Factors Influencing Students' Learning at KASB Institute of Technology

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ABSTRACT

The research article looks into the psychological and other characteristics that play a role in students' learning ability. In all the observations we have found some students performing better than the others, this display of performance in their studies implies the presence of certain factors which are different from others or play a role in their better learning capabilities. These factors may be present in students, teachers, institutions and others. This article is an attempt to highlight those factors which may be required on part of the students, teachers, institutions and others that may or may not play a significant role in enhancing students' learning capabilities, the sample of 103 is used to infer the significance of these factors. Through research we were able to answer as per students, punctuality of the teacher is somewhat important in enhancing learning. Clarity of speech was considered an insignificant feature. The most preferred quality of the teacher which is responsible for ranking a teacher as the best teacher is cooperativeness. Another finding was the relationship between CGPA obtained and consulting teacher outside class, which we concluded that there is a strong relationship between consulting teacher and obtaining good CGPA. Lastly we found that time spend in library has no significant association with understanding of topic when taught.

JEL. Classification: I29; I23
Key words: students' learning, students and teacher characteristics.

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1. INTRODUCTION

Country's economic growth depends on education and human development. Education is the backbone of country's development and takes out the hidden talents from the human mind; and man is the main creation of God; and the supreme Talisman empowered by Almighty Allah to conquer the cosmos by deviating the power of nature. The issues of human existence circle around the axis of education (Herani 2008:35). "Despite the obvious importance of education after the independence public spending on education in Pakistan is still negligible" (Qureshui, Shirazi and Wasim 2007). "People with skills can generate incomes and wealth more effectively and creatively than those without skills and will have fuller lives" (Kefela and Rena 2008)

A few research studies are done in Pakistan related with education and its progress; some of them which were consulted are as: Rehan (2003); Herani 2008; Herani, Rajar, Zaman and Alam (2007); Farooqui, Ahmed and Wasim (2007); Qureshui, Shirazi and Wasim (2007); and, Education Sector Reform Action Plan (ESRAP) 2000 and onwards.

These studies has analyzed and emphasized on investment in education and returns; encouragements of computer skills; development of human resources; new commencing education policy; and knowledge management and transformation etc. It is felt that research should remain continue to keep it update with new models. Keeping in view we have to look into the factor of learning the in education and present study represents it with reference of KASBIT as a special case but concept is general.

Some international studies are also sought like: Rena (2000) has found the financing and cost recovery in higher education; Rena (2007) has worked on higher education in Africa and found that education is important for development and Boissiere (2004) has found the facts about the rationale for public investment in primary education in developing countries.

Pakistan has been a hub of investment in the education sector for the last couple of years. Initially, we borrowed huge amount of money from World Bank (WB) and other internal and external donor agencies for primary and secondary education. World Bank's funding is based on the views of one of its Economists Psacharapoulos (1986), according to whose research; if a country has to grow economically investment should be done in its primary education. Psacharapoulos studied 37 countries and subsequently more countries were added, and he inferred that investment in primary education has very high rates of return in long run.

1.1. Role of Higher Education in the Development of Pakistan

In the first 40-45 years of the country after independence we did not pay much attention to Higher Education, specially the amount allocated for the development of this sector was very minimal. Major focus was on primary and secondary education. Analytically speaking, this was not a right decision on part of the government. During that period there was a lot of expansion of knowledge all over the leading to knowledge economy. Pakistan was left behind due to our inactivity. In Pakistan, the enrollment ratio in higher education is the lowest in Asia with a present figure standing at 2.6% for the students in the legible age group. Still it is much lower than India where the figure is 6%. Collectively, there are three perennial problems of Higher Education in Pakistan—: i) Access; ii) Equity and iii) Quality. In 2002, the University Grants Commission (UGC) was given a new charter,

under which a new organization with the name Higher Education Commission (HEC) was created. Dr Ata-ur-Rahman, the Chairman of HEC, has full understanding of the processes which lead to addressing of many important issues.

1.2. To Foster Knowledge at Higher Education Level the Steps Taken by Government.

In the near future, seven universities of engineering and technology will be established in the country with the help of seven foreign countries including Austria, Germany, France, China etc. Under this program, in the next 8-10 years time, a high class foreign faculty, working with the Pakistan faculty, with foreign Chancellor and Vice chancellors, will transform the academic environment of Pakistan. First university of this series was expected to be established in the Marina Academy, Karachi, September 2008, with the support of French Government.

1.3. Research Objective

The objective of this research was to conduct behavioral studies with respect to students studying at undergraduate and post graduate level and understand, highlight and signify those factors that may be responsible in influencing students learning experience in a university.

