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# EFFICACY OF BLENDED LEARNING INSTRUCTIONAL STRATEGY IN STRENGTHENING SOCIAL SKILLS AMONG HIGHER SECONDARY SCHOOL STUDENTS

1

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## INTRODUCTION

The computers with their working and functioning capacity coupled with a progress in the field of electronics and communication technology have yielded so much power, abilities and capacities to human beings that can boost to do anything and everything on this earth. E-learning may be taken as an electronically carried out learning facilitated and supported by the use of advanced learning technology particularly calling for the services of computers with networking multimedia. It refers to the use of the internet technologies to deliver a broad array of solutions that enhance knowledge and performance. Although it represents tremendous potential in the way it could change radically learning and development, e-learning has an interesting impact on the learning environment. It has rapidly evolved in to a concept of blended learning which its name suggests, blends online learning with conventional methods of learning and development.

Social behaviours broadly considered as skills to be taught, and the emphasis

is placed on building adaptive and new behaviours than on eliminating problem behaviours. The advantage of a social skill approach to treating children with problems that it is essentially a positive approach, which assumes that children can be taught the skills necessary to behave in different, more acceptable manner. We have convinced that social behaviours should be specially taught as part of a school curriculum, and that the skills of such teaching should be in the repertoires of all teachers. Hence, teachers have an important role in the maintenance and generalization of social skills taught to children in schools.

## NEED AND SIGNIFICANCE OF THE STUDY

Blended learning is a mix of pedagogical approach that combines the effectiveness and the socialization opportunities of the classroom with the technological enhancement of online learning. Blended learning increases the interaction between the instructor and the learner, integrating formative and summative feedback in order to boost students learning experiences. Therefore, blended learning is a fundamental

redesign of the instructional model with a shift from teacher-centered to student-centered instruction where students are active learners. The use of blended learning can elicit prompt feedback, as it usually involves online interaction, which can facilitate feedback. For teachers, social skills interventions also involves assessment must be concerned with the result of their efforts. Assessment helps to determine whether the goal should be teaching a new behaviour or arranging the environment to encourage the performance of child behaviour with the goals of specific outcomes and behavioural changes. Indeed, the researcher anticipates that blended learning approach will change the social behaviour and develop the social skills in which students are actively involved in the learning process. So the present investigation is to analyze the efficacy of blended learning instructional strategy in strengthening social skills among higher secondary students and their engagement in a blended learning environment.

## **OBJECTIVES OF THE STUDY**

### **Major Objective**

- To test the efficacy of blended learning instructional strategy on social skills viz. Self-discipline, communication skill, interpersonal skill, team-building skill, leadership skill, thinking skill and problem solving skill.

### **Minor objectives**

1. To compare the mean pretest scores of social skills (component wise)

between experimental group and control group.

2. To compare the mean pretest and post test scores of social skills (component wise) among the students in the experimental group.
3. To compare the mean pretest and post test scores of social skills (component wise) among the students in the control group.
4. To compare the mean post-test scores of social skills (component wise) between experimental group and control group.
5. To compare the effect of blended learning instructional strategy on social skills (component wise) among higher secondary school students.

## **HYPOTHESES OF THE STUDY**

1. There is no significant difference in the mean pretest scores of social skills (component wise) between experimental group and control group.
2. There is no significance difference in the mean pretest and post test scores of social skills (component wise) among the students in the experimental group.
3. There is no significant difference in the mean pretest and post test scores of social skills (component wise) among the students in the control group.



4. There is no significant difference in the mean post test scores of social skills (component wise) between experimental group and control group.
5. There is no significant effect on blended learning instructional strategy when compared to constructivist teaching strategy on social skills among higher secondary school students.

#### **METHOD USED FOR THE STUDY**

Experimental method was used for the study. The study employs pretest – post test non-equivalence control group design under the quasi experimental method.

$O_1$	X	$O_2$	$O_1, O_2$ – Pretest scores before intervention
$O_3$	C	$O_4$	$O_3, O_4$ – Post test scores after intervention
			X – Experimental group intervention strategy
			C – Control group intervention strategy

#### **SAMPLE FOR THE STUDY**

The sample consists 80 students of standard XII, 40 students each in experimental group and control group. The two intact groups of 40 students were matched on their previous scores of achievement. The pre-test scores of achievement ( $M_1 = 18.35$ ,  $SD_2 = 2.08$  &  $M_2 = 18.00$ ,  $SD_2 = 2.06$ ) showed these two groups do not differ significantly.

#### **TOOLS USED FOR THE STUDY**

The following tools were used in the study.

##### **Lesson transcripts**

- The investigator developed digital lesson- transcripts of a unit of XII commerce syllabus, ‘Concept of Marketing’ for teaching through ‘Blended learning instructional strategy’.
- The investigator developed lesson transcripts of a unit of XII Commerce Syllabus, ‘Concept of Marketing’ for teaching through ‘Constructivist teaching strategy’.

##### **Social Skill Scale**

In the present study, the investigator developed the scale assesses the social skills among higher secondary commerce students. Seven domains were derived to collect information regarding social skills among higher secondary commerce students viz. self-discipline, communication skill, interpersonal skill, team-building skill, leadership skill, thinking skill and problem solving skill. The concurrent validity of the social skill scale was calculated by correlating it with the scores on its criterion variables; the coefficient of correlation obtained was 0.82. The reliability of the social skill scale was established through split half method, the Guttman split-half coefficient of correlation was found to be 0.90.

## STATISTICAL TECHNIQUES EMPLOYED FOR THE STUDY

Statistical techniques of descriptive statistics, test of significance of difference between mean (t-test) were used for comparing the pretest and posttest of

social skills between experimental group and control group. Statistical technique of Cohen's d is a measure that describes the magnitude of the difference between the two groups employed for measuring the effect size.

## ANALYSIS AND INTERPRETATION OF DATA

### Comparison of Experimental group and Control group on the mean Pretest scores of the dependent variable; Social skills

The data were analyzed with the difference and the results are given in help of two-tailed test of significance of Table 1

**Table 1: Data and Results of Test of Significance of Difference between Experimental group and Control group on mean Pretest scores of Social skills**

Variable/Components		Experimental Group		Control Group		Critical ratio (t-value)
		Mean (M <sub>1</sub> )	SD (SD <sub>1</sub> )	Mean (M <sub>2</sub> )	SD (SD <sub>2</sub> )	
Social Skills	Self-discipline	13.20	1.22	12.85	2.07	0.92*
	Communication skill	18.25	2.79	18.13	3.22	0.18*
	Interpersonal skill	13.98	1.52	13.88	1.89	0.26*
	Team-building skill	8.33	1.57	8.23	1.94	0.27*
	Leadership skill	11.55	1.50	11.68	1.70	0.35*
	Thinking skill	10.88	1.47	10.69	1.30	0.64*
	Problem-solving skill	19.88	1.71	19.68	1.91	0.49*

N = 40 \*P>0.05

The t-value obtained for the pretest mean scores of the experimental and control groups for self-discipline is 0.92  $p>0.05$ , communication skill is 0.18  $p>0.05$ , interpersonal skill is 0.26  $p>0.05$ , team-building skill is 0.27  $p>0.05$ , leadership skill is 0.35  $p>0.05$ , thinking skill is 0.64  $p>0.05$  and problem solving skill is 0.49  $p>0.05$ , which is not significant at 0.05 level. It shows that there is no significant difference between the mean pretest scores of social skills between experimental and control

groups. This revealed that the two groups are almost comparable on their social skills (component wise) prior to the experimentation.

### Comparison of mean Pretest and Posttest scores of the Experimental group for the dependent variable; Social skills

Test of significance of difference between means (t-test) was carried out for comparison. Data was analyzed and the results are shown in Table 2.

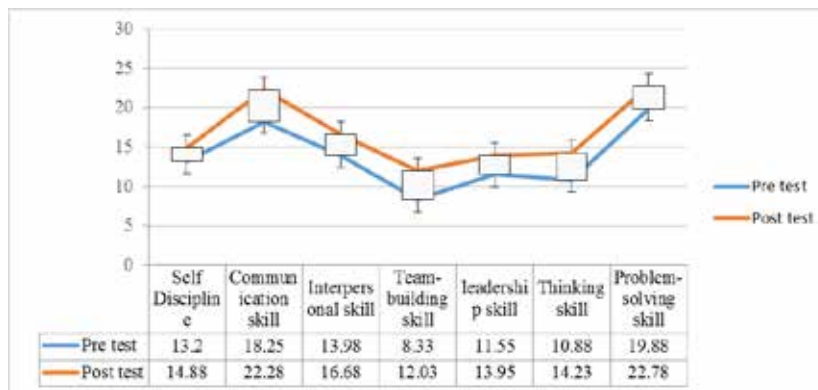
**Table 2: Data and Results of Test of Significance of Difference between mean Pretest and Posttest scores of the Experimental group for the Dependent variable Social skills**

Variable/Components		Pretest		Posttest		Critical ratio (t-value)
		Mean (M <sub>1</sub> )	SD (SD <sub>1</sub> )	Mean (M <sub>2</sub> )	SD (SD <sub>2</sub> )	
Social Skills	Self-discipline	13.20	1.22	14.88	1.54	7.06**
	Communication skill	18.25	2.79	22.28	1.78	8.04**
	Interpersonal skill	13.98	1.52	16.68	1.32	8.70**
	Team-building skill	8.33	1.57	12.03	1.65	8.82**
	Leadership skill	11.55	1.50	13.95	1.48	7.50**
	Thinking skill	10.88	1.47	14.23	1.20	11.47**
	Problem-solving skill	19.88	1.71	22.78	1.18	9.91**

N = 40 \*\*P < 0.05

The t- value obtained by comparing pretest and posttest mean scores of the experimental group for self-discipline is 7.06  $p < 0.05$ , communication skill is 8.04  $p < 0.05$ , interpersonal skill is 8.70  $p < 0.05$ , team-building skill is 8.82  $p < 0.05$ , leadership skill 7.50  $p < 0.05$ , thinking skill

is 11.47  $p < 0.05$  and problem solving skill is 9.91  $p < 0.05$ , which is significant at 0.05 level. This shows that there is significant difference between mean pretest and posttest scores of social skills for the total sample in the experimental group. The results are represented in Figure 1.



