

# EFFECTIVENESS OF SMART CLASS METHOD IN THE TEACHING OF SOCIAL SCIENCE AT SECONDARY LEVEL

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## ABSTRACT:

The importance of the study of Social Science at secondary level is diminishing in recent years. Many studies regarding of teaching social science points out that the conventional method of teaching social science has less impact among the students. The negative and boring attitude towards social science can be overcome by using technology in teaching and learning process. The article focus on how the smart class method has improved the achievements in Social Science especially in History and Geography in comparison to normally practiced method. The investigator experimented on the students of class IX in Chennai district, using smart class method on experimental group and normally practiced method on controlled group after equating them using pre-test. After experimentation, post-test was administered on both groups to study the effectiveness of smart class method and normally practiced method for comparative analysis.

**Key words:** *Smart Class Method, Normally Practiced Method, Achievement in Social Science.*

## 1. INTRODUCTION

Secondary level of education gets progressive when students learn all subjects with equal importance. The immense growth of Physical Sciences in recent years had created a negative attitude towards the learning of Social Science at secondary level, though it has a great importance in relation to application of social values in day today life. The objectives of learning Social Science by the National Curriculum Framework states that emphasis has to be laid on developing concepts and the ability to analyses socio political realities, rather than mere retention of information without application (Indu Prasad, 2008). Therefore, the present education system adopts smart class method in the teaching of Social Science to present historical data in an interesting way, so as to enhance motivation and application of social values in one's life. The present article focuses on the effectiveness of smart class method of teaching in terms of achievement in History and Geography of the students of standard IX.

## 2. CONCEPT OF SMART CLASS

Smart Class is an advanced version of multimedia approach, which enhances quality in both content and pedagogy. Smart Class method has been executed through digital instructional technologies. Smart class means application of techno-centric strategy with a significance scope for usage of power point presentation, videos, animation, audio-video recordings, use of websites, blogs and other software programmes in a classroom. Gwak (2010) proposed the concept of smart learning as follows: first, it is focused on learners and content more than on devices; second, it is effective, intelligent, tailored learning based on advanced IT infrastructure. Smart class method is an information software package which brings quality of content and methodology for teaching and learning. Koper (2014) explains that smart class learning environment is a physical environment with digital and adaptive devices to promote better and focused learning. Hua ng et al. (2012), describe smart class as a high-level digital environment which help students to realize the learning context, recognizes the need of learners, provide adaptive learning resources and convenient tools to evaluate the learning outcome.

## 3 IMPORTANCE OF THE STUDY

The study emphasizes on the effectiveness of Smart Class Method on the Achievement in Social Science especially in History and Geography among the selected students of standard IX in Chennai district. The sample of the study includes two hundred students from eight schools as experimental and control groups. The need and importance of the present study is looked from two perspectives viz. one side there is a negative attitude towards the study of History and Geography as outdated and boring subject as teachers use the conventional method of teaching and on the other hand, there is a demand for a technological innovation in teaching and learning of the same. Therefore, the researcher

examines the effectiveness of smart class method used by some schools in teaching learning process of Social Science especially History and Geography in comparison to the Normally Practiced Method of teaching the same.

#### 4 OBJECTIVES OF THE STUDY

- a. To compare the effectiveness of Smart Class method and Normally Practiced Method on the Achievement of IX standard students in History.
- b. To compare the effectiveness of Smart Class method and Normally Practiced Method on the Achievement of IX standard students in Geography

#### 5. HYPOTHESES

- a. There is no significant difference between the effectiveness of Smart Class method and Normally Practiced Method on the Achievement of IX standard students in History
- b. There is no significant difference between the effectiveness of Smart Class method and Normally Practiced Method on the Achievement of IX standard students in Geography

b.

#### 6. RESEARCH METHOD

The present study adopted quantitative research method to analyze the effectiveness of smart class method on the achievement in Social Science of students in class IX. By applying deductive approach, suitable research hypotheses were framed in line with the study objectives. The hypotheses were tested with the help of the data collected using different quantitative instruments for the same. The data collected were subjected to statistical analyses and meaningful implications were drawn from the results.

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#### 7. SAMPLING PROCEDURE

The researcher adopted purposive sampling method for the study. The sample consists of selected one hundred students each from both groups studying in class IX in Chennai district who follow samacheerkalvi syllabus. In the present study, the researcher selected the students who secured average score as equated groups in Social Science from the schools selected to be under experimental and control groups.

#### 8. TOOLS USED FOR THE STUDY

a) Achievement Tests in Social Science b) Lesson Transcripts for Smart Class Method, c) Lesson Plans for Normally Practiced Method d) Socio Economical Status Scale.

