



Effectiveness of Specially Designed 4F Model on enhancing Self-Regulated Learning of PU students

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Abstract : The present article provides a short introduction about self-regulatory learning and the findings of the study undertaken by the researcher. Self-regulated Learning is a psychological construct which helps one monitor, regulate and improvise him/herself. This is one of the major traits any learner should possess to reach the goal. This experimental study tried to see the enhancement of Self-regulated learning (SRL) through a specially designed 4F model on Pre-university students (Higher secondary stage). A pre-test post-test design was adopted for the present study. The major findings of the study revealed that the 4F model is effective in enhancing the SRL in the students.

IndexTerms - 4F Model, Instructional Design, Self-regulated Learning

I. INTRODUCTION

“Regard man as a mine rich in gems of inestimable value. Education can, alone, cause it to reveal its treasures and enable mankind to benefit there from” (Baha’u’llah, Gleanings from the Writings of Baha’u’llah).

“In an era of constant distractions in the form of portable phones, CD players, computers, and televisions for even young children, it is hardly surprising to discover that many students have not learned to self-regulate their academic studying very well” (Zimmerman,2002). The right Education alone can foster an ever-advancing society. A world of addiction should make way for a self-regulated learning, out of which the learners will definitely benefit and to transform a society and civilization. The greatest importance of self-regulated learning is that, it helps one to monitor, manage and adapt and accept the conditions in learning.

It is obvious that the technology is really a boon unless and until learners know to regulate the use of it in an era of technical advancement. In order to make the learners draw out the inner potentialities in them, deliberate attempt of understanding and efforts needs to be put from the part of the learner/s too. Thus, as Zimmerman rightly mentioned, the need and significance of the Self-regulation is of paramount importance. Self-regulation indeed is an ever-challenging skill that a learner needs to master. In the words of Zimmerman (1989), a stalwart in the area of Self-regulation researches, opines that Self-regulation helps one to be “metacognitively, motivationally, and behaviourally active participants in their own learning processes.” Many researchers have found that Self-regulated learning transform a learner’s pre-existing abilities into task related behaviours. Self-regulation is an aspect of learning which develops skills, habits to be effective learners and to make them to foster their life long learning.

Hence, the need of enhancing Self-regulated learning is a mandate in an era of distraction. This present study is an attempt to enhance the Self-regulated learning through a specially designed Instructional model-4F model: Facilitate, Feel, Face and Feedback.

The Instructional Design provides an “orientation to instruction, where all of the independent components function together in order to meet the targeted learning goals” (Seda Khadimally). 4F Model is an instructional design specially developed on the theory of Albert Bandura’s Observational learning- the mediational processes involved in-Attention, retention, Reproduction and motivation/Reinforcement. The investigator through the help of 4F model tried to enhance the self-regulated learning of the students of Pre-University. 4F model specifically organizes the learning process so that the learners will develop their self-regulation in their learning.

II. OBJECTIVES OF THE STUDY

- 1) To study the effectiveness of Specially designed 4F model on Self-regulated learning of PU students
- 2) To study the effectiveness of Specially designed 4F model on Self-regulated learning among male and female students of PU College.
- 3) To compare the effectiveness of 4F model and Traditional teaching method on enhancing Self-regulated Learning of PU students.

III. HYPOTHESES OF THE STUDY

- H1: There is no significant difference in the mean scores of pre-test and post-test in Self-regulatory learning of experimental group students taught through specially designed 4F Model
- H2: There is no significant difference in the mean scores of pre-test and post-test in Self-regulatory learning of experimental group male students taught through specially designed 4F Model
- H3: There is no significant difference in the mean scores of pre-test and post-test in Self-regulatory learning of experimental group female students taught through specially designed 4F Model
- H4: There is no significant difference in the mean scores of post-tests in Self-regulatory learning of students taught through specially designed 4F Model and Traditional teaching method

IV. RESEARCH METHODOLOGY

Pre-test post-test Experimental design was used in the present study. The investigator visited the pre-university college and after seeking permission, a pretest was administered for the sample, then the experiment was undertaken. The students were taught their lessons through 4F model. after the experiment, the students were given a post test. ($O_1 \times O_2$).

4.1 Variables of the study

Independent variable: Specially designed 4F Model

The investigator had developed a 4F Model. the model has four distinct stages in its syntax Viz; Facilitate, Feel, Face and feedback. These distinct stages are further subdivided for easy facilitation of the model. These Phases and subphases help the students better understand and involve and participate in the teaching learning process.

Self-developed lesson transcripts were used to teach the students.

Dependent Variable: Self-regulated learning

“Self-regulated learning is a domain-specific level of acquired skill that depends on task-dependent processes” (Schunk, Zimmerman, 1997). Self-constructed tool had been used to check the self-regulated learning of the students before and the intervention.