**Figure 1: Comparison of mean Pretest and Posttest scores of Social skills in the Experimental group**

The graphical representation of mean pretest and posttest scores of social skills in the experimental group shows that the

performances of students in the two tests are dissimilar.

**Comparison of mean Pretest and Posttest scores of the Control group for the dependent variable; Social skills**

Test of significance of difference for comparison. Data was analyzed and between means (t-test) was carried out the results are shown in Table 3.

**Table 3: Data and Results of Test of Significance of Difference between mean Pretest and Posttest scores of the Control group for the Dependent variable Social skills**

Variable/Components		Pretest		Posttest		Critical ratio (t-value)
		Mean (M <sub>1</sub> )	SD (SD <sub>1</sub> )	Mean (M <sub>2</sub> )	SD (SD <sub>2</sub> )	
Social Skills	Self-discipline	12.85	2.07	14.43	2.31	4.34**
	Communication skill	18.13	3.22	20.43	6.26	2.11**
	Interpersonal skill	13.88	1.89	14.53	1.64	2.21**
	Team-building skill	8.23	1.94	10.04	1.51	5.15**
	Leadership skill	11.68	1.70	12.13	1.87	1.34*
	Thinking skill	10.69	1.30	12.68	1.92	6.32**
	Problem-solving skill	19.68	1.91	20.43	1.89	1.88*

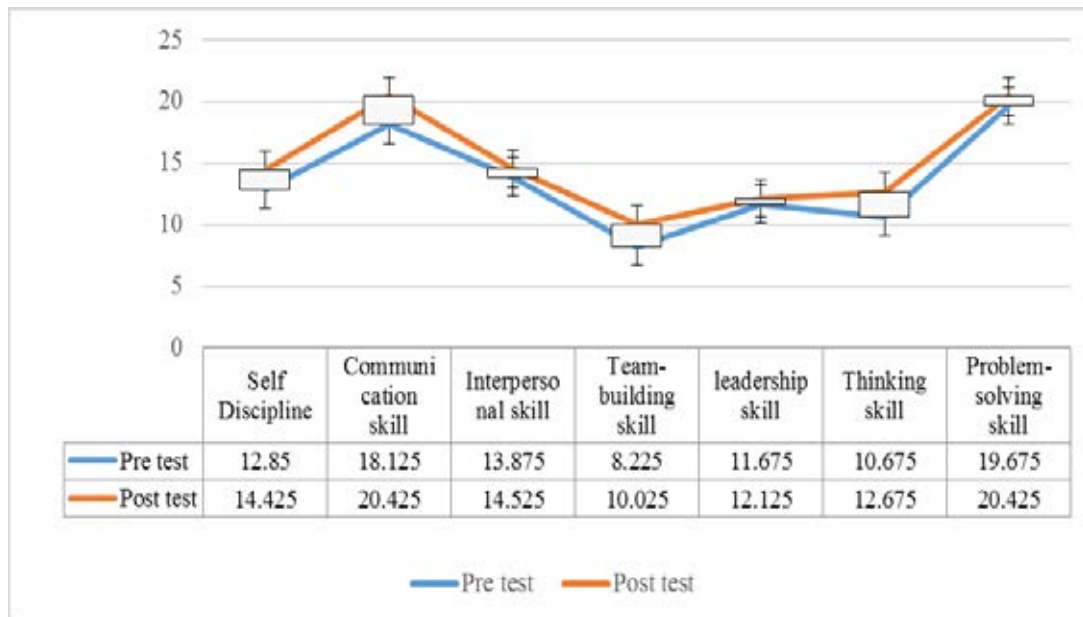
N=40 \*P>0.05, \*\*P< 0.05

The t-value obtained by comparing pretest and posttest mean scores of control group for self-discipline is 4.34  $p<0.05$ , communication skill is 2.11  $p<0.05$ , interpersonal skill is 2.21  $p<0.05$ , team-building skill is 5.15  $p<0.05$  and thinking skill is 6.32  $p<0.05$ , which is significant at 0.05 level. This shows that

there is significant difference between mean pretest and posttest scores of social skills components for the total sample in the control group.

The t-value obtained by comparing pretest and posttest mean scores of

control group social skills components of leadership skill is 1.34  $p>0.05$  and problem solving skill is 1.88  $p>0.05$ , which is not significant at 0.05 level. The results are represented in Figure 2.



**Figure 2: Comparison of mean Pretest and Posttest scores of Social skills in the Control group**

The graphical representation of mean pretest and posttest scores on social skills in control group shows that the performances of students in the two tests are dissimilar. The graphical representation confirms the mean difference analysis.

**Comparison of mean Posttest scores and Effect size of the Dependent variable; Social skills between Experimental group and Control group**

Test of significance of difference between means (t-test) and effect size (Cohen's *d*) was used for comparison. The data were analyzed and the results are given in Table 4.

**Table 4: Data and Results of Test of Significance of Difference between mean Posttest scores of Social skills between Experimental group and Control group**

Variable/ Components		Experimental Group		Control Group		Critical ratio (t - value)	Cohen's <i>d</i>	Cohen's Category
		Mean (M <sub>1</sub> )	SD (SD <sub>1</sub> )	Mean (M <sub>2</sub> )	SD (SD <sub>2</sub> )			
Social Skills	Self-discipline	14.85	1.53	14.43	2.31	1.03*	0.32	Medium
	Communication skill	22.27	1.78	20.43	6.27	1.87*	0.40	Medium
	Interpersonal skill	16.68	1.33	14.53	1.65	6.24**	1.43	Large
	Team-building skill	12.03	1.66	10.03	1.51	5.53**	1.26	Large
	Leadership skill	13.95	1.48	12.13	1.87	6.01**	1.08	Large
	Thinking skill	14.23	1.21	12.68	1.93	4.72**	0.96	Large
	Problem-solving skill	22.77	1.19	20.43	1.89	7.14**	1.48	Large

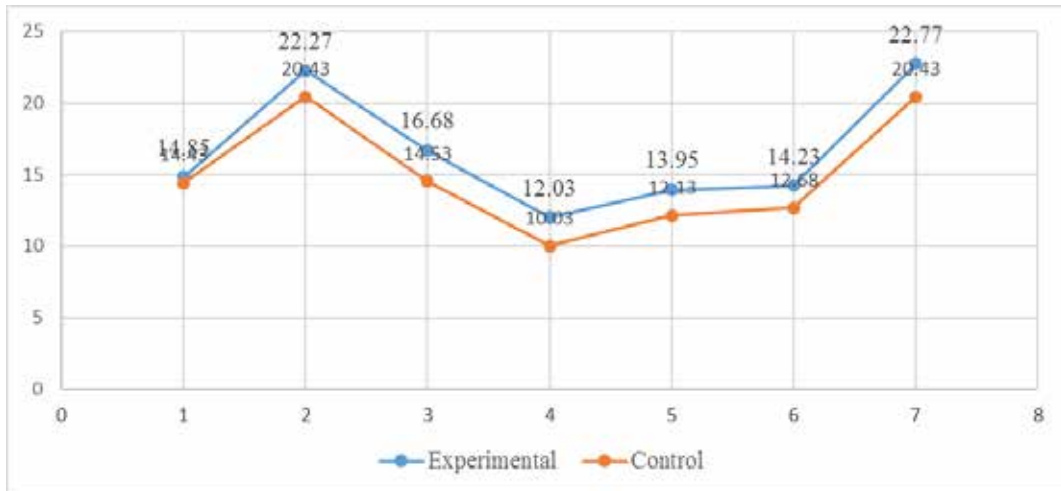
N = 40 \* $P > 0.05$ , \*\* $P < 0.05$

The t-value obtained for the mean posttest scores between experimental and control groups on interpersonal skill is 6.24  $p < 0.05$ , team-building skill is 5.53  $p < 0.05$ , leadership skill is 6.01  $p < 0.05$ , thinking skill is 4.72  $p < 0.05$  and problem solving skill is 7.14  $p < 0.05$ , which is significant at 0.05 level. It shows that there is significant difference in the mean posttest scores on interpersonal skill, team-building skill, leadership skill, thinking skill and problem solving skill between experimental and control groups with advantage to experimental group.

