

6. COMPARATIVE STUDY ON EFFECT OF TEACHING EXPERIENCE ON PERFORMANCE OF ENGINEERING TEACHERS

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Abstract

It is a general belief that as a person's experience increases, his frequency of making mistakes decreases- because he gains insights from past mistakes. Also, experience enhances a person's understanding of human interaction- this is especially true in case of teachers. Longer the standing in profession, they have better perception in predicting student behavior as well as in influencing motivating factors to get effective results from students. Experience is measured in terms of years in teaching profession- which translates into the number of student batches taught. However, it can also be argued that people who have joined the teaching profession recently with little or no experience may come with fewer preconceived notions and therefore, be more flexible and creative in their teaching methods. The present research is the outcome of efforts to evaluate as to which belief holds true- Is the argument that experience is the most important factor for a teacher to perform better than a lesser experienced one? The research is carried out by measuring the performance of various teachers and then co-relating it with the teaching experience that the teacher has earned. The performance which was appraised by the immediate superior of the respective teacher was measured on the basis of a questionnaire. It evaluates the teacher on criteria considered to be hallmark of good performance of a teacher in being an effective catalyst in imparting knowledge to the students as also in bettering his own academic stature.

INTRODUCTION

Organizational learning is defined as "organizations' encoding inferences from history into routines that guide behavior" (Levitt/March 1988, p. 319 et seq.). There exist four basic constructs related to organizational learning: knowledge acquisition, information distribution, information interpretation, and organizational memory (Huber 1991, Sinkula 1994). Generally, organizational learning involves the acquisition of knowledge that is potentially useful to the organization (Huber 1991). Consequently, the learning ability can be a major source of a firm's competitive

advantage. Firms can learn from different sources, including from their direct experience, from previous decision outcomes, and from observing the experience of other firms. Learning-by-doing is one of the most important mechanisms of organizational learning. Organizational learning incorporates better understandings of making decisions, and as a result, organizational behaviors or the range of potential behaviors can be changed. An extensive literature has provided supporting evidence for the positive effect of experience on performance and non-linear experience-based learning curves (e.g., Argote/Beckman/Epple 1990). In terms of organizational learning

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in foreign markets, foreign firms generate and accumulate knowledge from their own entry experience incrementally (Johanson/Vahlne 1997, 1990). Consequently, firms can reduce the level of liability of foreignness and overcome operation uncertainties. Therefore, organizational learning can help firms to develop their capabilities in foreign markets and enhance subsidiary performance.

The importance of experienced teachers in colleges has been highlighted by many researchers (Akinleye, 2001; Ogundare 2001; Commeyras, 2003). Researchers have also given different opinions about teaching experience and students' learning outcomes in schools (Al-methen,

1983; Schuler, 1984; Waiching, 1994; Ijaiya, 2000; Akomolafe, 2001). Their arguments centred on the fact that experience improves teaching skills while pupils learn better at the hands of teachers who have taught them continuously over a period of years (Ijaiya, 2000). In

investigating possible differences in teaching strategies, Schuler (1984) grouped teachers into three levels of teaching experience (3 - 6; 7 - 10 and more than 10 years). His findings revealed that experienced teachers' perception of their teaching objectives was significantly more subject-oriented than was that of first-year teachers. Hence, effective teaching could be measured by the level of a teacher's subject matter competence which Mullens (1993) regarded as a prime predictor of student's learning. However, teachers' theories about teaching are being guided by their previous experience as learners and as teachers (Waiching, 1994). The importance of experienced teachers in schools has been argued as being necessary for school effectiveness (Zaku, 1983). This suggests that many experienced teachers might have left the school system probably as a result of better job prospects in other sectors of the economy. However, the desire by government to engage more teachers of long years standing is

perhaps hampered by the high cost of education. Hence, Adeyemi (1998) exclaimed that the more experienced teachers in an institution system, the higher would be the recurrent cost of education. As such, Charles (2002) suggested the need to involve retired teachers because of their long years of teaching experience to teach in Nigerian schools.

