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Research Paper

Impact of Classroom Behavior of Faculty on Academic Performance of Engineering Students

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ABSTRACT

Teachers and their strategies of teaching play a very vital role in making the student a successful engineer in this very competitive world .The article thus focuses on how teaching engineering can be done effectively by studying the class room behavior of faculty. This new line of research will generate important findings that are of practical implications for teacher education and will examine multiple criteria of effective teaching in terms of classroom behavior variables and their relationship with the academic performance of the students taught by that faculty. Thus, creating better faculty and better engineers in future is the primary benefit for the society from this research paper.

Keywords: *Engineering education, Classroom behavior, Engineering Faculty, Academic Performance, Engineering students.*

Bachelor of Engineering (B.E) is an Undergraduate Academic Degree granted for a course or program in the field of Engineering. In India, the period of Bachelor of Engineering Degree reserves over a period of 4 years. The 4 years course contains of 8 semesters of education and a project in final year. Only students from the science stream (Bio-math's and computer maths) at +2 levels (XI and XII) are qualified for the Bachelor of Engineering progression. Selection to BE is based on merit, which are the marks fortified in the concluding exams of 10+2 and through entrance exams. Most generally students in India select to study engineering for the succeeding explanations

1. Studying engineering carries prestige
2. It sets you up for proficient achievement
3. It takes economic safety
4. Gets you a chance to advance the world

The important goal for poor job predictions, rendering to the Ambitious Attentions' study's

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report, is “insufficient preparation in the domain area, the aptitude to smear basic values of say, computer engineering or mechanical engineering, to real-world problems. As many as 91.8% of computer/IT engineers and 60% of engineers from other divisions fall short of the sphere information essential for such characters. These thoughts and principles are there in college prospectus, however there is a break in teaching and learning pedagogy being shadowed in mainstream of colleges.” So, the teachers and their approaches of teaching play a very crucial part in building the student a effective engineer in this very modest world .The main objective of this research focuses on how teaching engineering can be finished efficiently by studying the classroom behavior of engineering faculty.

1. This study was designed based on review from designated colleges in Chennai and so it is limited to this area and may not smear to those from other parts of India.
2. This investigation was lead based on analysis from engineering students and faculty and may not smear to those from other disciplines like medicine, arts, law, nursing, basic sciences, tourism, sports, commerce, graphics & multimedia or business studies.

Recently, teacher education investigation has made important paces in reviewing the multifaceted relations between teacher views and performs. This new line of examination will make significant results that are of applied implications for teacher education and will observe multiple criteria of real teaching in classrooms of specialized colleges.

1. The outcomes are valuable to select faculty during recruitment in engineering colleges as the study gives the connection between the classroom behavior and the performance of his / her students in the university exam for the subject handled by that faculty. Therefore leniency, teaching capacity, innovation and classroom control capacity of the faculty can all be taken into deliberation through faculty enrolment.
2. The outcomes are valuable for topic and classroom allotment during the opening of the semester.
3. Making well faculty and enhanced engineers in upcoming will be the main advantage for the society from this study.

Class room Behavior is the social communication amongst the instructor and student and is serious for student’s intellectual and linguistic growth. Psychologists have created it equally critical for individual, social and moral growth. Classroom deliberations and other chances for social connections must consequently be significant and numerous constituent of classroom life. College teachers play an imperative and important function in a student’s personal, social and moral development.

Operative classroom organization maximizes student’s learning chances and is central to teaching and also has need of those teachers who have their own class room behavior appreciate in more than one way the psychological and growing stages of their students thus impacting the academic presentation straight.

The variables of classroom behavior are

1. ***Leniency:*** Includes adherence to rules and procedures, positive reinforcements and its usage

2. ***Teaching skills:*** Includes communication skills, subject knowledge, ability to teach effectively, feedback from students and Assessments techniques.
3. ***Class room management:*** Includes teacher's positive relationship with the class and effectively dealing with students, creating a safe learning environment.
4. ***Innovation:*** Variety in teaching strategies.

