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A STUDY ON TEACHING EFFECTIVENESS OF SELF-FINANCING ENGINEERING COLLEGE TEACHERS IN KERALA

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ABSTRACT

The process of evaluating the effectiveness of teachers has changed over time along with the definition of what effective teaching is due to the increasing attention by the management of self-financing institutes. This research examines to measure the various attributes of teaching effectiveness. The objective of this study is to evaluate the level of teaching effectiveness attributes and to find out the attribute that most contributes to teaching effectiveness. A sample of 96 teachers from an engineering college in Ernakulam, Kerala State, India is taken for the study. The study revealed that there is a lack of team effort, teaching efficiency, and class room behavior. The teaching effectiveness of the engineering teachers is proved to be medium. The study highlights those teaching attributes to be enhanced and suggestive measures are also mentioned to improve the performance of teachers and thereby increase the quality of education and students.

INTRODUCTION

There is a rapid growth in the body of research that examines differences in teachers' effectiveness and raising student achievement. Student-test-based measures of teacher performance are receiving increasing attention because there are few complementary or alternative measures that can provide reliable and valid information on the effectiveness of a teacher's classroom practice. The approach most commonly in use is to evaluate effectiveness through direct observation of teachers in the act of teaching (Kane *et al.*, 2011).

Student ratings are one of the most frequently used methods for evaluating teacher effectiveness in colleges and universities. One drawback is that the results obtained from student ratings are based

upon general rating items. It is thus difficult to make specific recommendations to faculty members who wish to improve their ratings (John, 1975). The collection of student ratings is the best way but rather one way to evaluate instruction. Professionals in the field of teacher evaluation advocate a multiple-source and multiple-method approach to evaluate teaching effectiveness. The collection of student ratings should be combined with data collected from different sources using various methods such as peer review, teaching portfolios, classroom-observations, or self-evaluation Ory and Ryan (2001). Most of the classroom teachers are not competent, efficient and knowledgeable in classroom assessment procedures in order to make correct decisions about students' learning outcomes or achievements and also improve on teaching processes in the classroom. (Adedoyin, 2012).

Statement of the Problem

The use of students' ratings for evaluating teacher effectiveness is the single most researched issue in all self-financing higher education institutes. Moreover the effectiveness and efficiency of a teacher is measured based on the results achieved. Many institutes measure the effectiveness of teachers on this basis and this force the teaching staff to focus attention on the results of the students. This may lead to manipulations and negative impacts. At the same time the contribution of the teachers has a positive impact on the results and the quality of education. The University result of the sample college taken for the study has decreased for the last few years. The study is therefore aimed to measure the variables that influence the teaching efficiency and effectiveness of the teachers which aids to increase the quality of education and results of the students.

LITERATURE REVIEW

Teacher effectiveness is the impact that class room factors, such as teaching methods, teacher expectations, class room organization and the use of class room resources, have on student's performance (Campbell *et al.*, 2004). Students' ratings should be only one of several forms of evaluation used to shed light on teaching effectiveness. Peer review, self-evaluation, teaching portfolios, and student achievement should also be used (Doyle, 1983; Centra, 1993; Seldin, 1999). Research indicates that instructors benefit most from formative evaluation to improve teaching when they have helped to shape the questions posed, when they understand the feedback that is provided, and when assistance and resources for making improvements are available (Gaubatz, 2000). The most accepted criterion for measuring good teaching is the amount of student learning that occurs. There are consistently high correlations between students' ratings of the "amount learned" in the course and their overall ratings of the teacher and the course. Those who learned more gave their teachers higher ratings (Cohen, 1981; Theall and Jennifer, 2001). A better understanding of experiential learning would allow curriculum planners and implementers of teacher education programmes to come up with ways to increase the teaching and learning experiences of teachers (Ramesh and Sharmini, 2012). If teachers are to be effective their initial training will have to be effective. Covering the curriculum, structuring of content, appropriate

pacing and alignment, clear goal setting, clarity of content and presentation, are a few requirements for effective teachers which have direct implications for teacher education (Pretorius, 2012).