4.1 Sample of the study

106 Pre-university students of Dakshina Kannada district were randomly selected for the study. The study included male and female students. 55 students in the experimental group and 51 students in the control group.

3.2 Data and Sources of Data

For the present study, the data was collected before and after the experiment. The investigator herself administered Self-regulatory learning scale to the PU students as a pre-test and Post-test.

3.3 Theoretical framework

The present study contains dependent and independent variable as mentioned earlier. Albert Bandura’s Social Learning Theory was one of the outstanding theories helped the investigator to develop the specially designed 4F model. on which the investigator modelled the Instructional design to see the enhancement of self-regulated learning. Zimmerman’s and Schunks’ studies were taken as a base for constructing the self-regulated learning scale.

3.4 Statistical tools

Descriptive as well as inferential statistics t-test was used in the study to test the hypotheses of the study.

IV. RESULTS AND DISCUSSION

4.1 Analysis and Results of the study

Objective One

1] To study the effectiveness of Specially designed 4F model on Self-regulated learning of PU students

A hypothesis was formed to study the objective, ie,

H1: ‘There is no significant difference in the mean scores of pre-test and post-test in Self-regulatory learning of experimental group students taught through specially designed 4F Model.

HA: ‘There is a significant difference in the mean scores of pre-test and post-test in Self-regulatory learning of experimental group students taught through specially designed 4F Model.

In order to test the hypothesis, the data was analyzed using descriptive statistics and inferential statistics ‘t’ test at 0.05 level of significance. Table 1 shows the result of significance.

Table 1 shows the t-test results pertaining to pre-test and post-tests in Self-regulatory learning of experimental group taught through specially designed 4F Model

Test	N	M	SD	df	't' value	Result
Pre-test	55	119.76	21.09	54	9.61	significant
Post-test	55	149.96	20.6			

Significant at 0.05 level

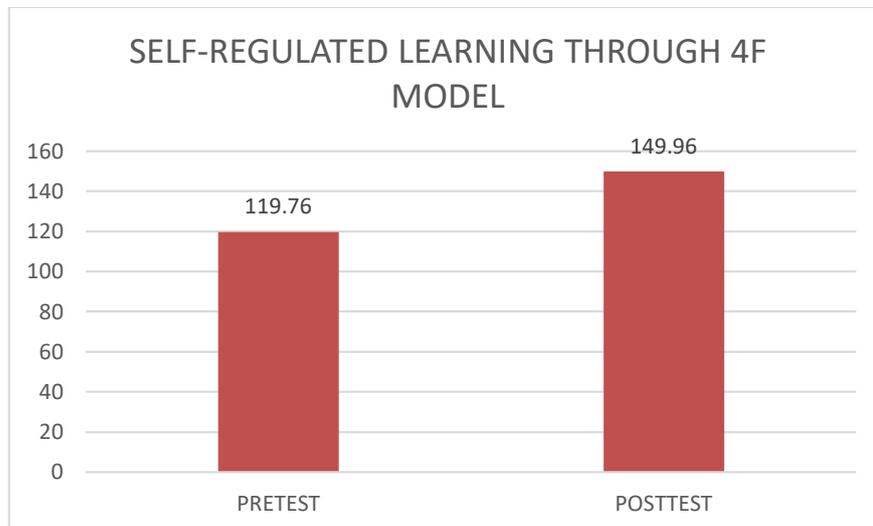


Figure showing the mean score difference in pre-test and post-test of experimental group students' self-regulated learning.

From the table, it is revealed that the mean scores of pre-test and post-test of the Experimental group is significantly different. Mean score of the Post-test is higher than their Mean score of pre-test. But to ensure a real difference, the investigator attempted an inferential test- students' paired sample t test. The result had shown significant difference at 0.05 level of significance. The obtained 't'-value of 9.61 is greater than the table value 2.004 with degrees of freedom 54. Hence, the null hypothesis was rejected and accepted the alternate hypothesis that 'There is a significant difference in the mean scores of pre-test and post-test in Self-regulatory learning of experimental group students taught through specially designed 4F Model'

Interpretation and conclusion of the result

The Post-test Scores of Self-regulatory learning of students of the Experimental group was high when compared to their pre-test scores which had been revealed in their highest mean in their post-test. It was observed that the mean score difference of 30.2 unit is in favour of the post-test and revealed that the group differ significantly in their tests and the obtained t-value is higher than that of the critical value. ($t=9.61$, $P<0.01$) and the Group taught through 4F Model is higher in their post-test Mean score ($M_{Pre}=119.76$, $M_{Post}=149.96$)

Objective Two

[2] To study the effectiveness of Specially designed 4F model on Self-regulated learning among male and female students of PU College.

In order to study this objective, two hypotheses were formulated based on the gender.

