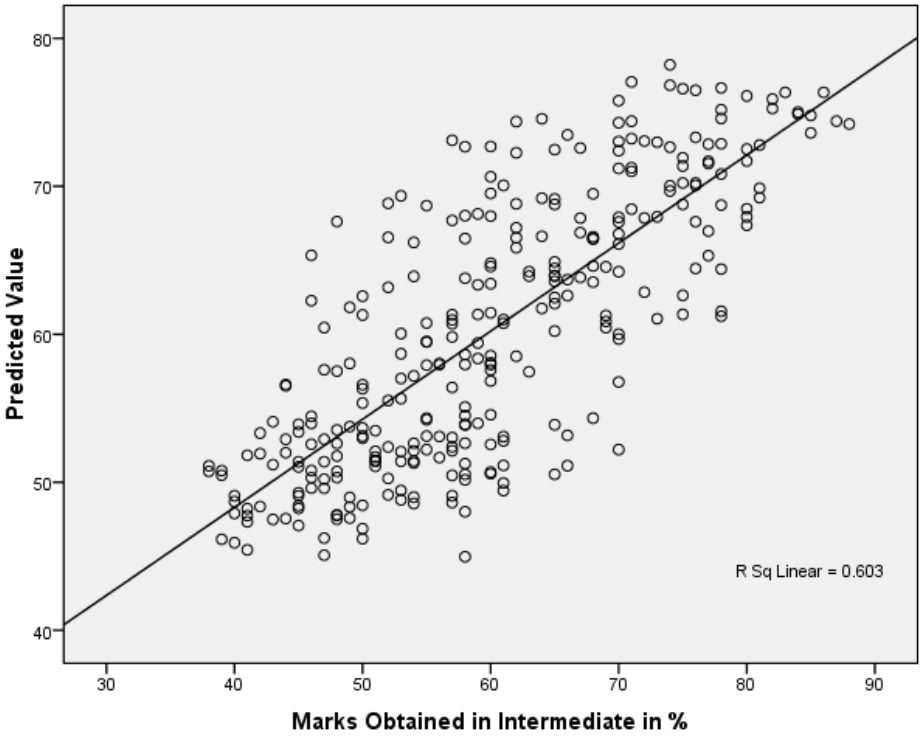
Predictor		Predicted								
		Hidden Layer 1								Output Layer
		H(1:1)	H(1:2)	H(1:3)	H(1:4)	H(1:5)	H(1:6)	H(1:7)	H(1:8)	A4
Input Layer	(Bias)	-.224	-.477	.474	-.548	.317	.469	.172	.050	
	[S.E.S=2.00]	.385	.026	.455	-.071	.417	-.436	.222	-.088	
	[S.E.S=3.00]	-.439	-.360	.363	-.062	-.195	-.060	-.284	-.405	
	[S.E.S=4.00]	-.256	-.270	-.281	-.073	-.100	-.120	.335	-.160	
	[S.E.S=5.00]	-.144	.086	-.399	.159	-.020	-.260	.042	.039	
	H.E_Score	.045	.143	-.098	-.123	.240	.153	.081	.226	
	C.R_Score	-.058	-.209	.141	-.602	.325	-.290	-.285	.405	
	P.G_Score	.064	.044	.290	-.066	-.095	.537	-.050	-.059	
	A.D_Score	.259	.135	-.009	.015	-.063	-.093	-.291	.240	
	C.F_Score	.321	.017	-.330	-.061	-.455	.236	.305	.242	
	C.T_Score	.177	.191	.107	-.391	-.153	.035	-.423	-.015	
	COM_Score	.063	-.295	-.018	.248	-.247	.183	-.139	-.664	
	SRL_Score	-.208	.499	-.061	.262	.177	.458	-.360	.329	
	SEC_Score	-.505	-.084	-.140	.466	.143	-.237	-.262	.223	
	MOT_Score	-.359	.344	-.665	.189	-.248	.490	-.186	-.207	
Hidden Layer 1	(Bias)									-.075
	H(1:1)									-.370
	H(1:2)									.270
	H(1:3)									-.391
	H(1:4)									-.211
	H(1:5)									.160
	H(1:6)									-.176
	H(1:7)									-.299
	H(1:8)									.081

The multilayer perception neural network is applied to predict students academic performance of government and private college's students at inter level in Gujranwala city. Intrinsic and extrinsic factors are used as an independent variables and socio economic status used a hidden layer or factor. Marks obtained in the exam were considered as a dependent variable. Table 7.2 shows the network information of both government and private college's student's academic performance. The total number of units in the input layer was 14 and number of

Table 7.4: Model Summary

Training	Sum of Squares Error	10.211
	Relative Error	.401
	Stopping Rule Used	1 consecutive step(s) with no decrease in error[a]
	Training Time	00:00:00.124
Testing	Sum of Squares Error	3.161
	Relative Error	.408

Graph 7.2 R-Square Value



units in the hidden layer was 8 and one unit in the output layer. Adjusted normalized rescaling method was used for input layers and hyperbolic tangent activation function is used for output layer and hyperbolic tangent activation function is used for hidden layer.

