NILESH KUMAR PATEL & SUSHIL KUMAR TYAGI

Effect of Integrated Feedback on Teaching Competency of Secondary School Teachers

ABSTRACT: The teachers are expected to teach for understanding rather than merely rote learning. Therefore, the concept of good teaching has been gradually shifted from behaviorist to a more constructivist view. This is why the efforts for improvement and advancement of teaching were made in earlier decades and in future, and more studies and efforts are needed. Integrated feedback based on student evaluation towards teachers and teachers’ self-evaluation was taken independent variable in the present study. Teaching competency of secondary school teachers was dependent variable in the study. This study was experimental in nature and non-equivalent control group design, suggested by Donald T. Campbell & Julian C. Stanley (1963) and other scholars, were adopted for the study. Sample of the study comprised of 77 secondary school teachers and 220 students of four CBSE (Central Board of Secondary Education) affiliated English medium school of Indore city in India. It was sampled purposively. Null hypotheses were formulated. One-way ANCOVA (Analysis of Covariance) and 2X2 factorial design ANCOVA were used for data analysis. Hypotheses were tested at level of significance with α = 0.05. Interactional effect of treatment with Intelligence, Gender, Job Satisfaction, and Experience of Teachers were also studied. The treatment was found effective on teaching competency of secondary school teachers. Finally, the study has great uses for teachers, students, and school administrators.

KEY WORD: Student Evaluation on Teachers; Teachers’ Self-Evaluation; Teaching Competency; Integrated Feedback.


KATA KUNCI: Evaluasi Siswa terhadap Guru; Evaluasi Diri Guru; Kompetensi Mengajar; Umpan Balik Terpadu.

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INTRODUCTION

Today, the teachers are expected to teach for understanding rather than merely rote learning. Therefore, the concept of good teaching has been gradually shifted from behaviorist to a more constructivist view. This is why the efforts for improvement and advancement of teaching were made in earlier decades and in future, more studies and efforts are needed (Westbrook et al., 2013; Allybokus, 2015; and Bada, 2015).

Assuming that no one is perfect and, therefore, everyone has room for improvement, teacher evaluation was considered the mean to identify the aspects of good teaching and to identify the aspects, which needed to be changed. The literature on teaching is crammed full of good researches, yet efforts made in the area of teacher evaluation are insufficient. After studying the theoretical contributions made earlier, the researchers felt the need of more studies in the context of teacher evaluation at secondary level in many directions (Jabbarifar, 2009; Han & Yin, 2016; and Blazar & Kraft, 2017).

B.L. Johnson (1997), and other scholars, conducted a study on student rating of teaching and found that teachers' personality as perceived by students was still very significantly related to rating of teaching quality. It was argued that there is a proper state of affairs, which does not undermine the validity of student ratings (cf Johnson, 1997; Clayson, 2009; and Tanabe & Mori, 2013).

In another studies, conducted by J. Centra (1993) and other scholars, it was found that teachers generally evaluated their teaching somewhat differently from the way their students evaluated it (Centra, 1993; Abrami, 1989; and Patel, 2017). B. Fresko, D. Kfir & F. Nasser (1997), and other scholars, also concluded the study with a suggestion of using student ratings and instructors predictions to motivate teaching improvement (cf Fresko, Kfir & Nasser, 1997; Marsh & Hattie, 2002; and Dehaloo, 2011).

An attempt made by B.K. Passi (1976), and other scholars, on the interaction effect of the different techniques of feedback and the effect was found not to be significant (Passi, 1976; Chawla & Thukral, 2011; and Sharma, 2011). P. Black & D. Wiliam (1998), and other scholars, also found that few items reflecting job satisfactions of teachers needed to be included in the tool of self-assessment of teachers (Black & Wiliam, 1998; Nyakundi, 2012; and Patel, 2017).

An effort made by E.S. Balachandran (1981), and other scholars, it was found that the evaluative feedback based on students’ ratings of teachers helped teachers to improve their teaching effectiveness irrespective of sex or subjects of teachers (Balachandran, 1981; Abrami, Marilyn & Raiszadeh, 2001; and Jain, 2014). The same results were found by J. Centra (1993), and other scholars, pertaining to improve teaching effectiveness (Centra, 1993; Jain, 2014; and Alexander, 2016). Finding of N. Davidovitch & D. Soen (2006), and other scholars, also confirmed this result (Balachandran, 1981; Davidovitch & Soen, 2006; and Alexander, 2016).

