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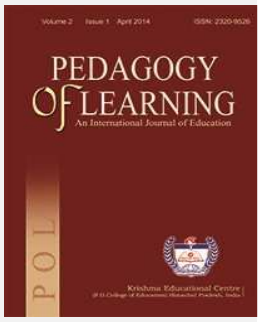

Piaget's Theory of Cognitive Development in the context of preparing Lesson Plan for different age groups of student

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Abstract

The objectives of this article will be to provide a brief discussion over Piaget's stages of cognitive development in the context of lesson planning and suggestions regarding how to prepare lesson plan for different age groups of student. Each stage will be described, how to understand the cognitive level of different age groups of student and how to prepare lesson plan for them. The conclusion is generalized to implement knowledge of Piaget's cognitive development for preparing lesson plan. Further, Piaget's cognitive development helps teacher to understand the cognitive development of the child. So that teacher can plan different activities for students while they preparing lesson plan for the class.

Keywords: Cognitive Development; Lesson Planning; Piaget's Assumptions; Students' Cognitive Levels

INTRODUCTION

Students are very from each other regarding mental and chronological age of a class. So, teachers have to understand students' cognitive levels first before they taught. Teacher should adopt appropriate methods of teaching. So that student can discover knowledge by self. Student should be encouraged for self-observation, approximating, reflecting and reasoning (Piaget, 1970). Lesson plan must have an objective (what the students learn), a method and procedure (how to achieve the objectives) and an assessment procedure to measure how well the objectives were achieved (recapitulation, class work, group discussion, home work and etc). Piaget's Cognitive Development theory is popularly known as genetic epistemology or developmental theory of knowledge and it focus on the developmental stages of child's cognition. It is very difficult to understand a child and so as to teach them. This theory of learning helps teacher in their teaching process worldwide. The objectives of this article will be to provide a brief discussion over Piaget's stages of cognitive development in the context of lesson planning and suggestions regarding how to prepare lesson plan for different age groups of student. In this article each stages of cognitive development are describes into the context of lesson plan.

PIAGET'S BELIEFS

Piaget believed that development of a child occurs in a continuous process. Children are commonly grouped by chronological age but their mental levels differ to each other (Weinert & Helmke, 1998); the rate of development on each stage is purely depending upon the experiences, abilities, and maturity of the child (Papila & Olds, 1996); children grow regularly with their experiences, and each experience which they gain from one stage is influence to the next stage (Berk ,1997) and(Eggen & Kauchak, 2000).

PIAGET'S STAGES OF COGNITIVE DEVELOPMENT

The Period of Sensorimotor Adaptation (birth to 2 years)

The infant starts from reflex domination and reaches the stage of sensorimotor. The intellectual development at this age is highlighted by four fundamental characteristics i.e, a) Object concept formation, b) Coordinated space, c) Objectified causality, and d) Objectification of time. Piaget's experiment on baby and found out that the baby become able to find the object (pillow) even the object has been displaced because of the progressive acquisition of object permanence.

Learning at this stage

During this stage of sensorimotor the infant exercises by sucking, handling and moving the objects. Infant's behavior might be "Out of sight-out of mind". However, at this stage, the child's intelligence level is equal to that of intelligent animals and the infants' actions are not yet internalized.

The Development of Symbolic and Preconception Thought (2 to 4 years)

At the end of the sensorimotor period, the child starts responding to the world. By imitating, sibling, and other forms of behavior, the child expresses his feelings. Children at this stage develop the ability to link numbers to the objects (Piaget, 1977; Fuson, 1988). For example, one man, two dogs, three cows, four elephant, and they can count their fingers. So that text books of this age group are having pictorial illustrations for children. Children can enhance their ability through responding to the environment along with their reading writing skills and comprehension (Martin, 2000).

The Period of Intuitive Thought (4 to 8 years)

Up to the age of 4 years the children start reacting to the environment in the absence of perceptual cues. Normally children's perceptions are restricted to one dimension during this period. At the time of judgment children usually use same dimension because reasoning ability of children's are based on intuition. This can be seen in the experiment of Piaget over child. When the child was first shown two beakers one was slim and the other was fat. They were filled with liquid. The child was asked about the level of liquid in the beakers. Conformation has been taken from child that the level of liquid is the same in both beakers. Next a tall and thin beaker was taken and filled it by the liquid of the fat beakers. The child is asked to compare it. And the child was asked to judge "Which contains more." Most of the children belonging to this age will point to the tall beaker and say, "This one has more in it." This was happen because of the perceptual cue of height.

Learning at this stage

Children should engage with problem-solving tasks. While the child is working with a problem, the teacher should continue conversation with child. This conversation with child helps the child's thought process. For example, a child at this stage who understands that adding four to five is became nine but the child cannot yet perform the reverse calculation of taking four from nine. So by continuing conversation with the child teacher can help the child to perform reverse calculation. Teacher should prepare logistic and effective question from relevant topics for students. For example, when teacher taught about geometric shapes, he could ask students to group the shapes according to similar characteristics by different activities (Thompson, 1990).

