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Relationship between College Entrance TestScores and Grade XI Science Students' Performance

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Abstract

An increasing trend of testing candidates before giving admissions in an educational institute is commonly observed in Pakistan. This trend can be particularly seen in the private educational institutions in the name of quality induction. The purpose of this study is threefold. First purpose was to find out the appropriateness of College Entrance Test (CET) model used in the private higher secondary school in Karachi, Pakistan for the predictability of students' performance in Higher Secondary School Certificate (HSSC) I annual board examinations. Second purpose was to examine the correlation between students' performance in college entrance test and in annual examinations with special focus on science subjects. Four hypotheses guided the study significantly in this direction.

The mixed method study was conducted in two phases.Students' scores in the college entrance test and annual board's result 2017 were correlated through regression analysis at α = 0.05 level of significance by using Statistical Package of Social Sciences (SPSS) version 22. The finding of first hypothesis revealed highly significant correlation between students' performance in CBT and HSSC I in Biology (r = 0.35, p = 0.00), Chemistry (r = 0.37, p =0.00), Physics (r = 0.50, p =0.00). Findings also suggested CET as a good model for the predictability of students' performance in annual board examinations for Grade 11 pre-medical group (R Square= 0.43, F= 50.0, p = 0.00). Several recommendations are made for various stakeholders on the policies and practices related to school admissions and science education at higher secondary level.

Key words: College entrance test, computer based test, science subjects, students' performance, annual board exams

Introduction

Many developed countries have started conducting standardized tests for admission in higher education institutions. Ali and Ali (2013) claimed that "the scores on such tests demonstrate applicants' intellectual ability and knowledge" (p.77), hence predict the applicants' success or failure in a particular field of study in the future. This increasing trend of testing for the purpose of admission is equally evident in developing countries like Pakistan, particularly in the private educational institutions at secondary and tertiary levels for quality induction. This call for competency test for merit-based admission is the response to reliability, validity, quality, and alignment issues of public examinations (Pakistan, Ministry of Education, 2009). On the other hand, these tests are of prime importance for parents and students as these are considered as the gate keeper for students getting admission in reputable educational institutions, and ultimately to their bright future and good jobs.

Background of the Study

Entrance test in educational institutions is seen as a tool that filters students on the basis of merit, increases the nation's intellectual productivity and restores global competitiveness. The concept of entrance test originated in early 20th century with the desirability of classifying students at the time of entry in technical courses to avoid wastage. This wastage remedy was proven effective to reduce the dropout rates in the courses, hence found beneficial for sustaining intellectual assets of higher education institutions (Schaefler, 1962).

In Pakistan, most of the annual public examination systems at the school level test memorization and recall, and thereby promote rote learning which is detrimental for understanding and for application of knowledge at all levels, as well as poor preparation for higher education (Government of Pakistan, 2002; Pakistan Ministry of Education, 2009). Consequently, admission to higher education institutions, on the basis of examination

scores, would not be a valid tool to measure students' knowledge and ability for future studies. Further, to cater to a vast number of applicants for the limited seats, these entrance tests are made as a filter for quality intake into prestigious institutions. Thereare some underlying assumptions about these entrance tests. First, students who excel in achievement tests (i.e. public examinations), but have attended schools with fewer resources or less rigorous learning process would score low in the aptitude test.

The second is that, regardless of the type of resources and education system, some very talented students who could not perform in the achievement test for any reason will outshine in the aptitude test. This is supported by the findings that many high achievers in the achievement exams got failed in the aptitude test of a well-reputed science and engineering university (Askari, 2015).

Further, the futuristic and instrumental value of science-oriented learning (Osborne & Collins, 2001) is reflected in the entrance tests of higher education institutions of medical and engineering education in Pakistan. This is revealed in the higher weightage that they give to science as compared to other subjects in their admission tests. In addition, the scores of science are taken into special consideration when making decisions about admission since it is regarded as the key indicator of students' competency. Hence, it is clear that the students' learning outcomes in science is determinant of their success in the admission tests of all reputable institutions. Many studies show several personal and school related factors influencing students' learning and performance in science. Though it is difficult to carryout predictive analysis of students' future performance in science, admission tests are considered as potential indicators to determine the chance of success in the field of science studies. Therefore, assessing the predictive validity becomes more significant to see if the tests are valid in making admission decisions and to ensure that the information gathered from such tests is accurate.