P.K. Mishra (1983), and other scholars, found significant and positive behavioural changes in teachers, because of receiving feedback. P.K. Mishra (1983), and other scholars, also found that teaching behaviour of the teachers could be changed in a positive direction by giving feedback information in the way of self-rating and class rating (Carroll, 1981; Mishra, 1983; Airasian & Gullickson, 1994; Scheeler, Ruhl & McAce, 2004; and Patel, 2018).

Nilesh Kumar Patel (2017 and 2018) found that after giving feedback, the teachers became more indirect and less direct in then-behaviour; and the students began to like them more (Patel, 2017 and 2018). In an attempt, S. Qureshi & R. Ullah (2014) and other scholars noted the change in both, directly observed measures as well as in the perceptions of the teaching assistants and their students (Scheeler, Ruhl & McAce, 2004; Mansaray, 2012; Nicola, Thomsonb & Breslin, 2014; Qureshi & Ullah, 2014; and Patel, 2017 and 2018).

Results of the study conducted by A.A. Summers & B.L. Wolfe (1975), and other scholars, also support the use of student ratings as measures of teaching effectiveness (Summers & Wolfe, 1975; Abrami, D’Apollonia
J.J. Appleton et al. (2006) and other scholars, in their studies, found that the teachers who received feedback, there were significant changes in pupil ratings in their classes, indicating more satisfaction and friction. It also revealed that giving the teachers feedback as well as information may enhanced pupil engagement (cf Appleton et al., 2006; Misra, 2006; and Ndisang & Benson, 2014).

Many studies also suggested that although teachers were initially ambivalent about using student feedback to inform their practice. After looking at comprehensive data that showed now their thinking compared with student thinking, all of the participants learned from and incorporated student suggestions into their practice (Abrami, D’Apollonia & Rosenfield, 1997; D’Apollonia & Abrami, 1997; and Wilson & Friedrich, 2015).

B.S. Chandel (1981) found that the relationship between self-rating and students’ rating was not significant, but in another study, E.S. Balachandran (1981), found that student rating and self-rating of teaching were positively and significantly related. Moreover, the study revealed that the self-rating was significantly higher than the students’ ratings (cf Balachandran, 1981; Chandel, 1981; Theal & Franklin eds., 1990; Buchanan & Jackson, 1997; and Cassidy, 2006).

P.K. Mishra (1983) found that the self-rating was most effective source of feedback, but student rating were also effective in changing/behaviour (Mishra, 1983). The studies conducted by many researchers found also that all the three strategies of giving feedback: college supervisor, self, and peers feedback were equally effective (Mishra, 1983; Aigner & Thum, 1986; Marsh & Roche, 1997; Lipnevich & Smith, 2008; and Patel, 2017 and 2018).

S.P. Mishra (1985), and other scholars, found the difference between feedback effect by self-rating and class rating was highest for language teachers. They concluded that female teacher were highly susceptible to behaviour change through feedback (Mishra, 1985; Kural, 2006; and Patel, 2017 and 2018). Significant differences were found between the sub-groups of male and female, arts and science in their teaching efficiency through self-evaluation in the studies conducted by S.A. Basow & N.T. Silberg (1987); Nurcan Kahraman (2014); and Nilesh Kumar Patel (2017).

Beatrice Avalos (2011), and other scholars, found that science teachers are moderately effective in self-examination about reflective teaching (Avalos, 2011; Mathew, 2017; and Patel, 2017). Nilesh Kumar Patel (2017 and 2018) found that students rate male teachers higher than they rated female teachers (Patel, 2017 and 2018). E.S. Balachandran (1981), and other scholars, also found that the evaluated feedback based on students’ ratings helped teachers significantly to improve their teaching effectiveness (Balachandran, 1981; Cohen, 1981; Wilson, 1986; and Jain, 2014).

A study conducted by IIP (Indian Institutes of Psychometry), in 1982, it was found that some biographical factors and the socio-economic level of the subject etc. had some influence in changing the value of self-rating (cited in Patel, 2017 and 2018). Another result found, in the same study, was that the subjects who studied in villages thought themselves to be better than what they actually were. In the same study, it was also found that self-assessment was positively biased. Because of the changing trend of accountability and high stakes testing, schools are interested in investigating and adopting other “non-traditional” factors affecting achievement. Educational agencies are attempting to analyze all factors of educational environment in order to improve student achievement (cf Bailey, 1981; Blackwell, 1983; Kahraman, 2014; and Patel, 2017 and 2018).

