Jean Piaget

Educational Implications of Piaget's Theory

Piaget’s theory has had a major impact on the theory and practice of education. It has helped to create a view where the focus of attention is on the idea of developmentally appropriate education. This refers to an educational with environments, curriculum, materials and instruction that are consistency with student’s physical and cognitive abilities as well as their social and emotional needs.

_There are four main teaching implications drawn from Piaget's theory (Slavin, 2005):_

1. **A focus on the process of children's thinking, not just its products.** Instead of simply checking for a correct answer, teachers should emphasize the student’s understanding and process they used to get the answer.

2. **Recognition of the crucial role of children's self-initiated, active involvement in learning activities.** In a Piagetian classroom, children are encourage to discover themselves through spontaneous interaction with the environment, rather than the presentation of ready-made knowledge.

3. **A deemphasis on practices aimed at making children adult like in their thinking.** This refers to what Piaget referred to as the "American question" which is "How can we speed up development?". His belief is that trying to speed up and accelerate children’s process through the stages could be worse than no teaching at all.

4. **Acceptance of individual differences in developmental progress.** Piaget's theory asserts that children go through all the same developmental stages, however they do so at different rates. Because of this, teachers must make special effort to arrange classroom activities for individuals and groups of children rather than for the whole class group.
The educational implication of Piaget's theory is the adaptation of instruction to the learner's development level. It is important that the content of instruction needs to be consistent with the developmental level of the learner.

The teachers main role is the facilitation of learning by providing various experiences for the students. "Discovery Learning" allows opportunities for students to explore and experiment, while encouraging new understandings. Opportunities that allow learners of different cognitive levels to work together often help encourage less mature students to advance to a higher understanding of the material. One future implication for the instruction of students is the use of hands on experiences to help students learn (Wood, 2008).

Some general suggestions include:

~ The use of concrete props and visual aids, such as models and/or time lines
~ Facilitate learning by using familiar examples to explain complex ideas, such as a story problem in math
~ Give students the opportunities to classify & group information, use outlines & hierarchies to facilitate assimilation of new information with previously learned knowledge.
~ Present problems that require logical analytical thinking, "brain teasers" are a great way to incorporate this

**Activities for the Stages of Cognitive Development**

*How can information on the Stages of Cognitive Development apply to teaching?*
Here are some practical ways to teach children in each of Piaget's four stages of Cognitive Development.

There are many practical applications that can be made from this theory. By using them in our teaching, we can hopefully teach students in a way that will help them be the most effective learners.

**Sensorimotor Period: Activities for Infants and Toddlers**

The term "sensorimotor" comes from the child understanding their world largely through their senses for their first 2 years. This stage is characterized by the lack of language and internal representation. It focuses on the reflexes that the child is born with such as sucking, reaching and grasping. In this stage of development the child eventually develops primary circular reactions, which are activities centered on the child’s body and repetitious in nature. Eventually, children develop the coordination of separate activities and the evolution of language. A final achievement in this stage is recognizing cause-and-effect relationships.

- Provide a rich stimulating environment

- Allow the child to play with toys that squeak when squeezed. (ex: rubber duck) At first when the child squeezes the toy, they will be surprised by the sound and why it happened. However, after some time the child will realize that by squeezing the toy they are the one causing the noise. This gives an example of cause-and-effect relationships: if I squeeze the duck, it will squeak.
-Another example of a toy is a rattle; when the baby shakes a rattle it makes noise.

-Playing peek-a-boo is another good example of a fun activity for children around this age.

**Preoperational Period: Activities for Toddlers and Early Childhood**

This stage is in effect when children are about 2 to 7 years old. This stage is characterized by the inability to understand all the properties of classes. Transductive reasoning is also characteristic of this age groups thinking. Transductive reasoning involves making inferences from one specific to another based on faulty logic. Egocentrism and conservation are also characteristic of this age group. Egocentrism is the inability to take another persons point of view into account. One way to help children overcome egocentrism is to help them face another person’s perspective by putting themselves in the others “shoes”.

- One way to do this is by playing dress up and encouraging the child to take on a character.

- Sometimes children in this age group enjoy playing house. This is also a good activity because they are playing different roles that they have observed in their own lives.

- Hands on activities should also be facilitated at this time.

- Encourage children to play with toys that change shape (ex: playdoh, sand, clay, water) because this will help them move towards the concept of conservation.

Children need physical, hands on practice with facts and skills needed for development.
- Use cut-out letters to build words.

- Avoid lessons that are very different from the child's world. And steer away from using workbooks or paper and pencil activities very often.
Concrete Operations: Activities for Middle Childhood

In this stage children evolve from prelogical, egocentric thinking to a more rule-regulated type of thinking. Some of the rules of logic include reversibility, identity, and compensation. One activity that a child at this age would enjoy is a cooking activity with their mom or dad.
If you get creative you can incorporate several components of Piaget’s theories into this activity. Baking involves measurements, which would be useful to the concept of conservation. Measuring cups come in all different shapes so it would be fun to measure the exact same measurement using different types of measuring utensils. Also the ingredients could be classified into different categories such as the dry ingredients and the wet ingredients and so on. Numbers and seriating come into play with the distinct steps in the directions. Children around this age group usually really enjoy helping out in the kitchen, especially if it’s baking something fun like cookies, so it turns into a great learning opportunity.

-Give children the chance to manipulate objects and test out ideas
-Do simple experiments, with participation of the students

Avoid dealing with more than three of four variables at a time
-Reading selections should have a limited number of characters
-Experiments should have a limited number of steps

Students should have practice classifying objects and ideas on complex levels
-Have students group sentences on a piece of paper
-Use analogies to show the relationship of new material to already acquired knowledge.

**Formal Operations: Activities for Adolescents**
This period is characterized by applying their logic directly to real objects or situations.

At the beginning of this stage:
- Teachers should continue using strategies and materials used in the concrete operations stage.
- Use charts and illustrations, as well as incorporate new more sophisticated graphs and diagrams
- Give step by step explanations and materials

Students need the opportunity to explore various hypothetical situations.

Children in this stage should be encouraged to work in groups in school to explain and discuss hypothetical topics.
For example: have them discuss social issues in groups and brainstorm.

Have them write a short story on a hypothetical topic such as what life would be like in outer space. This allows the child to apply their new creative aspect.

Students should also be encouraged to explain how they solved a problem.
- Students could work in pairs, one is the listener, while the other is the problem solver. The problem solver works the problem out loud, while the listener checks to see that all steps are followed and seem logical.
- Teachers could put a few essay questions on a test, which allows students the opportunity to give more than one final answer.

Teachers should try to teach broad concepts, rather than just facts.
- Use materials and ideas relevant to the students
- For example: If you were teaching material about the Civil War, the class could join in a discussion about other issues which have divided our country
- Use lyrics from a popular song to teach poetry

It is important to note that adolescence may reach formal operations at different times or in some cases not at all!!!
Huit and Hummel (1998) suggest that "only 35% of high school graduates in industrialized countries obtain formal operations; many people do not think formally during adulthood." This is significant in terms of developing instruction and performance support tools for students who are chronologically adults, but may be limited in their understanding of abstract concepts. For both adolescent and adult students, it is important to incorporate these instructional strategies:

~ The use of visual aids
~ Opportunities to discuss social, political, and cultural issues