The other aspects associated with entrance tests are psychosocial and economic dimensions which have severe implications on both the society and its individuals. These entrance tests place a considerable pressure on the students and parents leading to psychological problems and even suicide among school children (Davey & Higgins, 2005; Dai, Chen,& Davey, 2007). There is also stress upon schools and teachers whose reputations are at stake based on the number of their students' getting admissions in institutions of

prestige (Lewin&Xu, 1989; Dai et al., 2007, Wang & Ross, 2010). In addition, each test charges a fee and the cumulative total of these fees and the cost of test preparation programs may be daunting to many families.

Problem Statement

Academic retention and success of students, especially during Grade 11, are among the major concern for colleges and universities. This is because Grade 11 is the time when students lay the foundation on which their subsequent academic success and persistence rest (Schaefler, 1962). However, since there are many variables that influence students' academic success, deciding which criteria are the most accurate in predicting student academic success in higher education is a difficult task.

Reseon, Terenzini, and Domingo (2006) indicated that, before selecting academically competent students, it is essential to identify variables that are used as indicators of success to reduce the failure rate of students in training. This is used to evaluate the effectiveness of the training program and decrease wastage of the educational institution's time and resources on students who have little chance to succeed. Many studies have confirmed that cognitive measures such as high school GPA and college entrance exam test scores, and psychological variables such as self-efficacy and achievement motivation predict first-year university students' grades better than cognitive measures alone (Pascarella, Sedlacek, &Terenzni, 1991; Ting, 2001).

In Pakistan, research on predictive validity is a new field for researchers and therefore, studies conducted so far, on the predictive validity of Entry Tests are scarce. Though no such study is carried out at higher secondary level, but few of such kind have been done at professional medical colleges. For example, one of the studies by Baig, Ghouri, Fehmida, and Nargis (2001) revealed that there was a negative correlation between the entry test scores and the academic achievements of students. Also, the study conducted by Huda, Dosa, Alam, and Agha (2001) concluded that none of the components of admission criteria that is Secondary School Certificate (SSC), Higher Secondary School Certificate (HSSC), Medical University admission test and interview scores, predicts the academic achievements of medical students in professional examinations. The findings from these studies do not confirm the findings in this area at international level. Hence these pose a question mark on the applicability of entry test in Pakistani context. Further,

these studies do not explore the factors which impact the correlation of entrance test and annual performance.

Research Questions

Is there any significant relationship between College Entrance Test (CET) results and Grade 11 students' performance in science subjects in the annual Board Examinations?

To what extent are the Computer-based Test (CBT) scores significantlyrelated with students' performance in annual Board Examinations in biology, chemistry, and physics?

Purpose and Method of the Study

AGAZ (pseudonym), a private higher secondary school in Pakistan selectsits promising students based on the secondary school certificate (SSC I) results, interview score, and computer based tests (CBT). The prediction based on these indicators ought to be examined to ensure precise and reliable admission decision. Making inaccurate prediction about students' ability for future performance would add a burden to the school.

Further, these tests are used to make important decisions about students' future career so it is necessary to investigate its appropriateness to ensure effective admission practices. Also, much of the existing literature focuses on the correlation of CET and students' future performance. The study aims to understand the students' performance in admissions tests, examine carefully the statistical justifications for the use of admissions tests and SSC I results, including their usefulness in predicting annual performance of science students, evaluate the degree to which existing admission criteria meet the needs of the faculty and students and draw conclusions and make recommendations regarding the future use of admission tests for the purposes of both eligibility and selection and lay the groundwork for a broader faculty dialog on these issues.

An ex-post facto study has been conducted using archival data that is available to the researcher in her role as Vice-Principal of a private college in Karachi. Data that were collected included students' scores on admission test 2016 and their performance in annual board examinations 2017 and the correlation was determined.