Objectives of the Study

The objectives of the study are as follows;

1. To evaluate the level of teaching effectiveness attributes.
2. To find out the attribute that most contributes for teaching effectiveness.
3. To find out the attributes that are lacking among the teachers and to suggest suitable measures to improve the quality of education.

Methodology of the Study

The study was conducted at one of the self-financing engineering colleges in Ernakulam district, Kerala State, India during the academic period of 2011-2012 to identify the overall performance of the teaching fraternity of the institute. The effectiveness was measured by using four attributes like (1) communication, (2) team effort, (3) classroom behaviour, and (4) teaching efficiency. Data pertaining to various attributes were collected through a self-administered questionnaire, which was distributed to teaching faculty members across seven departments. The samples are collected from 96 teachers from all the departments in the college. Hypothesis testing is done with the help of Chi-square and the levels of these attributes are measured as low, medium and high by using the formula Average ± S.D.

Results and Discussion

The results of the data is analyzed based on the four attributes are as follows;

Communication level

The average communication score of teachers is 4.06 out of 5 and the standard deviation is calculated as 0.40. Thus the level of communication level among the teachers is as shown below;

Table-1. Comparison of communication levels of teachers

Range/ Department	Low (< 3.66)	Medium (3.66- 4.46)	High (> 4.46)	Total
Civil Engineering	2 (14%)	11 (79%)	1 (7%)	14
Mechanical Engineering	1 (6.5%)	13 (87%)	1 (6.5%)	15
Electrical Engineering	2 (20%)	4 (40%)	4 (40%)	10
Electronics Engineering	3 (15%)	15 (75%)	2 (10%)	20
Computer Science Engineering	0	10 (71%)	4 (29%)	14
Information Technology	2 (17%)	7 (58%)	3 (25%)	12
Science	0	11 (100%)	0	11
Total	8 (8%)	73 (76%)	15 (16%)	96

From the table 1, it is revealed that 16% of the teachers have high level of communication and 8% have low level of communication. Majority (73%) of the teachers have only a medium level of communication. Teachers from Electrical Engineering (40%), Computer Science (29%) and

Information Technology (25%) have high level of communication which is higher than the overall average of 16%. At the same time, level of communication percentage of teachers from Civil Engineering, Mechanical and Electronics Engineering is less than the overall average of 16%. This shows that the communication among the teachers is very less, which affects their academic performance. The main reasons for this low level of communication are;

1. lot of misunderstandings and differences of opinions in each department
2. Lack of contribution of ideas for academic improvement and exchange of feedback.

It is clear that 40% of the teachers in Electrical Engineering have high level of communication which is greater than the overall percentage (16%). Hence the following hypothesis is framed and tested. *Ho: Communication of teachers is more in Electrical engineering compared with other departments*. The calculated value of χ^2 (17.6) is less than the table value (21.02) at 5% confidence level with 12 degrees of freedom. Hence the null hypothesis is accepted and it is concluded that communication is more among teachers in Electrical engineering compared with other departments.

Team Effort

The average team effort is 4.26 and the standard deviation is calculated as 0.43. Thus the level of team effort among the teachers is as shown below;

Table-2. Comparison of team effort

Range/ Department	Low (< 3.82)	Medium (3.82- 4.69)	High (> 4.69)	Total
Civil Engineering	10 (71.5%)	3 (21.5%)	1 (7%)	14
Mechanical Engineering	1 (6.5%)	13 (87%)	1 (6.5%)	15
Electrical Engineering	2 (20%)	8 (80%)	0	10
Electronics Engineering	2 (10%)	17 (85%)	1 (5%)	20
Computer Science Engineering	0	12 (86%)	2 (14%)	14
Information Technology	1 (8.5%)	10 (83%)	1 (8.5%)	12
Science	0	11 (100%)	0	11
Total	16 (17%)	74 (77%)	6 (6%)	96

Table 2 shows the levels of team effort of teachers in the engineering college. Team effort by the teachers will enhance the performance of teaching. Only 6% of the teachers exhibit high level of team effort in this college. Majority of the teachers (77%) have medium level of team effort. This analysis also shows that the team effort of the teachers in the department is very less. Team effort of teachers from Computer Science Engineering is comparatively higher (14%) than the overall average (6%). Similarly 71.5% of the teachers in Civil Engineering have low level of team effort, which is much higher than the overall average (17%). Team effort is not significant in Electrical engineering department too. The main reasons for the lack of team effort are mainly due to;

1. Ego clashes among the teachers
2. Teachers are not willing to share responsibility in the department

It is clear that 14% of the teachers in Computer science engineering have high level of team effort which is greater than the overall percentage (6%). *Ho: Team effort by teachers in Computer science*

engineering is more than other departments. The calculated value of χ^2 (41.19) is greater than the table value (21.02) at 5% confidence level with 12 degrees of freedom. It is concluded that there is no difference in team effort across departments.