The Period of Concrete Operation (8 to 12 years)

According to Piaget this is the period of concrete operation and children work mentally on concrete objects. They are not yet capable enough to manipulate the objects. Manipulating object is an abstract skill that develops in adolescence. This stage is known for logical and operational thought of the child. Children have the abilities to understand numbers, areas, and volumes during this stage. However, children also solve problems in a logical ways and they are not able to think abstractly. Through senses children know the cause behind the reason. Piaget named this 'Syncretism'. They can accept two or three dimensions simultaneously. For example, in the liquid experiment, if the child mark the level

of the liquid, he or she also mark that the size of the beakers. Child can see both dimensions at the same time. Seriation and classification are the two logical operations that develop at this stage (Piaget, 1977)

Learning at this stage

Suppose a child has two pencil of same size. One he breaks into two pieces with same size and another one is break into four pieces. When we ask the child about which one is larger than the other. The child belonging to this stage will understand that both pencils are still in the same size. Whereas a younger child will believe that the pencils that has more pieces is larger than the one with only two pieces. Teachers must use materials like pattern blocks, algebra tiles, algebra cubes, counters, and spinners for students to explore concepts value and arithmetic because concrete experiences are needed. Teachers also allow activities like paper folding and cutting so that student can build their confidence as well as they can test and confirm their reasoning, Burns & Silbey (2000). Piaget's Three Mountain Task technique can be used to test child's egocentric thinking. It is very helpful in indicating whether the child was in preoperational stage or in concrete operational stage of cognitive development. Teacher can teach students about mathematical solutions in multiple ways by using symbols, graphs, tables, and words as a tool, Eggen & Kauchak (2000).

The Period of Formal Operations (from 12 years to adolescence)

During this stage children's behavior becomes systematic and reasonably well integrated. The child can draw hypotheses and constructing his own consequences over situation. Further, the children develop abstract thinking where reasoning is applicable and differentiate objects on several dimensions frequently. Students at this stage are making inductive and deductive inferences. Deductive inferences involve reasoning from general concepts to specific instances. On the other hand, inductive inferences are based on extracting similarities and differences among specific objects and events and arriving at generalizations. Students start connecting concepts to real-life situations.

Learning at this stage

To encourage cognitive conflict teacher can use constructivist approach in classroom teaching. Students are instructed to read the text first and then have a discussion about the reading text. Teacher must instruct the student to think over the text and make a note on it. Teachers instruct them about how to find facts and figures in the text and support student in organizing it. Teacher must choose relevant study materials so that the students will be able to relate it into their own lives. Teacher must provide support to student so that they can learn from their own. For example, knowledge on rational equations (an equation having one fraction whose numerator and denominator are polynomials) has to be tested by the teacher.

$$X+3/4=X/(-2)$$

$$-2(X+3) = 4X$$

By encouraging students to extract relevant information from a problem, teachers can help students to enhance their understanding ability and problem solving capacity. For example, reasoning ability of the student has been tested. Reasoning skills at this stage means the mental exercises of the student and judgment of logical arguments produced by the student (Anderson, 1990).

Educational Implications

- ✓ Teacher should encourage students through active learning methods.
- ✓ Student should designed activities for student at classroom.
- ✓ Teacher should instruct to student not to be passive listener.
- ✓ Teacher should share positive learning experiences to student.
- ✓ Teacher should encourage all the ideas, suggestions and opinions construct by the student respectfully.
- ✓ Teacher should use appropriate props, visual aids, audio if possible.
- ✓ Teacher should allow students to learn from their own mistakes.
- ✓ Teacher should plan different range of classroom activities for enhancing learning.

Before start teaching teacher has to understand and know the student first. In Introduction stage teacher come to know about learning ability of the student and prepare student for learning. In the presentation stage the teaching plan was prepared for the whole class. Necessary modification has been made by the teacher during the class as per the situation arrives like teacher failed to motivate student; unable to clear the doubt; unable to maintain discipline; unable to maintain the fluency of lecture; etc. Recapitulation questions must cover all the areas of the present day lesson. Then in the application stage for class work objective type questions should be prepared like fill the blanks; match the columns; true or false; antonyms and synonyms; voice change; make sentence; etc. For home work the student should assigned critical awareness question, project work so that student can learn by self identification.

CONCLUSION

Piaget's theory is very simple. It motivates the teacher to understand students' behavior and their needs and requirement for learning. According to Piaget children acquire distinct stages in cognitive development. Children of 2 to 7years are generally egocentric and have problems in understanding to others. They identify objects by a single characteristic. Children under these ages should encourage learning from their peers. Further, during 7 to 11years of children are capable of logical thinking. They identify objects by several different characteristics. But since each student is different we should try multiple interactions among

them. Give them full off hands-on practice. Let them to discover their own skills. Teacher must provide sufficient and relevant reading and writing comprehension to them. Over the age of 11years are able to think abstractly and hypothetically. They feel more concern for ideological and moral issues, not just concrete reality. Sufficient amount of freedom should be given under guidance. This article addressed these stages in light of lesson planning. And the knowledge of Piaget's cognitive development helps teacher to understand the cognitive development of the child. So that teacher can plan different activities for students while they preparing lesson plan for the class.

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