



ORIGINAL RESEARCH PAPER

Education

EFFICACY OF RECIPROCAL TEACHING IN ACCOMPLISHING INSTRUCTIONAL OBJECTIVES OF SOCIAL STUDIES IN COGNITIVE DOMAIN

KEY WORDS: Reciprocal teaching, Activity method of teaching, Instructional objectives, Cognitive domain, Social studies

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ABSTRACT

The effectiveness of reciprocal teaching in accomplishing instructional objectives of social studies at different levels of cognitive domain was compared with that of prevailing activity method of teaching. The quasi-experimental study followed a pre-test post-test control group design wherein one intact class each of eighth grade students was taken as control group (n = 43) and experimental group (n = 36). Pre-test and post-test scores of achievement in six different levels (knowledge, comprehension, application, analysis, synthesis and evaluation) of cognitive domain was assessed with the help of an achievement in social sciences developed by the researchers. Three units from the prescribed textbook were taught in 27 classes by using activity method of teaching for the control group and by employing reciprocal teaching with the help of lesson transcripts developed by the investigators. Independent sample t-test and paired sample t-test were employed for inferential analysis of data. The results showed that both activity method and reciprocal teaching are effective strategies for realising instructional objectives of different levels in the cognitive domain. While no significant difference was observed between the activity method of teaching and reciprocal teaching with respect to the accomplishment of knowledge level and application level instructional objectives, reciprocal teaching was found to be more effective in achieving comprehension level, analysis level, synthesis level, and evaluation level instructional objectives of teaching social studies.

INTRODUCTION

Social science as a discipline is geared towards providing young people with opportunity for nurturing the virtues of self-realization, better human relationships, self and national unity, social and political advancement, scientific and technological development. As an academic discipline, it is concerned with the study of people in society, in space and in time, and how they relate to one another and to the group to which they belong (Osakwe, 2010). Students often consider social studies to be dull and boring (Chiodo & Byford, 2006). Not only do students perceive social studies to be dull, but they also fail to see the relevance of social studies to their everyday lives (Muzaffer, 2019). Joxy (2014) observed that it is the teacher who is key to what social studies will be for the student. Instruction tends to be dominated by the lecture, textbook or worksheets.... and social studies does not inspire students to learn". Azahra and Mustadi (2021) observed that teachers tend to use only one teaching style day after day, which denies students the opportunity of a variety of teaching techniques. Muharam, Ihjon Hijrah and Samiruddin (2019) stated that teachers often rely solely on text, lecturing, worksheets and traditional tests as methods of learning. However, research concludes that students have more interest in a topic when a variety of teaching methods are implemented (Byford & Russell, 2006).

Reciprocal teaching as an instructional practice has developed out of research related to monitoring and constructing meaning from text (Ahmadi & Abbas, 2012). It takes the form of a dialogue between teachers and students regarding segments of text for the purpose of constructing the meaning of text (Stricklin, 2011). It aligns closely to social constructivism and, in particular, developmental theories of learning described by Vygotsky (Foster & Rotoloni, 2005). Research evidences are presently available for the success of reciprocal teaching as a strategy for teaching different school subjects (e.g., Kula, 2021; Machmudah, Yani & Subroto, 2020; Haq & Suryadarma, 2019). None of these studies, however, have looked into whether reciprocal teaching is better than prevailing activity method of teaching in the acquisition of instructional objectives at different learning levels viz., knowledge, comprehension, application, analysis, synthesis, and evaluation, in the cognitive domain. Since teaching of social studies at secondary school level still emphasizes mostly on accomplishment of instructional objectives in

cognitive domain, providing learning experiences by ensuring active student participation and facilitating knowledge construction through appropriate instructional strategies are challenging for teachers.

Selection of successful instructional strategies from among available choices require evidence-based research backup regarding their efficacy in accomplishing instructional objectives of cognitive domain. The present investigation is justifiable in this context, as it will come out with answers to the questions regarding the appropriateness of reciprocal teaching in achieving the instructional objectives in different levels in the cognitive domain of social studies learning in our schools.

OBJECTIVE OF THE STUDY

The main objective of the study is to find out the effectiveness of reciprocal teaching of teaching on accomplishing instructional objectives of social studies in cognitive domain.

HYPOTHESIS OF THE STUDY

The null hypothesis tested for the study is: "There is no significant difference between reciprocal teaching and activity method of teaching in accomplishing instructional objectives of social studies in cognitive domain".

METHODOLOGY

Method

The study adopted a quasi-experimental (non-equivalent pre-test post-test control group) design.

Population

The entire students of eighth grade class (Standard-VIII), studying in schools affiliated to Kerala Board of Secondary Education (KBSE), Kerala State (India) constitute the population of the study.

