



“बेटी बचाओ, बेटी पढ़ाओ”

JAYOTI VIDYAPEETH WOMEN'S UNIVERSITY, JAIPUR

(Format for Preparing E Notes)

Faculty of FEM

Faculty Name- JV'n Dr. Priya Gothwal (Associate Professor)

Program- B.Sc. B.Ed-V sem / 2023-2024

Course Name - Pedagogy of Physical Science

Session No. & Name – 1.4/ Nature of Science (Unit-I)

Academic Day starts with –

- Greeting with saying ‘**Namaste**’ by joining Hands together following by 2-3 Minutes Happy session, Celebrating birthday of any student of respective class and **National Anthem**.

Lecture Starts with-

Review of previous Session-

- Topic to be discussed today- Today We will discuss about –

Approaches to concept learning and conceptual change model

- Lesson deliverance (ICT, Diagrams & Live Example)-
 - PPT (10 Slides)
 - Diagrams
- University Library Reference- Journal
 - Online Reference if Any

- Suggestions to secure good marks to answer in exam-
 - Explain answer with key point answers
- Questions to check understanding level of students-
- Small Discussion About Next Topic-
- Academic Day ends with-
National song' **Vande Mataram**'

Topic: Approaches to concept learning and conceptual change model:

- Approaches to concept learning typically involve various strategies such as explicit instruction, hands-on activities, inquiry-based learning, and problem-solving tasks.
- These methods aim to help learners grasp new concepts through different cognitive processes, building connections between prior knowledge and new information.
- Regarding conceptual change models, they focus on how individuals modify or restructure their existing understanding of a concept.
- Two prominent models are the theory-ladenness model, which emphasizes how existing knowledge influences the assimilation of new concepts, and the knowledge restructuring model, which highlights the active reconstruction of existing knowledge when encountering new information.
- Both models underscore the significance of cognitive processes in reshaping conceptual frameworks.
- Approaches to concept learning often integrate different instructional techniques.
- Explicit instruction involves clear and structured teaching, providing students with a direct understanding of the concept. Hands-on activities enable learners to explore concepts through practical experience, fostering a deeper understanding through direct engagement.
- Inquiry-based learning encourages students to pose questions and investigate concepts independently, promoting critical thinking and problem-solving skills.

- Problem-solving tasks require students to apply their knowledge to solve complex problems, fostering a deeper understanding of the underlying concepts.

Conceptual change model:

- Conceptual change models address how individuals revise their existing understanding.
- The theory-ladenness model suggests that learners interpret new information based on their existing knowledge and beliefs, leading to the assimilation or accommodation of concepts.
- The knowledge restructuring model emphasizes that learners actively reconstruct their existing knowledge structures to incorporate new information, often resulting in a shift in their understanding of the concept. Both models highlight the dynamic nature of learning, where prior knowledge interacts with new information to shape an individual's conceptual framework

Topic: Concept Learning Approaches.

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Reconstructing ideas about certain physical science concept:

- Reconstructing ideas about certain physical science concepts often involves facilitating a process where learners actively engage with the concepts, confront any misconceptions, and build a more accurate understanding.

- This process can be supported by incorporating various instructional strategies such as hands-on experiments, demonstrations, interactive simulations, and real-world examples.
- Encouraging discussions and providing opportunities for reflection can also help learners to identify any inconsistencies in their understanding and work towards developing a more comprehensive and accurate mental model of the physical science concepts about specific physical science concepts, it's crucial to address any misconceptions through targeted interventions.
- This can involve using analogies and models to illustrate abstract or complex phenomena, fostering a deeper understanding through visualization and concrete representations. Encouraging active participation in laboratory experiments, encouraging peer discussions, and providing opportunities for collaborative problem-solving can also aid in the reconstruction process.
- Additionally, integrating formative assessments and constructive feedback can guide learners in refining their understanding and applying their knowledge to real-world situations, thus promoting a more comprehensive grasp of the physical science concepts.
- The conceptual change model refers to a theoretical framework that elucidates how individuals modify, revise, or restructure their existing understanding of a concept.
- It recognizes that learning involves more than just the acquisition of new information; it encompasses the active and sometimes transformative process of reshaping one's cognitive framework.
- According to this model, learners' prior knowledge and beliefs significantly influence how they interpret and assimilate new information.

- The model emphasizes that when confronted with new knowledge, individuals might accommodate this information by adjusting their existing mental structures to incorporate the new ideas.
- Alternatively, they might even experience a more fundamental shift in understanding, leading to the complete restructuring of their conceptual frameworks.

Certainly, the conceptual change model is rooted in the idea that learning is not merely a passive accumulation of new information, but an active process of restructuring existing mental frameworks. This process can be complex and may involve several stages, including the recognition of discrepancies between new information and prior beliefs, the accommodation of new ideas into existing mental models, and the reorganization of these mental structures to create a more coherent and comprehensive.

In educational contexts, the conceptual change model has important implications. Educators can utilize strategies that promote cognitive conflict, encouraging students to critically evaluate their existing conceptions and reconcile any inconsistencies with newly acquired information. By addressing misconceptions and providing opportunities for active engagement and reflection, instructors can facilitate the process of conceptual change and support students in developing more accurate and sophisticated mental.