Significance, Scope and Delimitations

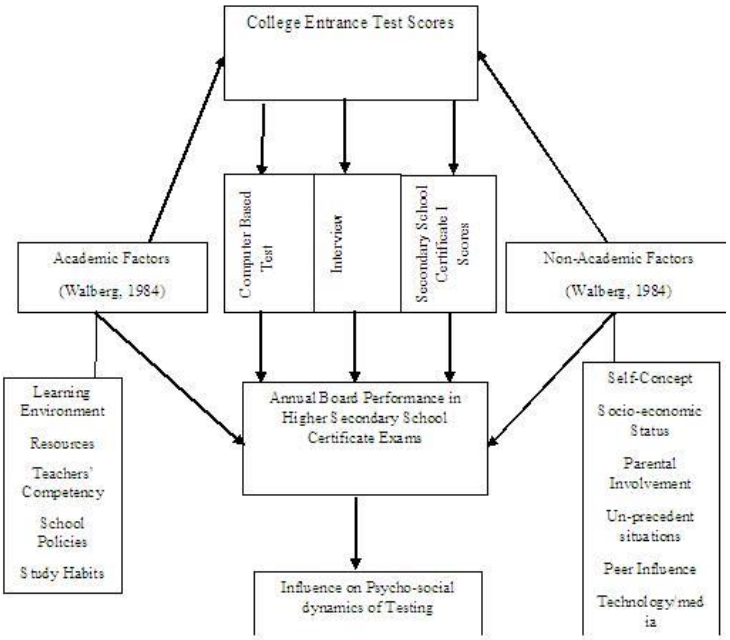
There is hardly any published research study available in the context of Pakistan on the predictability of college entrance test scores for students' performance in annual board examination at higher secondary level. This mixed research study therefore, will provide a basic understanding about the same in the Pakistani context specifically in the area of science education. Further, the work association of the researcher with AGAZ Higher Secondary School would provide an opportunity to relate the study findings to its students' academic support programs, and for reviewing its admission policy. Also, this study can be used as a baseline to investigate more academic and non-academic variables in determining students' learning achievement in science. Thus, the study will give important information to educators, policy makers, counselors, students and other concerned bodies.

Also, the empirical part of this study explores different cognitive and non-cognitive factors influencing students' performance in annual board examinations. However, validity of these predictors, such as students' socio-economic status, parental qualification, examination systems, and teachers' experience need to be examined further in detail in the follow up studies. This study only focuses to explore the correlation of college entrance test of a private higher secondary school with students' achievement in science subject in eleventh grade board examinations. The findings cannot be generalized to the students of other disciplines and context. Though the empirical part of the study explored the test takers' perspective and experiences which helped in identifying the key issues and benefits of admission process, test taker's perspective was missing and could not lead to a holistic picture of the phenomena. Further, it delimits to provide an in-depth explanation of broader educational issues like CET linkages with national educational policies and curriculum.

Literature Review

Though McClelland (1973) claims that no research evidence is available that shows the correlation between test scores and the students' actual accomplishment in job and life, it still plays a key role in getting access to quality education and environment in the college of repute (Kellaghan, 2004;). Walberg (1984) highlights different factors related to aptitude, environment, and instructions that hinder or facilitate students'

academic progress. It is therefore, important to explore how these factors mediate the school's input for eleventh Grade students' performance in board exams. The literature review of research is based on the conceptual framework shown below.



High-Stakes Testing (HST)

Blake (2012) claims that the notion of high-stakes testing emerged in the name of democracy, meritocracy and individual freedom, however, its philosophy and purpose depict the utilitarian approach. Blake (2012) referred to the Mill (1999) who justifiesthat any action on ethical grounds based on the consequences; proponents of high stakes testing consider it necessary for educational standardization and development (Ruoling, 2010). Madaus as cited in Blake (2012), presents a comprehensive definition for high-stakes testing which is referred by most of the educational researchers. High-stakes test include those used for the certification or recertification of teachers, promotion of students from one grade to the next, award of a high school diploma, assignment of a student to a remedial class, allocation of funds to a school or school district, award of merit pay to teachers on the basis of their

students' test performance, certification or recertification of a school district, and placement of a school system in education receivership. (p. 30).

