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CONSTRUCTIVISM AS A QUALITY INSTRUCTIONAL STRATEGY

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ABSTRACT—

Since a long time, we are facing the vibrant debates about the quality education and it remains very important issue at present. The effective teaching methodology and skills may be of crucial importance to improve quality in education because it is key to the pupils□ success reflecting the knowledge, values, skills and attitudes what the society excepts from them. Effective teaching is not simply a matter of following a set of rules or applying a particular technique. Each teaching situation is unique and can be thought of as a form of problem solving requiring teachers to make judgments about how to best engage their students in the process of learning. The focus of this paper is on constructivism highlighting its principles, its implications in teaching and learning process, background, significance differences from traditional approach and its benefit in present pedagogical practice which is the core of an educational program.

KEY WORDS: *Instruction, Constructivism, Quality Education.*

INTRODUCTION :

Today's the approach of pedagogy has been shifted from teacher-centred to learner- centred and this shifting may be due to the contribution of constructivism. The Constructivism represents one of the big ideas in pedagogical practice, it has great implication in the field of education as it better explains how people might acquire knowledge and learn. Constructivism is basically a theory which explains about how people can learn through observation and scientific study. Through experiencing things and reflecting on those experiences, people construct their own knowledge of the world. In our life situation, when we confront something new, we generally unify and reconcile it with our ideas and experience previously gathered, then we alter the new information what we believe or repudiate it as irrelevant. It is not wrong to say that, individual is the creator, innovator, composer, devisor, developer as well as originator of his own knowledge. Hence, individual has to think critically, explore, investigate, observe experiment, solve, question, discover, analyze and present as well as has to assess what he has learned in a variety of ways.

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Constructivism is fundamental to modern teaching techniques because it simply says that we learn by doing, reflecting, adapting, problem solving. In a constructivist classroom, the teacher is not a teacher; they are a guide, facilitator and mentor. The teacher cannot teach knowledge; students must acquire it for themselves.

ORIGIN AND CONCEPT OF CONSTRUCTIVISM:

The idea and roots of constructivism is not very new, it may be traced back to Socrates□s dialogue. Socrates asked his followers directed questions that led students to realize for themselves the weaknesses in their thinking. Socrates claimed that basic conditions for learning exist in the cognition of the individual (Kanuka & Anderson, 1998) Constructivism is a theory as well as an approach based on observation and scientific study that explains how people might acquire knowledge and learn. It also explains how people construct their own knowledge and understanding of the world through experiencing things. It is a view of learning based on the belief that Knowledge is not an object that can be poured into a learner's brain by the teacher. Learner actively builds his/her own knowledge from the surrounding environment through the process of experience, discovery, research and analysis as well as the mental process of development. A person is the builder and creator of his/her own knowledge. According to Mascolol & Fischer, (2005) "Constructivism is the philosophical and scientific position that knowledge arises through a process of active construction."

Twomey Fosnot (1989) defines constructivism by reference to four principles:
a) Learning, in an important way, depends on what we already know;
b) New ideas occur as we adapt and change our old ideas;
c) Learning involves inventing ideas rather than mechanically accumulating facts;
d) Meaningful learning occurs through rethinking old ideas and coming to new conclusions about new ideas which conflict with our old ideas.

According to Elliott and others "Constructivism is an approach to learning that holds that people actively construct or make their own knowledge and that reality is determined by the experiences of the learner". Constructivists suggests in personal construction of meaning by the learner through experience which is influenced by the interaction of prior knowledge and new events. Constructivist teachers encourage students to constantly assess how the activity is helping them to gain understanding. Students in constructivist classrooms become ideally "expert apprentices" by questioning them and their strategies. It gives them the tools to perpetuate their studies. Students can learn how to learn with a well-designed classroom environment. The constructivist is typically divided into three broad categories i.e. Cognitive Constructivism, Social Constructivism, and Radical Constructivism.

