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CONSTRUCTIVISM AS A MULTIDISCIPLINARY APPROACH TO EDUCATION

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ABSTRACT:

Constructivism is a significant teaching-learning approach in contemporary education. In words of Driscoll, Knowledge is constructed by learners as they attempt to make sense of their experiences. This is the main base of constructivism. A multidisciplinary approach integrates knowledge and skills from different disciplines to address complex issues. This integration is done in order to try to comprehend the complex nature of the topic through the interconnections and overlapping and similarities among the involved disciplines. Constructivism itself can be considered as a multidisciplinary approach as it takes insights from psychology, philosophy, sociology, anthropology and education. The present research explores the various aspects of constructivism which make it a multidisciplinary approach for teaching-learning in education. The constructivist approach derives its roots from Cognitive psychology of Piaget; Social constructivism of Berger and Vygotsky; Philosophy of Dewey and from Educational Psychology of Bruner. The constructivist approach is a multidisciplinary approach that recognizes the complexity of learning and the importance of context, culture and social interactions. Insights from various disciplines are combined by the educators to develop comprehensive and innovative educational approaches that support learners' construction of knowledge. The various techniques of concept mapping, project-based learning, STEM education etc are implemented for effective constructivist multidisciplinary approach in education.

KEYWORDS:

CONSTRUCTIVISM, MULTIDISCIPLINARY APPROACH, CONCEPT MAPPING.

INTRODUCTION:

A multidisciplinary approach in education is a way of learning which gives a major focus on diverse perspectives and different disciplines of learning to illustrate a theme, concept, or any issue. It is the one in which the same concept is learned through multiple viewpoints of more than one discipline. It helps the students to gain perspectives and knowledge in different ways.

CONSTRUCTIVISM:

According to Linda-Darling Hammond, "Students comes to the classroom with prior understandings and experiences and to promote student learning, teacher must address and build upon this prior knowledge". Learning is an active process which results from self-constructed meanings. Students are provided relevant experiences from which they can construct meaningful meanings. Such type of experiences call for the need of multidisciplinary approach in the teaching-learning process. Various learning activities and events are included in the instructional materials. The constructivist approach is a multidisciplinary approach that can be used in different fields such as education and therapy.

MULTIDISCIPLINARY APPROACH:

Yash Pal Committee Report states the importance of multidisciplinary education. The report notes "there is a need to expose students, especially at the undergraduate level, to various disciplines" (Yash Pal, 2009, p. 21). National Education Policy 2020 is an important policy document that provides the vision of the government for modernizing education in India. Multidisciplinary education is of utmost priority in achieving modernization.

MULTIDISCIPLINARY EDUCATION:

It is an education which is the base of curriculum integration, mainly highlighting the diverse disciplines, providing various perspectives or viewpoints in order to define any topic. Such an education opens the door of the mind of student's through which they can see problem from multi-angles; they did not consider it before like this. It is the integration of various knowledge, domains, centralization of the problem, knowledge of concept and the context. In the multidisciplinary approach the topics are examined, the insights of various disciplines are taken, synthesis of their contribution for understanding is done and finally the integration of ideas in the framework of analysis is completed so as to decide the nature of this multi-facet education. The motto of this type of approach is to involve two is more scientific, artistic, academic, cultural and ethical disciplines just to result out the academic, skilled, scientific, ethical and social development of an individual.

OBJECTIVE OF THE STUDY:

To explore the various aspects of constructivism which make it a multidisciplinary approach for teaching-learning process in education.

METHODOLOGY:

The present research article follows an exploratory descriptive method. Various research studies, books, blogs and research articles are reviewed for it.

CONSTRUCTIVISM AS A MULTIDISCIPLINARY APPROACH:

Constructivism as a learning theory, simply speaking, is to make learning meaningful. The core constructivist perspectives are as follows: (a) learning is a self-directed process—knowledge is constructed rather than directly received; (b) instructor as facilitator; (c) learning as a socio-cultural process (Tobin and Tippins 1993). It has long been argued that a constructivist approach is essential for the development of skills and abilities. Constructivism is a multidisciplinary approach to teaching and it includes the insights from psychology, philosophy, sociology, anthropology and education.