The above definition reflects that these test scores can burnish or tarnish the reputation of an individual in public for bigger good that is improving the educational system. This is in contrast to low-stakes testing which does not have any significance or consequence for an individual in the public. The best example of later is classroom assessment where teachers' remarks would help student to identify the strengths and shortcoming for future efforts. Thus it is the function and not the form that makes high-stakes test distinct from the low-stakes test (Blake, 2012).

Historical Background

According to Madaus and Russell (2010, 2011), the origin of high-stakes testing is based on political motive. However, to understand this,it is important to see the development of Western schooling concept in 18th century. Though learning together in the form of group is a primitive human civilization, Plato laid the importance of schools for the ideal state. Plato mentioned in The Republic that the state should take responsibility for training children from the age of three and that each citizen could be guided by the system towards an ideal conception of justice and into the social class and occupation best suited for him.

Hence, in 1940s, most of the schools throughout the United States started using some form of standardized testing which was further extended as tracking and selection tool in 1950s. On October 4, 1957 the Soviet Union successfully launched the first Earth orbiting satellite, Sputnik, which shattered the Americans technological superiority. Concern arose that American educational system was not preparing enough scientists and engineers; hence, National Defense Education Act (NDEA) was passed to provide funding to improve American schools and to promote postsecondary education to meet national security needs. Furthermore, in 1965, the Elementary and Secondary Education Act (ESEA) was passed to emphasize equal access to education and establish high standards and accountability. Hence, in the 1970s, state-mandated minimum competency testing begun. For example, National Assessment of Educational Progress (NAEP) report serves as a common metric for state's performance on sampling basis. In

order to overcome random sampling for assessment and to support standards-based education reform under No Child Left Behind Act (NCBA) of 2001, federal role in public education is expanded through annual testing, annual academic progress, report cards, teacher qualifications, and funding changes (Blake, 2012; Brosio, 2003; Kellaghan, 2004) . Recently, the high-stakes testing in United States of America (USA) has taken a new form in connection to the Race to the Top movement; particularly for raising standards and aligning policies and structures to the goal of college and career readiness (Blake, 2012; Thomas, 2013).

This brief historical account depicts that the high-stake tests are made to measure the outcomes of education which reflect a larger belief in the use of metrics to determine the success of any policy and system. The same concept prevails throughout the world. As Pakistan Ministry of Education (2009) mentions in NEP:

National standards shall be developed to reduce the differences in quality across regions. Assessment processes shall be standardized to become uniform across the Boards over time, so that students appearing in examinations under different Boards are assessed against standardized benchmarks. (p.39).

Philosophical Issues

In the late 19th and early 20th centuries, modernism was shaped up by the modern industrial societies followed by the World War I. Modernism rejected the religious beliefs and focused on the centrality of human being for ethical decisions. All existed notions were re-examined to see what is holding back the human progress and economic stability. The concept of high-stakes testing linked to educational reform emerged at the same time carrying the same utilitarian philosophy of Mill, however, the politicization of assessment made it as a "multi-faceted and misconstrued construct within the educational setting" (Blake, 2012, p. 7). It is, therefore, criticized that it is nothing short of disastrous that more than ever before, one antidemocratic system of ideas-market ideology-almost exclusively defines the terms of educational politics and charts the path of education reform." (Engel as cited in Thomas, 2013, p. 87).

In this section, different ideological and philosophical underpinnings of high-stakes testing are explored while reflecting on its purpose, processes and impact.

Testing in modern times is seen as a tool to developing a world-class educational system, motivating the un-motivated, filtering students on the basis of merit, increasing the nation's productivity and restoring global competitiveness (Madaus& Russell, 2010-2011). As a result, it increases the inequity gap in society based on income, wealth, privilege, access and merit. Foucault as cited in Thomas (2013) argued that "the exanimation combines the techniques of an observing hierarchy and those of normalizing judgment. It is a normalizing gaze, a surveillance that makes possible to qualify, to classify, and to punish" (p. 89). This shows that the raise in its power within the accountability paradigm as a control system leads to the testing capitalism, where test scores as well as humans function as commodities which are regulated by authority. This is well reflected in NEP – 2009 of Pakistan where Government assured to establish National Education Testing Service to design and administer standardized test for the admission of professional institutions and thus, control the system. Hence, the hidden purpose of high-stakes testing is to benefit those in the power having control over the system and wanting to justify their supremacy on the score based scientific objectivity. Foucault, the great modern philosopher strongly criticized this grand reality as it is using human as an object / mean to obtain the desired outcome.