D. Blazar & M.A. Kraft (2017), and other scholars, suggested that the teachers should maintain appropriate classroom behaviour (Rahimi & Karkami, 2015; Blazar & Kraft, 2017; and Patel, 2018). Accepting the importance of open climate, D. Prakasham (1988) and other scholars concluded that the open school organizational climates positively affect both teaching competence as well as teacher effectiveness (Prakasham, 1988; Singh, 2012; and Patel, 2017 and 2018).

After a detail study of these entire researches and findings, the researchers come to know that improvement of teaching...
is an important need of the educational systems; therefore, more works are needed to contribute in these perspectives. The researchers have selected feedback based on student evaluation of teachers and teachers’ self-evaluation as treatment. The researchers found in the researches discussed earlier that teaching competency might have some influences on teaching-learning process, but enough studies were not found in the chosen area of study. Therefore, teaching competency was included in this effort of study (cf Aleamoni, 1976; Basow, 1995; Bada, 2015; Sung, Chang & Liu, 2016; and Patel, 2017 and 2018).

**Research Objectives.** Researchers formulated following objectives for the study: (1) to study the effect of Integrated feedback, Intelligence, and their interaction on Teaching Competency by considering pre-Teaching Competency as covariate; (2) to study the effect of Integrated feedback, Gender, and their interaction on Teaching Competency by considering pre-Teaching Competency as covariate; (3) to study the effect of Integrated feedback, Job Satisfaction, and their interaction on Teaching Competency by considering pre-Teaching Competency as covariate; and (4) to study the effect of Integrated feedback, Age, and their interaction on Teaching Competency by considering pre-Teaching Competency as covariate.

**METHODS**

**Sample.** The present study was experimental in nature. The sample of the study comprised of 77 secondary school teachers belonging to four different schools of Indore City in India. These schools were selected by purposive sampling technique and all the teachers teaching in secondary classes during 2014 – 15 were taken as sample. The treatment was assigned randomly. About 5 students of each secondary class taught by the teachers were also taken as sample in the present study. These students were selected randomly from each class taught by the secondary school teachers of experimental group and control group (Cook et al., 2001; Locke, Silverman & Waneen, 2004; and Dunning, 2012).

There were 220 students in the sample. The schools had comparable management and teacher recruitment policies respectively and comparable quality of education being imparted to their students. Students’ clientele too were almost similar in their parental socio-economic and cultural backgrounds. There were thirty two male teachers and forty five female teachers taken in the sample of the study.

**Experimental Design.** The present study was Experimental in nature and Non Equivalent Control Group Design, suggested by Donald T. Campbell & Julian C. Stanley (1963) and other scholars, were adopted for study. There were two groups of schools: one of which was randomly designated as Experimental Group; and the other one as Control Group. Both the groups were pre-tested by administering Teaching Competency Test, Intelligence Test, and Job Satisfaction Scale on the Teachers (Campbell & Stanley, 1963; Kocakaya, 2011; and Dunning, 2012).

The treatment was provided to sampled secondary school teachers of Experimental Group in the form of Integrated Feedback based on Student Evaluation of Teachers and Teachers’ Self Evaluation. The effect of treatment was analyzed by post-administered Teaching Competency Test (Locke, Silverman & Waneen, 2004; Kocakaya, 2011; and Dunning, 2012).

**Tools.** The variables to which the data were collected were Teaching Competency, Job Satisfaction, and Intelligence of Teachers. J. Raven (1986)’s Standard Progressive Matrices test was used to assess Intelligence and Job Satisfaction. Questionnaire was used to measure Job Satisfaction (cf Raven, 1986; Raven & Raven, 2003; and Abdalgadr, 2009). Teaching Competency was studied by General Teaching Competency Scale developed by B.K. Passi & M.S. Lalita (1994); M. Kaur & A. Talwar (2014); and P. Kartik & M. Ahuja (2016).