The variables selected were characteristics driven from students, teachers, institution and others; through our literature review we have understood that it is the combination of all of these factors that results in enhancing students' learning experience in a university.

1.4. Problem Statement

During our carriers as academic scholars we have always observed that there are and will be differences in students' performance and as a teacher it is our aim to enhance learning by students as much as possible, therefore in this regard it is important to understand these factors in order to determine whether any of these factors can be controlled or influenced so that we may be able to provide better learning experience to all our students.

1.5 Key Research Questions

- § Punctuality of a teacher is often considered one of the factors i.e. valued high by the management; we wanted to test how punctuality is graded by the student.
- § Another variable that we consider is the clarity of speech of a teacher for him to transmit knowledge; we wanted to see how student would rate this factor.
- § To find out which quality of the teacher student value the most to rank the teacher as the best teacher.
- § To determine whether consulting teacher outside the class has any impact on CGPA.
- § To understand the association between two ranked order variables that is understanding of topic and time spend in library

1.6 Organization of Paper

Organization of the remaining paper is as below: section 2 reviews the work done in the related field. Research methodology is given in the section 3 in detail. Section 4 gives the analyses, results and discussions. Finally section 5 concludes the research.

2. LITERATURE REVIEW

"There is nothing as practical as good theory" Lewin's (1946) statement is still valid, however the understanding of his statement and its implications are still something to be worked upon. Learning has always been a composition between theoretical knowledge along with practical experiences, however there is a lack of coordination between the two, there are those who avoid applying theories, and then there are those who would only rely on practical; both approaches are neither right nor wrong however the choices between the two approaches should be made depending upon the level of students furthermore sometimes to enhance learning a combination is best suited for the task.

Teaching engages the learning in constructive, in addition to receptive, learning activities. Typically, these activities involve (Biggs 1989):

- A positive motivational context, hopefully intrinsic but at least one involving a felt need-to-know and an aware emotional climate.
- A high degree of learner activity, both task-related and reflective
- Interaction with others, both at the peer level with other students, and hierarchically, within "scaffolding" provided by an expert tutor.
- A well-structured knowledge base, that provides the longitude or depth for conceptual development and the breadth, for conceptual enrichment

2.1. Student's Characteristics

Learning of students starts from his or her own ability, psychological differences between students counts for the differences in their learning capabilities therefore some of these differences are to be highlighted and enhanced in order to improve learning capabilities of students, such factors would include abilities, prior knowledge, motivation, personality facts that promote or lessen student teach ability, quantitative or qualitative outlook on learning, learning styles, stabilized learning approach and so forth (Biggs 1994).

2.2 Teacher's Characteristics

Here the learning of students is primarily focused or dependent upon the teachers' capability in transmitting knowledge, the focus is on teachers' psychological and other traits that has a direct impact on students' learning. Factors that will be included are mastery of teaching skills, continuous staff development, and use of aids that may enhance teaching abilities. However, it must be noted that without students' capability or interest, no matter how effective the teaching capabilities are, the teacher will only play the role of spectator and will not be able to teach at all (Biggs 1994).

2.3 Process-Based Characteristics

Focuses here are on the specified techniques that are available and could be used to by the student in learning and or by the teacher in teaching, could improve and enhance the learning or knowledge gained by students (Biggs 1994). The information processing model is similar to learning style; in that information processing strategies are conceived as being context-free or detached; elaboration, imaging, reversal, and the like (Weinstein and Mayer 1984). These strategies operate in much the same way whether the material being elaborated or rehearsed is being prepared for an examination

or for a laboratory experiment. Study skills training, and heuristics training deriving from Polya's (1945), how to solve it?, also derives from this model (Biggs 1994).

Students are trained to use appropriate strategies or study skills in one context (the training sessions) and are then required to carry them into actual work settings.

2.4 Classroom Characteristics

The focus here is on student characteristics and on teachers' capabilities combined together in a classroom to facilitate learning, there are certain attributes which are responsible and are primarily related to classrooms that could play some role in facilitating learning.

2.5 The Phenomenographic Model

Phenomenography is a highly influential methodology in the student learning literature (Marton 1988; Marton and Saljo 1976) study of surface and deep approaches to learning, and their relationship to the quality of the outcome, a much-quoted source. Learning is studied from the perspective of the learner, not that of teacher or researcher, the object being to see how students construct the content, expressed as the form of the relationship the knower sets up with the known. Usually such constructions, or conceptions, can be expressed in a limited number of hierarchically ordered ways, some learners having partial or distorted conceptions of the intended topic, others sophisticated ones (Biggs 1994). Learners may "comprehend", more or less, the teacher's perspective, but they genuinely learn only what they construct from their own perspective. Their approach to learning is how they go about that construction.