It is known that the achievement of test scores depends upon the familiarity of context and format. Academicians raise a question on many high-stakes test as how fair it is to ask about the concept/context which child is never exposed to. For example, McClelland (1973) highlighted the cultural clash in American Indians who are more towards non-verbal communication for learning at home and are assessed through verbal testing tool. Similarly, students with dyslexia or impaired vision and non-English speaking learners usually get marginalized due to contextual, physical, and linguistic barriers.
McClelland (1973) refers several research studies in his article which shows no direct relation of intelligence with job or life performance of students. On the other hand, it is the socio-economic status that gives access and confidence leading to success in the future. Also, high-stakes tests cover only a limited range of skills that a child might be using in the professional life.

Major critique to the validity is that if a high-stakes test is neither holistic nor representative in nature, how valid is this in determining what it is supposed to (Madaus& Russell, 2010-2011).

Several researchers argue that sequence, selection, format of questions in the paper along with the time, space, and vigilance factors influence on students' test scores (Kellaghan, 2004; Kirkpatrick &Zand; 2011; Madaus& Russell, 2010-2011; McClelland, 1973). This raises a question on the credibility and reliability of high-stakes test scores. One time activity in an artificial setting through paper-pencil test cannot provide reliable information of students' performance.

Furthermore, Sackett, Schmitt, Ellingson, and Kabin (2001) suggested strategies to cater diversified groups of examinee and remove the culturally-biased test items. High-stakes tests in the "age of infinite examination and of compulsory objectification" (Foucault, as cited in Thomas, 2013, p. 91), however, considered as important by many proponents based on its potential to provide information and to differentiate between self-motivated kids to those who quit trying years before (Phelps, 2006). Brosio (2003), however, critiqued the whole process of high-stakes testing with two philosophical perspectives. First, it reflects a class war where teachers are workers and belong to Proletariat class. Policy makers impose their decision on teachers in the name of competition and standardization. The victory of this capitalist imperative can be seen by "profit more pay less" philosophy in terms of teachers' working hours, stress level, and salary. The other dimension highlighted was the educational essentialism which is reflected in the philosophy of high-stakes testing process. Essentialists believe that they know what the essential in curriculum for everyone is and what objective / standard aspects should be measured. They force schools to adopt those pedagogical forms which they consider objective and essential to achieve the goals. Dewey and Freire refused this idea of "filling station pedagogy" (Brosio, 2003, p.2) as they believe that learning is very subjective and based on personal experiences.

Thomas (2013) agreed that test-based ranking of countries has no clear positive or negative correlation with the countries' economic power. However, as the discourse and policy is mainly driven by test data, it has economic pressure on the countries specifically developing countries where financial aids and grants are given based on students' performance in such

tests. Standardized Achievement test in Pakistan is one example where it is made as a disbursement learning indicator (DLI) by USAID for grant release purpose. Further, at individual level,this economic pressure can also be felt by parents and schools due to high cost and funding implications. Along with the economic influence, high-stakes testing has severe impact on the psychological and physical aspects of children. Madausand Russell (2010-2011) refer how in 1980s and 1990s many schools re-named their intelligence test by readiness test for the admission of children to kindergarten or in first Grade due to the parents' argument. Tagging students as poor performers not only excludes low performing students socially, but also over stresses and marginalizes them.

