

Inductive Thinking Model: A Strategy for Teaching Accountancy

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ABSTRACT

The present study is undertaken with the objective of testing the effectiveness of Inductive Thinking Model over the Conventional Activity Oriented Method in teaching Accountancy at Higher Secondary level. The pretest- posttest non equivalent group design is used for the experimentation. The dependent variables used in the study are Achievement in Accountancy. The study was conducted on a final sample of 80 students of standard XII of two divisions at S.N.D.P Higher Secondary School, Pallisseri, Trissur District in Kerala. One division was considered as experimental group and the other as control group. The experimental group was taught with the lesson transcripts prepared based on Inductive Thinking Model and the control group through Conventional Activity Oriented Method. The period of experimentation was about 15 days. Pre-test and post test scores were obtained from the experimental and control groups by the administration of an achievement test. The pretest and posttest scores of the experimental groups and control groups were first compared using the critical ratio test and then using the more precise technique of Analysis of Covariance. The major conclusion derived from the study was that the instruction given using Inductive Thinking Models is superior to the instruction given using Conventional Activity Oriented Method with respect to Achievement in Accountancy of students at Higher Secondary Level. It was also found that the instructions using Inductive Thinking Models is superior with respect to the category-wise objectives of achievement in Accountancy like Knowledge, Understanding, Application and Skill.

1. Introduction

One of the most promising characteristics of Indian Education is the deep relationship between pupil and the teacher. There is no country in the world except only in India, where the responsibilities and opportunities of the teacher are really greater. Effective teaching requires critical thinking, understanding of situations, clearly identifying problems and exploring possible optional solutions. During the last three decades, many new methods of teaching and training have been developed, tested, modified and adapted to different kinds of learning situations. A whole range of innovative processes of developing and devising effective and interesting methods of teaching and training of human resource development has been set in and Models of Teaching are discernible as an approach. There is a need to direct efforts towards transformation of teaching methods right up to the development of science and technology, curricular and material research along with teacher orientation to receive attention. In order to meet the continuing need of updating methods with technological development, obsolete methods need replacement with introduction of Modern Instructional Strategies. The world of tomorrow, which will usher in an information rich and technology intensive society calls for "Models of Teaching" as an approach to teaching. The objectives of teaching Accountancy at Higher Secondary Stage is to enable students to apply the principles and functions of management to specific aspects of business and to generate and promote awareness of students in modern techniques of maintaining accounting records with the help of computers. A review of the research studies on the methodology of teaching and teacher preparation reveals the need for concerted efforts to try out Models of Teaching at all level of school. A teacher of

Accountancy has always felt the need for adopting a new instructional strategy, which may cater to the individual need of the learner that will suit to each of the diverse content area to be taught. Further readings in Models of Teaching directed the investigator to examine the effect of Inductive Thinking Model in the teaching of Accountancy.

2. Inductive Thinking Model

Inductive Thinking Model is based on the work of Hilda Taba (1966), who developed a series of teaching strategies designed to help students in organizing information and exploring the relationships among sets of data, ie, inductive mental processes. The main focus of this model is on developing mental abilities and emphasizing concept formation involving cognitive tasks. Taba's Inductive Thinking Model requires the student to predict consequences, explain unfamiliar data or hypotheses and then, attempts to create Inductive Thinking in them. This requires them to explain predictions or hypotheses verify or identify conditions that would verify predictions. However, carefully squeezed content and suggested learning experiences form the basis of information to precede inductively. According to Hilda Taba, Inductive Thinking is an organizational skill. First, students make observations or gather facts. Then, they group the facts according to their similarities, and finally, they name label the groupings. Rather than having to, memorize a sea of disordered facts, students can remember the key ideas and principles formulated from those facts. This is a less is more approach. More information can be learned, using less memorization. If the students are regularly engaged in inductive activity, they will learn to examine

data from many sides and to scrutinize all aspects of objects and events (Joyce & Weil, 1997)

Hilda Taba built her approach around three assumptions:

- Thinking can be taught.
- Thinking is an active transaction between the individual and data
- Process of thought evolve by a sequence that is "Lawful"

3. Description of Inductive Thinking Model

The Inductive Thinking Model is designed to be implemented in phases that are sequenced in a specific manner. Each phase is initiated by questions from the teacher that direct students to a certain aspect of the data and process it in a particular way. The processing is by means of specific mental operations leading to performing of activities by the learners in each phase. The sequence of phases forms the syntax of the model

1. **Syntax of Inductive thinking Model:** In Inductive Thinking Model the three teaching strategies strongly resemble each other. Each is built around a mental operation: concept formation, interpretation of data and application of principles of ideas. The Inductive Thinking Model can be divided into three broad phases. Each phase has a number of sub-phases, characterized by specific mental operations and activities.