#### 9. STATISTICAL TECHNIQUE USED

The statistical technique used for the present study are a) Socio-Economic status of the participants is analyzed with the help of *Descriptive Statistics*, b) the psychometric properties, i.e. the reliability and validity of the questionnaire were tested using Split Half Method by Spearman Brown, *Cronbach's Alpha* and *Exploratory Factor Analysis* (EFA), c) Normality assumptions were carried out using *Kolmogorov-Smirnov Test* and *Shapiro-Wilk Test* as the sample size is 100 for each group and d) based on the results of the normality tests, non-parametric test, *Wilcoxon Signed Rank test* and *Mann-Whitney U Test* were carried out to compare the groups (pre-test and post-test groups / normally practiced method and smart class method groups).

#### 10. ANALYSIS AND RESULTS

**H1:** *There is no significant difference between the effectiveness of Smart Class method and Normally Practiced Method on the Achievement of IX standard students in History.*

In order to compare the effectiveness of the Smart Class Method (SCM) with the Normally Practised Method (NPM), Wilcoxon signed rank test was used to investigate any change in the scores of the students in History before and after the experiment was conducted. The results are given in Table 1, shows that the Normally Practised Method (NPM) elicited a statistically significant change in the post-test History scores of the students who had previously taken the pre-test ( $z=-5.349$ ,  $p=0.000$ ). Similarly, Smart Class Method was also found to have elicited a statistically significant change in the post-test History score of students who had previously taken the pre-test ( $z=-8.644$ ,  $p=0.000$ ).

**Table 1: Significant difference between the pre-test and post-test marks in History in SCM as well as in NPM**

		N	Mean Rank	Sum of Ranks	Z	Sig.
NPM - Pre vs Post	Negative Ranks	15 <sup>d</sup>	30.50	457.50	-5.349 <sup>b</sup>	0.000
	Positive Ranks	62 <sup>e</sup>	41.06	2545.50		
	Ties	23 <sup>f</sup>				
SCM - Pre vs Post	Negative Ranks	0 <sup>a</sup>	0.00	0.00	-8.644 <sup>b</sup>	0.000
	Positive Ranks	98 <sup>b</sup>	49.50	4851.00		
	Ties	2 <sup>c</sup>				

In order to determine, whether the pre and post-test History scores varied based on the type of teaching method adopted (SCM or NPM), *Mann Whitney U test* was conducted. This test was adopted as the dependent variable, i.e. the pre- and post-test scores, were measured on a continuous scale and the independent variable has two groups, Smart Class Method and Normally Practiced Method. The results are given in Table 2 shows that pre-test History scores of IX standard students who were taught using the NPM (Mean Rank=102.65) was higher than those taught using the SCM (Mean Rank=98.36). However, the pre-test scores of the NPM group were not found to be statistically significantly higher ( $p>0.05$ ) than those of the SCM group. Mann-Whitney U test on the post-test History scores of IX standard students show that the post-test scores of the SCM group was higher (Mean Rank=139.76) than the post-test scores of the NPM group (Mean Rank=61.24). It can be concluded from the data that the post-test score of SCM group is statistically significantly higher ( $p<0.05$ ) than the post-test scores of NPM group.

**Table 2: Significant difference between SCM and NPM Pre and Post-tests marks in History**

Group		N	Mean Rank	Sum of Ranks	Mann-Whitney U	Sig.
Pre test	SCM	100	98.36	9835.5	4785.5	0.594
	NPM	100	102.65	10264.5		
Post test	SCM	100	139.76	13976.00	1074	0.000
	NPM	100	61.24	6124.00		

Thus, from the above analysis, it can be inferred that both the methods NPM and SCM produced significant changes in the mean pre- and post-test score of History. However, the post-test History score of SCM group was found to be significantly higher than that of the NPM group. Hence, the hypothesis H1 has been rejected and the alternate hypothesis “*There exists a significant difference between the effectiveness of Smart Class Method and Normally Practiced Method on the Achievement of IX standard students in History*” has been accepted.

**H2:** *There is no significant difference between the effectiveness of Smart Class method and Normally Practiced Method on the Achievement of IX standard students in Geography.*

*Wilcoxon signed rank test* was used to investigate any change in the scores of the students in Geography before and after the experiment was conducted, i.e. appropriate teaching methods (SCM and NPM) were used. The results are shown in Table 3 point out that the Normally Practised Method (NPM) elicited a statistically significant change in the post-test geography scores of the students who had previously taken the pre-test ( $z=-4.430, p=0.000$ ).

Similarly, Smart Class Method was also found to have elicited a statistically significant change in the post-test Geography score of students who had previously taken the pre-test ( $z=-8.736, p=0.000$ ).