Research starts the construction between learning community contribution and student success counting assistances such as persistence, enlarged retaining, and higher GPA (Kuh and O'Donell 2013; Finely and McNair 2013). The Center for Community College Student Engagement (2013) distinguished that learning communities be responsible for students with probabilities for "active and cooperative learning," excellence "student-faculty communication," and a superior scheme of "support for learners" in the college atmosphere. The social supports of the learning community gathering are associated to the HIEPs touted by well-known pedagogy investigators such as Kuh (2008) and Pascarella and Terenzini (2005). Teaching and learning achieves such as teaching groups themselves, along with "common academic capabilities" and "cooperative projects," have been "extensively tested and have been exposed to be positive for college students from numerous circumstances" (Kuh 2008). More attentive research have establish advantageous influence on exact demographic groups such as Latino/a student's (Huerta and Bray 2013), community college students (CCCSE 2013), well-prepared students in extremely developed learning community programs (Wiersema, Licklinder, and Ebbers 2013) and underserved students (Finely and McNair 2013). Jaffee et al. (2008) illustrated that instructors might encounter certain "unintended significances."While learning communities evidently compromise positive consequences, they can also "foster unintended social dynamics that possibly will delay student learning, student growth, and student-faculty relationships". Watts (2013) recognized this self-motivated as "hyper bonding," or non-productive group dynamics considered by behaviors such as "Group absenteeism, disrespect exposed toward the instructor, off-task discussions during lecture or lab time, unsuitable dominance over class deliberations, and other unruly behaviors.

Objectives

1. To study classroom behavior of college faculty as rated by students.
2. To study relationship between faculty classroom behavior and academic performance of students.
3. To propose the findings as methods to improve quality of engineering college faculty through Faculty Development Programme.
4. To propose the findings as methods to aide subject and classroom allotment to faculty at the beginning of the semester.

Hypotheses

Hypothesis 1: There is a significant relationship between faculty's classroom behavior variable leniency and students' academic performance.

Hypothesis 2: There is a significant relationship between faculty's classroom behavior variable classroom control and students' academic performance.

Hypothesis 3: There is a significant relationship between faculty's classroom behavior variable teaching capacity and students' academic performance.

Hypothesis 4: There is a significant relationship between faculty's classroom behavior variable innovation and students' academic performance.

METHODOLOGY

Research Design:

It is and Evaluation Study by Ex post facto design, where independent variables, present in the participants (engineering faculty) prior to the study, affect a dependent variable. Here the independent variables are the classroom behavior dimensions of faculty as rated by the students and the dependent variable is the academic performance of their students. As the independent variable in question is something that is an innate characteristic of the faculty involved Quasi-experiment is employed as the research focuses on independent variables that cannot be randomly assigned.

Sampling:

There are 552 engineering colleges in Tamil Nadu as of July 2016. Out of which 130 engineering colleges are in Chennai city. Every engineering college has an average of 50 teaching faculty. Thus there are nearly 6500 teaching faculty in engineering colleges in Chennai. Around 75000 students are studying in these colleges in various branches of engineering. This research uses a combination of random sampling and systematic sampling.

1. Sample 1 includes 200 engineering faculty from 20 different engineering colleges in Chennai who will take the MBTI test for personality testing. Here systematic sampling and random sampling is used. The 20 engineering colleges from Chennai are systematically selected based on their location in Chennai. Thus, from each college 10 faculties are then selected by random sampling.
2. Sample 2 includes the same 200 engineering faculty who will be observed using an observatory schedule.
3. Sample 3 includes about 8000 students (those students who are taught by the above mentioned faculty) whose academic performance details are obtained from college.