2.6. The Institutional Model

Reid (1987) distinguishes three major components in the institutional system: the rhetoric, the technology, and the social system, with the social system setting the terms of equilibrium for the others, the "technology", or teaching know-how, mainly belongs in the classroom, to serve institutional rhetoric, but its effective application depends on the social system of the institution, which has two aspects:

- the formal requirements established on a collegian basis
- the formal requirements of bureaucracy

Institutions vary in the extent to which deviance at the classroom level is tolerated (Biggs 1994).

3. METHODOLOGY

Research problem stated above demands certain methodology to be adopted that would suit and may provide the result for the key questions mentioned, the step wise design of the techniques adopted are stated as under:

3.1. Sampling

Total population consisted of approximately 450 students however sampling technique was employed to extract 103 respondent that can represent the population the techniques used are known as quota sampling and judgment sampling. The research was conducted in the month of June 2008. Quota sample states that a number of respondents will be decided pre hand to represent different sets in the population. As we had students representing the total population which were further divided into different classes or level of studies therefore we decided to select specific numbers from all the classes however students belonging to semester four or less in the undergraduate program were excluded.

After getting a specific number of students from the above technique, another sampling technique was employed to further reduce sampling error. The judgment techniques employed entails relying on the capabilities of the researcher to judge the suitability of a population representative whether to be included in or excluded from the sample. The judgment sample does increase the effect of researcher biasness however the techniques was thought to be suitable in this case because both researchers have maintained a training relationship will almost all the members of the population therefore were in a better position to judge whether the respondent is suitable to represent the population or not.

3.2. Data Collection

In order to collect the data from the sample and conduct a survey the technique employed was questionnaire. Questionnaire is simply a formalized set of questions for eliciting information. The questions contained in the questionnaire consist of open ended, close ended and often multiple choice questions. During the development of questionnaire one must understand the information required from the respondent, understand the respondent and other factors that can influence the data collection process.

3.3 Data Analysis Techniques

The hypotheses were developed and assessed by utilizing Kolmogorov-Smirnov, Chi-Square and Spearman Rank Correlation Coefficient tests. Finally, conclusion and finding were made on the basis of these tests.

4. Analyses, Results and Discussions

4.1. First test

One of the attributes that needs to be tested is the punctuality of the teacher that may or may not influence or have an impact on students' learning. In order to test we have asked respondents to rank as per preference on a scale of 1 to 6 with 1 being least important and 6 being most important. The frequency is shown in the following table.

The hypothesis developed is stated as:

h_0: Teacher's punctuality does not influences students' learning

h_1: Teacher's punctuality influences students' learning

The following table provides complete data which is needed for the performance of the Kolmogorov Smirnov test which accounts for observed numbers, proportions, commutations and calculated absolute difference.

Table – 1: Regarding **Punctuality**

	Observed Number	Observed Proportion	Observed Cumm. Proportion	Null proportion	Null Cumm. proportion	Absolute Difference Observed Null Cumm.
least important	29	0.2815534	0.281553398	0.167	0.167	0.115
very unimportant	4	0.03883495	0.32038835	0.167	0.333	0.013
somewhat unimportant	6	0.05825243	0.378640777	0.167	0.500	0.121
Somewhat important	7	0.06796117	0.446601942	0.167	0.667	0.220
very important	25	0.24271845	0.689320388	0.167	0.833	0.144
most important	32	0.31067961	1	0.167	1.000	0.000

Source: This Study

The most absolute value is 0.22 as per the table of Kolmogorov Smirnov values the difference is significant at where the calculated value is greater than the tabulated value which is 0.13 therefore meaning we have rejected the null hypothesis.

Further observations have shown that even if we strict the alpha value to 1% even than the tabulated value is 0.163 which is less than the calculated value.

Therefore in both cases at both values of alpha we have rejected the null hypothesis. As per our test the punctuality of the teacher coming in the class is somewhat important in influencing students' learning experience in a university.

4.2 Second Test

One of the factors that the management always evaluates in a teacher, is clarity of speech, the management has always related that clarity of speech as one of the most important factors in enhancing students learning therefore students were asked to rank this variable on a scale of 1 to 6 with 1 being least important and 6 being most important. The hypothesis to be tested has been developed as under:

h_0: Clarity of speech does not influence students' learning
h_1: Clarity of speech influence students' learning

The following table states the number of frequency, cumulative proportion, observed cumulative proportion, null proportion and absolute difference is calculated, the technique asked for most absolute difference to be evaluated.