As a result, students get demotivated; leave their studies or become hopeless for future (Kirkpatrick &Zang, 2011; Liu, 2013). Likewise, few suicidal cases can be found every year even in Pakistan as students are overburdened with this high-stakes testing. Blake (2012) reports that severe pressure is found on the low performing schools in USA due to serious implications of these tests result which include closing of school, firing of principal and staff. Paper-pencil tests are usually based on theoretical aspects leading students to selective study and rote learning without focusing on its application in daily life. Noddings cited in Blake (2012) endorsed the criticism on HST by saying that "these have sacrificed richness, depth and creativity to a dull struggle for higher test scores and material that is quickly forgetting when the test is over" (p. 15). This teaching- to-the test approach ultimately becomes a matter of investment and return rather than focusing on the holistic aspects of children. This shows that framing the issue on Either-or terms is not advisable and therefore, system improvement strategies like small class size, creative curriculum reform and collaborative professional development, should be focused which somehow got ignored due to over-reliance on testing.

Research Methodology

The study is designed to address several gaps in the literature; namely, students' views about the role and model of college entrance test, correlation between CET scores and annual board performance of Grade 11 science studentsand their perception on different factors influencing their learning in science. To explore the above areas, a mixed method study has

been designed. This chapter describes the overall research design and the rationale of its selection. Later part covers the context of the study, sample and sampling process, data collection methods and tools, data analysis procedures, and ethical considerations during the study.

Research Design

Mixed methodology though a complex process, best suits for those research problems whose complexity cannot be addressed through either descriptive or statistical analysis. Its central premise is that the use of both qualitative and quantitative approaches in combination provides a holistic picture of the area of study. Quantitative data provides a closed-ended view to the stated problem and uses statistics or scores to answer the research question or hypothesis. On the other hand, qualitative data consists of open-ended information which provides a rich and multidimensional analysis of a research problem. Hence, mixed method offsets the weaknesses of both quantitative and qualitative research approaches, and gives comprehensive evidence on the area of study. Though there are many approaches to mixed method (Cameron, 2009; Creswell& Plano Clark, 2011; Ponce & Maldonado, 2015), the choice of design to be used is based on the aim of the study and further suggests the data collection and analysis process.

The objectives of the study led to a parallel-phase mixed model that helped to understand the research problem in an integrated way and to find out answers with "greater certainty in inferences, conclusion or statements which formulate its findings" (Ponce & Maldonado, 2015, p. 114). Moreover, convergence design was used to see the research problem in entirety which means qualitative findings to understand the objective aspect whereas qualitative data to facilitate in making sense of the subjective aspect of the study. The convergence of qualitative and quantitative data has allowed the researcher to explain how CET predicts students' future performance in science and what factors influence it, according to the experiences and perceptions of the students. The identified factors would become a basis for future causal study in order to develop a comprehensive predictability model including both academic and non-academic factors.

Sampling and Population

The population for the study was Grade XI Sciences students enrolled in Board Examination for the year 2015-2017. These students are from

mostly upper middle and upper class families with different language, socio-economic, religious and cultural backgrounds. The study was conducted with a total sample (n=225: n1=116-AKUEB, n2=109-BIEK). These students completed 10 years of schooling and opted to study in the college for a two-year higher secondary school certificate program.

Data Collection and Tools

The data were based on the scores of CET and HSSC I. Archival data used in this study was obtained from pre-existing records that were available to the researcher through the student affairs department of AGAZ Higher Secondary School. However, to ensure accuracy, some random check from the primary sources (SSC II and HSSC I mark sheet) was done. Detailed personal and academic profile of each student was obtained that included college registration number, name, address, school and scores of SSC, examination boards at SSC and HSSC levels, scores of CET and HSSCI. This detail was helpful as it showed the heterogeneity in the sample and hence ensured the validity of findings. Further, the information facilitated the researcher in exploring relationship between various factors to get a better understanding of the area of study.

Data Analysis

:There is a significant relationship between CBT scores and students' performance in HSSC-I Annual Examinations with reference to physics, chemistry, and biology.

Table 1: Students' Performance in HSSC I & CBT- Biology

Domains		HSSC I Biology (%)	CBT Biology (%)
HSSC I Biology (%)	Pearson Correlation	1	0.35**
	Sig. (2-tailed)		0.00
	N	225	225
CBT (%)	Pearson Correlation	0.35**	1
	Sig. (2-tailed)	0.00	

	N	225	225

**. Correlation is significant at the 0.01 level (2-tailed)

The study found there was a positive correlation between the two variables, r=0.35 (two tailed), n=225, p=0.00 at 0.05 level of significance.