1. Psychology: Constructivism takes roots from psychology in the form of cognitive psychology of Piaget. Jean Piaget was a swiss child psychologist and exponent of cognitivism .he proposed that learning is a dynamic process comprising successive stages of adaption to reality during which learners actively construct knowledge by creating and testing their own theories of the world. The basic principle underlying Piaget's theory is the principle of equilibration: all cognitive development (including both intellectual and affective development) progresses towards increasingly complex and stable levels of organization. Equilibration takes place through a process of adaption; that is, assimilation of new information to existing cognitive structures and the accommodation of that information through the formation of new cognitive structures.

2. Philosophy: The philosophical roots of constructivism are taken from the Kant's philosophy. the cognition process organises the subject's inner world, but it does not solve the problem of describing objective ontological reality. Kant's epistemological constructivism is a philosophical framework that says that the knowledge is constructed by the mind' rather than simply being a reflection of an objective reality. Kant indicated that certain knowledge claim can be both true by definition and true based on experience. Human mind plays an active role in organizing and structuring sensory data, rather than simply passively receiving it.

3. Sociology: The sociological roots of constructivism are in the form of social constructivism of Vygotsky, Berger and Luckmann. Vygotsky highlighted the significance of social interactions and one's culture in learning. At the centre of the Vygotsky's social constructivist theory is his well-known concept of the Zone of Proximal Development (ZPD), which he defined as *"the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance, or in collaboration with more capable peers".* Intellectual development is a socially-mediated process in which learners, especially children, acquire cultural beliefs, values, and problem-solving skills by having productive dialogues with people with more knowledge. As a result, Vygotsky deemed language the most important of all the socio-cultural tools that teachers can use to help their students learn.

4. Education: Educational constructivism is concerned with knowledge construction in teaching-learning situations including classrooms. Von Glaserfeld is the main proponent of Radical constructivism, which is a form of educational constructivism. Glaserfeld advocated that the sole purpose of knowledge acquisition is to comprehend and organize his/her experiential world. Thus, it has no need based correspondence with the existence or non-existence of any ontological reality. Radical constructivism is radical because it breaks with convention and develops a theory of knowledge in which knowledge does not reflect an 'objective' ontological reality, but exclusively an ordering and organization of a world constituted by our experience.

SOME CONSTRUCTIVIST MULTIDISCIPLINARY TECHNIQUES:

Different multidisciplinary techniques are gaining prominences which are constructivist in nature. These are the teaching and learning methods that combine multiple disciplines and subjects to promote deep learning, critical thinking and problem solving. These techniques are based on the constructivist learning theory, which posits that learners construct their own knowledge and understanding through active engagement with the learning environment. Some major constructivist multidisciplinary techniques are:

A. Project-based learning: It is a multidisciplinary technique that involves learners working on real-world projects that require the application of multiple subjects and disciplines. It involves students working in groups to solve a problem by presenting feasible solutions.

Project-based learning is a plausible approach that allows the children to collaborate and work together in teams and learn by doing. It has been seen that project-based learning improves the overall personality of the student like an increase in attendance, exam scores, and engagement in the class.

Project-based learning also helps in enhancing the relationship between the teachers and the students as they get to know each other on a more personal and individual level. The new education policy 2020 has also proposed to alter the school curriculum and aims to develop the skills necessary for students.

PROJECT BASED LEARNING HAS FOLLOWING CHARACTERISTICS:

- The question or challenge presented to the student is open-ended so that they can research and find a solution without any limitations.

- It is inquiry-based and stimulates the children to answer questions
- Helps to develop 21st-century skills in students
- Helps the students to identify their choices in the process
- Chances for feedback and revision are similar in the case of real life
- Improves their presentation skills as they are required to present their work in front of their peers and the instructors.

The use of project-based learning is increasing at a faster rate in educational institutions. Learning through projects has a variety of benefits and aims to develop the skills required for the future citizens.

B. STEM Education: STEM education is a multidisciplinary technique which integrates four disciplines: Science, Technology, Engineering and Mathematics. This technique aim to provide students a comprehensive understanding of these disciplines and how they intersect. It emphasizes on hands-on learning, problem solving, collaboration and real-world connections. Stem education prepares students for careers lie science and research, technology and computing, engineering and design, mathematics and data analysis and other interdisciplinary fields. STEM education helps in developing innovative solutions to real-world problems, addressing global challenges lie climate change, healthcare and sustainable development.