**Procedure of Data Analysis.** One way ANCOVA (Analysis of Covariance) was used to study the first objective and 2X2 Factorial Design ANCOVA is used to study the rest 4 objectives (Miller & Chapman, 2001; Huitema, 2011; and Tabachnick & Fidell, 2013).
RESULTS AND DISCUSSION

Firstly, Effect of Integrated Feedback, Intelligence, and Their Interaction on Teaching Competency by Considering Pre-Teaching Competency as Covariate. The second objective was to study the effect of Integrated Feedback, Intelligence, and their interaction on Teaching Competency by considering pre-Teaching Competency as covariate. There were two levels of Integrated Feedback, namely: Integrated Feedback and No-Feedback.

First level of Integrated Feedback was taken as experimental group and second level was taken as control group. There were 40 teachers in experimental group and 37 teachers in control group. On the basis of Intelligence, the subjects were divided into two levels, namely: above average and below average. There were 42 teachers are in above average and 35 were in below average level. The data were analyzed with the help of 2X2 Factorial Design ANCOVA (Analysis of Covariance). The results are given in table 1.

About the Effect of Integrated Feedback on Teaching Competency of Secondary School Teachers by Considering Pre-Teaching Competency as Covariate. From table 1, it can be seen that the adjusted F-value for Integrated Feedback is 13.482, whose level of significance with df (1, 74) is 0.000; therefore, it is significant at 0.01 level of significance.

This shows that the adjusted mean score of Teaching Competency of experimental group differ significantly from control group, when pre-Teaching Competency was taken as covariate. Thus, the null hypothesis that: “There is no significant effect of Integrated Feedback on Teaching Competency when pre-Teaching Competency was taken as covariate” was rejected at 0.01 level of significance. See table 2.

Further, from table 2, it can be seen that adjusted mean score of Teaching Competency of experimental group, i.e. 120.7, was found to be significantly higher than that of control group, i.e. 114.8. Hence, it can be concluded that Integrated Feedback provided to the secondary school teachers was found to be effective in terms of Teaching Competency of the teachers, when pre-Teaching Competency was taken as covariate.

About Effect of Intelligence on Teaching Competency of Secondary School Teachers by Considering Pre-Teaching Competency as Covariate. From table 2, it can be seen that the adjusted F-value for Intelligence is 0.414, which is not significant even at 0.05 level of significance. Therefore, the null hypothesis that: “There is no significant effect of Intelligence on Teaching Competency by considering pre-Teaching Competency as covariate” was not rejected. It can, thus, be concluded that the Teaching Competency is independent of Intelligence of teachers when pre-Teaching Competency was taken as covariate.

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SSy.x</th>
<th>MSSy.x</th>
<th>Fy.x</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Feedback</td>
<td>1</td>
<td>658.575</td>
<td>658.575</td>
<td>13.482</td>
<td>0.000</td>
</tr>
<tr>
<td>Intelligence</td>
<td>1</td>
<td>20.212</td>
<td>20.212</td>
<td>0.414</td>
<td>0.522</td>
</tr>
<tr>
<td>Integrated Feedback * Intelligence</td>
<td>1</td>
<td>123.898</td>
<td>123.898</td>
<td>2.536</td>
<td>0.116</td>
</tr>
<tr>
<td>Error</td>
<td>72</td>
<td>3517.208</td>
<td>48.850</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Adjusted Mean Scores of Teaching Competency of Experimental Group and Control Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Adjusted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>120.7</td>
</tr>
<tr>
<td>Control Group</td>
<td>114.8</td>
</tr>
</tbody>
</table>
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Effect of Integrated Feedback on Teaching Competency

About Effect of Interaction between Integrated Feedback and Intelligence on Teaching Competency of Secondary School Teachers by Considering Pre-Teaching Competency as Covariate. From table 2, it can also be seen that the adjusted F-value for the interaction between the Integrated Feedback and Intelligence is 2.536, which is not significant even at 0.05 level of significance. Therefore, the null hypothesis that: “There is no significant effect of interaction between Integrated Feedback and Intelligence on Teaching Competency by considering pre-Teaching Competency as covariate” was not rejected. Thus, it can be concluded that the Teaching Competency is independent of interaction between Integrated Feedback and Intelligence when pre-Teaching Competency was taken as covariate.

Secondly, Effect of Integrated Feedback, Gender, and Their Interaction on Teaching Competency by Considering Pre-Teaching Competency as Covariate. The third objective was to study the effect of Integrated Feedback, Gender, and their interaction on Teaching Competency by considering pre-Teaching Competency as covariate. There were two levels of Integrated Feedback, namely: Integrated Feedback and No-Feedback.