Table 2: Students' Performance in HSSC I & CBT-Chemistry

Domains		HSSC I Chemistry (%)	CBT Chemistry (%)
HSSC I Chemistry (%)	Pearson Correlation	1	0.37**
	Sig. (2-tailed)		0.00
	N	225	225
CBT Chemistry (%)	Pearson Correlation	0.37**	1
	Sig. (2-tailed)	0.00	
	N	225	225

**. Correlation is significant at the 0.01 level (2-tailed)

The study found there was a positive correlation between the two variables, r=0.37 (two tailed), n=225, p=0.00 at 0.05 level of significance.

Table 3: Correlation of Students' Performance in HSSC I & CBT-Physics

Domains		HSSC I Physics (%)	CBTPhysics (%)
HSSC I Physics (%)	Pearson Correlation	1	0.50**
	Sig. (2-tailed)		0.00

	N	225	225
CBT Physics (%)	Pearson Correlation	0.50**	1
	Sig. (2-tailed)	0.00	
	N	225	225

**. Correlation is significant at the 0.01 level (2-tailed)

The study found that there was a positive correlation between the two variables, r=0.50 (two tailed), n=225, p=0.00 at 0.05 level of significance.

Discussion

Any criteria used for the college admissions have critical role on the admission decision which ultimately impacts the students' future. It is therefore important to validate those criteria for justifying their use. There are many types of validity evidence; predictive validity is one of them. Predictive validity means an extent to which the specific criteria predict students' future academic success. The study aimed to explore the predictive validity of CET used by AGAZ Higher Secondary School to induct the students for two-year HSSC program.

Implications and Recommendations

The findings of this study have important implications for policy makers, school leadership, college teachers, counselors, parents, and students. Firstly, it is advisable for school leaders and teachers to focus not only on cognitive factors, but also on the non-cognitive aspects such as self-efficacy and academic achievement motivation in educational programs. Secondly, the role of CET is perceived and applied in a very narrow terms and limited to offer admissions only. Formative use of CET data could be used to device educational plans and strategies specifically for the students at risk. Also, the admission policy standards and criteria should be made clear to major stakeholders like parents and students. Thirdly, significant predictive validity of CET model implies the importance of personal, social, and cognitive factors in forecasting the students' performance. However, each aspect should be given equal importance in terms of weightage in the formula-based admission as non-cognitive factors are found to have great influence on

students' persistence, perceptions, and practices. This would even provide a better prediction of a student's ability to persist and achieve beyond Grade 11.

Conclusion

Based on the present study, one could conclude that non-academic factors cannot be ignored in exploring students' experiences in the college. These academic and non-academic factors contribute in students' perceptions. In addition, pedagogic practices ultimately affect Grade 11science students' performance. Hence, these factors could be the part of CET model to predict students' college experience and performance particularly in the annual board examinations. The inclusion of these factors should not only be limited for the college admission, but should be considered while planning any academic and non-academic school policies.

REFERENCES

Ali, A., & Ali, Z. (2013).Admission policy of medical colleges: Evaluating validity of admission test in Khyber Pakhtunkhwa, Pakistan. Journal of Research and Reflections in Education, 7(1),77-88.

Askari, S. M. (2015, September 3). The failure of A One and A grade students in the
admission test of NED (translation from Urdu). Daily Jang, p. 14.

Baig, L. A., Ghouri, G.H., Fehmida, T., & Nargis, A. (2001). Is the admission test at
Institute of Business Administration a good predictor of final professional test grades. Pakistan Journal of Medical Sciences, 17(3), 160-177.

Blake, J. E. (2012). High-stakes testing: A (mis)construed, normalizing gaze. International Journal of Educational Policies, 6(1), 5-23.