Phase I:The first phase of Inductive Thinking Model which involves listing, grouping, and labelling of items which are either recalled from earlier experiences or where the learners are exposed to some kind of sensory experiences, such as actual specimens, showing of films etc. This phase serves as a diagnostic phase for the teacher when, through the active student response, the teacher becomes aware of the entry level behavior of the learners in terms of their experiential background, cognitive level etc. This in turn would help the teacher in moulding the further phases of the model and the degrees of structuring the flexibility in the lesson.

Phase II: In this phase, the students should be able to develop skills in assessing the validity of their generalization by means of explanations and comparisons.

Phase III:The final phase in Inductive Thinking Model where students extrapolate earlier drawn inferences, then formulate and support predictive inferences helps them to develop the ability to think critically, to assert on the basis of data available, logical reasoning and to link data with generalizations under specifically identified conditions that is to indemnify the conditions in which a particular generalization is true.

2. **Social System of the Model:** In all three strategies, the atmosphere of the classroom is cooperative with a good deal of public activity. The learning environment is structured from a moderate to a high degree, depending upon the teacher's contribution in the categorization of data

and its interpretation. The teacher plans the various activities regarding the organization of activities in the various sub-phases. Therefore, teacher is here the indicator and director of the activities. The various sub-phase of Inductive Thinking Model require active responsiveness by the students, they also get the opportunities to share their knowledge during the categorization and labelling sub phases. Thus, there is cooperative environment, which provides positive and encouraging situations for the students to participate activity. The student's involvement may further increase if the lesson requires the students to go and collect data from various sources.

3. **Principle of Reaction:**Taba provides the teacher with rather clear guidelines for reacting and responding within each phase. When using cognitive tasks within each strategy, the teacher must be sure that the cognitive tasks occur in optimum order, and also at the right time. The teacher's primary mental task in the course of the strategies is to monitor how students are processing information and then use appropriate eliciting questions. The important task for the teacher is to sense the student's readiness for new experience and new cognitive activity with which to assimilate and use those experiences.
4. **Support System:**Inductive Thinking Model can be used in any discipline and at any level. If one has to interact with raw data which needs to process in a meaningful manner. The data could either be presented by showing some charts or other audio visual aids or activities like field trips. etc. if the students have sufficient experiential background, they can be asked to recall observations. The students can also be asked to go for data collection.
5. **Instructional and Nuturant Effects:** The main goal of the model is to teach for concept formation. It nurtures logical reasoning, comprehension, and awareness to the environment and classification of concepts.

4. Objectives of the study

The major objectives of the study are:-

1. To determine the effectiveness of Inductive Thinking Model of teaching on achievement in Accountancy of Higher Secondary Students
2. To determine the effectiveness of Conventional Activity Oriented Method of Teaching on achievement in Accountancy of Higher Secondary Student
3. To compare the effectiveness of Inductive Thinking Model on achievement in Accountancy of Higher Secondary Students with that of Conventional Activity Oriented Method of Teaching
4. To compare the effectiveness of Inductive Thinking Model on achievement in Accountancy of Higher Secondary Students with that of Conventional Activity Oriented Method of Teaching with respect to the instructional objectives namely; Knowledge, Understanding , Application and Skill.

5. Hypotheses of the study

The hypotheses formulated in the study were: -

1. There is significant difference on achievement in Accountancy among Higher Secondary Students taught through Inductive Thinking Model of Teaching and Conventional Activity Oriented Method of Teaching.
2. There is significant difference on Achievement in Accountancy of Students at Higher Secondary Level taught through Inductive Thinking Model of Teaching and Conventional Activity Oriented Method of Teaching with respect to the instructional objectives namely; Knowledge, Understanding, Application and Skill.

6. Methodology Adopted

Experimental Method was used to conduct the present study. The design selected was pre-test-post test parallel group design (Best, 1995).

