

Impact of Institution's Infrastructural Facilities on Academic Attainments and Placements of Management Graduates—A Diagnostic Study

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Abstract: *Findings of the number of research studies carried out by the Indian and foreign scholars about the impact of infrastructural facilities available in an institution on the academic attainments on its students present a mixed bag. While AICTE places added emphasis on availability of necessary physical infrastructural facilities in technical education institutions including the B-Schools for effective delivery of teaching-learning processes, it is ample evident that due to certain obvious reasons, many B-Schools seriously lack even the bare minimum physical infrastructural facilities thus adversely impacting the educational attainments and subsequently the placements of their students. The present study aimed to assess the impact of infrastructural facilities on the academic attainments and placements of management graduates of selected B-Schools of Bangalore metropolis. An analysis of the primary and secondary research data captured reveals that there is a positive correlation between these variables and thus the findings strongly supports the necessity of having all the prescribed physical infrastructural facilities on the campuses of the B-Schools in place for more effective and efficient delivery of knowledge, which is a pre-requisite in our knowledge-based economy. Further, the study has suggested measures for optimal utilization of the available facilities for the larger good of the society.*

Keywords: Infrastructural facilities, Norms and standards, AICTE, B-Schools, Academic attainments and placements.

1. Introduction

With the advent of the era of liberalization, privatization and globalization (LPG), many entrepreneurs, including the generation entrepreneurs, established technical institutions even in the far-flung areas to meet the increasingly growing needs of the trained manpower in the country to man the different sectors of economy at various levels. These technical education institutions were expected to handle this enormous responsibility towards the nation by producing quality manpower over a period. The regulatory authority i.e. All India Council for Technical Education (AICTE) established by the Government of India through an Act of Parliament was entrusted with the pious responsibility to set standards, monitor and mentor the quality of technical education in the country by directing institutions to adhere with its prescribed norms and standards in terms of requisite infrastructural facilities, teaching-learning resources and intellectual capital etc. The institutions since inception were expected to strictly adhere with these set norms and standards and report to AICTE every year in the prescribed format. Thus, it was expected that the technical education institutions well equipped with requisite mandatorily prescribed inputs will deliver effectively and efficiently to compliment and supplement State efforts and endeavours.

In India, since time immortal, education has been considered a very pious and one of the important instruments for peaceful and enduring social and economic empowerment and transformation of the society. Further, it was generally perceived as one of the noble professions and not at all a business. However, management education; which was to play a vital role in today's dynamic global arena (Nishad M & Krishna B, 2013) and as an alien entry in the nineteenth century (Ranjitha, 2016) became victim of the cutthroat

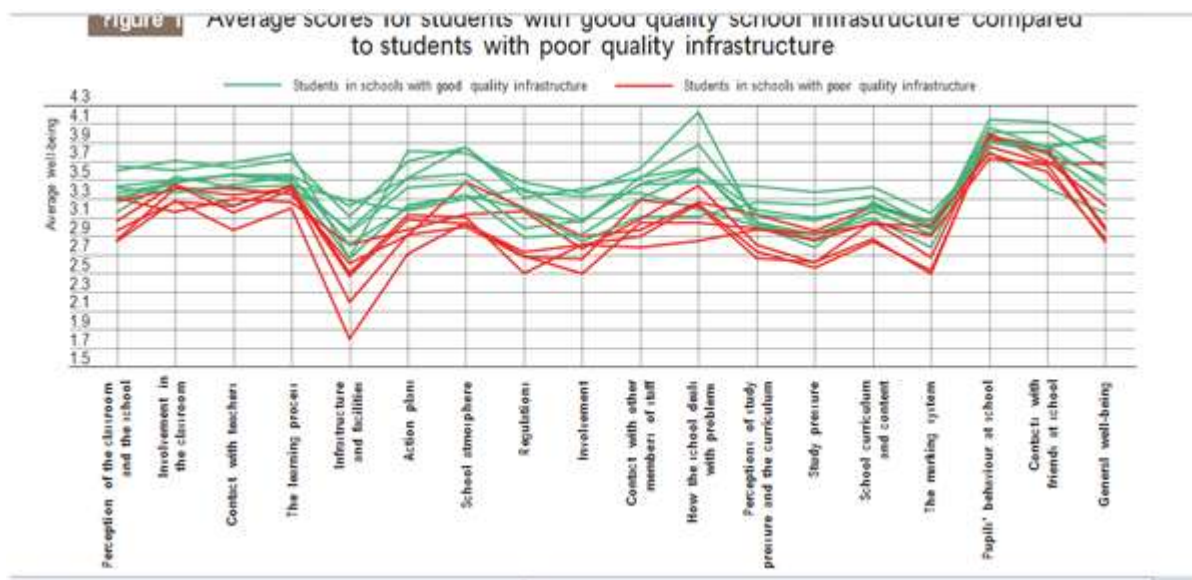
competitions, growing commercialization and strong profit motives of the service providers. This tendency gradually made even many good institutions to drastically compromise with the required inputs, both quantitatively and qualitatively and thus adversely impacting the quality of students produced with employability knowledge, attitude and skill-sets. Prescribed infrastructural facilities e.g. classrooms, hostels, canteen and cafeteria, recreational facilities, rest rooms, common rooms, play grounds etc. were one such victims of the management of many technical education institutions; resulting into adversely impacting the academic attainments and the subsequent placements of management students. In this context, the present piece of research instigation is a modest attempt to gauge the impact of physical infrastructural facilities on the academic attainments and subsequent placement of management graduates.