Brosio, R. (2003, June). High-stakes tests: Reasons to strive for better Marx. Paper prepared from the presentation given at Rouge Forum Summer Institute on Education and Society, University of Louisville. Retrieved from http://www.jceps.com/wp-content/uploads/PDFs/01-2-01.pdf

Cameron, R. (2009). A sequential mixed model research design: Design, analytical
and display issues. International Journal of Multiple Research Approaches, 3(2), 140-152.
Creswell, J. W., & Plano Clark, V. I. (2nd Ed.). (2011). Designing and conducting mixed methods research. USA: SAGE Publications.

Dai, M., Chen, Z.,& Davey, G. (2007, July).Mental health implications of the Chinese Universityentrance exam. Proceedings of Conference on Psychology in Mental Health: Prospects and Challenges, Bangalore.

Government of Pakistan (GoP). (2002). Report of the taskforce on the improvement of higher education in Pakistan. Retrieved from http://www.hec.gov.pk/MediaPublication/HECPublication/Documents/

Huda, N, Dosa,T. B., Alam, E., Agha, S. (2001). Selection procedure as predictor of
performance in university examination. Journal of Pakistan Medical Association, 51, 381-84.

Kellaghan, T. (2004).Public examination, national and international assessments, and
educational policy. Unpublished manuscript, Educational Research Centre, St. Patrick's College, Dublin. Retrieved from
http://siteresources.worldbank.org/INTAFRREGTOPSEIA/Resources/paper_Kellaghan.pdf

Kirkpatrick, R., &Zang, Y. (2011). The negative influences of exam-oriented education
on Chinese high school students: Backwash from classroom to child. Language Testing in Asia, 1(3), 36-45.

Lewin, K. &Xu, H. (1989).Rethinking revolution: reflections on China's 1985 Educationalreforms.Comparative Education, 25(1), 7–17.

Madaus, G., & Russell, M. (2010/ 2011). Paradoxes of high-stakes testing. Journal of Education, 190(1/2), 21-30. Retrieved from
http://www.bu.edu/journalofeducation/files/2011/06/BUJOE-190.1n2MadausRussell1.pdf

McClelland, D. (1973). Testing for competence rather than for intelligence. Retrieved
fromhttp://www.servicelearning.msu.edu/upload/2.8.pdf (Reprinted from American Psychologist, 28(1), 1-14.

Osborne, J., & Collins, S. (2001). Pupils' views of the role and value of the science
Curriculum: a focus-group study. International Journal of Science Education, 23(5),441-467.
Pakistan, Ministry of Education.(2009). National Education Policy.Islamabad:
Government of Pakistan.

Pascarella, E. T., Sedlacek, &Terenzini, (1991).How College Affects Students. San Francisco: Jossey-Bas.

Ponce, O. A., & Maldonado, N. P. (2015). Mixed methods research in education:
Capturing the complexity of the profession. International Journal of Educational Excellence, 1(1), 111-135.

Reseon, R.D., Terenzini, P.T., & Domingo, R. J. (2006). Developing academic
competence in the first year of college. Research in Higher Education, 47 (2), 149-158.

Ruoling, Z. (2010). On the rationality of the college entrance examination.Chinese
Education & Society, 43(4), 11-21.

Sackett, P. R., Schmitt, N., Ellingson, J, E., &Kabin, M. B. (2001). High-stakes testing
in employment, credentialing, and higher education: Prospects in a post-affirmative-action world. American Psychologist, 56(4), 302-318. doi: 10.1037//0003.66X.56.4.302

Schaefler, G. F. (1962). Wastage remedy: The use of an entrance test.The Vocational
Aspect of Education, 14(28), 15-35. doi: 10.1080/03057876280000031

Thomas, P. L. (2013). Testing capitalism: Perpetuating privilege behind the masks of
merit and objectivity. The International Education Journal: Comparative Perspectives, 12(2), 85-103.

Ting, S.R., (2001). Predicting academic success of first year engineering students
from standardized test sore and psychological variables. International Journal of Engineering Education, 17, 75-80.

Walberg, H. J. (1984). Improving the productivity of America's schools. Retrieved from
http://www.ascd.org/ASCD/pdf/journals/ed_lead/el_198405_walberg.pdf