The parameter estimates are shown in the Graph 7.1. The graph depicted the information about coefficient estimates of the synaptic weights. It displayed the information about relationship between one layers to another layer. The students academic performance was strong negative relationship with second and eight hidden layers while strong positive relationship between sixth and fifth hidden layers. Table 7.4 shows that sum of squares of error is low and the value is 3.216. Graph 7.2 shows the coefficient of determination R-Square value. The value of R-Square was 0.601 meant that 60% variation in the dependent variable was explained by the predicted model. The table 7.5 shows that motivation is the most important explanatory variables in predicting the student's academic performance. The result is consistent with Patricia *et al.,* (2006). The self-concept and self regulation learning are the second and third most important factor in predicting the student's academic performance. The college administration and home-environment are the least important factor in predicting the student's academic performance. The result is consistent with [Khan (2012)] that home environment is least effect on student's academic performance. The

Table 7.5: Independent Variable Importance

	Importance	Normalized Importance
S.E.S_ Category	.111	68.4%
H.E_Score	.045	27.6%
C.R_Score	.110	67.5%
P.G_Score	.087	53.4%
A.D_Score	.025	15.2%
C.F_Score	.059	36.3%
C.T_Score	.050	30.5%
COM_Score	.091	56.0%
SRL_Score	.125	77.3%
SEC_Score	.136	84.0%
MOT_Score	.162	100.0%

Graph 7.3: Normalized Importance

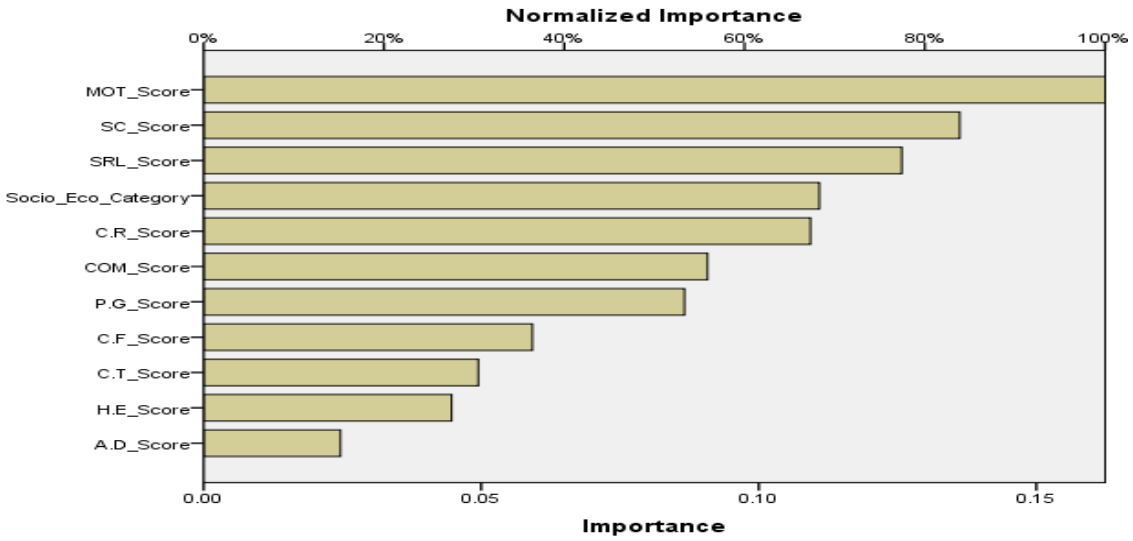


Table 7.6: Correlations

		Marks Obtained in Intermediate in %	Predicted Value Academic Performance
Marks Obtained in Intermediate in %	Pearson Correlation	1	.777**
	Sig. (2-tailed)		.000
	N	305	305
Predicted Value Academic Performance	Pearson Correlation	.777**	1
	Sig. (2-tailed)	.000	
	N	305	305

Neural Network for Government College Students Academic Performance

Table 7.7: Case Processing Summary

Sample	N	Percentage
Training	113	66.5%
Testing	57	33.5%
Total	170	

Table 7.8: Model Summary

Training	Sum of Squares Error	6.111
	Relative Error	.553
	Stopping Rule Used	1 consecutive step(s) with no decrease in error[a]
	Training Time	00:00:00.094
Testing	Sum of Squares Error	2.877
	Relative Error	.377

results are also shown in the Graph 7.3 in a clear manner. Table 7.6 shows the Pearson's correlation coefficient between actual and predicted values of student's academic marks. The value is 0.7750. This means strong correlation exist between predicted and actual student's academic marks.

Motivation, self-concept and self regulated learning are intrinsic factors that affect student's academic performance more than extrinsic factors. The neural network result is same with Maure *et al.,* (2012) and Ghamari, (2011) that internally motivated student's shows much better academic performance then externally motivated students.

Government and Private College Student's Academic Performance

In the same manner neural network is used to predict the government and private college's student's academic performance separately. The table 7.7 shows the case processing summary for Government College's student's academic performance. The table 7.8 shows the model sum of square of error. The error value is 2.877 which is less. Table 7.9 shows the parameter estimates. The marks are strong negatively linked with second and sixth hidden layer. The marks are positively linked with seventh and fourth hidden layer. Graph 7.4 shows that 52% variation in the dependent variable is explained by the model. Table 7.10 shows that motivation, college facilities are most important predictors of academic performance of government colleges' students' at inter level. The communication skill and home environment are the least important factors for students' academic performance at inert level in Government College's students'. The table 7.11 shows the correlation between actual and predicted model values. The correlation coefficient value is 0.7210.

Similarly table 7.12 shows the case processing summary for private college's student's academic performance. Table 7.18 shows the model sum of square of error is 2.5580. The Graph 7.6 shows the coefficient of determination value is 0.5440.The model explains almost 55% variation in the marks of private college's students' academic performance. Table 7.14 shows the parameter estimates of the model. The marks outcome variable is negatively linked with first hidden layer and positively linked with fourth hidden layer. Table 7.21 shows that motivation, home environment and socio economic category are the most important predictors of student's academic performance of private college's student's. The communication skill, college teachers are the least important predictors of private college's student's academic performance. Table 7.23 shows the correlation value is 0.7380.

