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Effectiveness of Talkative book in Science and Technology subject at Primary school

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Abstract
The teaching strategies applied by teachers in the classroom basically determine the quality of education. In general, classroom transactions should be conducted using a learner-centered and interactive approach. So, using talkative book to teach for excellent results to the students in the teaching-learning process. The objectives of experimental study was assess effectiveness of taught through a talkative book to the traditional strategy. Comparing the learning impacts of group instruction with traditional methods and talkative book teaching was the objective. One hundred and fifty learners from National High School in Ahmedabad participated in the experiment. The study was quasi-experimental. The researcher selected a two-equivalent group-only post-test strategy for this research. The experimental group received instruction using talkative books, while the controlled group received instruction using the conventional manner. After the experiment finished, a post-test was administered. The pupils in both groups were given the teacher-made achievement in science test. The hypotheses were examined by the student t-test. This suggests that the experimental group, that learned similar concepts using talkative books, the achievement score of experimental group is significantly higher than the control group, that proved taught same concepts using conventional teaching techniques.
**Keywords:** Talkative book, Interactive book, primary school, Science Education.

INTRODUCTION

Every topic has been covered in the knowledge on today's world. As such, knowledge has begun expanding over all academic areas. As change supports and change creators, teachers' duties in school are getting more complex and meditative. So, it is essential should teachers embrace diverse perspectives, creative teaching methods, and strategies in the field of teaching as an essential requirement. In order to effectively instruct the students, new and creative approaches are used to boost student activation. Talkative textbooks are one example of how this combination of information and technology contributed to a fast contribution in the field of educational technology using computer-aided teaching and learning. Teaching strategies are essential for enhancing students' learning abilities, instead the traditional method of teaching is based on delivering information in small amounts, such as rote memorization of concepts and principles. It also remains unable to fulfil the intellectual, psychological, and emotional needs that learners have in the new millennium. In this sense, student participation is to be lamented. So that, the objective of research is to investigate the effect of teaching Science and Technology by talkative book.

Talkative book reading experiences have been shown as an important element in the formation of conceptual understandings of concepts and phenomena (Whitehurst, Arnold, Epstein, Angeli, Smith, and Fischel, 1994; Wasik and Bond, 2001). Books provide a number of ideas and facts that kids would not come across in their everyday lives. Learners benefit more from this setting when it is interactive. Analysis carried out in the context of talkative learning through books that combine pictures and text helps learners become more familiar with key elements of the science learning process, including measurements, angle, taking reading and making notes, conceptual recognition, discrimination, comprehension, and data-record production. This is because learners become more aware of measuring and precise syntax during this process. Writing down concepts, knowledge, and observations about life, plants, and animals could assist learner's inquiry science more efficiently and meaningfully. As to a 2007 study conducted by Koballa and Glynn, students usually prefer debates, hands-on experiments, and concept exchange in science classes. While teaching science, a basis-model, which signals past goal setting, must also be used together alongside a visible structure, like answering questions, to motivate students both logically as well as practically (Oser and Baeriswyl, 2001).

As Stokking (2000) noted, using real-world examples from real-world occupations to teach science can be a more engaging approach to inspire students. Facts on the needs of learners in academic teaching techniques have been examined by Juuti et al. (2010). Researchers found learners are more eager about unknown things while science is introduced in a creative way and also that science is enjoyable because it is relevant to everyday life. Group projects, discussions, debates, and industry trips were preferred by girls in science classes (Juuti et al., 2010). In the literature, talkative book reading activities are sometimes referred to as interactive or shared learning media. In such exercises, students typically participate actively in the learning process rather than passively listening, despite any shifting elements. Students once they are able to explain phenomena in a clearer and more understandable manner taken in both by the concept and the pictures. As an outcome, these concepts make the learning process more meaningful. Students take on a more active role when the learning process is even further supported with games and materials (Kim & Hall, 2002). Such interactions between teachers' students and in preschool and during essential in the development school years are of scientific skills, according research (Seheridan, 1995; Teale, Hieber & Chittenden, 1987). At the upper primary level, NCERT science focus groups also share "talking to knowledgeable in the neighborhood for active learning" (NCERT, 2006).