PERFORMANCE APPRAISAL

The history of performance appraisal is quite brief. Its roots in the early 20th century are traced to Taylor's pioneering Time and Motion studies. But this is not very helpful, for the same may be said about almost everything in the field of modern human resources management. As a distinct and formal management procedure used in the evaluation of work performance, appraisal really dates from the time of the Second World War, not more than 60 years ago. Yet in a broader sense, the practice of appraisal is a very ancient art. There is, says Dulewicz (1989), "... a basic human tendency to make judgments about those one is working with, as well as about oneself." Appraisal is both inevitable and universal. In the absence of a carefully structured system of appraisal, people will tend to judge the work performance of others, including subordinates, naturally, informally and arbitrarily. This human inclination to judge can create serious motivational, ethical and legal problems in the workplace. Without a structured appraisal system, there is little chance of ensuring that the judgments made will be lawful, fair, defensible and accurate. Performance appraisal systems began as simple methods of income justification. That is, appraisal was used to decide whether or not the salary or wage of an individual employee was justified. The process was firmly linked to material outcomes. If an employee's performance was found to be less than ideal, a cut in pay would follow. On the other hand, if their performance was better than the supervisor expected, a pay rise was in order. Little consideration, if any, was given to the developmental possibilities of appraisal. If was

felt that a cut in pay, or a rise, should provide the only required impetus for an employee to either improve or continue to perform well. Sometimes this basic system succeeded in getting the results that were intended; but more often, it failed. For example, early motivational researchers were aware that different people with roughly equal work abilities could be paid the same amount of money and yet have quite different levels of motivation and performance. These observations were confirmed in successive studies. Pay rates were important, but they were not the only element that had an impact on employee performance. It was found that other issues, such as morale and self-esteem, could also have a major influence. As a result, the traditional emphasis on reward outcomes was progressively rejected. In the 1950s in the United States, the potential usefulness of appraisal as tool for motivation and development was gradually recognized. The general model of performance appraisal, as it is known today, began from that time.

RESEARCH PROBLEM

The purpose of research is to discover answer to question through the application of scientific procedure. The objective of my research is to find out if the performance of a teacher is quantitative, whether it is only due to the fact that he is more experienced. The performance of a teacher may depend on many factors. But the scope of my research is limited to the experience of teaching. Thus, the performance of fresh as well as experienced teachers is found out and later correlated to find out the result.

DEVELOPMENT OF WORKING HYPOTHESIS

A hypothesis is a proposition, a tentative assumption which a researcher wants to test for its logical consequences. It is an assumption or concession made for the sake of argument. It can also be defined as an interpretation of a practical situation or condition taken as the ground for action. It is also a tentative

assumption made in order to draw out and test its logical or empirical consequences.

Null hypothesis : H_0 :

the performance of fresh teachers is equal to that of the experienced teachers.

Alternate hypothesis : H_1 :

the performance of experienced teachers is not equal to that of the fresh teachers. It is higher than the fresh teachers

DESIGNING A QUESTIONNAIRE

The questionnaire was designed for the purpose of testing the depth and qualitative aspects of experience. The questionnaire examined the teacher's performance on following ten parameters:

RESEARCH CONTRIBUTION

Research contribution measures the teachers' participation in ongoing research projects in the departments as also their personal thesis submission for Ph D. This parameter has been taken as it signifies the depth of knowledge in their particular field as well as chosen areas for specialization.

WORKSHOPS ATTENDED

This parameter demonstrates the teachers' efforts to upgrade their skills and in developing competencies which they can utilize in their profession as well as to pass on to their students.

MEMBERSHIP TO PROFESSIONAL BODIES

This parameter measures the lecturers' efforts to keep themselves active in the application of their knowledge about recent trends in their fields. It also underlines their initiative for interaction with other experts in their field.

PUNCTUALITY

Punctuality is a social virtue. It indicates their inclination for discipline by setting an example for students. It is also a measure of their work ethic, commitment to the profession as well as their efficiency.

TEACHING METHODOLOGY

Teachers often use techniques which cater to multiple learning styles to help students retain information and strengthen understanding. A variety of strategies and methods are used to ensure that all students have equal opportunity to learn. A lesson plan may be carried out in several ways: Questioning, explaining, modeling, collaborating, and demonstrating.

RELATION WITH COLLEAGUES

A free flowing open minded interaction with colleagues would ensure cordial atmosphere, continuous exchange of ideas and smooth transfer of responsibilities, as and when needed. Better team work would also result in excellence in all the projects undertaken.

PARTICIPATION IN CO-CURRICULAR ACTIVITIES

This aspect measures their readiness to get involved in departmental activities like seminars, paper presentations, information summits, etc. It is an indication of their enthusiasm and coordination skills with students and guests alike.

STUDENTS' FEEDBACK (ACADEMICS)

This aspect measures the students' perception of the teacher's efficiency, measure of their work ethics and commitment to the profession. It is also a reflection on his methodology, his motivational skills and rapport with the students. Their satisfaction level indicates the effectiveness of his teaching.