Communication skill is the common factor which is less important for both government and private colleges' academic performance at inter level in Gujranwala city. The reason of less effect of communication skill might be

Table 7.9: Parameter Estimates

Predictor		Predicted							
		Hidden Layer 1							Output Layer
		H(1:1)	H(1:2)	H(1:3)	H(1:4)	H(1:5)	H(1:6)	H(1:7)	A4
Input Layer	(Bias)	-.151	-.585	.186	-.093	.499	-.506	-.094	
	[S.E.S=2.00]	-.387	.047	.420	-.411	-.431	-.233	.099	
	[S.E.S=3.00]	.281	-.412	.376	.256	.318	-.437	.109	
	[S.E.S=4.00]	-.548	-.344	.151	.344	.466	-.536	.237	
	[S.E.S00]	.475	-.422	.222	.197	-.098	-.470	-.021	
	H.E_Score	.291	.084	-.192	.374	.437	-.364	-.177	
	C.R_Score	.109	1.027	-.432	.479	-.162	-.820	.158	
	P.G_Score	-.438	.307	-.288	.349	-.365	.200	-.347	
	A.D_Score	-.410	-.660	-.329	-.189	.137	.572	-.304	
	C.F_Score	-.264	1.121	-.312	-.279	.385	-.235	.218	
	C.T_Score	-.399	-.745	-.150	.391	.355	.203	-.789	
	COM_Score	-.088	.018	.101	-.357	-.158	.159	.111	
	SRL_Score	-.304	-.365	-.502	.256	.645	.195	.186	
	SEC_Score	.348	-.481	.210	.042	.299	.770	.444	
	MOT_Score	.074	-.305	.003	.001	.193	-.555	.533	
Hidden Layer 1	(Bias)								-.735
	H(1:1)								-.013
	H(1:2)								-.718
	H(1:3)								-.493
	H(1:4)								.106
	H(1:5)								-.396
	H(1:6)								-.728
	H(1:7)								.432

the hesitation, tough and English medium education at inter level. The majority of the student's passed their matriculation from Urdu medium. The home environment is less effect on government college's students' academic performance because the majority of the student's of Government College's student's belongs to rural areas. Their parents are not well educated so their home environment has less effect on their academic success. College teacher is less effect on private college's student's academic performance. The reason might be that the academies culture is very common at inter level. The more than half private college's students' attended academies for preparation along with college education. Table 7.27 shows that private college's students plus academies attended students have high mean percentage marks than private college plus not attended academies for preparation. Table 7.16 shows the correlation between predicted academic marks and actual academic marks. The correlation value is 0.7380.

Academy Attended and Not Attended Students' Academic Performance

Table 7.17 shows the case processing summary of Academy not attended students, table 7.18 shows model summary. The sum of square of error is 2.003. The table 7.19 shows the parameter estimates of the model. The outcome variable student's academic marks is positively linked with sixth and fifth unit of hidden layer and negatively linked with first, third and fourth unit of hidden layer. The Graph 7.8 shows the value of R-square. The model explains 58% variation in the outcome marks variable.

Table 7.20 shows the importance of independent variable. The college reputation, self- regulated learning and self-concept are the most important predictors of

Graph 7.4: R-Square

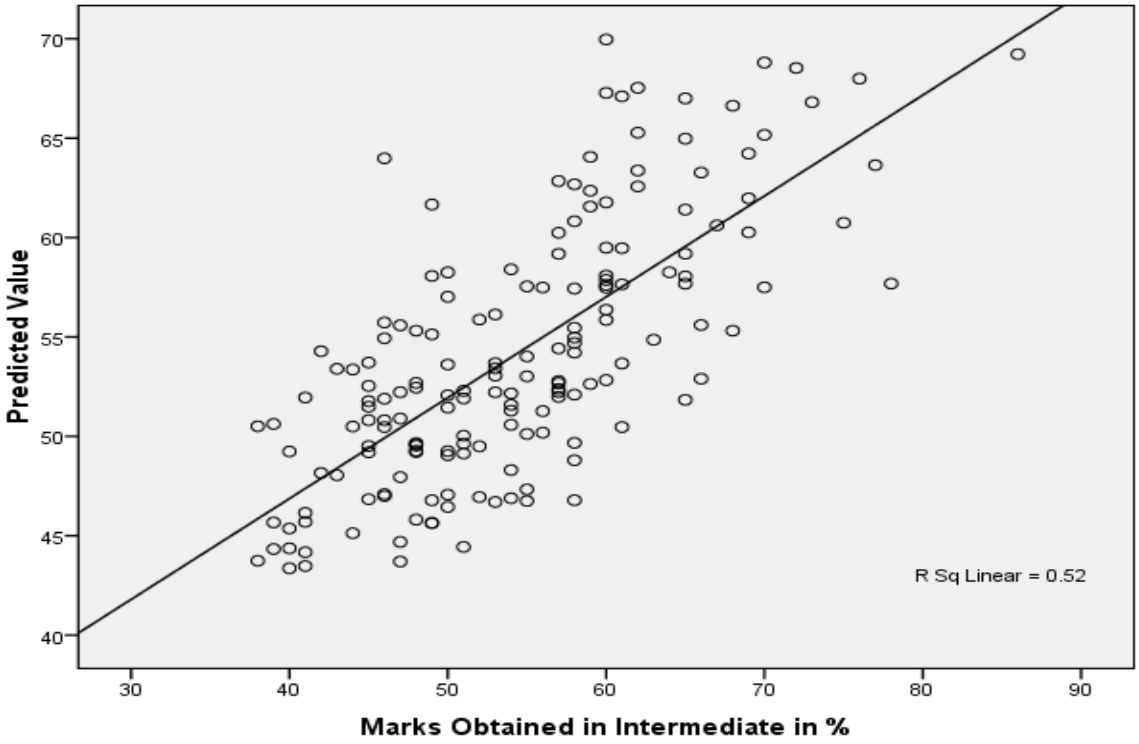


Table 7.10: Independent Variable Importance

	Importance	Normalized Importance
S.E.S_Category	.073	40.3%
H.E_Score	.040	22.3%
C.R_Score	.111	61.6%
P.G_Score	.056	30.8%
A.D_Score	.100	55.6%
C.F_Score	.136	75.3%
C.T_Score	.085	46.9%
COM_Score	.022	12.0%
SRL_Score	.119	65.8%
SEC_Score	.079	43.7%
MOT_Score	.180	100.0%