Participants

Two intact classes of eighth grade students (n = 82) from Govt. Higher Secondary School, Medical College, Thiruvananthapuram (State of Kerala, India) constituted the participants of the study. The intact classes with varying strength of students were randomly decided as Control Group (n = 43), and Experimental group-2 (n = 36).

Tools Used

a) **Achievement Test in Social Science:** The academic achievement of the participants was assessed by administering a 50 marks achievement test in social studies (2-hours) developed by the investigators. The 50-marks achievement test consisted of three types of questions viz., Objective type, Short answer type and Essay type for a total of 50 marks, covering six instructional objectives (Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation) in cognitive domain.

b) **Lesson Transcripts based on Reciprocal Teaching Method:** Reciprocal teaching is a scaffolded discussion technique that is built on four strategies that good readers use to comprehend text: predicting, questioning, clarifying, and summarizing. The pedagogic intervention was done with the help of 27 lesson transcripts developed by the investigators based on above strategies. Three units were selected from the prescribed textbook for teaching, which included The River Valley Civilization (History), Our Government (Politics), and In Search of Earth's Secrets (Geography). The investigators fixed the curricular objectives, identified the instructional materials needed/useful for the class, planned the classroom activities to be given to each expert groups, and list out the outcome thereof.

Pedagogic Intervention

The pedagogic intervention involved three phases. In Phase-I, the participants in the control group and experimental group were pre-tested for their achievement in social studies with the help of the achievement test. In Phase-II, the selected topics were taught to the control group by employing Activity Method (AMT) and to the experimental group by employing Reciprocal Teaching Method (RTM) with the help of pre-prepared lesson transcripts. A total of 27 classes were given to both the groups by senior teachers in service. In Phase-III, the same achievement test was administered for a second time on both the groups, on the third day of the end of last class. The answer scripts of the pre-test and post-test were scored with the help of the scoring key, the scores were then consolidated separately for the control group and experimental group and subjected to statistical analysis with the help of SPSS.

Analysis And Interpretation

In order to find out whether the control group and experimental group differ significantly before experimentation, the groups were compared with respect to the pre-test scores of achievement in different levels of cognitive domain by employing independent sample t-test. The result of the same is given in Table 1.

Table 1: Comparison Of The Control Group And Experimental Group With Respect To The Pre-test Scores Of Achievement In Different Levels Of Cognitive Domain.

Instructional objectives	Groups	Statistical Indices				t	Sig
		N	M	SD	SE _M		
Knowledge	Control	43	1.14	0.89	.136	0.978	NS
	Experimental	36	0.97	0.56	.093		
Comprehension	Control	43	1.23	0.92	.141	2.694	.01
	Experimental	36	0.75	0.60	.101		
Application	Control	43	0.72	0.85	0.130	1.708	NS
	Experimental	36	0.44	0.504	.084		
Analysis	Control	43	0.49	0.74	.112	0.496	NS
	Experimental	36	0.42	0.50	.083		
Synthesis	Control	43	0.19	0.45	.069	0.087	NS
	Experimental	36	0.19	0.401	.067		
Evaluation	Control	43	0.19	0.39	.060	0.394	NS
	Experimental	36	0.22	0.42	.070		

The t-values estimated for the control group and experimental group in different levels of instructional objectives in cognitive domain show that the groups are alike with respect to the pre-

test scores of achievement, except for the instructional objectives at comprehension level. Scrutiny of the mean scores of the groups reveals that the control group excels the experimental group in their pre-test scores of achievement in comprehension level ($t = 2.694; p < .01$).

The pre-test and post-test scores of achievement in different levels of instructional objectives in the control group were compared by employing paired sample t-test, so as to find out the effect of activity method of teaching (AMT). The data and result of the same is given in Table 2.

Table 2: Comparison Of The Pre-test And Post-test Scores Of Achievements In Different Instructional Objectives Of Control Group Taught By Activity Method Of Teaching.

Instructional objectives	Groups	Statistical Indices				t	Sig
		N	M	SD	SE _M		
Knowledge	Pre-test	43	1.14	0.89	.136	13.869	.001
	Post-test		4.09	1.30	.199		
Comprehension	Pre-test	43	1.23	0.92	.141	14.550	.001
	Post-test		6.65	2.53	.386		
Application	Pre-test	43	0.72	0.85	.130	16.358	.001
	Post-test		3.91	1.13	.172		
Analysis	Pre-test	43	0.49	0.74	.112	13.809	.001
	Post-test		6.58	3.03	.461		
Synthesis	Pre-test	43	0.19	0.45	.069	12.491	.001
	Post-test		1.98	0.91	.139		
Evaluation	Pre-test	43	0.19	0.39	.060	9.251	.001
	Post-test		1.60	0.85	.129		

All the t-values estimated on comparing the pre-test and post-test scores of achievement of instructional objectives in different levels by learners in the control group are significant beyond 99.9% confidence interval. It reveals that activity method of teaching is successful in attaining the instructional objectives of social studies at different levels of cognitive domain.