Several studies investigating the impact of interactive reading-learning activities at all levels, from infancy to advanced stage, have been found in the globally literature. A number of studies investigated on effect of talkative-book activities on the competencies as individuals from low socio-economic backgrounds (Dickinson and Smith, 1994; Senechal, Thomas and Monker, 1995; Wasik and Bond, 2001; Whitehurst et al., 1994); the relationship between interactive-book activities and affective domain development of learners (Adrian, Clemente and Villaunueva, 2005); the effectiveness of talkative-book learning activities on learners' awareness of written language (Bus, Van Ijzendoorn and Pellegrini, 1995; DeBaryshe, 1993); the relationships between interactive-learning activities (Senechal and LeFevre, 2002). The effects of asking concerns about when and how while engaging in talkative learning activities (Blewitt, et. al., 2009).

**Teaching in Science and Technology**

Although the lecture conduct is prevalent in secondary education, it is not effective in an active approach to instruction (Berry, 2008). Al - Rawi (2003) says that the lecture method is centered on facts and statistical calculations, not a learner centered. Another limitation of the science lecture approach, as highlighted by Bok (2006), is that students found hard in the presentation of bulk information. McKee, Williamson, and Ruebush (2007) experienced that "demonstration" is a better approach to instruction for academic classrooms if a sufficient period is laid for learning. Yet, in contemporary times, such time usually is not delegated, so learners are competing for marks. In contrast to hands-on activities, the demonstration provides ample opportunity to learn for more observation on the scenario (McKee, Williamson and Ruebush, 2007). According to Johnson, Johnson, and Tjosvold (2006), science classes ought to start with thoughtful discussions about main themes to achieve consensus. Students can develop their understanding of complicated phenomena through using discussions and controversies as an instructional instrument in academic classrooms (Daniel & Canjander, 2010). Smith (2003) additionally defines discussion as an effective instrument to allow learners to appreciate and agree with the viewpoints of others.The conventional approaches of teaching science and technology were an important factor to learners lacking interest in those subjects, and this turn prompts them to drop out of school. Learners perceive it as a difficult subject that could not be learnt without dedication. For the teaching-learning process to be effective, Science and Technology subjects need to be taught by interactions and activities. In consequently, an interactive book can only be a helpful instrument for science and technology through self-learning.

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The current study focused on how talkative book techniques may affect the academic achievement for learners learning science and technology, in addition to the way in which talkative books can raise their scores in those areas. As teachers could employ interactive educational books in the course of their methods of instruction, some studies have looked at the elements that impact their intention to use them. Thus, this study focuses at the way primary school children might use interactive learning using talkative books combined with other technology. It is fair to assume that the learner, the quality of the learner's books, and the type of interaction are the most essential variables involved in like interactive learning studies.

**Objectives**

1. To study the growth rate in science achievement using a talkative book strategy in Science and Technology class.
2. To assess the effectiveness of teaching through Talkative-books on achievement of learner's in Science and Technology Subject in context of their educational achievement.

Variables of the Study

**1. Independent Variable**

1.1. Method of Teaching:

- Talkative Book Method (Experimental Group)
- Conventional Method. (Controlled Group)

2. Moderate Variable:

2.1. Educational Achievement: (i) High Educational Achievement (ii) Low Educational Achievement

**3. Dependent Variable:** Scores obtained in the Post test of Science Subject

**Hypothesis**

$H_{01}$: There is no significant difference between the mean scores obtained by talkative teaching and traditional teaching on learners' science and technology subject achievement.

$H_{02}$: There is no significant difference between the mean scores obtained in the post test by the talkative teaching and traditional teaching having learners' high Achievement in Science and Technology subject.

Sample selection

This study consists of standard VIII students of the Gujarati medium schools enrolled in year 21-22 in Ahmedabad city as the population. The school for the experiment was selected on the basis of feasibility, Infrastructure and willingness to cooperate on part of the school authorities. Researcher has contacted authorities of National High School, school has shown desire to co-operation for this experiment. Thus, convenient sampling was used for selecting the school while students were selected as a cluster/class group.

**Explanations of the Terms**

1. ***Talkative teaching Strategy:*** Talkative teaching-learning technique includes Interactive teaching-learning. For example, computer assisted book, computer aided audio book chapters, etc. of interactions in real classroom for development of knowledge.
2. ***Achievement***: The mean scores obtained by the learners of standard VIII in the Post-test after implementation of a teaching-learning program based on the selected units from the text book of Science and Technology is called achievement.
3. ***Effectiveness***: Students academic achievement in post-test scores are different by learning through talkative teaching and traditional teaching for teaching the units of Science and Technology is called effectiveness of talkative-book.

Tools for collecting data

***Achievement test:*** A teacher-made test was used for achievement of learners to collect data regarding scores of students. Test paper consisted 22 items for total 30 marks. Achievement test was sent to subject experts for content validity and face validity and test paper administered for items analysis and find out DV/DP of each items of achievement test.