Cognitive Constructivism: Jean Piaget (1896–1980) is often classified as a father of Cognitive Constructivism. Jerome Bruner (1915–2016) is also considered as another theorists among the cognitive constructivists. It emphasizes the development of meaningful learning by focusing on the cognitive processes that take place within individuals .

Social Constructivism: Lev Vygotsky (1896–1934) is often considered to be the father of social constructivism as he stresses on the social and collaborative nature of learning. This type of constructivism emphasizes the development of meaningful learning by focusing on culture and social interactions.

Critical Constructivism: It emphasizes the effect of teachers□ assumptions about students from various racial, ethnic, and Socio-Economic backgrounds on students□ knowledge construction.

John Dewey (1859–1952) is often cited as the philosophical founder of constructivist approach. Except those the other personalities who influenced constructivism are Maria Montessori (1870–1952) Władysław Strzemiński (1893–1952) Heinz von Foerster (1911–2002) George Kelly (1905–1967) and others.

CONSTRUCTIVIST APPROACH TO INSTRUCTION:

According to Constructivism the knowledge is not a subject to fixed, immovable, inactive, latent, passive, rigid as well as static process. Knowledge is a dynamic, vibrant, constructive, ever-changing

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perspective of the world we live in, and the ability to successfully expand and explore it rather than an inanimate truth like memorizing it. It is a constructive approach to learning that generally encourages students to use proactive techniques such as experimentation, real-world problem solving, etc. to build more knowledge and then to reflect and talk about what they are doing and how their understanding is changing. The teacher makes sure that he understands the preconceived notions of the students and guides the activity to address them and then build them up. Constructivism classroom is also known as productive learner centred classroom where teacher provides students with experiences that allow them to hypothesize, predict, manipulate objects, pose questions, research, investigate, imagine and invent.

Constructivist teaching fosters critical thinking and creates active and motivated learners. According to Zemelman, Daniels, and Hyde (1993) learning in all subject areas involves inventing and constructing new ideas. According to them constructivist theory may be incorporated into the curriculum and teachers create environments in which children can construct their own understandings. Twomey Fosnot (1989) suggests that a constructivist approach might be used to create learners who are autonomous, inquisitive thinkers who question, investigate, and reason.

DIFFERENCES BETWEEN TRADITIONAL AND CONSTRUCTIVIST TEACHING:

Constructivist teaching poses a question to the students, who then work together in small groups to discover one or more solutions (Yager, 1991). Students play an active role in carrying out experiments and reaching their own conclusions. Teachers assist the students in developing new insights and connecting them with previous knowledge, but leave the discovery and discussion to the student groups (VAST, 1998). Students are able to develop their own understanding of the subject matter based on previous knowledge, and can correct any misconceptions they have. But, in the Traditional teaching method, classes are usually dominated by lecture or direct instruction. The idea is that there is a fixed body of knowledge that the student must come to know. Students are expected to blindly accept the information they are given without questioning the instructor (Stofflett, 1998). The teacher seeks to transfer thoughts and meanings to the passive student leaving little room for student-initiated questions, independent thought or interaction between students (VAST, 1998). This teacher- centered method of teaching also assumes that all students have the same level of background knowledge in the subject matter and are able to absorb the material at the same pace (Lord, 1999). Let us begin with a comparison between the traditional classroom and constructivist classroom:

Traditional Classroom	Constructivist Classroom
Aims of Education: To transmit to a next generation those skills, facts and standards of moral and social conduct that adults consider to be necessary for the next generations **Curriculum:** Curriculum begins with the parts of the whole. Emphasizes basic skills. **Materials used:** Materials are primarily text-books and workbooks. **Role of learner:** the learners are passive listeners. **Role of teacher:** Teacher works primarily alone. Teacher's role is directive, rooted in authority. **Nature of Learning:** Learning is based on repetition. **Learning Environment:** A traditional classroom is where a teacher moderates and regulates the flow of information and knowledge. Teacher dominated	**Aims of Education:** To focus on the learner in thinking about learning not on the subject or lesson to be taught. **Curriculum:** Curriculum emphasizes by concepts, beginning with the whole and expanding to include the parts. **Materials used:** Materials include primary source of material and manipulative materials. **Role of learner:** the learners are actively involved. **Role of teacher:** Students are encouraged to discover principles for themselves; however, teachers play a role, giving clues, structuring portions of an activity, or providing outlines. Teacher's role is interactive, rooted in negotiation. **Nature of Learning:** Learning is interactive, building on what the student already knows.