DATA SOURCE AND DATA COLLECTION:

Primary data sources

Classroom behavior of faculty: The responses retrieved from students through a structured questionnaire. The customized questionnaire will be given to the engineering students and they will be instructed accordingly. Questionnaire will contain questions asking for the student's personal details and questions relating to the teacher's classroom behavior including

- Leniency
- Teaching skills
- Class room management
- Innovation

Validity of questionnaire: In order to establish the face validity the test has been, the researcher approached two renowned psychologist in the field has sought their opinion about the test. Both the psychologists unanimously mentioned that this test certainly would measure the classroom behavior of the faculty in engineering colleges.

***Reliability of questionnaire*:** The split-of reliability technique has been used to establish the reliability for the constructed test. The 'r' value is 0.82, which is highly significant at 0.01 level.

Secondary Data Source

1. ***Personal details of faculty*:**

- Name of the faculty
- Age of the faculty
- Gender of the faculty (Male / Female)
- Position of the faculty (Lecturer / Assistant Professor / Associate Professor / Professor)
- College the faculty is working for.
- Department that the faculty belongs to in the work place.
- Each faculty id in assigned a unique faculty id number.

2. ***Academic Performance of the students*:** The University Exam results of the students are received from the college database. It gives the following details,

- University Exam results – Also referred as external exam results
  - No: of Good performers
  - No: of Average Performers
  - No: of Poor Performers

Data Cleaning And Analysis On Collected Data

In this study, descriptive and inferential statistics data analysis has been carried out. Because the research is dealing with several samples, it uses inferential statistical testing techniques including Distribution and Comparison of collected data and statistical association using Chi – square test. Chi-square test is one of the significant nonparametric tests that are used to compare more than two variables for a randomly selected data.

Chi-square test for individuality of two variables is used to check whether the variables are independent of each other or not. The Chi-square test statistic is,

$$\chi^2 = \sum \frac{(O_i - E_i)^2}{E_i}$$

with $(r-1)(c-1)$ degrees of freedom.

Where Oi is the observed count, r is number of rows, c is the number of columns, and Ei is the expected counts

RESULTS

Table I: Association of Classroom Behavior of the Faculty (Leniency) with the university exam performance

S. No	Classroom Behavior Of The Faculty	Average	Good	Poor	χ^2 Value	Level Of Significance
1.	Strict	2535 (60%)	699 (16%)	1008 (24%)	12.02	Significant at 0.05
2.	Lenient	2506 (57%)	844 (19%)	1017 (23%)		

A chi square test was executed to test the association between the academic performance of students in the university exam and the classroom behavior variable Strict/Lenient. The result of the chi square statistic was found to be 12.0205 resulting in p value 0.002454. As p value is lesser than 0.05 and the association was found to be significant. Thus, there is an association between the academic performance of students in the university exam and the classroom behavior variable Strict/Lenient. This proves the alternate hypothesis. Thus, the null hypothesis is rejected.

Table II: Association of Classroom Behavior of the Faculty (Control) with the university exam performance

S. No	Classroom Behavior Of The Faculty	Average	Good	Poor	χ^2 Value	Level Of Significance
1.	Poor Control	2557 (57%)	789 (18%)	1087 (25%)	16.02	Significant at 0.05
2.	Good Control	2484 (59%)	814 (20%)	878 (21%)		

A chi square test was performed to test the association between the academic performance of students in the university exam and the classroom behavior variable Poor classroom control / Good classroom control. The result of the chi square statistic was found to be 16.0187 resulting in p value 0.000332. As p value is lesser than 0.05 and the association was found to be significant. Thus, there is an association between the academic performance of students in the university exam and the classroom behavior variable Poor classroom control / Good classroom control. This proves the alternate hypothesis. Thus, the null hypothesis is rejected.

