

APPROACHES TO INTEGRATING ICT IN TEACHING LEARNING PROCESS

Cooperative learning (sahakari)

- Cooperative learning is an educational approach which aims to organize classroom activities into academic and social learning experiences.
- There is much more to cooperative learning than merely arranging students into groups, and it has been described as "structuring positive interdependence.
- Students must work in groups to complete tasks collectively toward academic goals.
- Unlike individual learning, which can be competitive in nature, students learning cooperatively can capitalize on one another's resources and skills (asking one another for information, evaluating one another's ideas, monitoring one another's work, etc.).

- The teacher's role changes from giving information to facilitating students' learning.
- Everyone succeeds when the group succeeds.
- Ross and Smyth (1995) describe successful cooperative learning tasks as intellectually demanding, creative, open-ended, and involve higher order thinking tasks.
- Cooperative learning has also been linked to increased levels of student satisfaction.

- Five essential elements are identified for the successful incorporation of cooperative learning in the classroom:
 - positive interdependence
 - individual and group accountability
 - promotive interaction (face to face)
 - teaching the students the required interpersonal and small group skills
 - group processing.

- According to Johnson and Johnson's meta-analysis, students in cooperative learning settings compared to those in individualistic or competitive learning settings, achieve more, reason better, gain higher self-esteem, like classmates and the learning tasks more and have more perceived social support.
- Types of formal cooperative learning strategies include:
 - The jigsaw technique (students dependent on each other to succeed to succeed in a activity.)
 - Assignments that involve group problem-solving and decision making
 - Laboratory or experiment assignments
 - Peer review work (e.g. editing writing assignments).

5 basic and essential elements to cooperative learning:

1. Positive interdependence

- Students must fully participate and put forth effort within their group
- Each group member has a task/role/responsibility therefore must believe that they are responsible for their learning and that of their group

2. Face-to-face promotive interaction

- Members promote each other's success
- Students explain to one another what they have or are learning and assist one another with understanding and completion of assignments

3. Individual and group accountability

- Each student must demonstrate mastery of the content being studied
- Each student is accountable for their learning and work, therefore eliminating "social loafing"

4. Social skills

- Social skills that must be taught in order for successful cooperative learning to occur
- Skills include effective communication, interpersonal and group skills
 - Leadership
 - Decision-making
 - Trust-building
 - Friendship- development
 - Communication
 - Conflict-management skills

5. Group processing

- Group processing occurs when group members (a) reflect on which member actions were helpful and (b) make decision about which actions to continue or change.
- The purpose of group processing is to clarify and improve the effectiveness with which members carry out the processes necessary to achieve the group's goals.

Limitations/ problems

- Group hate
- Loafing (students who don't take responsibility for their own role, even if it is the smallest role in the group.)
- Assessment of groups
- Group cohesion and conflict management

Collaborative learning (sahayoga kalike)

- Collaborative learning is a situation in which two or more people learn or attempt to learn something together.
- Unlike individual learning, people engaged in collaborative learning capitalize on one another's resources and skills (asking one another for information, evaluating one another's ideas, monitoring one another's work, etc.).
- collaborative learning is based on the model that knowledge can be created within a population where members actively interact by sharing experiences and take on asymmetric roles.

- collaborative learning refers to methodologies and environments in which learners engage in a common task where each individual depends on and is accountable to each other.
- These include both face-to-face conversations and computer discussions (online forums, chat rooms, etc.).
- Collaborative learning is commonly illustrated when groups of students work together to search for understanding, meaning, or solutions or to create an artifact or product of their learning.
- collaborative learning redefines the traditional student-teacher relationship in the classroom which results in controversy over whether this paradigm is more beneficial than harmful.
- Collaborative learning activities can include collaborative writing, group projects, joint problem solving, debates, study teams, and other activities.

- While both models use a division of labor, collaborative learning requires the mutual engagement of all participants and a coordinated effort to solve the problem whereas cooperative learning requires individuals to take responsibility for a specific section and then coordinate their respective parts together.
- cooperative learning is typically used for children because it is used to understand the foundations of knowledge while collaborative learning applies to college and university students because it is used to teach non-foundations of learning.
- Another believed difference is that cooperative learning is a philosophy of interaction where collaborative learning is a structure of interaction.