STUDENTS' FEEDBACK (EXTRA-CURRICULAR ACTIVITIES)

This parameter measures the degree of all round activity participation of the lecturer in collegiate and inter-collegiate events like competitions, festivals, tournaments, etc. and in turn, their emphasis on students doing the same for all round development.

PARTICIPATION / INITIATIVE IN DEVELOPMENT OF DEPARTMENT

This parameter measures the ability envision new heights for the department by applying the creativity and innovation. It involves studies, facilities and various other activities.

GETTING PERFORMANCE APPRAISAL FROM THE SUPERIORS

The questionnaires were distributed to various heads of departments in Shri Datta Meghe Polytechnic College, Nagpur. The queries were answered and aspects to be considered in the parameters were also explained. Their objective response was recorded and tabulated.

QUANTIFYING THE PERFORMANCE RATING

The five-point scale rated the performance from 'poor' to 'excellent' and scores from 1 to 5 were given, viz. 1 point was scored for every tick mark in the cell marked 'poor', 2 for 'satisfactory', 3 for 'good', 4 for 'very good' and 5 for 'excellent'. At the end, a composite score of all the ratings added together was obtained for each teacher out of a maximum possible of 50 points.

COMPARING THE PERFORMANCE RATING WITH THE EXPERIENCE OF EACH TEACHER

Experience parameter was bifurcated into two categories, i.e. Fresher and Experienced.

Fresher – This category contained those teachers who were relatively new to the

profession and therefore had a short period of experience (Zero to five years).

Experienced - This category contained those teachers who were relatively older in the profession and therefore had a longer period of experience. (More than five years).

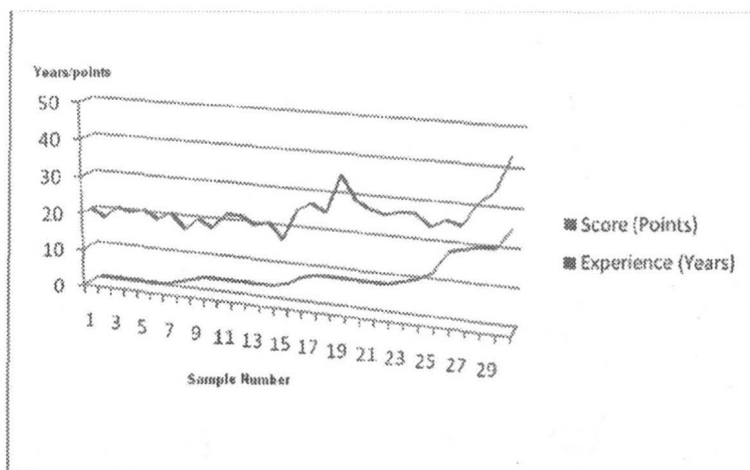
DATA REPRESENTATION

The sample-wise summary of data deduced from the data sheets is furnished in the table below. The mean of the scores of fresh and experienced teachers is calculated and furnished on the basis of this table.

Data Summary of Samples

Sample No.	Fresh Teachers		Experienced Teachers		
	Score (out of 50 points)	Experience (in years)	Sample No.	Score (out of 50 points)	Experience (in years)
1	21	1	16	26	7
2	19	1	17	28	8
3	22	1	18	26	8
4	21	1	19	36	8
5	22	1	20	30	8
6	20	1	21	28	8
7	22	2	22	27	8
8	18	3	23	28	9
9	21	4	24	28	10
10	19	4	25	25	12
11	23	4	26	27	18
12	23	4	27	26	19
13	21	4	28	32	20
14	22	4	29	35	20
15	18	5	30	44	25
$\bar{x}_2 = 20.8$			$\bar{x}_1 = 29.73$		

Relationship of performance vis-a-vis experience : Diagram 1



Calculations

$$t = \frac{\bar{x}_1 + \bar{x}_2}{\sqrt{S^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