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environment.	Learning Environment: the environment is democratic. the activities are interactive and student-centered.
Assessment: Assessment is through testing, correct answers.	**Assessment:** Assessment includes student works, observations and points of view, as well as tests. Process is as important as product.
Idea about Knowledge: Knowledge is seen as inert. The knowledge is transmitted from generation to generation or from one person to another. It takes place through the process of transmission. Teachers disseminate information to students; students are recipients of knowledge.	**Idea about Knowledge:** Knowledge is seen as dynamic, ever changing with our experiences. All knowledge is constructed rather than perceived through senses. The knowledge is constructed by the individual learner. Teachers have a dialogue with students, helping students construct their own knowledge.

CHARACTERISTICS OF CONSTRUCTIVIST TEACHING:

One of the primary goals of using constructivist teaching is that students learn how to learn by giving them the training to take initiative for their own learning experiences. Constructivist Teaching is where:

- All learners are actively involved.
- Classroom environment is democratic.
- All activities are interactive and student-centered.
- Teacher facilitates a process of learning in which students are encouraged to be   responsible and autonomous.
- Focusing on knowledge construction, not reproduction
- Using authentic tasks to engage learners
- Providing for meaningful, problem-based thinking
- Students work in a groups through practical experiences.
- Instructional process is a shifting from teaching to learning
- Individualizes and contextualizes students' learning experiences
- Helping students develop processes, skills and attitudes
- Considering students' learning styles
- Requiring negotiation of meaning
- Requiring reflection of prior and new knowledge
- Extending students beyond content presented to them
- Teacher taught his students by giving many practical examples.
- Students can learn their subject matter individually through experiment

BENEFITS OF CONSTRUCTIVISM APPROACH TO LEARNING:

1. **Constructivist learning is enjoyable:** The students are actively or experientially involved in their learning thereby enjoy in the process of learning.
2. **Concentration of thinking and understanding is real Learning:** Education works best when it concentrates on thinking and understanding, rather than on rote memorization. Constructivism concentrates on learning how to think and understand.
3. **Transferable learning:** Constructivist learning is transferable. In constructivist classrooms, students create organizing principles that they can take with them to other learning settings.
4. **Learning is explorative and creative:** Learners are engaged in creative anf explorative works like personal engagement in academic activities, writing research reports and artistic representations.

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5. **Applying the natural curiosity to the World:** By grounding learning activities in an authentic, real-world context, constructivism stimulates and engages students. Students in constructivist classrooms learn to question things and to apply their natural curiosity to the world.

6. **Promotion of social and communication skills:** Students must learn how to articulate their ideas clearly as well as to collaborate on tasks effectively by sharing in group projects. They are given the opportunity to exchange ideas and "discuss" with others and evaluate their contributions in a socially acceptable way.

7. **Promotion of Divergent thinking:** Techniques of Brainstorming, Keeping a Journal, Free writing, Mind or Subject Mapping, and other useful strategies are followed to develop the divergent thinking in this approach.

8. **Promotion of Collaborative learning:** Constructivist approach promotes participation, collaboration and communication involving joint intellectual effort by students, or students and teachers together.

9. **Boost of Confidence of learners:** The constructivist teacher is more thoughtful, insightful, observant, caring, a flexible, questioning human being

10. **Engaging in creative instincts:** Develops students ability to express knowledge through a variety of ways through engaging them in creative instincts.