Table III: Association of Classroom Behavior of the Faculty (Teaching Capacity) with the university exam performance

S. No	Classroom Behavior Of The Faculty	Average	Good	Poor	χ^2 Value	Level Of Significance
1.	Poor Teaching Capacity	2221 (58%)	700 (18%)	903 (24%)	28.30	Significant at 0.05
2.	Good Teaching Capacity	2620 (54%)	1113 (23%)	1152 (23%)		

A chi square test was performed to test the association between the academic performance of students in the university exam and the classroom behavior variable Poor teaching capacity / Good teaching capacity. The result of the chi square statistic was found to be 28.2984 resulting in p value 0.00001. As p value is lesser than 0.05 and the association was found to be significant. Thus, there is an association between the academic performance of students in the university exam and the classroom behavior variable Poor classroom control / Good classroom control. This proves the alternate hypothesis. Thus, the null hypothesis is rejected.

Table IV: Association of Classroom Behavior of the Faculty (Innovation) with the university exam performance

S. No	Classroom Behavior Of The Faculty	Average	Good	Poor	χ^2 Value	Level Of Significance
1.	Traditional	2640	780	1075	0.13	Not significant at 0.05
2.	Innovator	2401	723	990		

A chi square test was performed to test the association between the academic performance of students in the university exam and the classroom behavior variable Traditional / Innovator. The result of the chi square statistic was found to be 0.1305 resulting in p value 0.84075. As p value is greater than 0.05 and the association was found to be insignificant. Thus, there is no association between the academic performance of students in the university exam and the classroom behavior variable Poor Traditional/Innovator. This proves the null hypothesis. Thus, the alternate hypothesis is rejected.

DISCUSSION

The current research is in line with the study Gonca Kizilkaya Cumaoğlu and Yelkin Diker Coşkun (2012) who studies on, The Relationship between Academic Procrastination and Technology Usage of Teachers. Allowing to them, there is a lot of other also factors other than invention that affect the professional growth of teachers. The current study is also in line with the study completed by Franciele Kollas (2013). According to the author, there are certain consequences of issues that under graduates and school students inventionvital and significant in a respectable teacher and also inspiration is important for the growth and formation for a professional teacher and it is supposed that the development of teaching and learning go outside the expertise of facility. The current study is also in line with the study "Faculty do Matter: The Role of College Faculty in Student Learning and Engagement "by Paul. D. Umbach and Matthew. R. Wasrzynski (2005). The researchers in their study used two national data sets to discover the relationship between faculties performs and student engagement. Their outcomes recommended that students report advanced levels of appointment and learning at institutions where faculty members use active and cooperative learning techniques, engage students in experiences, emphasize higher-order cognitive activities in the classroom, interact with students, challenge students academically, and value inspiring instructive involvements. The existing research challenges the study "She's Strict for a Good Reason: Highly Effective Teachers in Low-Performing Urban Schools" by Mary

Poplin (2011). The researchers studied the work of extremely active teachers to help better comprehend what really works to advance student learning and to help avoid performs that are complicated, popular, and exclusive.

Observances to rules and procedures, practice of negative supports, lack of proper communication skill, lack of subject knowledge are rare factors that depreciate the academic performance of engineering students. Use of positive reinforcements by staff, good subject knowledge, good communication skill, clarity in language of instruction , regular feedback from students, positive relationship with all students in class, include the factors in a teacher's classroom behavior that catapult the academic performance of engineering students.

CONCLUSIONS

In our research findings originate that there is a significant relationship between faculty's classroom behavior variable leniency and students' academic performance. Thus, a lenient staff produces improved consequences in terms of pass proportion and also in terms of number of good performers in the class. This investigation also studied to invention that there is a significant relationship between faculty's classroom behavior variable classroom control and students' academic performance. Thus, a staff with good classroom control produces improved grades in terms of pass percentage and also in rapports of number of good performers in the class. Also, the study shows that there is a significant relationship between faculty's classroom behavior variable teaching capacity and students' academic performance. Thus, a staff with good teaching capacity produces better results in terms of pass percentage and also in terms of number of good performers in the class. Also, our finding demonstrates that there is no relationship between faculty's classroom behavior variable invention and students' academic performance.

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Conflict of Interest

The authors colorfully declare this paper to bear not conflict of interests

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