2. Review of Literature

Many researchers both Indian and foreign have conducted detailed works studying the impact of various factors including infrastructural facilities (independent variables) on the academic attainments and placement of students (dependent variable). Singh & Mallik (2016) stated that student's academic performance is affected majorly by the psychological, economic, social, personal and environmental factors. The environmental factors mostly comprise of the infrastructure facility, teaching and learning resources and intellectual capital along with the teaching pedagogy and intellect of teaching faculty at higher education institutes. They found that infrastructural and learning facilities and proper guidance from faculty and parents have a positive and statistically significant impact on the students' performance.

Kwesiga (2002) stated that the number of facilities offered usually determines the quality of the school, which in turn affects the performance and accomplishment of its students. David Branham (2002) in his work stated that the quality of educational institutes' infrastructure has a significant effect on education institutes students' attendance and the drop-out rates. The study focused on Wilson's and Kelling's (1982) work wherein they mentioned that the conditions of education institute's infrastructure has crucial consequences on the student's performance, specifically the attendance and the drop-out rates.

Yvonne Beaumont Walters, Kola Soyibo (1998) elaborated that student's performance is very much linked to the school type and location along with the type of socio-economic background (SEB). Katrien Cuyvers et al. (2011) supported the importance of the education institute's infrastructure on the well-being and academic attainment of students. In a similar study Katrien (2011) proposed 48 quality indicators of infrastructure on which the average score of pupil's wellbeing was found as under:



Lockheed and Verspoor, 1991; Laukheed&Hanushek, 1988; Harbison &Hanushek, 1992 and Crampton (2009) have clearly stated that resources like infrastructure plays critical role in determining student performance. Murillo &Roman (2011) found that the availability of basic infrastructure facility and services like water, sewage, electricity etc. and didactic facilities including sports, laboratories, libraries.

It has been stated that one of the major weakness in the Indian higher education systems is the lack of proper infrastructure, which is one of the major threats for deterioration of quality of education.

Study by Kenn Fisher indicates that the student academic achievement improves with improved building condition. Individual factors, such as lighting levels, air quality and

A growing body of research has found that physical infrastructure facilities can have a Center for Evaluation and Education (2016) in a recent study has stated that the policymakers, educators, and business people are now focused on the need to ensure that students learn 21st century skills such as teamwork, collaboration, effective communication, and other skills. Older buildings simply are not conducive to the teaching of 21st century skills. This is particularly true with respect to reconfiguring seating arrangements to facilitate various modes of teaching and learning and the use of technology in the classroom situations as a mode of teaching and learning pedagogy.

There are evidences that support a clear relation between thermal environment and academic achievements of students. Another study states that temperatures in excess to 25°C decreases mental efficiency, work outputs and performance. Student achievement is further reduced by poor ventilation, lack of air movement and poor humidity control. The study also indicates UNESCO norms wherein it states that UNESCO believes that uncomfortable and unsuitable furniture causes problems including backache, poor concentration spans and writing difficulties to students and thus reducing learning opportunities and the education outcome.