The t-value obtained for the posttest mean scores between experimental and control groups on self-discipline and communication skill are 1.03 and 1.87 ( $p > 0.05$ ), which is not significant at 0.05

level. It shows that there is no significant difference in the mean posttest scores on self-discipline and communication skill between experimental and control groups.

The calculated effect size on interpersonal skill, team-building skill, leadership skill and problem solving skill between the mean posttest scores of experimental and control groups are 1.43, 1.26, 1.08, 0.96 and 1.48. These values are greater than 0.80, the limit set for 'Large effect size' in Cohen's category. But the calculated effect size on self-discipline and communication skill between the mean posttest scores of experimental and control groups are 0.32 and 0.40, have 'Medium effect size' in Cohen's category. The results are represented in Figure 3.



**Figure 3: Comparison of mean Posttest scores on Social skills between Experimental group and Control group**

The graphical representation of mean posttest scores of social skills between experimental group and control group shows that the performances of students in the two groups are dissimilar. The graphical representation confirms the mean difference analysis.

### MAJOR FINDINGS OF THE STUDY

The mean pretest scores on social skills (component wise) between experimental group and control group do not differ significantly.

There is significant difference in the mean pretest and posttest scores of social skills (component wise) of students in the experimental group who taught using blended learning instructional strategy.

There is significant difference in the mean pretest and posttest scores on self-discipline, communication skill, interpersonal skill, team-building skill

and thinking skill of social skills for the students in the control group who taught using constructivist teaching strategy. Pretest and posttest scores do not differ significantly for leadership skill and problem-solving skill.

There is significant difference in the mean posttest scores on different components of social skills like interpersonal skill, team-building skill, leadership skill, thinking skill and problem solving skill. But significant difference is not found in case of student's self-discipline and communication skill between experimental group and control group.

The blended learning instructional strategy is more beneficial in strengthening social skills among higher secondary school students when compared to constructivist teaching strategy.

## EDUCATIONAL IMPLICATIONS OF THE STUDY

The specific contribution of this study provided empirical evidences to show that blended learning instructional strategy had large effect in strengthening students' interpersonal skill, team-building skill, leadership skill, thinking skill and problem solving skill.

This study had an implication for both students and teachers. Students may optimize their learning by adopting blended learning instructional strategy as a learner centered strategy. Teachers can refresh their cognitive structure and make their knowledge up to date.

Blended learning strategy is a flexible instructional strategy used in a variety of learning settings. During the classroom interaction, more capable peers can assist the slow learners through scaffolding to accomplish the concept knowledge within their zone of proximal development.

Blended learning instructional strategy can be used to analyze the textbooks and identifying gaps in the curriculum, thereby revealing suitability of e-learning in terms of teacher's preferences and students' needs.

## CONCLUSION

In the present study, students' with blended learning instructional learning environment are more effective learners than students with constructivist teaching classroom. During the blended learning classroom instruction, students are actively engaged in learning process with the help of electronic devices like mobile, computers in a synchronised and asynchronies mode through interaction and discussion of ideas between peers. It also serve as a basis for variety of strategies like e-learning, M-learning etc. that enhance the teaching learning process. In short, blended learning instructional strategy can be used to support teachers and students efforts to their personal comprehension of specific knowledge, conceptual understanding and application abilities of the concepts learned. Thus based on the findings of the study it can be concluded that blended learning instructional strategy is more effective than constructivist teaching strategy in strengthening social skills among higher secondary school students.



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## GENDER EFFECT ON MATHEMATICS ANXIETY OF SECONDARY SCHOOL STUDENTS IN OGUN WEST SENATORIAL DISTRICT, NIGERIA

2

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### INTRODUCTION

Mathematics anxiety has become a continuous research among scholars especially in Nigeria because of its detrimental effect on students' academic performance. For instance, there has been a public outcry in Nigeria over the consistent low performance of students in the West African Examinations Council (WAEC) Okoye, Okozie and Nlemadium (2017); Asikhia (2011); Orintunsin (2010). Okoye and Nlemadum (2017) also found that many secondary school students in Nigeria express mathematics anxiety due to their dislike for the subject. This is why Minara (2017) regards mathematics anxiety as the panic, helplessness, paralysis and mental disorganisation that arise among some people when they are required to solve a mathematical problem. Makari (2012) also defines it as a general term for several disorders that causes nervousness, fear, apprehension and worrying. This definition agrees with the findings of Khatoon and Mahmood (2010) that mathematics anxiety leads to avoidance of mathematics by those who experience it.

Furthermore, some studies (Degaldo, Espinoza and Fonseca, (2017); Ramrez, Hooper, Kersting, Ferguson and Yeager (2018) showed that mathematics anxiety negatively impacts mathematics performance among learners. Mathematics failure often brings frustration to individual students as some of them become drop outs. Students who would have been admitted into the university are not able to, because their options regarding careers are reduced, thus eroding the country's resource base in science and technology and a colossal loss in terms of financial investments. Meanwhile mathematics is a compulsory and important subject for entrance into higher institution of learning in Nigeria and many countries of the world. This makes it very dangerous to neglect the greater need for mathematics as a subject and the adverse effects of mathematics anxiety.

In this study, the researcher's focus is on the effect of gender on the mathematics anxiety level of male and female students. Gender was considered as a variable in this study in order to draw the attention of policy makers, counsellors, teachers,

government and other researchers on the particular gender that has higher level of mathematics anxiety. The purpose of the present study therefore is twofold:

- (i) To find out whether there is a significant difference in the effect of gender on the mathematics anxiety of secondary school students.
- (ii) To examine the level of mathematics anxiety among secondary school students in Ogun State, Nigeria.

### **Gender and mathematics anxiety**

There have been some inconsistencies in studies that have to do with gender and mathematics anxiety. For instance, some studies have found significant differences in gender and mathematics anxiety; (Hembree, 1990; Newstand, 1998; Bonnsteter, 2007; and Yuksel-Sahin, 2008; Karim and Venkatesan, 2009; Else-Quest, Hyde and Linn 2010; Sayeda, 2017) while some researches did not find such significant differences (Ma and Xu, 2004; Tapia, 2004; Egbochukwu and Obodo, 2005; Dede, 2008; Arigbabu, Balogun, Oladapo, Ojedokun, Opayemi, and Emikanosuelu, 2012; Samson, Abayomi and Olaitan; 2015; Muhammad, 2017 and Yavuz, 2018).

In addition, Penner (2003) carried out a study on gender differences in mathematics and science tests scores in ten countries (Australia, Austria, Canada, Cyprus, Czech Republic, Lithuania, New Zealand, South Africa, Sweden and United States) and finds gender differences in mathematics and science test scores in all of the ten countries. All

these differences consistently favoured males. Craske (2003) also suggested a sex-linked biological predisposition for anxiety disorder. The study Mutodi and Ngirande (2009) has also found significant gender differences in mathematics anxiety levels of learners in South Africa. This finding is consistent with studies by Woodard (2004) and Karimi and Venkatesan (2009), which have also found significant gender differences in mathematics anxiety with female students exhibiting higher math anxiety than their male counterparts.

However, these findings contradict those of Marsh (2004) and Stevens (2013) which conclude that there is no relationship between mathematics anxiety and gender. An earlier study by Omirin (1999) also finds that no significant difference exist between male and female students' scores. Likewise, the findings of Adebule (2004) on Nigerian students shows no significant difference between the ratings of both male and female students and that gender issues does not influence the response on the scale. In another study by Tarpia and Marsh (2004) on the relationship between mathematics anxiety and gender, the result also shows that mathematics anxiety is unrelated to gender. The studies of Clarice, Allyssa, and Ferdinand (2019) also revealed that gender does not have any bearing with mathematics anxiety.

On the level of maths anxiety among males and female students, studies like those of Boomstalter (2017), Redber, Isiksal and Koc (2018), Sayeda (2017) and Woodward (2004) among others found female students to have higher mathematics anxiety than male students

while the studies of Hess (2014) found mathematics anxiety in male students to be higher than that of female students. The study of Yüksel-Sahin (2008) on mathematics anxiety among Turkish elementary school students also shows that female students reported higher levels of mathematics anxiety than their male peers.

Thus, looking at literature on gender and anxiety, it is clear that it is inconclusive. It therefore becomes justifiable to speculate that gender could act as a moderating variable in this study.

### **Hypotheses**

The two hypotheses that were tested for this study were:

- 1) There is no significant difference in the mathematics anxiety level of male and female secondary school students.
- 2) There is no significant difference in the effect of gender on secondary school students' mathematics anxiety

## **METHOD**

### **Research design**

The design used in this study is the descriptive survey design and it was used to get self-reported information from senior secondary school students in Ogun West Senatorial District. This design was used because it was able to explore the effect of gender on students' mathematics anxiety and the mathematics anxiety level of male and female students' level of mathematics anxiety.