Table – 2: Regarding **Clarity of Speech**

		Observed Number	Observed Proportion	Observed Cumm. Proportion	Null proportion	Null Cumm. proportion	Absolute Difference Observed Null Cumm.
1	least important	19	0.18446602	0.184466019	0.167	0.167	0.018
2	very unimportant	11	0.10679612	0.291262136	0.167	0.333	0.042
3	somewhat	15	0.14563107	0.436893204	0.167	0.500	0.063
	unimportant						
4	somewhat	11	0.10679612	0.54368932	0.167	0.667	0.123
	important						
5	very important	21	0.2038835	0.747572816	0.167	0.833	0.086
6	most important	26	0.25242718	1	0.167	1.000	0.000

Source: This study

The most absolute difference value is 0.123 as per the table of Kolmogorov Smirnov values the difference is insignificant at anwhere the calculated value is less than the tabulated value of 0.134 meaning that we have failed to reject the null hypothesis.

Furthermore if we reduce alpha value to 10% then the tabulated value is 0.12 which is less than the calculated value, meaning the factor is significant if alpha is 10%.

Because the study is calculated at an alpha of 5% therefore we have failed to reject the null hypothesis, meaning that the clarity of speech of the teacher is not a significant factor towards enhancing students' learning and they feel that they can cope up with this problem and there are other factors which are more important in enhancing their learning experience.

4.3. Third test

The research conducted was to highlight the most important attribute of the teacher that students believe that influence or motivate them into learning. In this regard we asked our respondent to recall the best teacher in their live who they believed have provided the maximum learning experience and to identify the best characteristics that has optimized learning.

The variables analyzed for the said study were based 'teaching capabilities', 'cooperativeness' and 'regularity and punctuality'. In the null hypothesis we assumed that none of the above attributes played any role in enhancing students' learning, the alternate was to figure out which of the above stated reason is most significant. The hypotheses developed are stated as under:

h_0: none of the mentioned qualities are significant

h_1: teaching capabilities is a significant factor
h_2: cooperativeness is a significant factor
h_3: regularity and punctuality is a significant factor

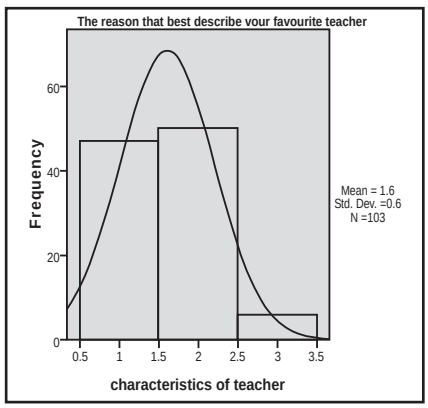
Table – 3: Regarding **Qualities of a Teacher**

	Frequency	Observed Proportion	Cumm. Proportion	Null proportion	Null Cumm. proportion	Absolute Difference Observed Null Cumm.
teaching capabilities	47	0.45631068	0.45631068	0.33	0.33	0.123
Cooperativeness	50	0.48543689	0.941747573	0.33	0.67	0.275
regularity and punctuality	6	0.05825243	1	0.33	1.00	0.000

Source: This study

The table depicts the total number of respondent who have been divided into three groups which states the characteristics of the teacher that is appreciated by the respondents as being the most important factor responsible for liking or disliking of the teacher.

The most absolute difference in value is 0.275 as per the table of Kolmogorov Smirnov values the difference is significant at where the calculated value is greater than the tabulated value of 0.134 meaning that we have rejected the null hypothesis. However the second most absolute difference is insignificant meaning the second most absolute i.e. teaching capabilities is insignificant. Furthermore if we test the above hypothesis at alpha 1% that is 99% significance even then the calculated value is above the tabulated value therefore at 99% we have rejected the null hypothesis as well.



Therefore we have concluded that the sample believes that cooperativeness of a teacher is the most important feature that contributes towards learning because we needed to find the significance of other factors as well therefore the second most absolute difference was calculated which was teaching capability and was insignificant, meaning it is more important for a teacher to be cooperative and understand students' problems than to posses good teaching capabilities.

4.4 Fourth Test

One of the preconceived relationships that we wanted to test is the relationship between obtaining good GPA in class and consulting the teacher apart from class. In order to determine the relationship chi-square technique has been employed.

The data was further grouped into two categories which were student securing CGPA = 3 and CGPA > 3 furthermore and the second category is consulting teacher outside class = 2 hours per week and consulting teacher outside class > 2, which is presented in the following table.