A study at the University of Gottingen found that student's perceptions and behavior are influenced by conditions like scale of the buildings and the variety and stimulating potential of structural shapes and color schemes. Other factors of infrastructure impacting student's performance include transitional spaces (indoor/outdoor), the anthropological and social aspects of design, sensory stimulation, context, education institutes-within-education institutes, harmony, the incidence of views and vistas, functional zones, circulation patterns and super visible circulation spaces like hallways and corridors.

Marcelo et al. (2011) in their study attempted to assesses the correlations between the infrastructure and education institute's performance indicators such as enrolment, attendance, grade repetition and academic proficiency. He concluded that lighting is one of the important aspects of infrastructure as better-lit classrooms improves performance.

R.A. Alani (2001) states that 'the university world-wide are the seats of the highest level of human capital development, those whose training and development depends largely on the quality and the quantity of the available infrastructure'. Further, infrastructure is the operational inputs of every instructional program and constitutes elements that are necessary for teaching and learning. Such elements include the buildings, laboratories, machinery, furniture and the electrical fixtures.

Bosah (1997) considered landscape, playgrounds, classrooms, library, laboratory blocks, hostels, toilets, health block, administrative blocks, utilities such as electricity, water, security facilities – walls (fences), gates, phones, and alarm system as the major elements of infrastructure. Coombs (1991) emphasizes that educational system is a function of the quantity and quality of inputs, of significance. He found that there exists a significant relationship between the infrastructure availability and the students' perceived motivation to learn. The finding of the study also agrees with Adeboyeje (1994), Vaisey (1968), Ejiogu (1997) and Nwagwu (2004), who supported the availability of adequate buildings, classrooms, chairs and tables, laboratory, library and other physical structures in the education institutes, which are necessary for accomplishment of the educational goals and objectives.

Jeffery (1999) stated that education institutes are not only bricks and mortar system rather they are seats with strong commitment to quality education. He concluded that education institute infrastructures are the designs that inspire good teaching, support productive learning, enhance learner's joy and promote feeling of security.

Ogundare (1999) and Olagboye (2004) have reported that proper availability and utilization of education institute infrastructure is not only conducive to comfortable learning facilities but also boost the academic attainments of students, morale of the teachers; and which is reflected in setting and achieving of education goals. Hussain, Iqbal and Akhtar (2010) on public education institute in Islamabad in Pakistan emphasized the involvement of technology and IT in Education institute infrastructure as it enhances students' achievement.

Lekjep and Ripnung et al. (2010) while studying the effects of physical infrastructure on students' academic performance indicated that physical infrastructure significantly impacts student's performance along with being responsible for the quality of graduate produced and presented to the market. Obasi (2005) stated that a student will become more focused in his academic pursuit without much direction, if the environment is conducive and the facilities are available for studies. Lyons (2002) said that learning is a complex activity that puts students' motivation and physical condition to the test. Apart from curriculum and teaching; the physical conditions of education institutes also influence the students' achievements.

Earthman, Cash and Van Berkum (1996) and Cash (1993) examined the impact of various factors of education institute's building condition on student's achievement. They found that air conditioning, conditions of science

laboratories, locker accommodations, condition of classroom furniture, wall cooler and the acoustic levels were significantly impacting students' achievements.

Chan (1996, 1998) reported that student's achievement was highest in institutes with modern infrastructure and lowest in institute with obsolete infrastructure. He also concluded that technology and adaptabilities to modern environments better equip students to procure better grades and be successful. Stricherz et al. (2005) acknowledged that students' achievements significantly deteriorate in education buildings, which are in bad shape as compared to the students' studying in better buildings.

Earthman (2004) in his study found that the students in classrooms with natural lighting and large windows performed 19% to 26% better in academics as compared to those in absence of these features. He mentioned that most of the similar studies are increasing their focus on the impact of the environmental design on students' outcomes in terms of academic attainments and placements. Chan (1996) said that there is a positive correlation between the facilities provided by an education institute and the learning of students. He stated that poor learning facilities can foster negative attitudes just as the exceptional designs may bolster achievement.

Killeen, Evans and Danko (2003) mentioned that one cannot ignore the impact of the physical environment on education. It has been found that the surroundings in which people function can greatly impact the moods, satisfaction and self-worth which indicates that if students are given better infrastructure facilities, then education goals are achieved more efficiently and effectively. Thus, providing requisite infrastructure and other facilities should be one of the many roles assumed by the educationalists. Maiden and Foreman (1998) also laid emphasis on the fact that education institute administrators should understand the 'relationship between various physical features of a facility and the learning climate'.