Graph 7.5: Normalized Importance

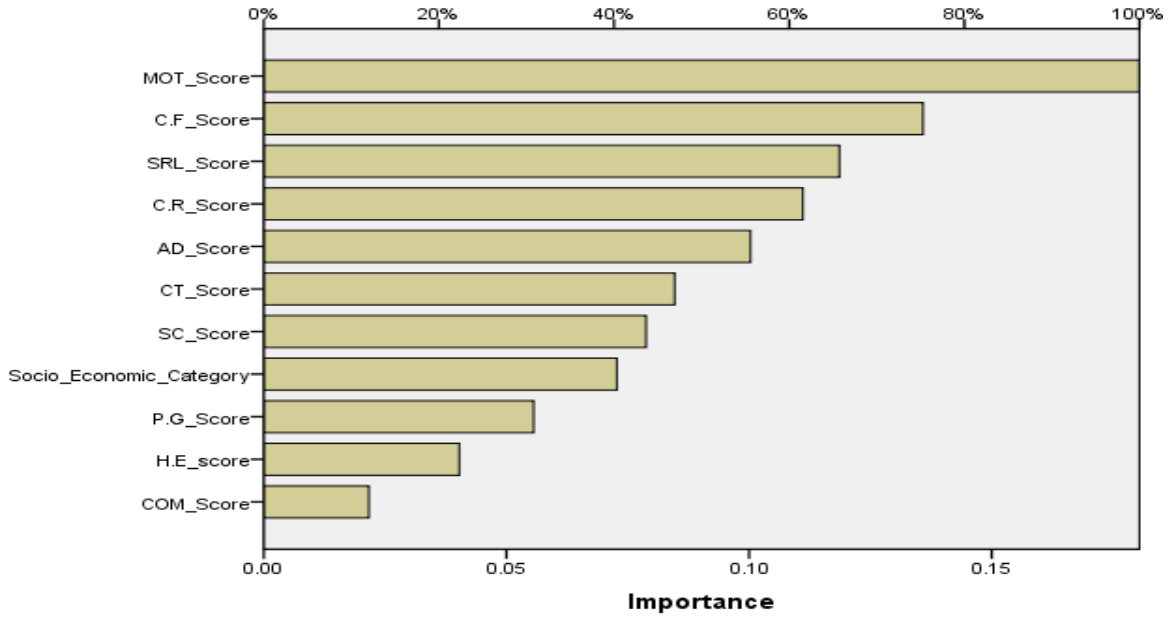


Table 7.11: Correlation

		Marks Obtained in Intermediate in %	Predicted Value for Academic Performance
Mark Obtained in Intermediate in %	Pearson Correlation	1	.721**
	Sig. (2-tailed)		.000
	N	170	170
Predicted Value for Academic Performance	Pearson Correlation	.721**	1
	Sig. (2-tailed)	.000	
	N	170	170

Neural Network for Private College Students Academic Performance

Table 7.12: Case Processing Summary

Sample	N	Percentage
Training	96	71.1%
Testing	39	28.9%
Total	135	

Table 7.13: Model Summary

Training	Sum of Squares Error	5.063
	Relative Error	.451
	Stopping Rule Used	1 consecutive step(s) with no decrease in error[a]
	Training Time	00:00:00.047
Testing	Sum of Squares Error	2.558
	Relative Error	.468

Table 7.14: Parameter Estimates

		Predicted					
		Hidden Layer 1					Output Layer
Predictor		H(1:1)	H(1:2)	H(1:3)	H(1:4)	H(1:5)	A4
Input Layer	(Bias)	.165	.370	-.255	-.396	-.454	
	[S.E.S=2.00]	-.011	-.266	.117	-.109	.055	
	[S.E.S=3.00]	-.738	.234	.084	-.487	-.397	
	[S.E.S=4.00]	.680	.401	.054	.479	.429	
	[S.E.S=5.00]	.103	.454	.278	.242	.396	
	H.E_Score	-.558	.248	.372	.064	.529	
	C.R_Score	-.058	.242	.158	-.388	-.541	
	P.G_Score	.187	-.057	-.109	-.250	-.394	
	A.D_Score	-.021	-.299	.298	-.020	-.048	
	C.F_Score	-.020	-.497	-.444	.202	-.058	
	C.T_Score	-.073	-.497	-.382	.220	.185	
	COM_Score	.080	.154	.427	-.142	.312	
	SRL_Score	.072	-.201	.638	.451	.208	
	SEC_Score	-1.012	-.397	.433	-.052	-.140	
	MOT_Score	-1.036	.308	.345	.441	-.045	
Hidden Layer 1	(Bias)						-.082
	H(1:1)						-.643
	H(1:2)						.492
	H(1:3)						-.017
	H(1:4)						.517
	H(1:5)						.291