11. **Independent thinking is encouraged:** Students are encouraged to connect and summarize concepts by analyzing, predicting, justifying and defending their ideas. When allowed to make predictions, students often generate varying hypotheses about natural phenomena.

12. **Use raw data and primary sources by Students** : By getting the scope to use the raw data, primary sources, manipulations, physical and interactive materials or involving in real-world situations, learners can generate abstract concepts. Constructivist method engages students with real-world possibilities and then helps them create abstractions that bind events together.

13. **Higher level thinking is encouraged:** The constructivist teacher challenges students to reach beyond the simple factual response. He encourages students to connect and summarize concepts by analyzing, predicting, justifying and defending their ideas.

14. **More Democratic Environment and Students' ideas are respected:. Students** engage in dialogue with the teacher and with each other Social discourse helps students change or reinforce their ideas. If they have the opportunity to present their opinions and hear other ideas, students can build a personal knowledge base on their understanding. Meaningful classroom dialogue only happens when they feel comfortable enough to express their ideas.

15. **Development of Students' Inquiry:** The teacher asks open-ended questions and allows wait time for responses. Students develop questions and identify issues, then gather and analyze information to create their own answers. It encourages learners' reflective thinking and students' inquiry.

DESIGNING THE CONSTRUCTIVIST INSTRUCTIONAL MODEL:
Constructivist principles of Teaching-Learning: The following constructivist principles must be more emphasized in designing the constructing teaching practices.

- Self construction of knowledge leads better learning
- Development of higher order thinking skills
- New knowledge on the basis of previous knowledge
- Comprehensive assessment
- Learning situations, environment, skills, content and tasks are relevant, realistic, authentic, and represent the natural complexities of the world.
- Encourage metacognition, self-analysis, self regulation, self-reflection and self -awareness
- Teacher serves as in the roles of guides, monitors, coaches, facilitators, and tutors.

1. **Constructivist Learning Environment:** The constructivist learning environment must be based on the following principles-:

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- Encouraging thoughtful reflection on experience
- Learners are actively involved
- Multiple representations of reality.
- The environment is dynamic
- Avoiding oversimplification representing the complexity of the real world.
- Enabling context- and content- dependent knowledge construction."
- Authentic tasks in a meaningful context
- The activities are interactive and student centred
- Learners are encouraged to be responsible and autonomous in their learning
- A support of collaborative construction of knowledge through social negotiation but not competition among learners for recognition.
- The major roles for facilitators are to support learners in constructivist learning environment are : Modeling, Coaching and Scaffolding.
- Democratic learning   environment   with   meaningful   learning experiences   for autonomous learners

2. **Techniques of Motivation in a constructivist classroom:** The constructivist approach to teaching must be based on the principles of fostering the critical thinking of students. It creates the self motivated and independent learners. In constructivist classroom, it must be avoided the techniques of punishment and prize for students" motivation. There is an intrinsic motivation.

3. **Techniques of Communication in a constructivist classroom: The** interaction in the class is reciprocal rather than teacher-centered. Students are engage with their activities rather than listening. Teacher asks questions rather than giving directions. Students" voices are heared mostly rather than the teacher"s voice.

4. **Techniques of Discipline in a constructivist classroom:.** Teacher and students should find solutions to the problems in a cooperative way. Teacher should use logical consequences rather than punishment. Teacher should help students to be responsible individuals. Students should be encouraged to be autonomous learners. Therefore they can take the responsibility of the negative consequences of their behaviours. Student should be given opportunity to choose own task, activity and behaviors to perform.