First level of Integrated Feedback was taken as experimental group and second level was taken as control group. There were 40 teachers in experimental group and 37 teachers in control group. On the basis of Gender the subjects were divided into two levels, namely: male and female. There were 32 male and 45 female teachers. The data were analyzed with the help of 2x2 Factorial Design ANCOVA (Analysis of Covariance). The results are given in table 3.

Table 3: Summary of 2x2 Factorial Design ANCOVA for Teaching Competency by Considering Pre-Teaching Competency as Covariate

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SSy.x</th>
<th>MSSy.x</th>
<th>Fy.x</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Feedback</td>
<td>1</td>
<td>530.080</td>
<td>530.080</td>
<td>10.488</td>
<td>0.002</td>
</tr>
<tr>
<td>Gender</td>
<td>1</td>
<td>19.165</td>
<td>19.165</td>
<td>0.379</td>
<td>0.540</td>
</tr>
<tr>
<td>Integrated Feedback * Gender</td>
<td>1</td>
<td>9.326</td>
<td>9.326</td>
<td>0.185</td>
<td>0.669</td>
</tr>
<tr>
<td>Error</td>
<td>72</td>
<td>3638.836</td>
<td>50.539</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4: Adjusted Mean Scores of Teaching Competency of Experimental Group and Control Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Adjusted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>120.5</td>
</tr>
<tr>
<td>Control Group</td>
<td>115.1</td>
</tr>
</tbody>
</table>

About Effect of Integrated Feedback on Teaching Competency Considering Pre-Teaching Competency as Covariate. From table 3, it can be seen that the adjusted F-value for Integrated Feedback is 10.488, whose level of significance with df (1, 74) is 0.002; therefore, it is significant at 0.01 level of significance. This shows that the adjusted mean score of Teaching Competency of experimental group differ significantly from control group, when pre-Teaching Competency was taken as covariate. Thus, the null hypothesis that: “There is no significant effect of Integrated Feedback on Teaching Competency when pre-Teaching Competency was taken as covariate” was rejected at 0.01 level of significance. See table 4.

From table 4, it can be seen that adjusted mean score of Teaching Competency of experimental group i.e. 120.5 was found to be significantly higher than that of control group i.e. 115.1. Hence, it is concluded that Integrated Feedback provided to the secondary school teachers was found to be effective in terms of Teaching Competency of the secondary school teachers, when pre-Teaching Competency was taken as covariate.
About Effect of Gender on Teaching Competency of Secondary School Teachers by Considering Pre-Teaching Competency as Covariate. From table 3, it can be seen that the adjusted F-value for Gender is 0.379, which is not significant even at 0.05 level of significance. Therefore, the null hypothesis that: “There is no significant effect of Gender on Teaching Competency by considering pre-Teaching Competency as covariate” was not rejected. Thus, it is concluded that the Teaching Competency is independent of Gender of teachers when pre-Teaching Competency was taken as covariate.

About Effect of Interaction between Integrated Feedback and Gender on Teaching Competency of Secondary School Teachers by Considering Pre-Teaching Competency as Covariate. From table 3, it can be seen that the adjusted F-value for the interaction between the Integrated Feedback and Gender is 0.185, which is not significant even at 0.05 level of significance. Therefore, the null hypothesis that: “There is no significant effect of interaction between Integrated Feedback and Gender on Teaching Competency by considering pre-Teaching Competency as covariate” was not rejected. Thus, it is concluded that the Teaching Competency is independent of interaction between Integrated Feedback and Gender when pre-Teaching Competency was taken as covariate.

Thirdly, Effect of Integrated Feedback, Job Satisfaction, and Their Interaction on Teaching Competency of Secondary School Teachers by Considering Pre-Teaching Competency as Covariate. The forth objective was to study the effect of Integrated Feedback, Job Satisfaction, and their interaction on Teaching Competency by considering pre-Teaching Competency as covariate. There were two levels of Integrated Feedback, namely: Integrated Feedback and No-Feedback.

First level of Integrated Feedback was taken as experimental group and second level was taken as control group. There were 40 teachers in experimental group and 37 teachers in control group. On the basis of Job Satisfaction, the subjects were divided into two levels, namely: high and low. There were 45 teachers in high job satisfaction level and 32 teachers in low job satisfaction level. The data were analyzed with the help of 2X2 Factorial Design ANCOVA (Analysis of Covariance). The results are given in table 5.