Graph 7.6: R-Square

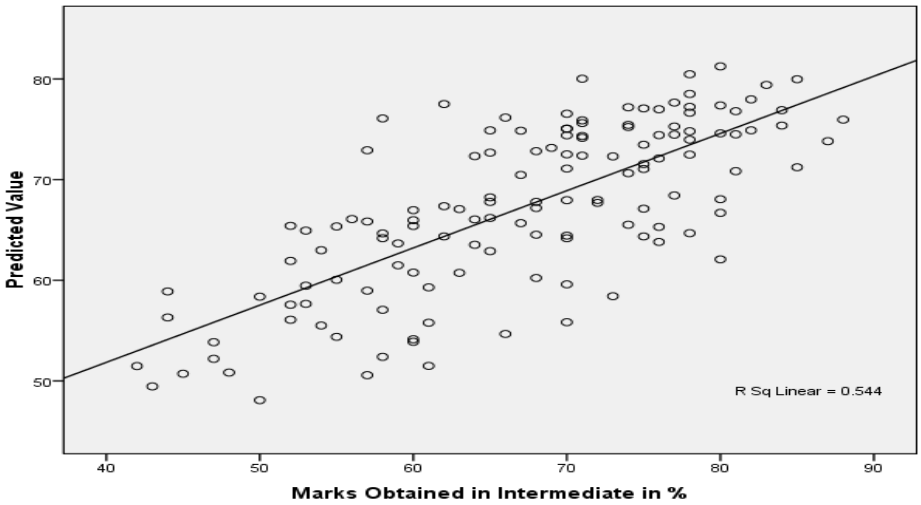


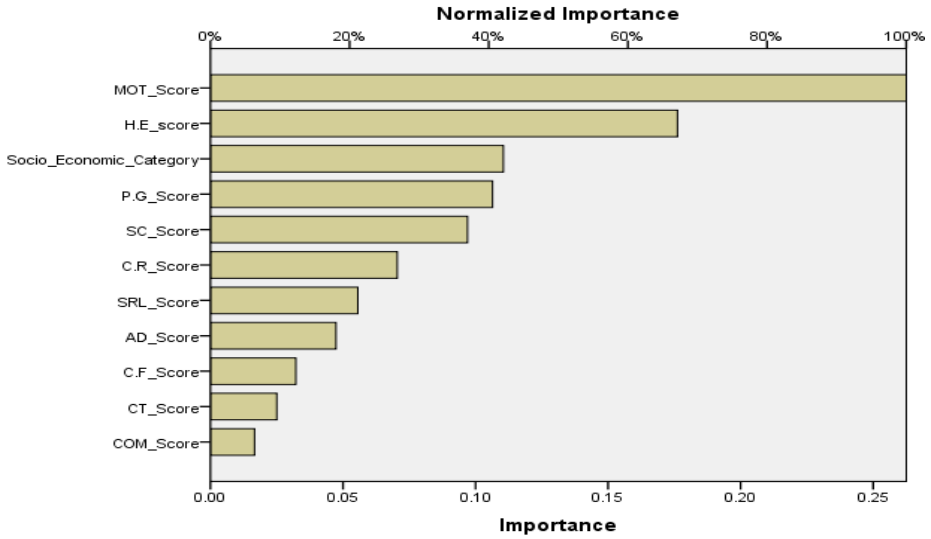
Table 7.15: Independent Variable Importance

	Importance	Normalized Importance
S.E.S_Category	.111	42.1%
H.E_Score	.176	67.1%
C.R_Score	.071	26.9%
P.G_Score	.106	40.6%
A.D_Score	.047	18.1%
C.F_Score	.032	12.3%
C.T_Score	.025	9.5%
COM_Score	.017	6.3%
SRL_Score	.056	21.2%
SEC_Score	.097	36.9%
MOT_Score	.262	100.0%

Table 7.16: Correlation

		Marks Obtained in Intermediate in %	Predicted Value for Academic Performance
Marks Obtained in Intermediate in %	Pearson Correlation	1	.738**
	Sig. (2-tailed)		.000
	N	135	135
Predicted Value for A4	Pearson Correlation	.738**	1
	Sig. (2-tailed)	.000	
	N	135	135

Graph 7.7: Normalized Importance



Neural Network for Academy Not attended Students Academic Performance

Table 7.17: Case Processing Summary

		N	Percent
Sample	Training	107	71.8%
	Testing	42	28.2%
Valid		149	100.0%
Excluded		0	
Total		149	

Table 7.18: Model Summary

Training	Sum of Squares Error	6.022
	Relative Error	.481
	Stopping Rule Used	1 consecutive step(s) with no decrease in error[a]
	Training Time	00:00:00.047
Testing	Sum of Squares Error	2.003
	Relative Error	.341