Oni (1992) was of the view that considering infrastructural facilities as a 'strategic factor' is necessary for the smooth functioning of any education system. Thus, it is necessary to foresee the availability, adequacy and relevancy of these facilities to maintain high productivity of both students and the institute. Balogun (1982) opined that facilities like infrastructure are essential to develop problem-solving skills and scientific attitudes in the students.

Olutola (1982) in a study claimed that the success of any learning process in an educational institute largely depends on the physical facilities provided to the students along with better teaching and learning resources and intellectual capital. He noted that 'adequate institute building facilitates learning by implementing effective teaching and learning methods'. The Encyclopaedia of Educational Research (2011) recommends that 'the total environment within an education institute should be comfortable, pleasant and psychologically uplifting for the social and academic welfare of students'.

Roberts Lance (2008) stated that there are four vital

propositions of an education institute's infrastructure which includes pedagogical functionality like structural building systems, programmatic suitability like classroom facilities, cosmetic appropriateness and participant's wellness which play vital role in assuring true learning outcomes. They are also responsible for maintaining good learning environment or social climate which includes morale, commitment, pride of place, enthusiasm— which directly impacts academic achievements of a student.

David Branham (2012) studied relationship between inadequate infrastructure and student achievement and found that students at education institutes with temporary structures or understaffed custodial services were less likely to attend education institute regularly with a higher rate of dropouts and a significantly low level of scholastic achievements.

Earthman Glen (2002) in his studies concluded that education institutes with better design features, particularly acoustics and indoor air quality, have a humongous impact on students' performance. He reported that 'students in better education institutes outperform those in substandard ones by several percentage points'. Smaller class size also improves the academics records. Similarly, Harbison and Hanushek (1980) conducted a study in rural northern Brazil and found that facilities index (infrastructure facility) was significantly associated with the students' performance. Hanushek (1999) and Peterson (1999) studied another dimension and found that reducing class size is expensive and has very little role in improving the students' achievements.

Conversely views also have touted the studies stating that students' performance is enhanced when class sizes are reduced (Smith and Glass, 1980; Hedges and Stock, 1983; Fitzpatrick and Yoels, 1992; Card and Kruger, 1996; Greenwald, Hedges, and Laine, 1996; Bennet, 1996; McNeal, 1997; Mosteller, 1999; Nye, Hedges, and Konstantopoulos, 2000; Blatchford et al., 2002).

Contrary to the findings of the research studies mentioned above, Earthman (2004) stated that the building in which students' study does influence the degree of academic attainment. Bryk (1994) found that students in smaller learning environments achieved more academically as compared to their counterparts in larger education institutes as smaller institutions provide more attention to students as compared to larger institutions. Thus, it does not matter whether the institute is large or not, but what matters is that whatever area is available should be effectively and efficiently managed. Further, smaller institutes tend to see better attendance as compared to larger institutes (Irmsher, 1997).

Most of the previous research literature on educational performance initially concentrated on the relation between high spending and good performance but later it was proved that high spending on students' education is no indicator of better performance. (Hanushek, 1989, 1994, 1996) confirmed that increased spending on education has no positive affect on student performance. On the others hand, some researchers have disputed such findings for instance,

Greenwald, Hedges, and Laine (1996) found that small increases in spending on education can significantly increase the students' performance.

Recent studies carried out by Okunamiri (2003), emphasized that mere availability of physical facilities alone does not enhance learning, rather it is the adequate utilization of these facilities that can only motivate students to learn and enhance their academic performance.

Research Objectives and Hypothesis

The present piece of investigation was undertaken with the following broad research objectives to ascertain:

- 1) The presence of proper physical infrastructural facilities as prescribed by the AICTE for Management Education Institutions;
- 2) Find out the relationship of the available physical infrastructural facilities (independent variable) with the academic attainments and placements of Management Graduates (dependent variables); and
- 3) Suggest suitable measures for optimal utilization of physical infrastructural facilities for enhancing academic attainments and placements of Management Graduates.

