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OUTCOME AND DISCUSSION OF RESEARCH STUDIES ON COGNITIVE APPRENTICESHIP MODEL

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The educational institutions, teachers and students all are impacted by globalisation of education which created a challenge to stake holders. So it is become necessary for everyone to bring innovations and continuity in teaching learning process. Hence, it is now essential to use innovative teaching learning process that can fulfil educational objectives and offer opportunities to students for development of their skills. The educational field has to accept student centred teaching learning process and refuse old and traditional teacher centred methods of teaching. There are many researches conducted abroad to find out whether cognitive apprenticeship model has positive impact on achievement of the students including the researchers like Brown, Collin (1989), Wilson, Coal (1993) etc. But in India, such kind of research activity to find out of the effects of cognitive apprenticeship model on reading comprehension of primary students has not been carried out on a large scale.

The research was conducted by the Researcher to understand the impact of Cognitive Apprenticeship Model for reading comprehension on 7^{th} students in Municipal Schools recently. Over all 237 students participated in this research in Mumbai.

Cognitive apprenticeship

Cognitive apprenticeship can be defined as a theory of the process where a master of a skill teaches that skill to an apprentice. It includes following six steps: Modelling, Coaching, Scaffolding, Articulation, Reflection and Exploration

Reading Comprehension

Reading comprehension is an important literacy competency developed in the early years of schooling. From a self-regulated learning perspective, reading comprehension involves the interaction of cognitive, metacognitive, and motivational variables (e.g., Dignath & Buttner, 2008).

Reading comprehension refers to making meaning at the word, sentence and text level. It involves the dynamic interplay of a range of knowledge, processes and strategies (Oakhill, Cain, & Bryant, 2003).

Intervention

At the beginning of the school year, all pupils were given reading comprehension test and metacognition questionnaire. After this pre-test, the pupils in the experimental group received the experimental treatments.

One group of teachers was trained to use the cognitive apprenticeship model while teaching. the trained teachers (Experimental Group) implemented their models for specific text in classroom as guided whereas teachers from Control Group used regular methodology for instruction in classroom.

No training was provided to the Control Group for regular lessons. At the end of the semester, the post test was conducted. The Researcher observed the lessons by the teachers and tested the effectiveness of these models with skillfully structured achievement test.

Finding and discussion:

The students who learnt the contents through Cognitive Apprenticeship Model performed better than the students who learnt the contents through traditional teaching method. The reasons could be that, the better understanding of contents by students with cognitive apprentice model may have contributed to their higher performance.

This could be due to the following reasons:

- Cognitive Apprenticeship Model has various steps such as modelling, coaching, scaffolding, articulation, reflection and exploration for learning which could have sustained interest and may have developed curiosity among the students.
- The first, modelling method where the teacher carried out a teaching task, the students observed him / her and build a conceptual model of the processes that are required to learn the contents. They observed the teacher and tried to understand the contents.
- The second step of model is the coaching where the teacher observed the students while they carried out a task and offered them hints, scaffolding, feedback, modelling, reminders and new tasks aimed at bringing their performance closer to expert performance. The students were coached related to specific contents or problems that aroused as the students attempted to carry out a target task of their own.

- While using the third teaching method, scaffolding and fading, the teacher supported the students to carry out a task in the form of suggestions or physical supports, like clue cards. Then the teacher gradually faded the task until students learnt on their own.
- In the fourth teaching method, articulation, the teacher attempted to articulate their knowledge, reasoning or learning processes in a domain. The method of questioning (inquiry teaching) was used by teacher to lead the students to articulate and refine contents. Teacher also encouraged students to articulate their thoughts as they carried out a task.
- The fifth teaching method i.e. reflection enabled the students to compare their own problem-solving processes with those of an expert, another student and ultimately, an internal cognitive model of expertise.

  These two (articulation and reflection) methods may have helped the students to focus their observations on expert problem solving and gain conscious access to (and control of) their own problem solving strategies.
- While using the final teaching step, exploration, the teacher involved students into a mode of problem solving on their own. He / she compelled them to do exploration and to learn how to frame questions or problems that are interesting and that they can solve. This method is aimed at encouraging learner autonomy, not only in carrying out expert problem solving processes, but also defining or formulating the problems to be solved. The teachers followed all these steps of model while teaching the contents that may have impacted positively.
- In addition, student's social intelligence, IQ, study habits, interest in learning were some of the factors beyond the researcher's control. These factors could have impacted that the students of cognitive apprenticeship model experimental group1 performed better than control group as the students from control group were taught by traditional method of teaching where the outcome was totally depended on the teaching skills of the teacher. The teachers teaching the contents to control group were not trained to use particular methodology or teaching model. They were free to adopt their own teaching styles (traditional methodology) to teach the same contents taught by Cognitive Apprentice Model to the students in experimental group.

This suggested that cognitive apprenticeship model is more suitable for the development in reading comprehension skills. While following the steps in Cognitive Apprentice Model, the teacher

stimulated the pupils to use their prior knowledge, to solve reading problems and to discuss the reading process with their fellow pupils. The students may have found it interesting which helped to sustain their interest. The teachers in this group were trained to help pupils to get insight in the reading comprehension process as a part of steps in Cognitive Apprenticeship Model. Maybe, the extent to which teachers understand this comprehension process themselves resulted in complementary effect on higher achievement of students as compared to the students in Control Group where teacher used traditional method of teaching.

Hence, the students who learnt the contents through Cognitive Apprenticeship Model performed better than the students who learnt the contents through traditional teaching method.