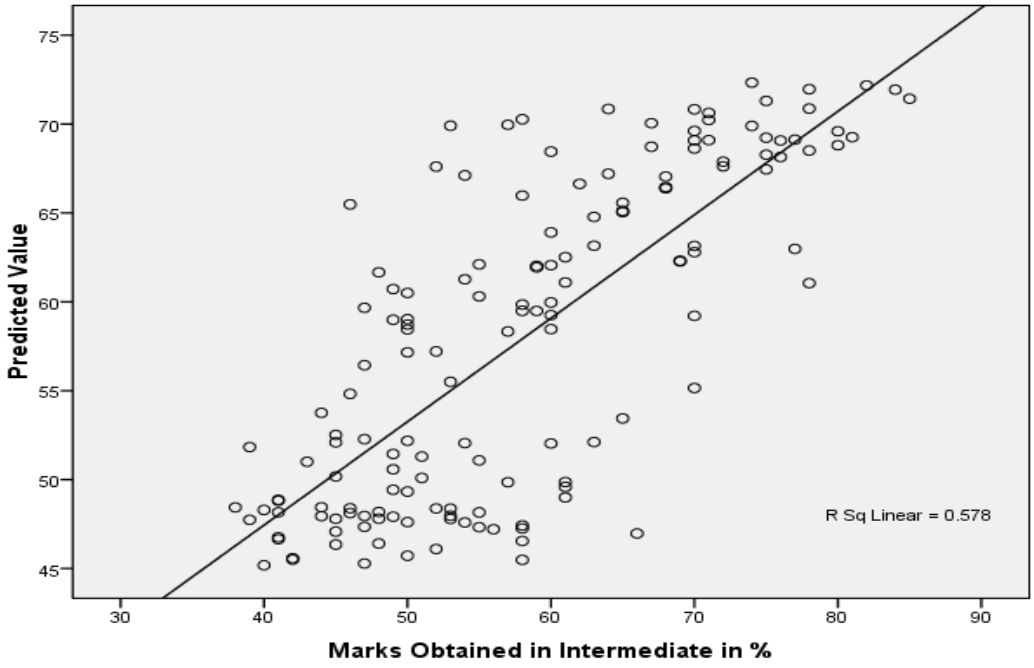
Table 7.19: Parameter Estimates

		Predicted						
		Hidden Layer 1						Output Layer
	Predictor	H(1:1)	H(1:2)	H(1:3)	H(1:4)	H(1:5)	H(1:6)	A4
Input Layer	(Bias)	.369	-.197	-.428	-.406	-.223	-.115	
	[S.E.S_Category=2]	.305	-.475	-.441	.483	-.351	.353	
	[S.E.S_Category=3]	-.214	-.338	-.422	.176	-.442	.069	
	[S.E.S_Category=4]	-.257	.370	-.382	.184	.204	-.224	
	[S.E.S_Category=5]	-.123	-.144	-.492	.010	-.099	.382	
	H.E_Score	.228	-.166	.253	-.388	-.335	.448	
	C.R_Score	-.299	.235	-.471	.064	-.307	.398	
	P.G_Score	-.282	.370	.283	.121	-.234	-.001	
	A.D_Score	.189	-.149	.133	-.313	-.079	.085	
	C.F_Score	.015	.383	-.311	-.220	.303	-.144	
	C.T_Score	-.213	-.016	.219	-.376	.182	-.023	
	COM_Score	.115	-.043	.004	-.153	-.191	-.316	
	SRL_Score	-.335	.348	.249	.290	.208	.394	
	SEC_Score	-.462	-.111	.187	.286	-.019	.397	
	MOT_Score	-.011	.482	-.426	.340	-.066	.385	
Hidden Layer 1	(Bias)							-.279
	H(1:1)							-.296
	H(1:2)							.076
	H(1:3)							-.235
	H(1:4)							-.123
	H(1:5)							.110
	H(1:6)							.445

Table 7.20: Independent Variable Importance

	Importance	**Normalized Importance**
S.E.S_Category	.079	40.3%
H.E_Score	.058	29.6%
C.R_Score	.196	100.0%
P.G_Score	.022	11.2%
A.D_Score	.013	6.9%
C.F_Score	.051	26.0%
C.T_Score	.057	29.1%
COM_Score	.085	43.6%
SRL_Score	.153	78.0%
SEC_Score	.148	75.8%
MOT_Score	.138	70.3%

Graph 7.8: R-Square



Graph 7.9: Normalized Importance

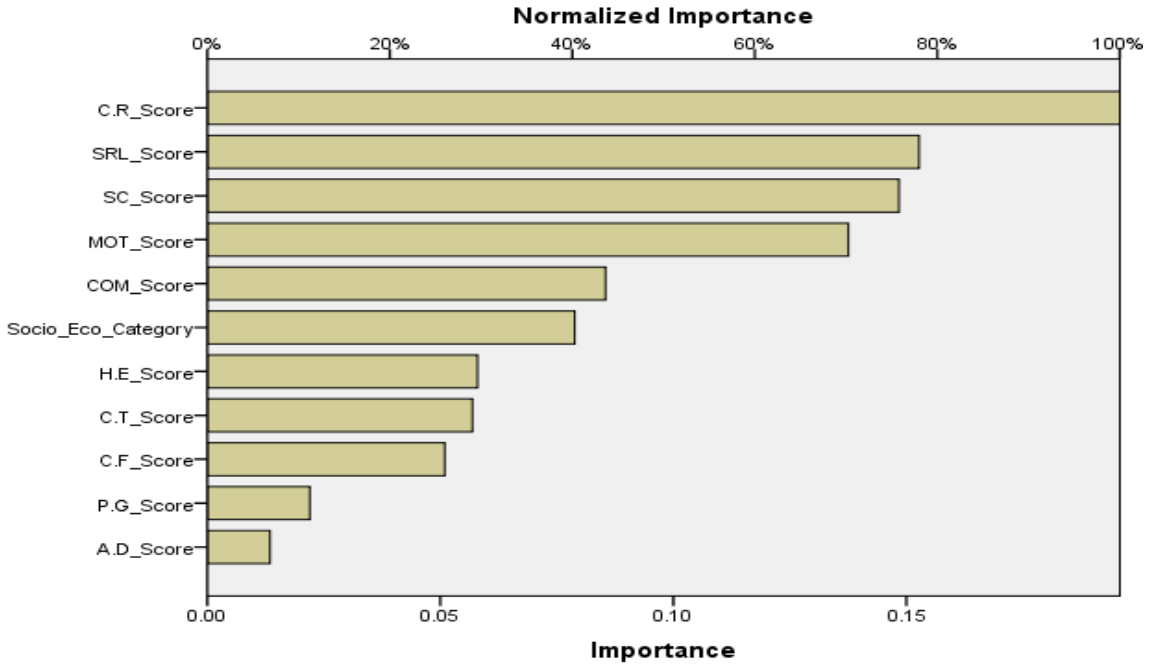


Table 7.21: Correlations

		Marks Obtained in Intermediate in %	Predicted Value for Academic Performance
Marks Obtained in Intermediate in %	Pearson Correlation	1	.761**
	Sig. (2-tailed)		.000
	N	149	149
Predicted Value for Academic Performance	Pearson Correlation	.761**	1
	Sig. (2-tailed)	.000	
	N	149	149