- Table 5: Summary of 2X2 Factorial Design ANCOVA for Teaching Competency by Considering Pre-Teaching Competency as Covariate

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SSy.x</th>
<th>MSSy.x</th>
<th>Fy.x</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Feedback</td>
<td>1</td>
<td>522.566</td>
<td>522.566</td>
<td>10.405</td>
<td>0.002</td>
</tr>
<tr>
<td>Job Satisfaction</td>
<td>1</td>
<td>1.150</td>
<td>1.150</td>
<td>0.023</td>
<td>0.880</td>
</tr>
<tr>
<td>Integrated Feedback * Job Satisfaction</td>
<td>1</td>
<td>48.267</td>
<td>48.267</td>
<td>0.961</td>
<td>0.330</td>
</tr>
<tr>
<td>Error</td>
<td>72</td>
<td>3615.913</td>
<td>50.221</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Table 6: Adjusted Mean Scores of Teaching Competency of Experimental Group and Control Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Adjusted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>120.2</td>
</tr>
<tr>
<td>Control Group</td>
<td>114.9</td>
</tr>
</tbody>
</table>

About Effect of Gender on Teaching Competency of Secondary School Teachers by Considering Pre-Teaching Competency as Covariate. From table 3, it can be seen that the adjusted F-value for Gender is 0.379, which is not significant even at 0.05 level of significance. Therefore, the null hypothesis that: “There is no significant effect of Gender on Teaching Competency by considering pre-Teaching Competency as covariate” was not rejected. Thus, it is concluded that the Teaching Competency is independent of Gender of teachers when pre-Teaching Competency was taken as covariate.

About Effect of Interaction between Integrated Feedback and Gender on Teaching Competency of Secondary School Teachers by Considering Pre-Teaching Competency as Covariate. From table 3, it can be seen that the adjusted F-value for the interaction between the Integrated Feedback and Gender is 0.185, which is not significant even at 0.05 level of significance. Therefore, the null hypothesis that: “There is no significant effect of interaction between Integrated Feedback and Gender on Teaching Competency by considering pre-Teaching Competency as covariate” was not rejected. Thus, it is concluded that the Teaching Competency is independent of interaction between Integrated Feedback and Gender when pre-Teaching Competency was taken as covariate.

Thirdly, Effect of Integrated Feedback, Job Satisfaction, and Their Interaction on Teaching Competency of Secondary School Teachers by Considering Pre-Teaching Competency as Covariate. The forth objective was to study the effect of Integrated Feedback, Job Satisfaction, and their interaction on Teaching Competency by considering pre-Teaching Competency as covariate. There were two levels of Integrated Feedback, namely: Integrated Feedback and No-Feedback.

First level of Integrated Feedback was taken as experimental group and second level was taken as control group. There were 40 teachers in experimental group and 37 teachers in control group. On the basis of Job Satisfaction, the subjects were divided into two levels, namely: high and low. There were 45 teachers in high job satisfaction level and 32 teachers in low job satisfaction level. The data were analyzed with the help of 2X2 Factorial Design ANCOVA (Analysis of Covariance). The results are given in table 5.
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Table 7:  
Summary of 2X2 Factorial Design ANCOVA for Teaching Competency by Considering Pre-Teaching Competency as Covariate

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SSy.x</th>
<th>MSSy.x</th>
<th>Fy.x</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Integrated Feedback</td>
<td>1</td>
<td>509.168</td>
<td>509.168</td>
<td>10.161</td>
<td>0.002</td>
</tr>
<tr>
<td>Age</td>
<td>1</td>
<td>50.332</td>
<td>50.332</td>
<td>1.004</td>
<td>0.320</td>
</tr>
<tr>
<td>Integrated Feedback * Age</td>
<td>1</td>
<td>5.160</td>
<td>5.160</td>
<td>0.103</td>
<td>0.749</td>
</tr>
<tr>
<td>Error</td>
<td>72</td>
<td>3607.992</td>
<td>50.111</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8:  
Adjusted Mean Scores of Teaching Competency of Experimental Group and Control Group

<table>
<thead>
<tr>
<th>Group</th>
<th>Adjusted Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Experimental Group</td>
<td>120.3</td>
</tr>
<tr>
<td>Control Group</td>
<td>115.0</td>
</tr>
</tbody>
</table>

as covariate. Thus, the null hypothesis that: “There is no significant effect of Integrated Feedback on Teaching Competency when pre-Teaching Competency was taken as covariate” was rejected at 0.01 level of significance. See table 6.