H2: There is no significant difference in the mean scores of pre-test and post-test in Self-regulatory learning of experimental group male students taught through specially designed 4F Model

HA: There is a significant difference in the mean scores of pre-test and post-test in Self-regulatory learning of experimental group male students taught through specially designed 4F Model

The result of the analysis is as follows,

Table 2 shows the t-test results pertaining to pre-test and post-tests in Self-regulatory learning of male students of the experimental group taught through specially designed 4F Model

Test	N	M	SD	df	't' value	't' table value	Result
Pre-test	34	112.5	19.4	33	9.02	2.03	significant
Post-test	34	150.1	23.1				

Significant at 0.05 level

Interpretation and conclusion of the result

The Post-test Scores of Self-regulatory learning of male students of the Experimental group was high when compared to their pre-test scores which had been revealed in their highest mean in their post-test.

The mean scores of Pre-test and Post-test of male students' Self-regulated Learning in the Experimental group differ significantly as the mean scores of the groups differ significantly and the obtained t-value is higher than that of the critical value. ($t=9.02$, $P<0.01$) and the Group taught through 4F Model is higher in their post-test Mean score ($M_{Pre}=112.5$, $M_{Post}=150.1$). Hence rejected the null hypothesis and accepted the alternate hypothesis.

H3: There is no significant difference in the mean scores of pre-test and post-test in Self-regulatory learning of experimental group female students taught through specially designed 4F Model

HA: There is no significant difference in the mean scores of pre-test and post-test in Self-regulatory learning of experimental group female students taught through specially designed 4F Model

The result of the analysis is as follows,

Table 3 shows the t-test results pertaining to pre-test and post-tests in Self-regulatory learning of female students of the experimental group taught through specially designed 4F Model

Test	N	M	SD	df	't' value	't' table value	Result
Pre-test	21	131.5	18.6	20	5.26	2.09	significant
Post-test	21	149.8	16.2				

Significant at 0.05 level

Interpretation and conclusion of the result

The Post-test Scores of Self-regulatory learning of male students of the Experimental group was high when compared to their pre-test scores which had been revealed in their highest mean in their post-test.

The mean scores of Pre-test and Post-test of male students' Self-regulated Learning in the Experimental group differ significantly as the mean scores of the groups differ significantly and the obtained t-value is higher than that of the critical value. ($t=5.26$, $P<0.01$) and the Group taught through 4F Model is higher in their post-test Mean score ($M_{Pre}=131.5$, $M_{Post}=149.8$). Hence rejected the null hypothesis and accepted the alternate hypothesis.

Objective Three

[3] To compare the effectiveness of 4F model and Traditional teaching method on enhancing Self-regulated Learning of PU students In order to study this objective, two hypotheses were formulated based on the gender.

H4: There is no significant difference in the mean scores of post-tests in Self-regulatory learning of students taught through specially designed 4F Model and Traditional teaching method

HA: There is a significant difference in the mean scores of post-tests in Self-regulatory learning of students taught through specially designed 4F Model and Traditional teaching method

The result of the analysis is as follows,

Table 4 shows the t-test results pertaining to post-tests in Self-regulatory learning of students of the experimental group and control group

Group	N	M	SD	df	't' value	't' table value	Result
Experimental	55	149.96	20.6	104	8.4	1.98	significant
Control	51	114.76	22.7				

Significant at 0.05 level

Interpretation and conclusion of the result

The Post-test Scores of Self-regulatory learning of students of the Experimental group was high when compared to the control group scores which had been revealed in their highest mean in their post-tests.

The mean scores of students' Self-regulated Learning in the Experimental group differ significantly as the mean scores of the groups differ significantly and the obtained t-value is higher than that of the critical value. ($t=8.4$, $P<0.01$) and the Group taught through 4F Model is higher in their post-test Mean score ($M_{Exp}=149.96$, $M_{Con}=114.76$). Hence rejected the null hypothesis and accepted the alternate hypothesis.

4.3 Discussion and summary

The objectives of the study were to study the effectiveness of 4F model in enhancing the self-regulated learning of the students. It is revealed that after the experimentation through specially designed 4F model, the experimental group achieved well in Self-regulatory learning test when compared to the control group taught through traditional teaching method. Hence the analysis and results infer that the experimentation through 4F model was effective to enhance Self-regulatory learning of the students. Hence, the stakeholders can better equip with this model to make the learners more self-regulated as 4Fmodel provides scope for their own attention, monitoring and reflection of their own learning.

V. ACKNOWLEDGMENT

The investigator extends her gratitude towards her supervisor Dr S.S Patil, Professor, Department of Education, Kuvempu University, Shimoga, and other experts in the field who helped in Validating the tool, suggesting and guiding me with their immense knowledge.

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