Neural Network for Academy attended Students Academic Performance

Table 7.22: Case Processing Summary

		N	Percent
Sample	Training	104	66.7%
	Testing	52	33.3%
Valid		156	100.0%
Excluded		0	
Total		156	

Table 7.23: Model Summary

Training	Sum of Squares Error	4.769
	Relative Error	.434
	Stopping Rule Used	1 consecutive step(s) with no decrease in error[a]
	Training Time	00:00:00.047
Testing	Sum of Squares Error	2.736
	Relative Error	.493

Graph 7.10: R-Square

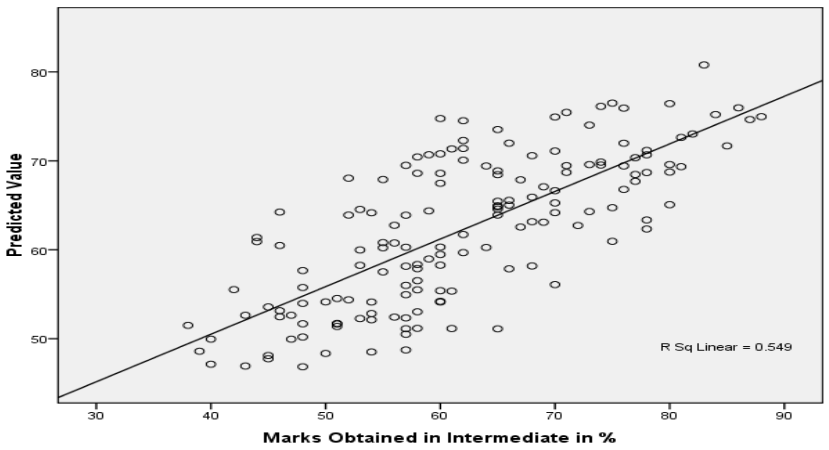


Table 7.24: Parameter Estimates

Predictor		Predicted						
		Hidden Layer 1						Output Layer
		H(1:1)	H(1:2)	H(1:3)	H(1:4)	H(1:5)	H(1:6)	A4
Input Layer	(Bias)	.404	.519	.042	-.085	-.087	-.407	
	[S.E.S_Category=2.]	.431	-.267	-.152	.387	.175	.294	
	[S.E.S_Category=3.]	.292	-.053	.017	-.330	-.240	-.370	
	[S.E.S_Category=4]	.245	.370	-.390	.019	-.082	-.049	
	[S.E.S_Category=5]	-.351	.186	-.278	-.434	.042	.370	
	H.E_Score	.263	.150	.281	-.206	.501	.239	
	C.R_Score	-.323	-.348	-.416	.041	-.263	-.187	
	P.G_Score	.481	.184	.209	.248	-.254	-.212	
	A.D_Score	.176	.037	-.212	-.190	.110	-.222	
	C.F_Score	-.020	-.150	.060	.122	.243	.130	
	C.T_Score	-.363	-.309	-.327	.282	.363	-.042	
	COM_Score	.404	.358	.195	.439	-.470	-.372	
	SRL_Score	.045	.293	-.234	-.269	-.102	-.360	
	SEC_Score	-.362	-.114	-.295	.465	-.204	.361	
	MOT_Score	-.596	.236	-.292	.243	-.356	.204	
Hidden Layer 1	(Bias)							-.193
	H(1:1)							-.516
	H(1:2)							.289
	H(1:3)							-.337
	H(1:4)							-.148
	H(1:5)							.023
	H(1:6)							-.176

Table 7.25: Independent Variable Importance

	Importance	**Normalized Importance**
S.E.S_Category	.160	91.7%
H.E_Score	.073	42.2%
C.R_Score	.106	61.0%
P.G_Score	.113	65.2%
A.D_Score	.029	16.7%
C.F_Score	.034	19.3%
C.T_Score	.082	47.3%
COM_Score	.074	42.8%
SRL_Score	.100	57.6%
SEC_Score	.054	31.0%
MOT_Score	.174	100.0%

Table 7.11: Normalized Importance

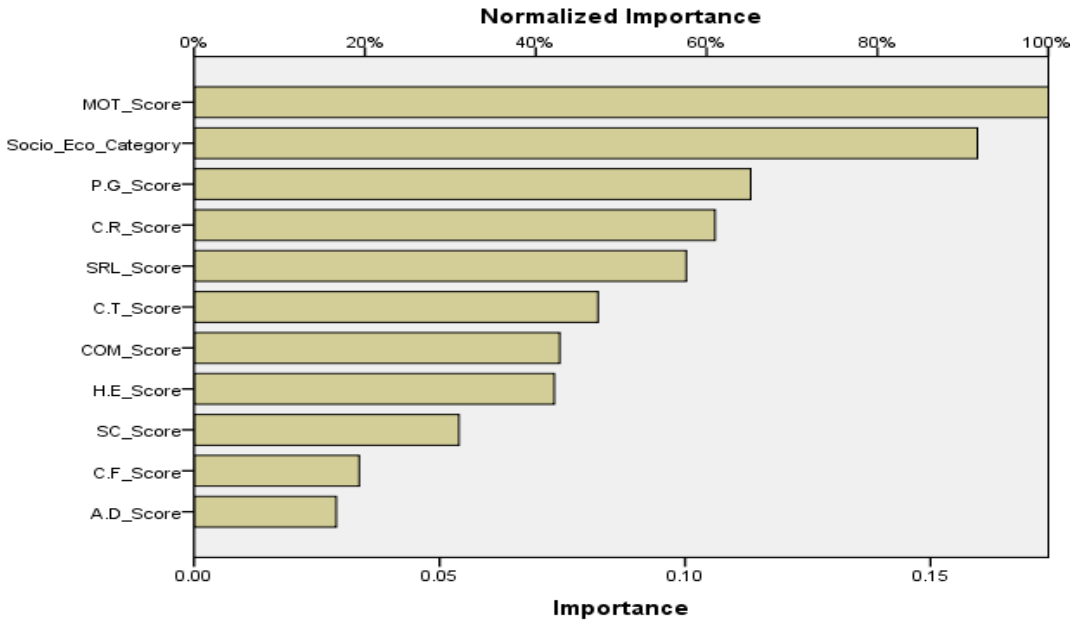


Table 7.26: Correlations

		Marks Obtained in Intermediate in %	Predicted Value for Academic Performance
Marks Obtained in Intermediate in %	Pearson Correlation	1	.741**
	Sig. (2-tailed)		.000
	N	156	156
Predicted Value for Academic Performance	Pearson Correlation	.741**	1
	Sig. (2-tailed)	.000	
	N	156	156