To study this relationship between the independent and dependent variables, below mentioned Null and Alternate Hypothesis were formulated and tested through the statistical treatment of the captured empirical data:

Null Hypothesis

H0: There is no statistically significant relationship between the physical infrastructural facilities of the B-Schools with the academic attainments and placements of its Management Graduates.

Alternate Hypothesis

H1: There is a statistically significant relationship between the physical infrastructural facilities of the B-Schools with the academic attainments and placements of its Management Graduates.

3. Research Methodology

For the research study, three Bangalore based Management institutions (B-Schools) offering PG Management Programs were selected and primary data were captured during September 2016 to March 2017 from 300 randomly selected final years PG Management students on different parameters included in a standard research questionnaire, which was suitably modified and field tested in consultation with the management and research experts. Basic data about the institutions and the selected students were collected from the various records available with the respective institution. The information gathered was cross-verified for its correctness, completeness and trustworthiness.

The collected research data was analysed and put to statistical treatment like correlation of coefficient, regression

analysis and two-tail ANOVA. The research findings arrived at after statistical treatment of the research data are presented in the following paragraphs.

4. Data Analysis and Research Findings

Table 1 given below presents the descriptive statistics of the variables under study. It speaks about the total number of respondents (300), the minimum, the maximum and the standard deviation as well as the mean drawn in respect of each of the variable under study.

Table 1: Descriptive Statistics

Variables	N	Minimum	Maximum	Mean	Std. Deviation
-1	-2	-3	-4	-5	-6
Y	300	55.8	80.2	71.0875	3.495456
x1	300	1.64	4.24	2.635359	0.8105482
Valid N (list-wise)	300				

The above-mentioned hypothesis was tested by using the coefficient and correlation approach by studying all r values and the results obtained are presented in the below given Table 2. The coefficient of correlation speaks about the type of association and the strength between the variables under study.

Table 2: Coefficient of Correlation

Variables	Correlation and N	Y	x1
(1)	(2)	(3)	(4)
Y	Pearson Correlation	1	-.303**
	Sig. (2-tailed)		0
	N	300	300
x1	Pearson Correlation	-.303**	1
	Sig. (2-tailed)	0	
	N	300	300

Null Hypothesis is that the 'available physical infrastructure facilities in the B-School have no relationship with the academic attainments and placements of its management graduates'. However, the coefficient of correlation between the independent variable i.e. available physical infrastructure facilities in the B-School, and the dependent variable i.e. academic attainments and placements of its management graduates is negative i.e. $-.303$, which is the value of coefficient of correlation r . This speaks about a weak or poor relationship in between the two variables under study. But on the other hand, this value is statistically significant as the p -value for the correlation is $.000$ which is much less than 0.05 . Therefore, based on this statistical treatment of the captured primary research data from Bangalore city based B-Schools' graduates, it can be safely concluded that the relationship in between these two variables is not only poor but negative too.

Based on the above finding, the Null Hypothesis i.e. 'available physical infrastructure facilities in the B-School have no relationship with the academic attainments and placements of its management graduates' stands rejected as the p -value is $.000$. In view of this, the alternate hypothesis i.e. 'available physical infrastructure facilities in the B-School have statistically significant relationship with the academic attainments and placements of its management graduates' stands accepted.

The above findings of the study in respect of the hypothesis about the relationship in between the available physical infrastructure facilities in the B-Schools and their impact on the academic attainments and placements of their management graduates are in conformity of the findings of the above-mentioned research studies. However, this finding of the present research study is also not in tune with the findings of some of the research studies conducted by the certain researchers as already mentioned in the body of the review of literature.

5. Suggestions and Recommendations

Based on the findings of the present research investigation and the conclusions arrived at after statistical treatment of the captured research data, which amply demonstrate that infrastructural facilities certainly impact the academic attainments and subsequent placements of the Management graduates. Therefore, the research findings are a clear pointer to the importance of the infrastructural facilities on the campus of the B-Schools as it provides a learning enabled atmosphere and thus motivates students to concentrate on their academic work and perform better. It is no doubt that better academic attainments certainly lead to better placement opportunities for students in the industry and corporate world.

It is therefore suggested that the Management of the B-School should give due weightage and attention to the creation and proper maintenance of requisite infrastructural facilities in their educational institutions not only to attract sufficient number of admission seekers year after year but also to produce quality pass-outs to handle ever changing and challenging responsibilities in different verticals of the economy, both at the national and global levels.

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