### **Participants**

Stratified random sampling technique was used to select 492 students from three schools which were screened using the mathematics anxiety rating scale-revised (MARS-R) to select high mathematics anxious students. However, out of these students, only 180 students with mathematics anxiety were eventually selected. The 180 students were broken down into two groups of male and female students (Making a total of 90 students in each school).

### **Measures and Procedure**

Mathematics Anxiety Rating Scale - Revised (MARS-R) developed by Plake and Parker (1982) was used to measure students' level of mathematics anxiety. The scale measures mathematics anxiety through 24-item self-referencing statements tapping their appraisal and expression of anxiety. Participants rated the extent to which they agreed or disagreed with each statement on a five point Likert type scale ranging from 1 (no anxiety) to 5 (high anxiety). It has demonstrated a coefficient alpha reliability of 0.98 with the full scale. (Plake and Parker, 1982). The researcher opted for MARS-R developed by Plake and Parker (1982) because Plake et al. showed that the scale has sound psychometric properties and the scale has been used by scholars outside Nigeria such as Gierl and Bisanz (1995), Campbell & Evans (1997), Woodward (2004) and Marci (2006), Eden, Heine and Jacobs (2013), Pletzer, Wood, Scherndi, Kerschbaum and Nuerk (2016) and Yusuf (2018).

## METHOD OF DATA ANALYSIS

The data collected through this study was statistically analysed to determine the significant difference in the level of mathematics anxiety of male and female students in Ogun West Senatorial District, Nigeria and to examine the significant difference in the effect of gender on students' mathematics anxiety. The statistical procedures used for the study were Analysis of Covariance (ANCOVA) and t-test. ANCOVA was used in this study to compare the effects

of the independent variable as well as take care of differences that might exist between and within the groups.

## ANALYSIS OF RESULTS

A total of 180 high male and female mathematics anxious students participated in this study.

### Hypothesis 1

There is no significant difference in the mathematics anxiety level of male and female students

**Table 1: Descriptive statistics of mathematics anxiety scores of male and female students**

				95% Confidence Interval	
Gender	Mean	Std. Error	Lower Bound	Upper Bound	
Male	52.11	2.45	24.00	95.00	
Female	42.71	2.01	21.00	84.00	

- Evaluated of covariates appeared in the model: Anxiety in mathematics pre-test = 89.5417
- Based on modified population marginal mean.

anxious students was 52.11 as opposed to the mean score of female students which was 42.71. Further analysis to discover if any significant effect of gender could be found on this difference was done and the results are presented in Table 2 below:

The result of Table 1 revealed that the mean score of male mathematics

**Table 2: Pairwise comparison of the differences in the mathematics anxiety scores of male and female anxious students: 95% Confidence Interval**

GENDER (I)	Gender (J)	Mean Difference (I-J)	Std. Error	Sig(s)	Lower Bound	Upper Bound
Male	Female	-9.40	3.19	0.05	-3.02	-15.78
Female	Male	9.40	3.19	0.05	3.02	15.78

Based on the estimated marginal means:

- The mean difference is significant at 0.05 level

ii. Adjustment for multiple comparisons-Least significant difference (equivalent to no adjustment)

- iii. An estimate of the modified population marginal mean (J)
- iv. An estimate of the modified population marginal mean (I)

The above table revealed that male and female means differences (I-J) of 9.4000;  $P < 0.05$  was significant. Thus, the

hypothesis of no significance is rejected. However, male has higher anxiety scores than female.

**Hypotheses 2:** There is no significant difference in the effect of gender on students' mathematics anxiety

**Table 3: Univariate Analysis of Covariance differences in the mathematics anxiety scores of male and female students**

	Sum of Square	df	Mean square	F	Sig.
Contrast	8474.67	1	8474.67	122.85	.000
Error	1862.57	27	68.98		

F tests the effect of gender. This test is based on the linearly independent pairwise comparisons among the estimated marginal means. The sum of square 8474.70 with a df of 1 and 27 and mean square of 8474.68, the F ratio of 122.86 is significant at 0.05 level of significance with a significant value of 0.00 of male and female anxious students. This result therefore shows a significant difference effect of Gender on students' anxiety in mathematics. The F ratio of 122.86 significant at 1 and 27 degree of freedom is less than 0.05 level of significance ( $F=3.872$ ;  $P < 0.05$ ). The null hypothesis of no significant difference is therefore rejected by this finding. Thus, anxiety in mathematics is gender sensitive.

## DISCUSSION

The first hypothesis which states that there is no significant difference in the mathematics anxiety level of male and female students was rejected.

This was because there were significant differences in the anxiety levels and that of male students was found to be higher than their female counterparts. This result may be due to the fact that male students often love to engage in other co-curricular activities such as football, games and if these activities take more of their time, they may focus less on their school subjects (especially mathematics which is likely to demand more of their attention). This eventually makes them panic and become more fearful of the subject. This result agrees with that of Hess (2014) which found mathematics anxiety in male students to be higher than that of female students. The studies of Hembree (1990) and Bernstein, Reilly and Cobe-Bonanno (1992) also agreed with the findings in this study as they found that male students had a higher level of mathematics anxiety than the females. South African studies of Halele (2012) and Karimi and Venkatesan

(2009) support the finding of this study. However, the findings of most studies such as Boomstalter (2017), Miller and Bichsel (2004), Redber, Isiksal and Koc (2018) Sayeda (2017) and Woodward (2004) did not agree with the present study as they found out that the anxiety levels of female students were more than those of their female counterparts.

The second hypothesis which states that there is no significant difference in the effect of gender on students' mathematics anxiety was also rejected because a significant difference existed. The reason for this result may be because of the traditional belief that mathematics and sciences are for male students and that female students are destined to pursue languages and art related studies (Adebule, 2004). The submission of Gire (1988) that the more a student believes that mathematics is a male or female domain the lower his performance will be may also be an explanation for the significant difference in the mathematics anxiety found among male and female students. Other studies that agree with the present study are those of (Hembree, 1990; Newstand, 1998; Bonnsteter, 2007; and Yuksel-Sahin, 2008; Karim and Venkatesan, 2009; Else-Quest, Hyde and Linn 2010; Sayeda, 2017). Woodard (2004); Yüksel-Şahin (2008); Bernstem et al (1992) also support the finding of this study. However, the findings of this study did not support those of Omirin (1999), Ma and Xu, 2004; Tapia, 2004;

Egbochukwu and Obodo, 2005; Dede, 2008; Arigbabu, Balogun, Oladapo, Ojedokun, Opayemi, and Emikanosuelu, 2012; Samson, Abayomi and Olaitan; 2015 Muhammad, 2017 and Yavuz, 2018 which found no significant difference between the scores of male and female students. Studies of Lussier (1996) and Adebule, (2004) are also inconsistent with the findings of this study as it failed to find a significant relationship between gender and mathematics anxiety stating that a mathematics background had to be considered. Nevertheless, the use of gender as a moderating variable in this present study is significant despite the great disparities among local and international researchers on its significance to mathematics anxiety.

## **CONCLUSION AND RECOMMENDATIONS**

This study has been able to provide meaningful insight into the significant effect of gender on students' mathematics anxiety and the fact that male students are more mathematically anxious than their female counterparts. This suggests that counsellors should use this study as a theoretical and empirical basis for ensuring that male students are helped to focus more on the subject rather to avoid being anxious. In line with this, schools should also sponsor seminars/workshops especially for male students on the importance of mathematics to their career development.

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## DEVELOPMENT OF SOCIAL MEDIA ADDICTION SCALE

3

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### INTRODUCTION

The typical use of social media in India before the Covid lockdown was approximately 150 minutes a day. However, when Covid lockdown, the number jumped to 280 minutes per day, meaning that social media use increased 87 percent in India during the lockdown of Covid (Chandramouli, 2020). The heavy use of social media contributes to people's addiction to social media. Tung (2007) suggested that one who uses social media from 8.5 to 21.2 hours a week is known to be addicted to social media. People spend a lot of time on social media, getting them addicted to it (Afacan, 2019). Cole (2020) states that 210 million people worldwide are affected by addiction to the internet and social media.

Addiction to social media may create potential issues among users of social media. In research from RSPH and the Young Health Movement (YHM) (2017), social media has been identified as more addictive than cigarettes and alcohol and is now so rooted in young people's lives that it can no longer be overlooked

when talking about mental health concerns of young people. Internet addiction increased, the sleep quality of the female students decreased linearly and significantly, according to D'Souza, Samyukta, and Tejaswini (2018). One of the key implications of the overuse of social networking for students is the loss of academic success (Upadhyay & Guragain, 2017). The overuse of social media also affects the psychological and physical well-being of students (Abbas et al., 2019).

### RATIONALE FOR TOOL CONSTRUCTION

While reviewing the literature, the investigator identified some standardized tools for measuring social media addiction. Before developing this research tool, the investigator explored the previously designed research tools which are constructed by Gokdas, I, & Kuzucu, Y. S. (2019); Karaca, F., Yildirim, O. G., & Kulaksız, T. (2019); CengizSahin. (2018); Bankoglu, T., & Cerkez, Y. (2019) and Shahnawaz, M. G., & Rehman, U. (2020). These tools do not

seem to match the language, style, and culture of the students in Indian context even though they are well-designed. Therefore the investigator felt that the need for construction of social media addiction scale with its uniqueness and appropriateness to measure the addiction level of students in Coimbatore District, Tamil Nadu. Hence, the investigator has developed and standardized the social media addiction scale.