C. Blended Learning: blended learning is a teaching method that integrates online and in-person learning to create a more efficient learning experience. It is also called Hybrid learning, technology-mediated learning or mixed-mode learning. The covid pandemic times had increased its relevance. It can be seen as in of relic symbolic of the generation gap between the 'traditional education' and digital learning. It is a mix of old and new as much as it is a mix of physical and digital learning. As obvious, the constructivist strategies exploit technologies for the greatest impact on learning. A complementary relationship exists between the technology and constructivism- the implementation of each one benefitting the other. To understand the potential of blended learning in enhancing the teaching-learning process, attempts to integrate technology in the classroom need to be studied within the context of a constructivist framework.

D. Concept Mapping: concept means 'something conceived'. concept is termed as a perceived regularity in events, or objects, or records of events or objects, designated by a label. The basic underlying fact in the principle and application of the concept map is that every concept has a meaningful and usable existence only in association with other concepts with which it is connected through propositional relationships. A concept has very little effective existence in isolation. According to Novak, the key features of a concept map are:

1. Concepts usually enclosed in circles or boxes and arranged in a hierarchical order depending on the structure of the knowledge domain and the context. Relationships, between concepts indicated by a connecting line, linking two concepts.
2. A label, associated with each connecting line, the label being a word or a symbol.
3. A focus question, guiding the construction of the concept map.
4. Cross-links, indicating relationships between concepts belonging to different segments of the concept map.
5. Specific examples, clarifying the meaning of concepts.

Concept mapping has been proved to be a very effective tool for all stakeholders associated with the process of education across disciplines. Students, teachers, teacher educators, curriculum framers, and researchers have found concept mapping quite useful for their respective purposes. There is ample research evidence in support of the claim that concept maps are highly reliable knowledge representation tools.

CONCLUSION:

The multidisciplinary approach in the education is going to change the present scenario of our education systems. It would definitely shake the pros and cons of our education policy. The approach would give a positive difference in the learning strategy of students and teachers both. It is believed that when administration is agree to have change, teachers are willing to strengthen themselves by multidisciplinary development, teachers are ready to take students responsibility regarding development aspects and the students are motivated, then teaching and learning would definitely get effected. In this running time the role of teacher is changing and he or she is supposed to be a facilitator of all kind of knowledge at a common platform. Therefore, it is essential to adopt the interactive teaching and such an approach would make the teacher innovative, having problem solving capabilities, creative, skilled and iintelligent. The constructivism is not a new approach in education but is practiced from ancient times. Only its terminology and presentation is reformed today. The different constructivist techniques such as blended learning, project-based learning and concept mapping are the recent multidisciplinary approaches which can prove to be effective in the changing technological and fast world.

REFERENCES

1. Piaget, Jean (1968). *Six Psychological Studies*. Anita Tenzer (Trans.), New York: Vintage Books.

2. Nathani P. (2021). What is multidisciplinary approach in education. What are its advantages and disadvantages. Mastersoft. Accelerating Education Blog entry updated 13 july 2021.

3. https://www.iitms.co.in/blog/multi-disciplinary-education-advantages-and-disadvantages.html#:~:text=Multidisciplinary%20approach%20is%20a%20method,to%20study%20the%20same%20topic.

4. Mohapatra, J.K. et al. (2015). Constructivism: The New Paradigm. From theory to practice. Atlantic Publishers and distributors (P) LTD.

5. Kumar M. and Rani N. (2023). An overview on the need and importance of multidisciplinary development of teachers. *International Journal of Literacy and Education* , Vol. 3 , Issue 1, pp 76-79.

6. Alibagon, I.P. and Dilag C.D. (2019). Multidisciplinary approach and academic performance of grade 11 students. *International Journal of Interdisciplinary Research and Innovations.* Vol. 7, Issue 1, pp 183-208

7. Allen A.(2020). An introduction to Constructivism: Its Theoretical roots and Impact on contemporary education. *Journal of Learning Design and Leadership.* Vol. 1, issue 1, pp 1-12.