In order to find out the effect of reciprocal teaching on the behavioural outcomes in the cognitive domain of participants in the experimental group, the pre-test and post-test scores of achievement in different levels were compared by employing paired sample t-test. The data and result of the same is given in Table 3.

Table 3: Comparison of the pre-test and post-test scores of achievements in different instructional objectives of experimental group taught by reciprocal teaching.

Instructional objectives	Groups	Statistical Indices				t	Sig
		N	M	SD	SE _M		
Knowledge	Pre-test	36	0.97	0.56	.093	12.486	.001
	Post-test		3.31	1.06	.177		
Comprehension	Pre-test	36	0.75	0.60	.101	23.738	.001
	Post-test		6.83	1.52	.254		
Application	Pre-test	36	0.44	.50	.084	17.555	.001
	Post-test		3.61	1.20	.200		
Analysis	Pre-test	36	0.42	0.50	.083	31.217	.001
	Post-test		8.08	1.251	.208		
Synthesis	Pre-test	36	0.19	0.40	.067	20.018	.001
	Post-test		3.11	0.79	.131		
Evaluation	Pre-test	36	0.22	0.42	.070	21.507	.001
	Post-test		3.25	0.77	.128		

The result of the paired sample t-test given in Table 3 shows that all the t-values estimated are significant at 99.9% confidence interval. It exposes that reciprocal teaching of teaching is effective in causing significant improvement in achievement in all levels of instructional objectives in cognitive domain.

Independent sample t-tests were performed to find out whether there is significant difference between Reciprocal Method of Teaching (RMT) and the prevalent Activity Method

of Teaching (AMT) in accomplishing the instructional objectives in different levels of cognitive domain. The comparison was done in terms of gain scores (the score obtained by subtracting pre-test scores from post-test scores), and the data and result of the analysis performed in this context is given in Table 4.

Table 4: Comparison Of Activity Method And Reciprocal Teaching With Respect To The Gain Scores Of Different Instructional Objectives

Instructional objectives	Groups	Statistical Indices				t	Sig
		N	M	SD	SE _M		
Knowledge	AMT	43	1.53	0.98	.150	0.785	NS
	RMT	36	1.72	1.137	.189		
Comprehension	AMT	43	3.37	2.09	.319	3.744	.001
	RMT	36	4.92	1.442	.240		
Application	AMT	43	2.30	1.25	.190	0.449	NS
	RMT	36	2.42	.967	.161		
Analysis	AMT	43	4.12	2.34	.357	3.845	.001
	RMT	36	5.86	1.51	.252		
Synthesis	AMT	43	0.86	0.99	.151	6.218	.001
	RMT	36	2.28	1.03	.172		
Evaluation	AMT	43	0.70	1.08	.165	6.749	.001
	RMT	36	2.25	0.94	.156		

The results of the t-tests given in Table 4 shows that no true difference exists between activity method of teaching and reciprocal teaching with respect to their efficacy in accomplishing instructional objectives of social studies at knowledge level (t = 0.785; p>.05) and application level (t = 0.449; p>.05). Significant difference, however, observed between AMT and RMT regarding their effectiveness in enabling the learners to attain instructional objectives at comprehension level (t = 3.744; p<.01), analysis level (t = 3.845; p<.01), synthesis level (t = 6.218; p<.01) and evaluation level (t = 6.749; p<.01). Inspection of the mean estimates exposed that reciprocal teaching is more effective than the prevailing activity method of teaching in attaining comprehension level, analysis level, synthesis level, and evaluation level instructional objectives in cognitive domain.

CONCLUSIONS

The study aimed to find out whether reciprocal teaching is more effective than prevailing activity method of teaching in accomplishing instructional objectives of social studies in different levels of cognitive domain. Comparison of the control group and experimental group with respect to the pre-test scores of achievement showed that the groups are alike regarding achievement in different levels of cognitive domain except for the comprehension level. The control group had significantly higher achievement in comprehension level instructional objectives before the pedagogic intervention. Comparison of pre-test and post-test scores for the groups brought out that both activity method of teaching and reciprocal teaching are successful methods for accomplishing instructional objectives of social studies at all the levels of cognitive domain. Comparison of the gain scores of control group and experimental group revealed that the reciprocal teaching is more effective than prevailing activity method of teaching in attaining instructional objectives at comprehension level, analysis level, synthesis level and evaluation level. Activity method of teaching and reciprocal teaching are, however, found to be alike with respect to the accomplishment of knowledge level and application level instructional objectives of social studies.

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