Classroom Behaviour

The average classroom behaviour is 4.31 and the standard deviation is calculated as 0.48. Thus the level of classroom behaviour among the teachers is shown below;

Table-3. Comparison of classroom behaviour

Range/ Department	Low (< 3.83)	Medium (3.83- 4.79)	High (> 4.79)	Total
Civil Engineering	0	13 (93%)	1 (7%)	14
Mechanical Engineering	1 (7%)	11 (73%)	3 (20%)	15
Electrical Engineering	1 (10%)	8 (80%)	1 (10%)	10
Electronics Engineering	8 (40%)	12 (60%)	0	20
Computer Science Engineering	1 (7%)	11 (79%)	2 (14%)	14
Information Technology	2 (17%)	9 (75%)	1 (8%)	12
Science	0	5 (45%)	6 (55%)	11
Total	13 (13.5%)	69 (72%)	14 (14.5%)	96

The table 3 shows the levels of class room behaviour of teachers. Only 14.5% of the teachers have high level of class room behaviour. Majority of the teachers (72%) have medium level of class room behaviour. Through this analysis the researchers could conclude that the class room behaviour of the teachers is also very less. The table shows that teachers of Science (55%) and Mechanical Engineering (20%) department have high level of class room behaviour which is greater than the overall average of 14.5%. Class room behaviour by teachers in Electronics engineering (40%) is very low than the overall average (13.5%). The main reasons for the decline in class room behaviour are;

1. Dictation of notes in the class thereby spending more time
2. Lack of direct feedback from the students.

It is clear that 55% of the teachers in science have high level of classroom behaviour which is greater than the overall percentage (14.5%). *Ho: Classroom behaviour by teachers in science department is more than other departments.* The calculated value of χ^2 (33.63) is greater than the table value (21.02) at 5% confidence level with 12 degrees of freedom. It is concluded that there is no difference in classroom behaviour across departments.

Teaching Efficiency

The average teaching efficiency is 3.89 and the standard deviation is calculated as 0.28. Thus the level of teaching efficiency among the teachers is shown below;

Table-4. Comparison of teaching efficiency department wise

Range/ Department	Low (< 3.61)	Medium (3.61- 4.17)	High (> 4.17)	Total
Civil Engineering	2 (14%)	11 (79%)	1 (7%)	14
Mechanical Engineering	3 (20%)	10 (67%)	2 (13%)	15
Electrical Engineering	1 (10%)	9 (90%)	0	10
Electronics Engineering	4 (20%)	14 (70%)	2 (10%)	20
Computer Science Engineering	0	7 (50%)	7 (50%)	14
Information Technology	1 (8%)	10 (84)	1 (8%)	12
Science	2 (18%)	9 (82%)	0	11
Total	13 (13.5%)	70 (73%)	13 (13.5%)	96

The above table 4 shows the levels of teaching efficiency of the teachers. Only 13.5% of the teachers have high level of teaching efficiency. Majority of the teachers (70%) have medium level of teaching efficiency. From this analysis it is revealed that the teaching efficiency of the teachers is less. The teachers of Computer Science Engineering have high level of teaching efficiency (50%), which is greater than the overall average (13.5%). While the teaching efficiency of Mechanical Engineering, Electronics Engineering, Science and Civil Engineering are very less compared with the average of 13.5%. The researchers could explore the main reasons for the lack of teaching efficiency as follows;

1. Most of the teachers are teaching and explaining their lectures in Malayalam
2. Student's interest in academics is low
3. Lack of training to the staff

In spite of these drawbacks the teachers feel that teaching in English is important as well as their work load is not more and it never affects their teaching preparation. Hence a strong motivation is required to communicate in English. It is clear that 50% of the teachers in Computer science engineering have high level of teaching efficiency which is greater than the overall percentage (13.5%). *Ho: Teaching efficiency by teachers in Computer science engineering is better than other departments.* The calculated value of χ^2 (22.79) is greater than the table value (21.02) at 5% confidence level with 6 degrees of freedom. Hence the null hypothesis is rejected and it is concluded that there is no difference in teaching efficiency across departments.