5. **Techniques and methods in a constructivist classroom**: Constructivist teaching method is such a method which draws on students' existing knowledge, beliefs, and skills. With a constructivist approach, students synthesize new understanding from prior learning and new information. In constructivist teaching, a teacher sets up problems and monitors student exploration, guides student inquiry, and promotes new patterns of thinking. In Constructivist instructional strategy, students work with their own data and learn to direct their own explorations. Ultimately, students begin to think of learning as accumulated, evolving knowledge. In the classroom, the constructivist view of learning can point towards a number of different teaching practices. Students are encouraged students for intellectual involvement through the following instructional techniques:

- Class Discussion
- Experiments
- Small group work
- Student presentation
- Debate
- Field trips
- Simulations
- Films
- Brain-storming

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- Individual study
- Research projects
- Learning through exploration
- Cooperative and Collaborative (group) learning
- Authentic assessment methods
- Problem oriented activities
- Visual formats and mental models

PRINCIPLES OF IMPLEMENTING THE CONSTRUCTIVIST APPROACH TO INSTRUCTION:

Instructional strategy based Constructivist approach provides the tools such as problem solving and self inquiry-based learning activities that allow students to formulate and test their ideas, draw conclusions and formulas and convey their knowledge in a collaborative learning environment. Here, some principles are highlighted for Implementation of Constructivist Approach to Instruction.

- **Prompt the Inquiry method:** Prompt students to formulate their own questions and find out the answers in own effort through the process of inquiry and explorations..
- **Multiple intelligences**: Allow multiple interpretations and expressions of learning through the use of multiple intelligences.
- **Encourage the Collaborative Learning** : Encourage group work and the use of peers as resources. Encourage team working and collaboration.
- **Meaningful learning** : Before acquiring basic skills learners must be ready for meaningful learning.
- **Emphasis on Learners' Decision**: All activities relating to learning to be done must be decided by learners themselves.
- **Facilitating techniques of discovery:** 'Discovery" is facilitated by providing the necessary resources. Knowledge is actively constructed and learning is presented as a process of active discovery.
- **Facilitating higher-order thinking:** Higher-order thinking by asking thought provoking questions that can challenge ideas probing students' knowledge deeply.
- **Using the Mental Model:** Facilitating the class discussion by presenting the experts" mental model to the students and then steps out of the discussion to let mental models develop in the learners through interaction.
- **Assimilation of new and old knowledge** : Provide assistance with assimilation of new and old knowledge
- **Setting reflective environment:** Create learning environment where the students feel safe questioning and reflecting on their own processes
- **Setting the Collaboration and cooperative learning rather than competition::** Support collaboration in constructing knowledge rather than competition. Through cooperative learning the Face to face interaction, Individual accountability and the Appropriate use of interpersonal and small group skills may be developed.
- **Inter-subjectivity** : Encourage development through Inter-subjectivity
- **Scaffolding :** Providing Scaffolding at the right time and the right level
- **Incorporate children's interests**: Create interests through discussions, class meetings, interviews, and observations of children"s actions.
- **Encouraging students' Active roles:** Encourage the students to play more active role in their learning as well as taking more responsibility for their own learning.
- **Provide guidance through ZDP:** Teacher must provides guidance through the ZDP.
- **Promote discussion or debates**: Discussion helps students reflect on their ideas and either change or reinforce them.
- **Employing Anchored Instruction** : The anchored instruction approach is an attempt to help students become more actively engaged in learning by situating or anchoring instruction around an interesting topic.

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Anchored instruction emphasizes the need to provide students with opportunities to think about and work on problems and emphasizes group or collaborative problem solving.

- **Reciprocal Teaching:** Where a teacher and some students form a collaborative group make dialogues on a topic. Within the dialogues, group members apply the important cognitive strategies i.e. Questioning, Summarizing, Clarifying and Predicting that promote the high-level thinking.
- **Encouraging the Individual and group projects:** Learners are to be assigned both the Individual and group projects.

CONCLUSION:

In real sense, the words uttered by the teacher alone cannot fulfill all the questions of the student and students are not empty pots where the teacher will pour the knowledge or inject to their minds information, knowledge, skills etc. The student will create innumerable knowledge by his own active experience in the environment. The development of creativity, inventiveness and innovations are the major objectives of our present education process which all play greater roles in Constructivism. If we fail to produce a new generation with the potential for creativity and innovation through active investigation, problem solving and building their own knowledge as well as taking responsibility for their own education, a quality education system will prove to be a futile endeavor. Hence, for the quality education the constructivist approach to instructional strategies is essential.