Research Methodology

The researcher has reading different research designs and finalized quasi-experimental: two group posttest research design (Best and Kahn, 2010). In the current study two groups, only posttest design was used. Experimental group and controlled group were conveniently decided.

**E X O 1**
**C X O 1**

Where, E = Experimental group, C= Controlled group, O1 Post-test.

**Administration of talkative book strategy**

The researcher took previous semester science subject marks of all students and then administered talkative book strategy to 150 standard VIII learners. Experimental group was taught pre-decided units of Science & Technology Subject through talkative book and the same chapters were taught to controlled group in conventional Chalk and talk method. Both the groups were given Post Test and effectiveness was determined statistically to compare mean scores obtained by students of both the groups.

Data Collection and Analysis

The effectiveness of talkative-book strategy on the achievement of the students in Science and technology subject was determined. Collected data was categorized according to independent variables. To test each hypothesis using discriptive statistics like using Mean, Standard Deviation (SD), Standard Error of Deviation (SED), and student t-test were calculated. The details of the calculations and interpretations are as under.

**Table no.1: Analysis of data using mean, SD, SED and t-value of students' scores performed in achievement test**

| Groups | N | Mean Score | SD | SED | t-value | Significant level |
|---|---|---|---|---|---|---|
| Control Group | 50 | 19.96 | 7.85 | 0.89 | 3.25 | 0.01 |
| Experimental Group | 50 | 22.85 | 7.52 | | | |

Table no. 1, presents a calculated - t value is more than tabulated value of t at 0.01 level for $H_{01}$. It shows a significant difference between means score of the experimental group and the control group. It's in favor of the experiential group. It's found that there is no significant improvement over experimental group i.e. talkative book is more effective over conventional method of teaching.

**Table no.2: Analysis of data using mean, SD, SED and t-value of higher achiever students' scores**

| Groups | N | Mean Score | SD | SED | t-value | Significant level |
|---|---|---|---|---|---|---|
| Control Group high Achievement | 21 | 23.89 | 7.82 | 1.32 | 1.96 | 0.05 |
| ExperimentalGroup high Achievement | 21 | 26.80 | 7.87 | | | |

Table no. 2, presents calculated - t value is less than tabulated - t value at 0.05 level for $H_{02}$. It shows that there is no a significant difference between the means scores of the experimental group and the control group. It's found that there was no significant improvement over experimental group i.e. talkative book is qual effective over conventional method of teaching.

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**Table no.3: Analysis of data using mean, SD, SED and t-value of Lower achiever students' scores**

| Groups | N | Mean Score | SD | SED | t-value | Significant level |
|---|---|---|---|---|---|---|
| Control Group Low Achievement | 29 | 16.63 | 7.28 | 0.86 | 3.32 | 0.01 |
| ExperimentalGroup Low Achievement | 29 | 19.29 | 6.75 | | | |

Table no. 3, presents calculated - t Value is more than tabulated - t value at 0.01 level for $H_{03}$. It shows a significant difference between the means scores of the experimental group and the control group. It's in favor of the experiential group. It's found that there is significant improvement over experimental group i.e. talkative book is more effective over conventional method of teaching.

Findings

- Teaching by talkative book was effective over traditional method of teaching on the whole students group.
- The effect of teaching through talkative book found equal traditional method of teaching on the students having higher achievement among the experimental group.
- The effect of teaching through talkative book found better than traditional method of teaching on the students having lower achievement among the experimental group

**Discussion and Conclusion**

Statistical analysis of data shows result on based of t-values are significantly greater than the tabulated t –values in terms of experimental groups and controlled groups, two null hypotheses are rejected and one is accepted. The talkative book was effective in acquiring better achievement in Science and Technology subject in terms of students achievements. Here, one major difference shows that higher score achiever learners gained equal scores, not much difference between experimental group and controlled group, but lower achiever learners shows large difference in scores and experimental group learners gained higher scores compare to controlled group learners. The obtained result indicated that comparisons of lower achiever students gain more significant achievement through talketive book by experiment group and also compared higher achiever student not showed any significant difference in achivement in science and technology subject. It implies that performance of learners of Experimental Group showed notable difference in achievement. It means that teaching with talkative book strategy has profound influence in the achievement of the science and technology subject.

Educational Implications

Talkative books are more enjoyable, improve understanding and increase learning confidence hence it should be introduced widely in primary schools.

Teachers of primary Schools should be encouraged and trained to use this technology effectively.

Government authorities should allocate sufficient fund to create more talkative books and to established proper and suitable infrastructure in each school.

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