Further, from the table 6, it can be seen that the adjusted mean score of Teaching Competency of experimental group i.e. 120.2 was found to be significantly higher than that of control group i.e. 114.9. Hence, it is concluded that Integrated Feedback provided to the teachers was found to be effective in terms of Teaching Competency of the secondary school teachers, when pre-Teaching Competency was taken as covariate.

About Effect of Job Satisfaction on Teaching Competency of Secondary School Teachers by Considering Pre-Teaching Competency as Covariate. From table 5, it can also be seen that the adjusted F-value for the interaction between the Integrated Feedback and Job Satisfaction is 0.961, which is not significant even at 0.05 level of significance. Therefore, the null hypothesis that: “There is no significant effect of interaction between Integrated Feedback and Job Satisfaction on Teaching Competency by considering pre-Teaching Competency as covariate” was not rejected. Thus, it is concluded that the Teaching Competency is independent of interaction between Integrated Feedback and Job Satisfaction when pre-Teaching Competency was taken as covariate.

Fourthly, Effect of Integrated Feedback, Age, and Their Interaction on Teaching Competency of Secondary School Teachers by Considering Pre-Teaching Competency as Covariate. The last objective was to study the effect of Integrated Feedback, Age, and their interaction on Teaching Competency by considering pre-Teaching Competency as covariate. There were two levels of Integrated Feedback, namely: Integrated Feedback and No-Feedback.

First level of Integrated Feedback was taken as experimental group and second level was taken as control group. There were 40 teachers in experimental group and 37 teachers in control group. On the basis of Age, the subjects were divided in to two levels, namely: above average and below average.
There were 39 teachers in below average age and 38 teachers in above average age level. The data were analyzed with the help of 2x2 Factorial Design ANCOVA (Analysis of Covariance). The results are given in table 7.

About Effect of Integrated Feedback on Teaching Competency of Secondary School Teachers by Considering Pre-Teaching Competency as Covariate. From table 7, it can be seen that the adjusted F-value for Integrated Feedback is 10.161 whose level of significance with df (1, 74) is 0.002; therefore, it is significant at 0.01 level of significance.

This shows that the adjusted mean score of Teaching Competency of experimental group differ significantly from control group when pre-Teaching Competency was taken as covariate. Thus, the null hypothesis that: “There is no significant effect of Integrated Feedback on Teaching Competency when pre Teaching Competency was taken as covariate” was rejected at 0.01 level of significance. See table 8.

Further, from table 8, it can be seen that the adjusted mean score of Teaching Competency of experimental group, i.e. 120.3, was found to be significantly higher than that of control group, i.e. 115.0. Hence, it is concluded that Integrated Feedback provided to the teachers was found to be effective in terms of Teaching Competency of the secondary school teachers, when pre-Teaching Competency was taken as covariate.

About Effect of Age on Teaching Competency of Secondary School Teachers by Considering Pre-Teaching Competency as Covariate. From table 7, it can be seen that the adjusted F-value for Age is 1.004, which is not significant even at 0.05 level of significance. Therefore, the null hypothesis that: “There is no significant effect of Age on Teaching Competency by considering pre-Teaching Competency as covariate” was not rejected. Thus, it is concluded that the Teaching Competency is independent of Age of teachers when pre-Teaching Competency was taken as covariate.

CONCLUSION

Integrated Feedback provided to the secondary school teachers was found effective in terms of Teaching Competency of the teachers, when pre-Teaching Competency was taken as covariate. Teaching Competency is independent of Intelligence of teachers and its interaction with Integrated Feedback when pre-Teaching Competency was taken as covariate. Teaching Competency is independent of Gender of teachers and its interaction with Integrated Feedback, when pre-Teaching Competency was taken as covariate.

Teaching Competency is also independent of Job Satisfaction of teachers and its interaction with Integrated Feedback, when pre-Teaching Competency was taken as covariate. Teaching Competency is independent of Age of teachers and its interaction with Integrated Feedback, when pre-Teaching Competency was taken as covariate.

References


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