### OBJECTIVES OF THE STUDY

1. To construct a tool to assess the social media addiction.
2. To standardize the social media addiction scale.

### METHOD

#### Participants

To develop and validate the social media addiction scale, a total of 217 B.Ed. students were selected from the Coimbatore district by using a cluster sampling method. Responses from the participant were collected through Google forms. Out of 217 samples, 128 (59%) from the rural area, and 89 (41%) from the urban area. As far as their academic qualification is concerned, 67 (31%) of the participants have completed Post Graduation and 150 (69%) participants have completed Graduation.

#### ITEM WRITING

Based on the review literature and discussion with experts, the investigator found that the Likert type attitude scale was suitable for this tool construction. In the tool, at the end of each statement,

five options were given namely –‘Strongly Agree’, ‘Agree’, ‘Undecided’, ‘Disagree’ and ‘Strongly Disagree’. From the reflection and introspection, the investigator prepared the items in the following four aspects.

1. Social Media usage
2. User thought
3. User Mood
4. User physical activity

The investigator has prepared 40 items initially based on the above four dimensions. The distribution items of the social media addiction scale under each dimension was presented in Table 1.

**Table 1: Social Media Addiction Scale**

#### Distribution of items

S.No	Dimensions	No. of items
1	Social Media usage	10
2	User thought	10
3	User mood	10
4	User physical activity	10
<b>Total</b>		<b>40</b>

#### EXPERTS’ OPINION

The statements prepared for the scale were presented to a jury (one professor, two associate professors, and four Assistant professors) of seven members for review. They were requested to judge the suitability of the items and the appropriateness of the language. Based on the comments and suggestions from them, the scale was edited and restructured. Based on criticisms and suggestions of the experts involved, 10 statements were rejected and 30

statements were retained. After the experts' opinion, the distribution items of the social media addiction scale under each dimension was presented in Table 2.

**Table 2: Social Media Addiction Scale Distribution of items after Experts Opinion**

S.No	Dimensions	No. of items
1	Social Media usage	7
2	User thought	7
3	User mood	6
4	User physical activity	10
<b>Total</b>		<b>30</b>

## ANALYSIS OF DATA

Once the data were collected through Google forms from the participants, it was tabulated for analysis purposes. Later the data were analysed through item-total correlation for selecting good items and rejecting poor items from the social media addiction scale. The items which were having a correlation value less than 0.3 were rejected and the remaining items were retained on the social media addiction scale. Accordingly, 4 items were rejected and 26 items were selected for the final tool. The correlation analysis of the social media addiction scale was presented in Table 3.

**Table 3: Item wise correlation analysis for Social Media Addiction Scale**

S.No.	Statements	Item total correlation	Interpretation
1	The first thing I do when I wake up is going on social media in the morning	0.575	Selected
2	I change my social media status bar often.	0.587	Selected
3	I feel the excitement when I am using social media.	0.484	Selected
4	I use social media even when I am with my friends, family members, or relatives around me.	0.601	Selected
5	I look for internet connectivity wherever I go to use social media.	0.583	Selected
6	My family members complain that I am using the smartphone always.	0.581	Selected
7	When I hear someone's cell phone notification sound, I look at my cell phone.	<b>0.248</b>	<b>Rejected</b>
8	I eat my food late due to social media usage.	0.696	Selected
9	I chat more with my friends on social media but spend less time chatting with them on the phone or in person.	0.615	Selected
10	I feel unhappy when I was insisted to decrease the time spending on social media by my parents or friend	0.563	Selected

S.No.	Statements	Item total correlation	Interpretation
11	I sleep very late at night because of social media surfing.	0.576	Selected
12	I express my painful feelings all the time in the status bar of social media.	<b>0.279</b>	<b>Rejected</b>
13	When I am alone, I start to spend my time on social media immediately.	0.323	Selected
14	I am using social media even when I am eating.	0.621	Selected
15	I do more effort to get more likes or approval for my postings on social media.	0.55	Selected
16	I am crazy about social media.	0.672	Selected
17	I think that social media is an inevitable part of my life.	0.524	Selected
18	When I get low-viewers to my post, I worry.	<b>0.215</b>	<b>Rejected</b>
19	I use social media even when I am walking on the road.	0.648	Selected
20	I get irritation when the internet connection is slow.	0.493	Selected
21	I think that My work is pending because of spending more time on social media.	0.618	Selected
22	I use social media even when I watch television.	0.571	Selected
23	When I am travel I use social media instead of enjoying nature through the window	0.604	Selected
24	I often check my smartphone to see if I receive any messages from social media friends.	0.449	Selected
25	I use social media even when I am in the toilet.	0.529	Selected
26	Even though I spend a lot of time on social media, I never get bored.	0.637	Selected
27	I get angry when my friends don't like my posts on social media.	<b>0.293</b>	<b>Rejected</b>
28	I like to share the news very quickly before someone shares it on social media.	0.569	Selected
29	I feel restless if I can't use social media when I want to use it.	0.676	Selected
30	I can't imagine a life without social media.	0.581	Selected

## Final draft

After the item analysis, the distribution items of the social media addiction scale under each theme was presented in Table 4.

**Table: 4 Social Media Addiction Scale Distribution of Items under each dimension after item analysis**

S.No	Dimensions	No. of items
1	Social Media usage	7
2	User thought	7
3	User mood	3
4	User physical activity	9
<b>Total</b>		<b>26</b>

## Validation of the tool

The investigator established the reliability, validity, and norms to

**Table 5: Reliability comparison table**

S.No.	Type of reliability estimation	Values	Interpretation
1	Split half method	0.89	High
2	Cronbach alpha	0.88	High

## Validity

A tool is valid if it measures what it claims to measure. To obtain validity, the final form of the social media addiction scale was given to three assistant professors and requested them to check the items. By the reply of the experts, the tool had the face and content validity.

## Scoring Norms

Social Media Addiction Scale consists of 26 items. The tool was in the form of a Likert type five-point

standardize the social media addiction scale.

## Reliability

Reliability refers to both stability and consistency of test scores. Here, the investigator used the split-half method and Cronbach alpha method to establish the reliability of the scale. The investigator used Pearson and Spearman correlation coefficients in the split-half method. The half and whole test reliability coefficients of the social media addiction scale were 0.80 and 0.89 respectively. Besides, the investigator used the Cronbach alpha method to ensure the reliability of the scale. Cronbach's alpha reliability value was 0.88. Both values indicate that the tool is highly reliable.

scale (Strongly Agree / Agree / Neutral/ Disagree /Strongly Disagree). All the items were favoured to social media addiction. In this tool, one mark is allotted for strongly agree, 2 marks for agree, 3 marks for neutral, 4 marks for disagree, and 5 marks for strongly disagree. The scores obtained from the social media addiction scale were aggregated and divided into 5 because they were 5-point Likert-type, and the lowest score was 26, and the highest score was 130. The ranges of these scores are presented in Table 6.



**Table 6: Scoring Norms of Social Media Addiction Scale**

S.No.	Score range	Level of Addiction
1	26-46	Too much level of addiction
2	47-67	High level of addiction
3	68-88	Moderate level of addiction
4	89-109	Low level of addiction
5	110-130	No addiction

### **The final version of the tool**

The final version of the tool had 26 items based on four dimensions. The dimension of items is given in Table 7.

**Table 7: The dimension of each item in the social media addiction scale**

S.No	Dimensions	Item serial number	No. of items
1	Social Media usage	6,7,12,16,19,20,22	7
2	User thought	3,9,14,15,18,24,26	7
3	User mood	17,23,25	3
4	User physical activity	1,2,4,5,8,10,11,13,21	9
<b>Total</b>			<b>26</b>

### **CONCLUSION**

In the construction and validation of the social media addiction scale, adequate care was taken to ensure its construction purpose. While this scale is built from the responses of B.Ed. students, due to its general nature, the investigator strongly believes that it can be used for other college students and higher secondary students. This instrument will be of great benefit not only to researchers, but also to teachers, professors, counsellors, and parents to understand their children's level of social media addiction. Although

the scale is constructed and validated properly, it also has some limitations. The scale is validated on Indian students especially from the southern part of India. Therefore, the scale needs to be validated in other parts of the country and also in other cultural contexts. In future research, it will add more contributions to the literature to apply this scale to other demographics and to carry out a correlation study of this social media addiction scale with other social network addiction scales.

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## SELF-EFFICACY OF HIGH SCHOOL TEACHERS IN SALEM DISTRICT

4

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### INTRODUCTION

The aim of all education undoubtedly is the attainment of human excellence and perfection, not just in any field of knowledge or activity, but life in totality. Education should be the means to fashion excellent characters out of the very ordinary human raw material. Teachers have the role of training and molding the minds of young people so as to make them worthy citizens of our nation. The several subjects and learning experiences provided through the curriculum, the co-curricular activities followed, the methods used by the teacher for imparting instruction and the evaluation that follows are all used for the personal and social development of the pupil.