**Table 3: Significant difference Pre-test and Post-test marks in SCM as well as NPM in Geography**

		N	Mean Rank	Sum of Ranks	Z	Sig.
NPM-Pre Vs Post	Negative Ranks	22 <sup>d</sup>	29.23	643.00	-4.430 <sup>b</sup>	0.000
	Positive Ranks	55 <sup>e</sup>	42.91	2360.00		
	Ties	23 <sup>f</sup>				
SCM-Pre Vs Post	Negative Ranks	0 <sup>a</sup>	0.00	0.00	-8.736 <sup>b</sup>	0.000
	Positive Ranks	100 <sup>b</sup>	50.50	5050.00		
	Ties	0 <sup>c</sup>				

In order to determine, whether the pre and post-test Geography scores varied based on the type of teaching method adopted (SCM or NPM), *Mann Whitney U test* was conducted. The results are shown in Table 4. It can be observed from the results that the pre-test Geography scores of IX standard students who were taught using the SCM (Mean Rank=106.99) was higher than those taught using the NPM (Mean Rank=94.01). However, the pre-test scores of the SCM group were not found to be statistically significantly higher ( $p > 0.05$ ) than those of the NPM group.

Mann-Whitney U test on the post-test Geography scores of IX standard students show that the post-test scores of the SCM group (Mean Rank=145.78) was higher than the post-test scores of the NPM group (Mean Rank=55.22). It can be concluded from the data that the post-test score of SCM group is statistically significantly higher ( $p < 0.05$ ) than the post-test scores of NPM group.

**Table 4: Significant difference between SCM and NPM in Pre-test and Post-test marks in Geography**

Group		N	Mean Rank	Sum of Ranks	Mann-Whitney U	Sig.
Pre-test	SCM	100	106.99	10699.00	4351	0.106
	NPM	100	94.01	9401.00		
Post-test	SCM	100	145.78	14578.00	472	0.000
	NPM	100	55.22	5522.00		

Thus, from the above analysis, it can be inferred that both the methods NPM and SCM produced significant changes in the mean pre- and post-test score of Geography. However, the post-test Geography scores of SCM group was found to be significantly higher ( $p < 0.05$ ) than that of the NPM group. Hence, the hypothesis H<sub>2</sub> has been rejected and the alternate hypothesis “*There exists a significant difference between the effectiveness of Smart Class method and Normally Practiced Method on the Achievement of IX standard students in Geography*” has been accepted.

## 11. MAJOR FINDINGS

a. The NPM pre-test History scores of IX standard students were significantly different from the post-test scores ( $6.53 \pm 1.81$  and  $7.75 \pm 1.61$ ;  $p = 0.000$ ). The SCM pre-test History scores of IX standard students were significantly different from the post-test scores ( $6.50 \pm 1.56$  and  $10.27 \pm 1.22$ ;  $p = 0.000$ ). The pre-test History scores of IX standard NPM students were slightly higher than the SCM pre-test scores, but it was not statistically significant (mean rank of  $102.65 > 98.36$ ;  $0.59 > 0.05$ ).

The post-test scores of the IX standard SCM students were significantly higher than the post-test scores of the NPM students (mean rank of  $139.76 > 61.24$ ;  $0.00 < 0.05$ ), thereby rejecting the null hypothesis and accepting the alternate hypothesis. Therefore, it is interpreted as there is a statistically significant difference between the effectiveness of Smart Class Method and Normally Practiced Method on the achievement of IX standard students in History.

b. The NPM pre-test Geography scores of IX standard students were significantly different from the post-test scores ( $5.93 \pm 1.42$  and  $6.70 \pm 1.55$ ;  $p = 0.000$ ). The SCM pre-test Geography scores of IX standard students were significantly different from the post-test scores ( $6.30 \pm 1.50$  and  $10.16 \pm 1.30$ ;  $p = 0.000$ ). The pre-test Geography

scores of IX standard SCM students were higher than the NPM pre-test scores, but not statistically significant (mean rank of  $106.99 > 94.01$ ;  $0.10 > 0.05$ ).

The post-test Geography scores of IX standard SCM students were significantly higher than the NPM post-test scores (mean rank of  $145.78 > 55.22$ ;  $0.00 < 0.05$ ). Therefore, it is interpreted as there is a significant difference between the effectiveness of Smart Class Method and Normally Practiced Method on the achievement of IX standard students in History.

## 12. RECOMMENDATIONS

The study propose that teachers can incorporate techno based strategic approach to increase their performance in Social Science especially in History and Geography at secondary level. The present study is highly informative to the students, teachers, parents and to the members formulating the educational policies in terms of focused learning. It emphasis that smart class method like technology based learning is the need of the time. The study adds a definite educational message in India, where the usual chalkboard teaching method is followed. The benefits clearly necessitate the attention of the policymakers to incorporate a greater number of smart class method in school curriculum to create an optimistic atmosphere of learning. It gives new insight to the teachers to use technology especially smart class method to teach History and Geography to create interest and focused learning.

## 13. CONCLUSIONS

The present study reflects the need and importance of implementing smart class method in classroom teaching of social science at secondary level. The outcome of the study specifies that smart class method boosts the rationalizing power of the students, improve their application skills and minimizing the educational stress. The present study depicted a significant achievement of students through the smart class method by using the interactive elements of digital boards and virtual reality in the smart classes, to make the learning process as student centric. Thus, the smart class method is concept-oriented, interactive, informative and conducive to the students to enhance the achievements in Social Science especially History and Social Science.

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