Table – 4: Regarding **Groups w.r.t. Consulting**

	= 3	> 3	Total
equal to or less than 2 hours per week	35	58	93
more than two hours per week	3	7	10
	38	65	103

Source: This Study

The hypothesis needed to be tested for this test is stated as under:

h_0: Obtaining GPA is independent to meeting with teacher outside the class
h_1: There is an association between meeting teachers outside class and obtaining GPA

Table – 5: Regarding **Computing the Expected Value**

	= 3	> 3
equal to or less than 2 hours per week	34.31068	58.68932
more than two hours per week	0.291262	6.31068

Source: This Study

Table – 6: Regarding **Comparing Observed with Expected**

Observed	**Expected Value**	**(Observed – Expected Value)^2**	**(Observed – Expected Value)^2/Expected Value**
35	34.31	0.697144	0.48601
58	58.689	0.689	0.474721
3	0.291262	2.70874	7.33727
7	6.31068	0.68932	0.475162
Total			**8.773163**

Source: This Study

The tabulated value of Chi-Square at having df_1 is 3.84 and the calculated value is 8.773163 which is greater than the tabulated value therefore we have rejected the null hypothesis. The test has proven that the there exist a very strong relationship between obtaining good CGPA

and meeting teacher outside class. To further test the significance we took Chi - Square at having df_1 which was 6.64 the value is again less than the calculated value therefore even at 99% confidence interval we have rejected the null hypothesis.

4.5 Fifth test

Another test that was needed to be performed was to determine the association between two variables time spend in library and understanding of topic. The data collected was in ranks classifying time spending into time interval and understanding of topic into intervals of learning. The Spearman rank correlation coefficient was used to determine association between two variables which data is in ranking order. In order to determine the association we have considered a group of data from the total sample which is about 25 respondents. The hypothesis for the above consideration is stated as under:

h_0: There is no association between understanding of topics and time spend in library
h_1: There exist an association between understanding of topics and time spend in library
The formula for calculating t value is stated as under:

Equation 1

$$t = r_s\sqrt{\frac{n-2}{1-r_s}}$$

Where r represents coefficient of correlation and in order to calculate r the formula is stated as under:

Equation 2

$$r_s = 1-\frac{6\sum_i^n 1d_i^2}{n^3-n}$$

Therefore as per our observed value

Equation 3

$$r = \frac{6(37)}{(25)^3-25} = 0.014$$

Now calculating the value of $t = 0.014\sqrt{\frac{25-2}{1-0.014}} = 0.068$

With n – 2 degree of freedom the value present in the t distribution table is 2.069 therefore falling within the critical region.

Because the observed value is falling within the tabulated value therefore it is concluded that we have failed to reject the null hypothesis i.e. there is not a very strong association between understanding of the topic when taught by a teacher and the time spend in the library by a student. Even we relax the test by taking alpha at 10% then the tabulated value is 1.714, the calculated is still less than the tabulated value therefore we have failed to reject the null hypothesis even at 90% significance interval.

The tabulated data for the testing of the hypothesis is presented as under:

Table-7:		**Regarding Mean Score**	**Of Variable**		
Understanding of topic	Time spend in library	Score	Understanding of topic	Time spend in library	Score
Mean	Mean		Mean	Mean	
2	1	1	2	1	1
4	1	9	2	1	1
2	3	1	1	2	1
2	1	1	1	4	9
2	2	0	2	1	1
2	1	1	1	1	0
2	1	1	2	2	0
2	2	0	2	1	1
2	2	0	2	1	1
2	1	1	1	1	0
3	3	0	2	1	1
2	4	4	2	1	1
			2	1	1
					37
					Total Score

5. Conclusion

In our research we have tested only 5 hypotheses however in our questionnaire we have gathered data relating to more than 30 variables from which numerous other testing can be performed, the data gathered will be utilized in another research which will bring further insight into the students' psyche.

Through research we were able to answer as per students, punctuality of the teacher is somewhat important in enhancing learning. Clarity of speech was considered an insignificant feature. The most preferred quality of the teacher which is responsible for ranking a teacher as the best teacher is cooperativeness. Another finding was the relationship between CGPA obtained and consulting teacher outside class, which we concluded that there is a strong relationship between consulting

teacher and obtaining good CGPA. Lastly we found that time spend in library has no significant association with understanding of topic when taught.

After research some behaviors have been observed which leads to the inference that some of theses factors does have an influence on the learning capabilities of the students, further research is needed to measure the impact of these factors which will assist in prioritizing these factors on the basis of their influence in enhancing students' learning in an institutional environment.

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