ICT and Constructivism (ರಚನಾತ್ಮಕತೆ): A Pedagogical Dimension

- Constructivism is a learning theory found in psychology which explains how people might acquire knowledge and learn.
- It therefore has direct application to education.
- The theory suggests that humans construct knowledge and meaning from their **experiences**.
- Views more focused on human development in the context of the social world include the sociocultural or socio-historical perspective.
- The concept of constructivism has influenced a number of disciplines, including psychology, sociology, education and the history of science.
- During its infancy, constructivism examined the interaction between human experiences and their reflexes or behavior-patterns.

Constructivist learning intervention

- The nature of the learner
 - The importance of the background and culture of the learner
 - Responsibility for learning
 - The Harkness discussion method
 - The motivation for learning
- The role of the instructor
 - Instructors as facilitators
 - Learning is an active process
 - Good relationship between instructor and learner
 - Collaboration among learners
 - The importance of context
- The selection, scope, and sequencing of the subject matter
 - Knowledge should be discovered as an integrated whole
 - Engaging and challenging the learner
 - The structuredness of the learning process
 - In adult learning

Project-based learning

- Project-based learning (PBL) is a student-centered pedagogy that involves a dynamic classroom approach in which it is believed that students acquire a deeper knowledge through active exploration of real-world challenges and problems.
- Students learn about a subject by working for an extended period of time to investigate and respond to a complex question, challenge, or problem.
- It is a style of active learning and inquiry-based learning.
- PBL relies on learning groups. Student groups determine their projects, in so doing, they engage student voice by encouraging students to take full responsibility for their learning. This is what makes PBL constructivist. Students work together to accomplish specific goals.

- PBL contrasts with paper-based, rote memorization, or teacher-led instruction that presents established facts or portrays a smooth path to knowledge by instead posing questions, problems or scenarios.
- Instructor role in Project Based Learning is that of a facilitator.
- They do not relinquish control of the classroom or student learning but rather develop an atmosphere of shared responsibility.
- When students use technology as a tool to communicate with others, they take on an active role vs. a passive role of transmitting the information by a teacher, a book, or broadcast.
- The student is constantly making choices on how to obtain, display, or manipulate information.
- Technology makes it possible for students to think actively about the choices they make and execute.
- Every student has the opportunity to get involved either individually or as a group.

- It is a type of instruction, where students work together to solve real-world problems in their schools and communities.
- Successful problem-solving often requires students to draw on lessons from several disciplines and apply them in a very practical way.
- The core idea of project-based learning is that real-world problems capture students' interest and provoke serious thinking as the students acquire and apply new knowledge in a problem-solving context.
- Project-based learning emphasizes learning activities that are long-term, interdisciplinary and student-centered.
- Unlike traditional, teacher-led classroom activities, students often must organize their own work and manage their own time in a project-based class.

- The basis of PBL lies in the authenticity or real-life application of the research.
- Students working as a team are given a "driving question" to respond to or answer, then directed to create an artifact (or artifacts) to present their gained knowledge.
- Artifacts may include a variety of media such as writings, art, drawings, three-dimensional representations, videos, photography, or technology-based presentations.
- Proponents of project-based learning cite numerous benefits to the implementation of its strategies in the classroom – including a greater depth of understanding of concepts, broader knowledge base, improved communication and interpersonal/social skills, enhanced leadership skills, increased creativity, and improved writing skills

- Project-based learning also gives students the opportunity to explore problems and challenges that have real-world applications, increasing the possibility of long-term retention of skills and concepts.
- Comprehensive project-based learning:
 - is organized around an open-ended driving question or challenge.
 - creates a need to know essential content and skills.
 - requires inquiry to learn and/or create something new.
 - requires critical thinking, problem solving, collaboration, and various forms of communication, often known as 21st century skills.
 - allows some degree of student voice and choice.
 - incorporates feedback and revision.
 - results in a publicly presented product or performance.

- "Social loafing" as a negative aspect of collaborative learning. Social loafing may include insufficient performances by some team members as well as a lowering of expected standards of performance by the group as a whole to maintain congeniality amongst members.