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Implementing Innovative Teaching–learning Classroom Practices

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Abstract

Educational reforms are carried out from time-to-time to meet the needs of an ever evolving society. In the last two decades, particularly, societies across the globe have witnessed rapid changes. But education systems seem to lag behind in many parts of the world, including India. Here, many schools still stick to decades' old conventional teaching–learning practices like chalk and talk, and lecture method, which are not sufficient to meet the needs of today's generation of learners. However, the past two decades have witnessed many schools turning to innovative teaching–learning practices to ensure active student participation in classrooms. This is a major drift from the time when students were mere passive learners and classrooms were teacher-centered. Innovative teaching–learning practices based on constructivist approach like collaborative and cooperative learning need to be incorporated in the classrooms so that the students are shaped into active learners, reflective thinkers and skilful communicators. This paper discusses the various teaching–learning strategies based on constructivist approaches that are important for education in a 'knowledge society'.

Introduction

Education is considered to be an important tool that prepares children for the future. The progress of a nation depends on the quality of education being imparted to its students. Therefore, teachers must see to it that their teaching is geared towards achieving the all-round development of the students. The *National Curriculum Framework* (NCF)–2005 quotes Mahatma Gandhi as saying, "True education is that which draws out and stimulates the spiritual, intellectual and physical facilities of the children." The objective of teaching, therefore,

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is not merely providing information to the students but imparting useful knowledge related to their day-to-day life. Further, the teaching of a subject must be such that can stimulate the students to think critically, solve problems and make decisions.

But most teachers still use conventional methods of teaching. Classes are driven by teacher's talk and are dependent heavily on textbooks, where a teacher merely imparts bookish knowledge to the students, who receive it passively. Teachers encourage rote learning of answers more than exploration of questions, which reflects memorisation at the expense of critical thinking. Moreover, they do not encourage the students to work together, share ideas and discuss a concept or topic with each other. All they focus on is maintaining the classroom 'discipline' and completing the syllabus on time, without ensuring if the students have understood the concepts covered therein.

This has led to an adverse impact on groups of students placed in a disadvantageous position. The disadvantaged group of students includes girls, children from rural and tribal areas, those coming from economically backward categories, and *divyang* (physically and mentally challenged children). Such children may come from homes that are not conducive to education. Besides, they often do not have the advantage of discussing the concepts learnt at school with their parents or older siblings (who may be unschooled). Further, their own experiences, such as traditional knowledge of medicinal herbs or looking after younger siblings, seem to have no linkage with the school curriculum. So, when discussion among peers is not encouraged, they perform poorly in academics, which may lead to absenteeism, and perhaps, dropout in the long run.

Therefore, the teacher must use innovative methods to make the teaching–learning process more interesting and effective. This may be facilitated by the use of approaches, such as constructivism, cooperative and collaborative learning, etc.

Constructivist Approach

The 'theory of constructivism' refers to the way learners construct their own knowledge from experience, which is unique to each individual. It suggests that learners construct knowledge on the basis of interactions with their surroundings rather than just passively absorbing information. These interactions provide the learners with evidences and opportunities for experimentation with the world, and thus, help 'construct' one's own knowledge rather than assimilate a body of 'dictated' information.

Many research studies suggest that constructivism has a positive role in the pedagogy of teaching, which can develop problem solving abilities, and critical and reflective thinking skills in students (Singh and Yaduvanshi, 2015).

A constructivist classroom provides opportunities (to students) to observe, work, explore, interact, raise questions and share their discoveries with all (Kumar and Gupta, 2009). Nayar and Senapaty (2011) observe that the constructivist approach is more effective than traditional instruction in promoting creativity, reflective skills and enhancing the interest of students in mathematics. Moreover, the teacher, too, continuously evaluates one's teaching practices and thinks of ways to improve the learning and understanding of the students.

Constructivist teaching models

There are several constructivist models that may be used for designing effective learning experiences for students.

Gagnon and Collay model

This model includes six steps, which are as follows.