\bar{x}_1 = Mean of score of experienced teachers

\bar{x}_2 = Mean of score of fresh teachers

n_1 = Sample size of experienced teachers

n_2 = Sample size of fresh teachers

S_1 = Variance of experienced teachers

S_2 = Variance of fresh teachers

$$s^2 = \frac{(n_1 - 1) s_1^2 + (n_2 - 1) S_2^2}{(n_1 + n_2 - 2)}$$

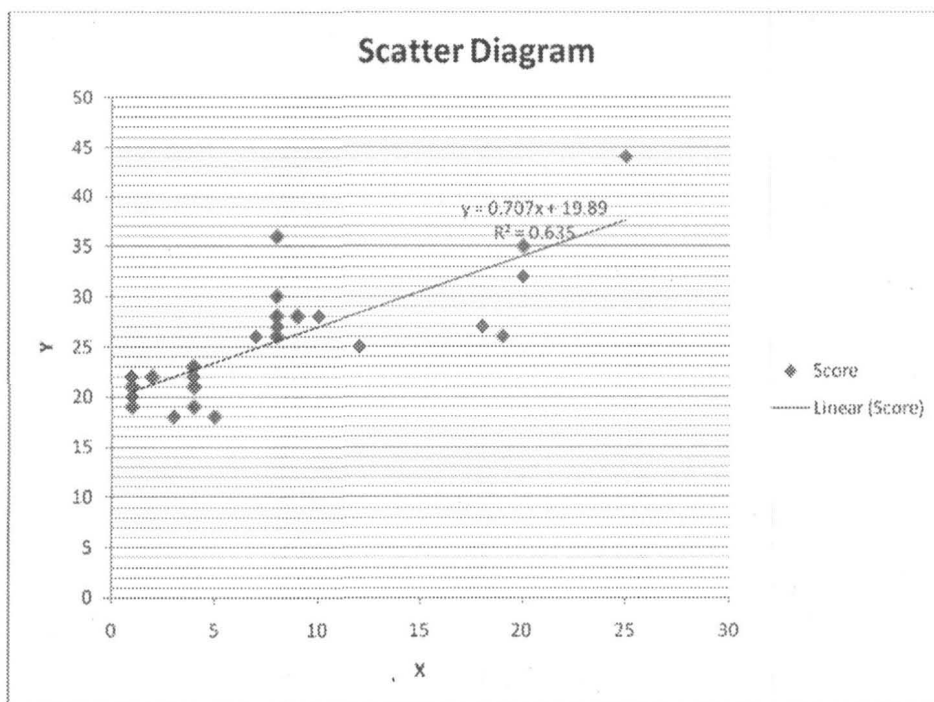
$$S^2 = \frac{(15 - 1) 26.21^2 + (15 - 1) 2.75^2}{(15 + 15 - 2)}$$

$$S^2 = 347.26$$

$$t = \frac{\bar{x}_1 + \bar{x}_2}{\sqrt{S^2 \left(\frac{1}{n_1} + \frac{1}{n_2} \right)}}$$

$$t = \frac{29.73 + 20.8}{6.804}$$

$$t = 1.312$$



The goal of regression analysis is to determine the values of parameters for a function that cause the function to best fit a set of data observations that you provide. In linear regression, the function is a linear (straight-line) equation.

ASSUMPTIONS FOR REGRESSION ANALYSIS

The least squares fitting procedure described below can be used for data analysis as a purely descriptive technique. However, the procedure has strong theoretical justification if a few assumptions are made about how the data are generated. The starting point is the regression equation presented above which describes some causal or behavioral process. The independent variables play the role of experimental or treatment variables, though in few social science applications will the investigator actually have control over the values of the independent variables. The error

term captures the effects of all omitted variables. In an experiment, randomization of the treatments (independent variables) ensures that the omitted factors (the disturbances) are uncorrelated with the treatments. This greatly simplifies inference. Non-experimental researchers, however, must substitute assumptions for experimental controls. The validity of non-experimental results therefore depends critically upon the accuracy of the assumptions. We present one set of assumptions, known as the Gauss-Markov assumptions that are sufficient to guarantee that ordinary regression estimates will have good properties.

Regression analysis is a statistical tool for the investigation of relationships between variables. It is used to ascertain the causal effect of one variable upon another. To explore such issues, the investigator assembles data on the underlying variables of interest and employs regression to estimate the quantitative

effect of the causal variables upon the variable that they influence. The result of regression analysis comes out to be 0.623. This value is more than 0.55. Thus, the positive trend proves that the performance of experienced teachers is more than fresh teachers.

CONCLUSION

The results from the data are as follows.

The resultant of the t test is $t = 1.312$. The value of t is less than the table value of t at 5% of level of significance 1.701 for 28 degree of freedom. Thus the null hypothesis is rejected.

The resultant of regression analysis is $R^2 = 0.623$. It is more than the null value of R^2 of 0.55. This value of R^2 thus strongly suggests that there is an intense and positive relation between performance of experienced teachers and fresh teachers. Thus, it can now be said that the performance of experienced teachers is significantly more than the performance level of fresh teachers who are relatively new to the teaching profession. From the results of the study and its interpretation, the alternate hypothesis that experience is positively correlated with performance, is accepted. This study will surely help in the selection of teachers for any institution

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