Self-efficacy is “beliefs in one’s capabilities to organize and execute the courses of action required to manage prospective situations” (Bandura, 1986). It is people’s belief about their capabilities to produce designated levels of performance the exercise influence over events that affect their lives. Individuals

tend to engage in tasks about which they feel competent and confident and avoid those in which they do not. Self-efficacy may be viewed as the belief that an individual’s has the power to produce the desired effect. In the case of teacher, it is Teacher’s self-efficacy. It may be viewed as his/her belief about the capacity to influence their student’s performance.

### NEED AND SIGNIFICANCE OF THE STUDY

In the present education system, teachers have a very important role in raising a healthy society and qualified individuals. The teachers have the power to influence all other variables about education. At this juncture, the present study assesses perceived self-efficacy of high school teachers. As teachers they will be required not only to acquire proficiency in planning of the lessons and delivery, in addition to that they must have integrated personality and right attitude towards their teaching. It is necessary to improve the quality of teacher. If a teacher has high level of self-

efficacy i.e., beliefs in one's capabilities, his/her effectiveness in the class room situations will be helpful to produce good citizens. Self-efficacy can be different, in different areas of life as it is task specific. It is not only important to build students but also teachers as well.

The teacher with high self-efficacy exhibit less anger and less stress, use of fewer control tactics, use of co-operative learning, more enthusiasm in teaching, actual participation in teaching and try things and reduction of barriers to teach effectively. Perceived self-efficacy directly or indirectly influences the attitude towards teaching. Teachers with perceived self-efficacy and right attitude towards teaching should prepare the younger generation to understand and face the realities of life situation.

#### **STATEMENT OF THE PROBLEM**

The present study is titled “**SELF-EFFICACY OF HIGH SCHOOL TEACHERS IN SALEM DISTRICT**”.

#### **DEFINITIONS OF KEY TERMS**

Definitions of key terms in the title of the study are given below:

##### **Self-efficacy**

Self-efficacy is an individual's judgments about his or her ability to execute particular behaviours (Bandura 1978).

##### **High school teachers**

The term high school teachers denote teachers who teach in class VI - X. In the present study, Government, Private,

Aided teachers from Salem District have been selected.

#### **VARIABLES OF THE STUDY**

The investigator has chosen the gender, locality, type of management and teaching experience as the independent variables and self-efficacy as the dependent variable.

#### **OBJECTIVES OF THE STUDY**

1. To understand the self-efficacy beliefs of high school teachers.
2. To find out whether there is any significant difference in the self-efficacy scores of high school teachers with respect to gender, locality, teaching experience and type of management.

#### **HYPOTHESES OF THE STUDY**

Keeping in view the objectives of the study the following null hypothesis have been framed:

1. There is no significant difference in the mean scores of self-efficacy of high school teachers based on their gender.
2. There is no significant difference in the mean scores of self-efficacy of high school teachers based on locality.
3. There is no significant difference in the mean scores of self-efficacy of high school teachers based on their teaching experience.
4. There is no significant difference in the mean scores of self-efficacy of high school teachers based on the type of management of the school.

## METHOD OF THE STUDY

As the present study deals with the self-efficacy beliefs of high school teachers, the investigator adopted the survey method which was found suitable to gather the essential and relevant data.

## SAMPLE

The investigator selected fourteen schools in Salem Educational District. For this present study 253 high school teachers were selected as the sample from fourteen schools randomly. This sample includes male and female, less than 10 and greater than or equal to 10 years of teaching experience, rural and urban, government, aided and private high school teachers.

## TOOL USED FOR COLLECTING DATA

The investigator employed Bandura's Teacher Self-efficacy Scale for the present study for collecting data. This questionnaire is designed to help us to gain a better understanding of kinds of

things that create difficulties for teachers in their schools activities.

## STATISTICAL TECHNIQUES USED

The investigator used descriptive analysis for the preliminary analysis of the data. The t-test and ANOVA were used to find out the significant difference between the mean scores of different groups of variables.

## DELIMITATIONS OF THE STUDY

1. The study was confined to only high school teachers (also teachers working in higher secondary school but those teachers handling middle classes) of Salem Educational District, Tamil Nadu.
2. The study is delimited to Salem District of Tamil Nadu.

In spite of the above cited limitations, sufficient care has been taken in selecting the sample, gathering reliable data, and applying appropriate data and statistical analysis etc.

## DESCRIPTIVE ANALYSIS

**Table 1: Summary of mean, median, mode, SD, Skewness, Kurtosis for total sample**

S. No	Variable	Mean	Median	Mode	SD	Skewness	kurtosis
1	Self -efficacy	99.51	101.00	86.00	20.21	0.14	0.55

**Table 2: Test of significance of difference in mean scores of self-efficacy of high school teachers based on gender**

S.No	Sample	N	Mean	SD	t value
1	Female	129	102.11	22.00	2.09*
2	Male	124	96.81	18.02	

\* significance at 0.05 level.

There is no significant difference in the mean scores of self-efficacy of high school teachers based on their gender is rejected.

**Table 3: Test of significance of difference in mean scores of self-efficacy of high school teachers based on locality**

S.No	Sample	N	Mean	SD	t value
1	Urban	146	102.95	20.24	3.21**
2	Rural	107	94.83	19.28	

\*\*significance at 0.01 level

There is no significant difference in the mean scores of self-efficacy of high school teachers based on locality is rejected.

**Table 4: Result of ANOVA for difference between group means of the independent variable type of management based on self-efficacy scores**

Group	Sum of squares	df	Mean square	F
Between groups	7423.90	2	3711.95	9.72*
Within groups	95473.30	250	381.89	
Total	102897.20	252		

\* significance at 0.05 level

There is no significant difference in the mean scores of self-efficacy of high school teachers based on the type of management is rejected.

## FINDINGS OF THE STUDY

The collected data were statically analyzed to realize the objectives of the

study. In that process the following findings have been observed.

The mean difference in Self-efficacy scores of high school teachers based on gender was significant at 0.05 level. The mean score obtained for female teachers were found to be higher than male teachers. It shows that female teachers exhibit better self-efficacy than male teachers.

The mean difference in self-efficacy scores of high school teachers based on locality was significant at 0.01 level. The mean score obtained for teachers in urban schools were found to be higher than those in rural schools. It shows that teachers in urban schools exhibit better self-efficacy than teachers in rural schools. The mean difference in self efficacy scores of high school teachers based on teaching experience was significant at 0.01 level. The mean score obtained for teachers with experience less than 10 years were found to be higher than those with greater years of teaching experience. It shows that teachers with less than 10 years of experience exhibit better self-efficacy than teachers with greater years of teaching experience.

The mean difference in self-efficacy scores of high school teachers based on the type of management was significant at 0.05 level. Teachers working in aided schools were found to possess better self-efficacy skills than teachers working in government schools. Also, teachers working in private schools were found to possess better self-efficacy skills than teachers working in government schools.

## IMPLICATIONS OF THE STUDY

The findings of the study will be of immense use in understanding the self-efficacy patterns of high school teachers classified on the basis of gender, locality, teaching experience and type of management.

## SUGGESTIONS FOR FURTHER RESEARCH

- The present study was carried out in Salem district only. It can be extended all over the Tamil Nadu state.
- The present study was confined to high school teachers. It may be extended to the teachers working at all levels.

## CONCLUSION

Teacher Self-efficacy is a very important construct. Teachers with higher levels of efficacy are more likely to learn and use innovative strategies for teaching, implement management techniques that provides for student autonomy, set attainable goals, persist in the instruction that develops students' self-perceptions of their academic skills. Teachers, who report satisfaction with

their jobs, display greater effort and motivation, take on extra roles in their schools, and are more resilient across the span of their career.

To sum up, the present study aimed to determine the Teachers' Self-Efficacy of high school teachers in Salem district. It suggested the need to expand further studies on teacher efficacy to different context as it is being applied more universally. According to the literature and findings of this study it is necessary to take into consideration the efficacy beliefs in the teacher training environment or professional development courses to promote and fostering sense of teaching efficacy beliefs among teacher. Teachers' perception about their professional responsibility should be considered deeply to increase our understanding of how teacher efficacy affects teaching especially in different context settings. Sourcing and processing of teacher efficacy beliefs to fully understand any change in efficacy beliefs of teachers is necessary. It will help administrators and policy makers to find out the origins, supports, and enemies of efficacy.

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## DIGITAL INITIATIVES IN HIGHER EDUCATION IN INDIA

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### INTRODUCTION

The term education always talks about the teaching learning process and helps to gain knowledge. From the very beginning education had been considered as an important part of our life. Methods of teaching learning had also been changed over the time. Curriculum had been modified day by day to focus on the main component and also to reduce the extra burden from the students. The education system, exists now is basically student centric where the need of students is more important than a teacher's knowledge. To make the education system more significant the time has come to reconsider the chalk and talk method and make it digital. Digital education is not a whole new process that has arrived suddenly but it was there from the 1950s when Indian radio and television were used as a medium of education. National Education Policy 1986 was modified in 1992 to give more importance to incorporate technology in education to improve quality, access and governance.