- Develop a situation
- Grouping (of materials and students)
- Bridging (linking new knowledge with previous one)
- Asking questions
- Exhibiting (a record of their comprehension by sharing it with others)
- Reflection (on their learning)

Information Construction (ICON) model

This model, developed by McClintock and Black, contains seven stages, which are as follows.

- Observation
- Interpretation of construction
- Contextualisation
- Cognitive apprenticeship
- Collaboration
- Multiple interpretations
- Multiple manifestations

5Es model

This model, consisting of five phases, by Roger Bybee may be implemented in science classes. The five 'Es' are discussed as follows.

Engage

This phase draws a connection between previous and current learning experiences, focusing the students' attention more on current activities. The teacher's role is to present a situation before the students so that they may delve into the concept, process or skill to be learned.

Explore

The teacher designs some learning activities so that the students have common and concrete experiences upon which they continue building concepts, processes and skills. The aim of this phase is to establish experiences that the teachers and the students may later use for formal introduction and discussion.

Explain

This helps the students explain the concepts that they have already explored. The teacher focuses their attention on specific aspects of the engagement and exploration of

experiences. The key aim of this phase is to present concepts, processes or skills briefly, simply, clearly and directly to the learners, and move on to the next phase.

Elaborate

This phase extends the students' conceptual understanding and allows them to practise the acquired skills and behaviour.

Evaluate

This phase encourages the learners to assess their understanding and abilities, and allows the teachers to evaluate their understanding of key concepts and skills.

Collaborative and Cooperative Learning

These two pedagogical practices have emerged from social constructivist approaches. When it comes to students working together, the terms 'collaborative' and 'cooperative' learning are often used interchangeably. Both emphasise the social contexts of learning, and that knowledge is mutually built and co-constructed. While the goal of both is same, i.e., to provide the students with opportunities so that they may engage with each other in meaningful learning, it is important to understand the difference between the two.

'Collaboration' is a concept that shifts the paradigm of teaching–learning from teacher-centered settings to learner-centered, making it interactive and participatory, i.e., ensuring student–student and student–teacher interactions. Collaborative learning is a broad term for a variety of educational approaches, involving joint intellectual effort by learners, or learners and teachers together (Barkley, et al., 2014). It is the intentional grouping and pairing of learners to achieve a common learning goal. It is based on the idea that information that is discussed is etched in the memory. The concept of collaborative learning developed from Vygotsky's idea of the 'Zone of Proximal Development' (ZPD), which takes into account what a student can learn in collaboration with peers and adults. It, thus, implies that students can actively participate and also have individual attainments in this kind of an atmosphere. Learners engaged in enquiry based collaborative learning develop content knowledge and learn important twenty-first century skills, such as the ability to work in teams, solve complex problems and apply the knowledge gained through one lesson or task to other circumstances (Barron and Darling-Hammond, 2008).

'Cooperative learning' is a group learning activity, where the learner is responsible for one's own learning and is motivated to increase others' learning (Kagan and Kagan, 1994; Wendy, 2007; Barkley, et al., 2005). According to the Johnson and Johnson Model, cooperative learning is instruction that involves students, working in teams, to accomplish a common goal under a condition that includes the following elements.

Positive interdependence

Team members have to depend on each other. If a team member fails, it adversely affects everyone.

Individual accountability

All students in the group are held accountable for doing their share of work. However, they gain knowledge of the whole task in the process.

Face-to-face interaction

Although some of the group work may be done individually, some must be done only by interacting with the group members, providing necessary feedback, and teaching and encouraging each other.

Using collaborative skills

The group members are encouraged to develop and practise trust building, leadership, decision making, communication and conflict management skills.

Group processing

The team members set group goals, periodically assess themselves as a team and identify changes they require to make in order to function more efficiently and effectively.

Conclusion

Traditional pedagogical approaches, generally, followed in Indian classrooms encourage rote learning, memorisation and passive acceptance of knowledge by young learners. These practices may be replaced by incorporating constructivist approaches in the classroom, and also including collaborative and cooperative learning strategies to ensure better learning and active student participation. Implementing these innovative teaching–learning strategies may help develop necessary competencies and skills in the learners, enabling them to face the challenges of the twenty-first century.

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