Table-5. Overall performance level of teachers

Factors and levels	Low	Medium	High	Total
Communication	8 (8%)	73 (76%)	15 (16%)	96
Team effort	16 (17%)	74 (77%)	6 (6%)	96
Class room behaviour	13 (13.5%)	69 (72%)	14 (14.5%)	96
Teaching efficiency	13 (13.5%)	70 (73%)	13 (13.5%)	96

Among the above four variables it is clear that team effort is the lowest (6%) and it a major factor that is lacking among the teachers of this engineering college. When compared among the entire variable the high levels of each factors is insignificantly low with communication (16%), team effort (6%), class room behaviour (14.5%) and teaching efficiency (13.5%). Majority of teachers

have only medium level of communication, team effort, class room behaviour and teaching efficiency. Hence there should be an overall improvement in these factors for increasing the teaching efficiency and performance of teaching community. It is clear also that level of communication is high (16%) compared with other variables. Hence the following hypothesis is framed and tested. *Ho: Teaching effectiveness of teachers in engineering college is medium*. The calculated value of χ^2 (7.04) is less than the table value (12.59) at 5% confidence level with 6 degrees of freedom. Hence the null hypothesis is accepted and it is concluded that teaching effectiveness of engineering teachers is medium.

Findings of the Study

1. The average classroom behavior is 4.31 which is higher than other teaching attributes. The teaching efficiency average is the lowest with a score of 3.89 out of 5. The level of communication is high (16%) compared with other variables.

2. All the teaching attributes are medium in the engineering college, but comparing the attributes, communication of the teachers and class room behavior are better compared with other variables.

3. Teaching efficiency and team effort are the two important factors that are lacked by the teachers in the engineering colleges. An improvement in these attribute will help to increase the performance and quality of the students.

4. The levels of teaching attributes revealed that 16% of the teachers show high level of communication, team effort (6%), class room behaviour (14.5%) and teaching efficiency (13.5%). Majority of teachers have only medium level of communication, team effort, class room behaviour and teaching efficiency. These are the leading indicators for engineering colleges to improve the teaching effectiveness in future.

5. It is tested and proved that the teaching effectiveness of teachers is medium.

CONCLUSION

In many states, teacher effectiveness is assessed by focusing on results from a single measure, typically class room observations or based on the students' achievement. By analyzing the five attributes of teaching effectiveness it is clear that using this method of teaching effectiveness helps to indicate the important ways in which teachers contribute to the success and well-being of the students. As such there is no single measure that provides valid information on all the ways teachers contribute to student learning and growth. Hence multiple measures to measure different aspects of teaching effectiveness must be employed.

RECOMMENDATIONS

1. Team effort is lacking among the teachers. The teachers in each department should coordinate their academic activities for enhancing the performance of the overall institute. The

management can also initiate to conduct interdepartmental competitions annually for the teachers that help to improve their team effort and coordination.

2. Teachers should be provided sufficient training to use appropriate pedagogy in the class room and thereby enhance their classroom behavior. It should be made mandatory that teachers should attend and undergo training sessions.

3. All the teachers must update their knowledge by working on research papers or participating in conferences and workshops. This will make them competitive and enhance teaching efficiency.

4. The commitment to the profession is lacking among the teachers. Unless the teachers are committed, the students will not benefit academically. This will lose interest among the students to learn. Teachers must be committed as they are the tool who can mould the next generation of the society and economy.

5. Teachers should give students multiple informal opportunities to give feedback throughout the semester, thus practicing their feedback skills. This is also an effective way to improve teaching practice.

6. Include education stakeholders in decisions regarding teaching effectiveness

7. Teachers need to be assured that ratings are a formative method of evaluation and that assistance to improve their teaching will be made available to them.

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