Digital education means to use digital tools and technology in learning to make it more significant, attractive, exciting and interactive. To get over from only bookish knowledge digital education is very significant at this time. The world of internet has huge information about every subject and student can get that according to their preferences. Indian government took various initiatives to encourage students and teachers to upgrade their teaching learning skill via digital education. In this time of COVID we can now realise the importance of this digital education. When all the educational institutions are closed, education through digital platform is the only way to run the education system smoothly.

### OBJECTIVES

The main purposes of this study are

- To discuss the digital initiatives taken by Indian Government in higher education sector.
- To find the advantages and disadvantages of open book examination.
- To look upon the reforms in evaluation patterns.

## METHODOLOGY

The study is qualitative in nature and based on secondary data. Content analysis is done based on different Government policies and reports, research papers in

journals, articles on newspaper. Details of the initiatives in higher education were gathered from the official Government websites.

## DISCUSSION

### Government initiatives for Digital learning

Name of Programme/Policy/Initiatives	Objectives/Mission/ Key Features
SWAYAM, SWAYAM PRABHA, SAKSHAT, GIAN, Virtual Learning Environment, e-PG Pathshala, Talk to a Teacher Programme, E-Kalpa	To promote massive online courses with internet and television by the best faculties.
NAD, NDL INDIA, Digi Locker	To make a digital storage of academic award, degree, result and also for their verification with authenticity.
eSS, VIDWAN, ShodhGangotri	Provide journals and articles, thesis, dissertation papers of famous researchers.
Virtual Lab	To provide remote access to labs in various disciplines
e-Yantra	To spread education about robotics and embedded systems
E-acharya	Host all e-content project
FOSSEE, Spoken Tutorial, SOS Tools	To promote software related courses
BAADAL	An open source project that helps institutes to create their private cloud
NIRE, ARIIA	To rank the institutions across the country based on a certain methodology
NPTEL, IMPRINT	To improvise engineering and core science courses
OSCAR	To provide repository of web based interactive animations and simulations
Text Transcription of Video Content	Students can get pdf format text of any video lecture

## **SWAYAM (STUDY WEBS OF ACTIVE LEARNING FOR YOUNG ASPIRING MINDS)**

Under the Digital India initiative this digital education initiative was taken by Government of India on 2017.

- This initiative was taken to achieve access, equity and quality in the field of digital education.
- Main focus for this policy was to give facility to those students who are still untouched from the digital medium of education.
- Students from class IX to Post Graduation can access various courses offered through this initiative anytime from anywhere.
- More than 1,000 chosen best faculties from all over the country are here to help the students with best of their knowledge through an interactive session.
- Students can attain video lectures, download reading materials according to their needs.
- They can do self-assessment by quizzes and tests.
- They also have the facility to clear their doubts regarding study in an online forum of discussion.

## **NPTEL (The National Programme on Technology Enhanced Learning)**

- This initiative was taken by the top most institutes of our country like- Indian Institutes of Technology (Bombay, Delhi, Kanpur, Kharagpur,

Madras, Guwahati and Roorkee) with the Indian Institute of Science, Bangalore in 2003.

- More than 235 courses were developed in video or web format in 1st Phase of NPTEL.
- Main focus of NPTEL 2nd Phase was to build core science and Engineering courses launched in 1st phase of NPTEL.
- In Phase II, 600 web courses were developed in major branches of Physical Sciences, Engineering at the undergraduate and postgraduate levels and Management courses at the postgraduate level.
- Various improvements regarding video indexing, keyword search and web courses were made.

## **e-PG Pathshala**

- MHRD took this initiative under National Mission on Education through ICT. This initiative was executed by UGC.
- They mainly focused on the content and key component of education system.
- Various subject experts working in Indian Universities and R&D institutes across the country had developed curriculum based high quality and interactive e-content in 70 subjects across Arts, Fine arts, Social science, Humanities, Linguistic & Language and Natural & Mathematical sciences.

- For every subject they had a team of paper coordinators, principle investigator, language editors, content writer and reviewers and multimedia team.

### **GIAN (Global Initiative of Academic Networks)**

Government of India initiated this programme to encourage the scientists and entrepreneurs at international level for their engagement with the institutes in India.

- To increase the importance of international faculty in Indian institutes and create chances for the students to seek knowledge from those international faculties.
- Not only teachers but also the faculty will get chance to share their knowledge and learn new skills with this initiative.
- This initiative will create a path to collaborate with international faculties for research work.
- Encourage technical persons from India to update their knowledge and understandings.

### **eSS (E-Shodh Sindhu)**

- Based on the recommendation of an Expert Committee, the MHRD has formed e-Shodh Sindhu.
- Main focus was to develop a collection of e-journals, e-books on perpetual access basis.
- This initiative is also providing current as well as archival access to

more than 10,000 core and peer-reviewed journals, citation and factual databases and a number of bibliographies in different disciplines to its member institutions including centrally-funded technical institutions, universities and colleges.

- This initiative is now aiming towards making a digital library with e-books and e-journals.

### **NAD (National Academic Depository)**

- The idea behind this initiative was to make a 24X7 online store house of all academic records.
- Students can access their digitized certificates, diplomas, degrees, mark-sheets etc any time here.
- Students can access their certificates, diplomas, degrees, mark-sheets etc any time here.

### **OPEN BOOK EXAMINATION**

Due to present scenario regarding this covid-19 pandemic every aspect of life has gone through under some major changes and are becoming new normal. Education system is also improvising its various parts to become more interesting, interactive and burdenless. Examination is always a part of education. To assess the standard of a student, examination plays an important role from the very past. But at present, with the changing pattern of curriculum examination pattern is also improvising. The new pattern mainly focuses upon the understanding capacity of a student and not upon their remembering power. Here comes the

concept of 'Open Book Examination'. This type of exam allows students to carry their reference books, study materials at the time of examination to collect information from them.

### **Open Book Exam in India**

Open book examination is not a whole new term to India. In January 2018, a committee of four members had been set up for examination reforms. They had come with the idea of 'open book examination' for the engineering courses to the All India Council for Technical Education (AICTE). After observing the results of the students for a certain period of time, AICTE had approved the new exam reform policy. And this type of exam had declared as a mandatory internship for students and induction and training programs. This new examination policy had opened up new views about evaluation of the students. Not only the students of technical departments but also the students of general subjects like- Languages, Social sciences etc., can also be evaluated by this new type of examination policy. As the students of general subjects are known for their mugging up capacity, this type of exam will enhance their power of understanding and creativity.

### **Advantages and disadvantages of 'Open Book Examination'**

As a part of outcome-based evaluation, this exam can enhance the quality of a student. Students will

learn to know the core of a subject. The advantages are as following

- This examination will give freedom and flexibility to the teachers while constructing question papers.
- Students will develop new learning strategy to ensure their success.
- As the students will be allowed to take reference materials in the time of exam, they can learn to extract information from various sources regarding their subject.
- This type of exam ensures that a student will not only learn a single topic but he will also learn the interrelated topics to understand better.
- Students will also learn to use the collected data in proper place.
- Every new idea has come with some consequences also. The disadvantages are equally important and need attention.
- Students can get busy to collect more reference materials for their subjects.
- Students may feel more pressure while collecting various information about one particular topic or its interrelated topics.
- Students don't come from same economic background always. So, they can't effort reference books, online resources every time. There will be a chance of disparity among the students.

- While focusing on collecting reference study material, students may lack their interest for study.

### **PRESENT SCENARIO**

This global pandemic effects on various sectors including education system. From the beginning of the lockdown process schools, colleges, universities and other education sectors got close for the safety of the students. But this situation creates a disturbance in the regular pattern of a student's life. To ensure the smooth learning process for the students, education sectors are now depending on the online education strategy. Teachers use online platforms, television, and webinars to educate their students. In this crisis period when maintaining social distance is must, traditional method of examination is next to impossible. Adaptation of new method of exam is must.

### **REFORMS IN EVALUATION PATTERN**

Without evaluation education system is incomplete. A student will not be able to know his strength and weakness without a proper evaluation. According to traditional method of evaluation, same curriculum was passed from one generation to other, then teachers are only focusing upon completing their syllabus by the end of session and a student's knowledge is judged by his grades. Time has come to change this process along with education policies and examination

reform policies. To evaluate a student better and to enhance his learning quality, evaluation pattern should be on outcome based. In this method, curriculum will be designed according to the needs of students, teachers will help students to develop new skills and assessment will be done on each level of learning and skill. At present, ability of a student should only be judged upon "know and able to do." Curriculum should be designed in such a way where a student will not only learn and remember a subject but also will love it. Learning should not only depend upon only marks but authentic knowledge.

### **CONCLUSION**

When all the doctors and scientists are fighting against the deadly Covid-19 virus, the educationists are reforming new policies so that the students of our country can pursue their study without any obstacles. There is no other way without accepting the new normal in our life as well as in education system. Students should be encouraged to pursue digital education. Institutions should take responsibilities to spread awareness among students about the online courses. Teachers and students both should accept the new pattern of learning and examination. And most importantly, evaluation process should focus on creative thinking capacity of a student and not the remembering.