The Cognitive Apprenticeship Model proved very helpful to learn the contents more effectively as compared to Direct Instruction Model due to its following characteristics.

- Cognitive Apprenticeship Model is capable of providing remedial coaching when learners particularly do not have the clarity of basic concepts. It included teacher's support wherever needed for guidance and motivation.

  Whereas while learning with Direct Instruction Model, the students were depended on self retrospect and guided practice.

  Similarly, the group which learnt the content by traditional way were totally depended on the teacher's teaching style. The teaching learning process might have become teacher oriented.
- The student from Cognitive Apprenticeship Group learnt the contents by reading the text material, thinking and self learning. Wherever they were stuck or confused, the teacher supported them and guided them. By observing the teacher and comparing their learning performance with fellow learners they proceeded further to learn the contents of their own. The students may have found it very interesting.

  Whereas learning with direct instruction model, the students were offered guided practice. The contents were taught in smaller parts to the students. So the students may have faced difficulties in learning the contents who could not adjust their learning pace with the teacher.

  Since the teachers from control group were not trained with any of the model, they adopted their own teaching style as per their interest and capacity. The teacher may not have considered effective methodology while teaching.

- In Cognitive Apprenticeship Model, the learner was able to revise the contents till he / she understood it well. Feedback on response was provided by the teacher immediately. When the learners gave incorrect response to the question asked by the teacher, the learning contents were revised by the teacher immediately. The students have greater autonomy to learn and revise the concept during Cognitive Apprenticeship Model as compared to Direct Instruction Model.

  The continuous teacher support and evaluation is not involved in the direct instruction model and the model offers feedback at the end of the session which may have resulted in loss of interest among the students.

  Whereas in control group, support of the teacher was depended on teacher's willingness. The teacher's pace of teaching may not have suited to the students pace of learning
- After the evaluation process for particular content is over, the learner could compare his / her achievement with the fellow students while learning with Cognitive Apprenticeship Model. Such opportunity is not involved in direct instruction model.
- The steps followed by teacher in Cognitive Apprenticeship Model could have helped the learners for self-pace and self-control learning of the subject. It provided teacher-students interaction in teaching learning process through reading, writing, listening, and speaking skills. It involved continuous interaction between teacher and students which could have made learning process interesting.

Since there is no bound methodology of teaching to be followed by the teachers of control group, they were not able to interact with students effectively while teaching the contents. Their methodology of teaching may have become teacher oriented. It may have resulted in poor performance by students in control group.

Hence, it is concluded that the Cognitive Apprenticeship Model is more suitable to learn the contents more effectively as compared to any other method of teaching.

This study provided evidence that cognitive apprenticeship is the most effective model for stimulating both reading comprehension skills and metacognition. This indicates that teachers who want to change their instructional behaviour within lessons in reading comprehension should implement cognitive apprenticeship model which focussed on comprehension skills and metacognitive skills.

It proved that if the appropriate learning model is provided to the students, they are higher capable to compete at all levels with others.

The other reasons could be social policies in India which encourage and motivate these municipal school students through marginal concessions for education such as free provision of school uniform, school bag, books and note books in addition to healthy food and snacks given regularly. As these students are generally termed as low profile students, the teachers may tend to prove their abilities and try to ascertain that though these students are belonged to marginalized groups and they are termed as low profile students, they are capable to compete other students. Hence, it can be motivational factor for teachers and students. This in turn may have enabled them to have greater self-confidence which may lead to more efforts and thereby better performance. However, further research is required here to study the other factors responsible for better performance of students while learning with teaching models.

In addition, the school culture i.e. students centred teaching learning process for classroom teaching, expectations by teachers and parents, suitable and comfortable classroom climate and teacher related variables such as guidance, feedback, teacher's motivation, remedial coaching etc. could have contributed to the effectiveness of the teaching models.

Moreover, the review of related literature (Rensick 1999) showed that the variables such as students independent study habits and qualities, self-confidence, ambition to succeed, higher scoring competition among students are also some of the factors which could have contributed to such kind of effect. The teacher's motivation, praise has the positive impact on the student's progress may lead the students to more efforts and thereby better performance.

It is also a fact that the enrollment of the students in Municipal schools are decreasing day by day as the parents are more inclined to private schools offering better facilities of learning. The report published by the Municipal officials shows that the percentage of students admitted every year in BMC school are continuously decreasing 20% less than the previous consecutive years.

So it could be argued that the teachers teaching in Municipal schools are bound to perform better and give quality teaching performance to their students so that the enrolment of the students may increase for the next academic year that may benefit the survival of the teacher in the school protecting student-teacher ratio to avoid the surplus status for the teacher which can bring their job at

stake. Hence, in this research the opportunity was offered to the BMC school teachers to bring variety in their teaching by using the teaching models in the regular classroom teaching. This may have made them to work hard and perform their best while using teaching models in the teaching process.

Further, the research was limited to Municipal schools only where Municipal Corporation declares Best School and Best Teacher Award every year for those teachers who perform better. Hence every school and teacher tries to perform better to compete each other. The strong ambition of the teacher to perform better to get success itself arises and this may have an effect that the students of the teachers who are trained to use teaching models performed better than students of the untrained teachers who use traditional method of teaching in the classroom.

It is also essential to observe one of the uncontrolled variables of the study. The study could not estimate the effect of prior studies done by students. Some of the students included in the study might have studied the texts earlier and practiced before. Besides, the present research did not take into account the earlier coaching taken by the students individually.

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