REFERENCES:

Arbind Kumar Jha (2009), Constructivist Epistemology and Pedagogy – Insight into Teaching Learning and Knowledge, Atlantic Publishers, New Delhi.

Bednar, A. K., Cunningham, D. J., Duffy, T. M., & Perry, J. D. (1992).*Theory into practice*: How do we link? In T. M. Duffy & D. H. Jonassen (Eds.), *Constructivism and the technology of instruction* (pp. 17-34). Hillsdale, NJ: Lawrence Erlbaum Associates.

Bereiter, C. (1994). Constructivism, socioculturalism, and Popper's World 3.*Educational Researcher,* 23 (7), 21-23.

Constructionism (learning theory). (2008, December 28). In Wikipedia, the free encyclopedia. Retrieved March 2, 2009 from http://en.wikipedia.org/wiki/Constructionist_learning

Duffy, T.M. &. Jonassen, D.H. (Eds.), *Constructivism and the technology of instruction* (pp. 17- 34). Hillsdale, NJ: Lawrence Erlbaum Associates.

Honebein, P.C. (1996). Seven goals for the design of constructivist learning environments.in *Constructivist Learning Environments: Case Studies in Instructional Design*. Brent G. Wilson (Ed.). Englewood Cliffs: Educational Technology Publications: 11-24.

Huma Datta (2012), The Learner in a Constructivist Classroom – A Study, Paper Presented in the National Seminar on Quality Elementary Education and Constructivism, Regional Institute of Education, NCERT, Bhubaneswar.

Haseen Taj (2011), Published an article entitled Constructivist Approach to Teaching and Learning in the Journal Edutracks, Vol.10, No.12, Neelkamal Publications Pvt. Ltd., Hyderabad.

Hein, G.E. (1996). Constructivist Learning Theory. Retrieved February 27, 2009, from Institute for Inquiry. Website: http://www.exploratorium.edu/ifi/resources/constructivistlearning.html

Indram Verma (2012), The Effect of Usage of Constructivism in Teaching at Elementary Level in Relation with Creativity of Students . Presented paper in the National Seminar on Quality Elementary Education and Constructivism, Regional Institute of Education, NCERT, Bhubaneswar.

Jonassen, D. (1991). Objectivism vs constructivism: Do we need a new philosophical paradigm? *Educational Technology*, Research and Development, 39(3), 5-13.

Learning Theory (education) (2009, Mar. 2). In Wikipedia, the free encyclopedia. Retrieved February 27, 2009, from http://en.wikipedia.org/wiki/Learning_theory_(education)

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Kasinath, H.M (2009), Published an Article Entitled Constructivism and Instructional Strategies, in the Journal Edutracks, Vol.9, No.4, Neelkamal Publications Pvt. Ltd., Hyderabad.

Nirupama Barpanda (2012), Constructivism and Changing Role of Teachers, Paper Presented in the National Seminar on Quality Elementary Education and Constructivism, Regional Institute of Education, NCERT, Bhubaneswar.

Oliver, K.M. (2000). Methods for developing constructivism learning on the web," *Educational Technology,* 40 (6)

Panda, B.N (2012), Collaboration Learning – An Approach in Constructivism, Presented Paper in the National Seminar on Quality Elementary Education and Constructivism, Regional Institute of Education, NCERT, Bhubaneswar.

Pradeep Kumar Mishra (2012), Adopting Constructivist Approach in Teaching Learning Process at Elementary Level – A Quality Reflection, Paper Presented in the National Seminar on Quality Elementary Education and Constructivism, Regional Institute of Education, NCERT, Bhubaneswar.

Senapathy H.K & Nityananda Pradhan (2005), Constructionist Pedagogy in Classroom – A Paradigm Shift, Journal of School Science, Vol. XXXI, No.1. NCERT, New Delhi.

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