Variables of the Study

Independent Variable: In the present study the independent variables are the two methods of teaching i.e. The Inductive Thinking Model of Teaching and Conventional Activity Oriented Method of Teaching.

Dependent Variable: In this study the achievement of students in Accountancy is selected as the dependent variable.

Tools Used in the Study

The tools used for collecting data were:-

1. Lesson Transcripts based on Inductive Thinking Model (On the topic Bank reconciliation statement)
2. Lesson Transcripts based on Conventional Activity Oriented Method, and
3. An Achievement Test in Accountancy

Procedure Adopted

The study was conducted on a final sample of 80 students of standard XII of two divisions at S.N.D.P Higher Secondary School, Pallissery, Trissur District. One division was considered as experimental group and the other as control group. The experimental group was taught with the lesson transcripts prepared based on Inductive Thinking Model and the control group through Conventional Lecture Method. The period of experimentation was about 15 days. Pre-test and post test scores were obtained from the experimental and control groups by the administration of an achievement test.

Statistical Methods Adopted

The scores of experimental and control groups were consolidated for statistical analysis. The technique of Analysis of co-variance was applied for analyzing the data.

7. Major findings of the study

Finding I-Inductive Thinking Model is more effective than Conventional Activity Oriented Method for teaching

Accountancy at Higher Secondary level. This conclusion is supported by the following findings.

- i. The comparisons of the means of Post-test scores of students in the experimental Group and Control Group showed that there is significant difference in the performance of two groups after experiment. (Mean scores of Experimental Group is 17.85 and Mean scores of Control Group is 11.83 CR = 10.55; $P < 0.01$)
- ii. The analysis of co-variance in pre-test scores and post-test scores of the students in the experimental and control group showed significant difference in the two groups statistically (F_{yx} for df 1/77 =155.48, $p < 0.01$)
- iii. The adjusted means of post-test scores were tested for significance. For df 1/77 the t value obtained was significant at .01 level ($t = 12.48$ $p < 0.01$). The significant t value confirms that the two means differ considerably. The results revealed that experimental group was found to be superior than the control group in statistically ($M_{1yx} = 17.78$ $M_{2yx} = 11.90$)

Finding II-Inductive Thinking Model is more effective than Conventional Activity Oriented Method on the achievement in Accountancy of students under the categories of objectives Viz, Knowledge, understanding, application and skill. This is substantiated by the following findings of the study.

- i. When the variance of the pre-test and post-test scores of pupils in the experimental and control groups under categories of objectives knowledge, understanding, application and skill were compared, it was found that there is significant difference between the post test scores of two groups at 0.01 level. (Knowledge - $F_y = 24.61$, Understanding $F_y = 17.20$, Application - $F_y = 83.47$ at $P < 0.01$, Skill - $F_y = 12.08$ at $P < 0.01$).
- ii. The analysis of co-variance of pre-test and post-test scores of the pupils in the experimental and control groups under the objectives knowledge, understanding and application showed that the difference between the means of the post-test scores of the two groups is statistically significant. (Knowledge - $F_{yx} = 26.67$, Understanding - $F_{yx} = 17.83$ and Application - $F_{yx} = 101.65$; $P < 0.01$, Skill - $F_{yx} = 15.55$; $P < 0.01$)
- iii. When the adjusted means of the post-test scores of pupils in the experimental and control groups under the objectives knowledge, understanding and application were compared, the difference between them is found to be statistically significant at 0.01 levels. (The adjusted mean of the post test scores of the experimental group for Knowledge level is $M_{1yx} = 1.81$ and $M_{2yx} = 1.36$, for Understanding level is $M_{1yx} = 4.64$ and $M_{2yx} = 3.39$, for Application level is $M_{1yx} = 10.6$ and $M_{2yx} = 6.57$ and for Skill level is $M_{1yx} = 0.78$ and $M_{2yx} = 0.57$)

8. Conclusion

In this paper, the investigator makes an attempt to analyse the effectiveness of Inductive Thinking Model of teaching over the Conventional Activity Oriented Method of Teaching. From

the findings of the study, it is clear that the experimental group taught Inductive Thinking Model has achieved more than the control group taught through the Conventional Activity Oriented

Method. Thus the hypothesis formulated in the study is substantiated.

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