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## TEACHING DURING CORONA VIRUS PANDEMIC: ISSUES AND CHALLENGES

6

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### INTRODUCTION

Corona Virus Pandemic has been the greatest crisis before humankind since Second World War. World has come face to face with a virus which is unknown and deadly. Every nation in the world has been deeply impacted by this virus. Our country came to a standstill with a total lockdown. The economic activities, service industries, large and small scale industries and education sector, everything was totally shut down. Schools and colleges closed indefinitely. Schools, colleges and universities became deserted and hostels were emptied. With sudden shut down, it was a period of great confusion and uncertainty. There were no clear cut guidelines so as to how the studies would resume. Some immediate problems arising out of shut down were

- Abrupt stop in the teaching learning process
- Incomplete syllabus
- Exams could not be completed
- Hostels were emptied and students sent to homes
- An atmosphere of confusion and nervousness

Now the pertinent question arising out of suspension of class room teaching is how to recover from this extraordinary situation. It is a known fact that digital teaching, use of e-contents has less penetrated in our educational system. Throughout the country 'chalk and talk' method and off line teaching had been predominantly used. Though there were some private institutes who used digital teaching in miniscule proportion in the past but situation was dismal. The problem was even worse in Government schools, colleges, institutions where e-learning had been totally absent. Private sector schools and colleges were quick to recover by developing their resources for e-learning. However, the plethora of problems laid before government schools and colleges who had no infrastructure, no framework or facilities in the past.

### GOVERNMENT AND PRIVATE SECTOR INITIATIVES FOR E-LEARNING

To overcome abruption in teaching learning process, government and private sector institutes soon resorted to online teaching. Online learning is also perceived as the utilization of



internet in accessing materials; having interaction with contents, teachers, and other students; and gaining assistance in learning process to gain knowledge, make meaning, and progress through learning experience (Ally, 2008). Online learning is defined as learning carried out from a distance assisted by electronic devices, for instance tablets, smartphones, laptops, and computers which require internet connection (Gonzalez & Louis, 2018). Some of the government initiatives regarding online teaching and providing e contents are

### **Diksha**

Diksha is a unique initiative by the government to create e-content using innovative technologies based solutions. Students, teachers, educators, parents can access humungous database of Diksha. Diksha can boast of more than 80,000 ebooks for schools created by CBSE and NCERT.

### **E – Pathshala**

This is a joint effort of MHRD, CIET and NCERT for digital education. It is part of ‘National Mission on Education through ICT’ executed by UGC. The e-contents of e-pathshala are of interactive nature, high quality and cover 70 subjects from diverse domains. Students and teachers can access to digital textbooks and e-contents which are of myriad nature. There are more than 22000 modules. There is collection of more than 1800 audios, 2000 videos, 700 ebooks, 500 Flip books, innumerable images, maps, question banks etc.

### **E – Adhyayan**

It is a digital platform for Post Graduate students. It is a part of e-PG Pathshala. E-adhyayan providing more than 700 ebooks for the post graduate students. There are many video contents and interactive sessions for the students. It also facilitates those students who cannot access the internet all day.

### **UGC MOOCS**

These are Massive Open Online Courses and are a vertical of Study Webs of Active Learning for Young Aspirants (SWAYAM). Anyone can access these courses anytime and anywhere. MOOC and SWAYAM aims to help students study without any hindrances due to corona virus pandemic. These also help in self actualization of students and carry on their lifelong learning process.

### **Atal Innovation Mission (AIM)**

This e-learning scheme started under the aegis of NITI Aayog. Atal Innovation Mission has impeccably blended the idea of technology and innovations for the students. The online modules include artificial programming, game designing, 3D modelling.

There are many more such digital platforms and programmes by the government such as e-yantra, virtual labs, FOSSEE to ensure that education process doesn't stop for the students. National Institute of Open Schooling (NIOS), National Repository of Open Educational

Resources (NROER), National Digital Library has witnessed massive increase of new members after the lockdown.

The efforts of Private sector schools, colleges, and other such institutions have been equally commendable. Teachers have come up with their own novel idea of personally creating e-content and uploading on sites such as you tube. Many of them have created their own personal blogs, facebook page and uploading e contents. WhatsApp groups have been created by the institutions and teachers for interaction and distribution of study materials. Students are also being told to access their emails regularly as teachers are sending time tables, pdf, images, and study materials through emails. Schools and colleges are ensuring that no stones have been unturned for completing the left over syllabus and preparation of exams. In pursuance of this cause, teachers are making online academic calendars, online time tables, on inline classes are being taken, assignments given and checked and sent back to the students. All of the schools, colleges, universities are tracking students online through desktop, laptop, tablet or smart phones.

## ISSUES AND CHALLENGES IN ONLINE TEACHING

Undoubtedly, both government and private sectors are initiating a credible attempt for online teaching, but problems seems cropping up every now and then. There exists lot of persistent problems

regarding online teaching. Some of them are

- ***Lack of willingness on the part of teachers to learn new digital technology***

Teachers especially belonging to elder generation lack enthusiasm and willingness to adapt to new technology. Because of lack of technological know-how, these teachers are anxious to use digital medium of teaching.

- ***Lack of proper training regarding Digital Teaching to the teachers***

It is unfortunate situation that teachers suddenly have been asked to teach through digital medium. Majority of institutes, private or government have not provided adequate training to the teachers. It is very difficult for an average teacher who has been teaching throughout his/her life in classroom have been asked to completely to switch over to digital platforms of teaching.

- ***Lack of e-contents for teaching and learning***

The advent of Corona Virus pandemic was sudden and education system was not ready for its aftermath. Hence, there is a great dearth of quality and interactive e-contents. This problem even becomes more acute in literature and languages, vernacular languages and Sanskrit.

- ***Lack of device such as smart phones and computers for socio economically backward students***

We must remember that teaching and learning process is not for the privileged. It is a must for all the students irrespective of caste and class. Though government and private institutions have launched several initiatives for e-learning but they care least about the availability of devices for socioeconomically backward students. Such students cannot afford to have computers, laptop, tablet or even smart phones.

- ***Connectivity issues in rural areas***

According to Annual Status Education Report majority of students studying in schools reside in rural areas (ASER 2018). Rural areas in India face great deal of connectivity issues. Online learning, accessing and downloading e-contents require fast internet connection which is impossible in rural and distant villages.

- ***Lack of continuous availability of electricity especially in rural areas***

It is a known fact that our country's 70% population lives in rural areas of the country. But the situation is so pathetic in rural areas that they not only lack basic infrastructure, living conditions and are equally marginalized. Rural areas witness frequent power cuts and on the worst,

there are still some distant villages which do not have access to electricity till date. With the persistent problem of lack of electricity, how students in a rural area can access to online education?

- ***Unable to access to unlimited internet for online studies***

Online classes, accessing and downloading e-contents, ebooks, submitting assignments and homework require a large amount of internet data. Socio economically backward students cannot afford internet. Without internet facilities it is impossible to resort to e-learning.

- ***Apathy from parents***

It is a very disappointing situation that parents are indifferent to the importance of e-learning. They are themselves unaware of the new technology and hence cannot help their children in home. Parents of socioeconomically backward students cannot provide smart phones and these children are left behind in educational process.

- ***Perpetual fear of new technology***

An atmosphere of nervousness and confusion exists among students and teachers who lack technological knowledge. They are not able to operate and thus, lack confidence in teaching learning endeavors.

- ***Anxiety and Mental pressure affecting the students***  
Lack of peer group support, lock down, no support from parents and sudden switch to digital platforms have created immense pressure on the students. They are facing varied problems and no one is there to help them out. Students feel that they are alienated and are facing psychological problems like depression.
- Use of popular digital media and platforms like WhatsApp, Telegram, Youtube, etc.
- Psychological counselling for the students.
- Special meeting sessions with parents and also giving them training to operate devices.
- Developing clear cut policies by the government for Digital teaching and learning.

These are some of the basic problems faced by students and teachers throughout the country. It has been a challenge to eradicate these problems. Some of these problems are related to lack basic infrastructure which are impossible to be removed at this stage. Some problems are conceptual while others are psychological. A holistic and wider approach is needed for digital teaching and learning.

#### **Some of the recommendations are**

- Providing adequate training through special training sessions, workshops to the teachers regarding online teaching.
- Providing free device to the socio economically backward students.
- Providing free internet to the needy students.
- Providing offline e-contents.
- Giving incentives to the teachers to develop interactive e-contents.

#### **CONCLUSION**

It is evident that Corona virus pandemic has changed the dimensions of teaching and learning process across the globe, particularly in India. Willingly or unwillingly, government and private institutes have adopted online teaching. Teaching online is not important but how is being taught is equally important. It is important for teachers to develop interactive e-contents as well as withhold attention of the students throughout teaching learning process. Teachers are encouraged to have active participation in professional development opportunities to develop their competency on technology integration in language teaching (Son, 2018). We must remember that even after corona virus pandemic, digital teaching will become an integral part of the education system. Thus, our efforts should not be temporary but for the future also.

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