Table 7.27: Classification and Two Sample Independent T-test

	Academy status			
	Private	Government	T-test	P-value
Attended	71	85		
Mean Marks	69.08	55.99	8.496	0.000
Not Attended	64	85		
Mean Marks	65.11	52.71	7.532	0.000
Total	135	170		

academy not attended student's academic performance. The results are consistent with [Martha, (2005)] that self-concept is an important explanatory variable for student's academic performance. College administration and peer group are less important for academy not attended student's academic performance. The table 7.21 shows correlation between actual academic marks and predicted academic marks of the model is 0.7610.

Similarly another neural network model is constructed for academy attended student's academic performance. The table 7.22 shows the case processing summary of the model. Table 7.23 shows the model summary. The error sum of square is 2.7360. Graph 7.10 shows that the model explains 55% variation in academies attended student's marks. Table 7.24 shows the parameter estimates of the academies attended student's marks. The outcome students' marks are negatively linked with first, third, fourth and sixth unit of hidden layer and positively linked with fifth unit of hidden layer. The table 7.25 shows that motivation and socio economic status category is the most important explanatory variables for the prediction of academies attended students' academic performance. The college administration and college facilities are the least important factors for the prediction of academies attended student's academic performance. Table 7.26 shows the Pearson's correlation coefficient value. The coefficient value is 0.7410 which shows high correlation between actual marks and predicted marks of the model.

The table 7.27 shows the government and private college's students plus academies attended or not attended students' academic marks. There are significant difference between government and private students' academic performance with respect to academies attended. Also the significant difference between government and private college's student's academic performance with respect to academies not attended.

CONCLUSION

The results of demographic variables show that urban student's academic marks are significantly greater than rural student's academic marks. The private college's student's academic marks are significantly greater than Government College's student's academic marks. The academies attended student's academic marks also significantly greater than academies not attended students.

The results of socio economic status variables show that parent's education, occupation and family monthly income are significantly and positively correlated with their children's academic performance. Upper socio economic status categories families' student's academic marks are significantly greater than middle and lower socio economic status categories families. The birth order and family size are negatively correlated with student's academic marks. The well educated and high income families send their children's more in private colleges. Annual fees of private colleges are greater than government colleges. Fees of private colleges are not affordable for common people.

Structure equation modeling results show that the academic motivation and self concepts are the most important and highly significant explanatory factors for government and private college's student's academic performance at inter level in Gujranwala city. But the extent and quality of academic motivation is high in private college's student's academic performance than Government College's student's academic performance. The role of college teachers and self regulated learning estimates are lower in Government College's student's academic performance then private college's student's academic performance.

Intrinsic factors like academic motivation, self-regulated learning and self-concept are important independent variables for predicting the government college's student's academic performance. Intrinsic factors like academic motivation, self regulated learning and self-concepts are also important factors for predicting the private college's student's academic marks. The quality and quantity of academic motivation is high in private college's students. The extrinsic factors like college facilities and college reputation are also important explanatory variables for Government College's student's academic marks. The extrinsic factors like home environment factor and socio economic status categories are also important factor for predicting private college's student's academic marks. Home environment factor effects are less important in Government College's students academic performance. College teachers are less important factor for private college's student's academic performance. The intrinsic factor communication skills are less important for predicting government and private college's student's academic performance.

College reputation, self-regulated learning, self-concept and academic motivation are important factors for academies not attended student's academic marks. Academic motivation, socio economic statuses are more important factors for predicting the academies attended student's academic marks. College administration, peer group and college facilities are less important factors for predicting academies not attended student's academic marks. College administration and college facilities are less important for predicting the academies not attended student's academic performances.

RECOMMENDATION/ POLICY IMPLICATIONS

Suggestions based on this study are as following:

1). From descriptive analysis, we suggest new colleges should be opened in rural areas so that the distance between colleges and student's should be minimized, to create awareness about the importance of education in the society.
2). Government should provide financial supports to government institutions. Government makes check and balance system in government colleges. The majority of the students in government colleges are arts students. Government should provide good facilities of science education. So that the technological knowledge gap between rural and urban residence should be minimized.
3). Government should discourage the academies culture. The government college's professors banned to teach another institution in college timing. Due to academies culture parent's bear another burden related to education.
4). For high academic performance, Parents and Teachers should motivate the students so that their level of interest and engagement increases in learning activities. Students should have to improve their intrinsic motivated factors.

LIMITATIONS OF THE STUDY

There are few limitations in this study which need to be discussed here. The respondents of the study were the government and private college's students of inter level at Gujranwala city. Due to large sampling frame, non-probability sampling technique was used. The results become more precise and good when probability sampling technique is used. The indicator used for academic performance was students self-reported percentage marks. If the students reported their marks incorrectly then might be bias in the results. The respondents of this study were selected after one year of their completion intermediate. Due to research feasibility and easy access to respondents only male students were selected. Due to these limitations the results of this study were not generalized.

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