

LITERATURE REVIEW ON THE STRENGTHS AND WEAKNESSES OF DEDUCTIVE AND INDUCTIVE APPROACHES TO LEARNING

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Abstract: Researcher describe this article by analyzing deductive and inductive learning through a review of relevant literature. The deductive approach begins with a general idea and then builds on that, followed by specific examples, while the inductive approach kicks things off with concrete facts to get at general principles. The results indicated that systematic and continuous steps in the deductive method of presentation of material encourage students' understanding of concepts while the process-based/inductive approach allows active student learning to encourage the student's involvement in the search for the concepts, and in turn boost motivation and knowledge. Each approach has its strengths; however, the deductive approach may make students passive while the inductive method often requires more time. Hence the choice can take into account the learning outcomes, material condition, and student environment (learning targets) which is required for a successful learning experience.

Keywords: learning approach, deductive approach, inductive approach, literature review, learning strategy.

INTRODUCTION

The learning process is a crucial activity in education because it enables students to acquire the knowledge, skills, and attitudes needed in life. The success of the learning process is determined not only by the material presented, but also by the teaching approach used by the teacher. The right learning approach will help students understand concepts more deeply and increase their activeness and engagement in the learning process.

In learning activities, teachers need to choose an approach that aligns with the learning objectives and student characteristic. Two approaches frequently used in the learning process are the deductive and inductive approaches. These two approaches relate to the way students think and present learning materials. According to yamen [2008], a learning approach is a perspective or

starting point used in the learning process to achieve predetermined goals. Therefore, selecting the right approach will significantly influence the success of the teaching and learning process.

In contrast, an inductive approach is a learning approach that begins with the presentation of specific examples or facts, which are then analyzed to discover a general concept or principle. This approach emphasizes student activity in observing, analyzing, and drawing conclusions from the various examples provided. According to purwanto in rahmawati [2011]. An inductive approach is an inductive approach that begins with the presentation of a number of specific.

Based on this, a study of deductive and inductive approaches to learning is important to understand. This study is expected to provide a clearer picture of the meaning, characteristics, stages, and advantages and disadvantages of both approaches in the learning process.

Meanwhile, according to yamin [2008]. "The deductive approach provides an explanation of the principles of the lesson content, then explains them in the form of their application or examples in certain situations."

DISCUSSION

A. Understanding the deductive approach

The deductive approach is a learning approach that typically begins with the presentation of a general concept or principle and then continues with specific examples. This approach is frequently used in learning that emphasizes systematic understanding of concepts. The deductive approach is a way of thinking that starts from specific statements. This approach is often used in research, reasoning, and decision-making (Busrah, 2012). Learning with a deductive approach emphasizes the teacher transferring information or knowledge to students, learning with this approach. According to Setyosari (2010), deductive thinking is a thinking process that is based on general statements to specific things using certain logic. Something similar is explained by Sagala (2010), who states that the deductive approach is a reasoning process that starts from general circumstances to specific circumstances as a teaching approach that begins by presenting rules, general principles followed by specific examples or the application of rules.

Characteristics of the deductive approach

1. Learning emphasizes the transfer of information by teachers to students from the form of presenting abstractions, definitions, and explanations of terms.
2. Based on the idea that the learning process will run well if students know the problem area and basic concepts.
3. Explaining things from general to specific; namely, the teacher provides material and then gives specific examples.
4. There's a greater emphasis on student memory and passive participation in learning activities. Teachers play a significant role in learning activities.

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The steps of the deductive approach are:

1. Determine general statements

The first step is to select or establish a general statement that will serve as the basis for this thought process. This general statement is often theory, concept, or principle that is already known to be true.

2. Analyzing general statements

After obtaining a general statement, the next step is to study its meaning and content. This is done so we can understand how the statement can be applied to explain a specific problem or situation

3. Establishing the premise

In this stage, two premises or supporting statements related to the general statement are developments premises serve as a foundation for connecting the general theory to more specific examples or cases

4. Draw a conclusion

Based on the premises that have been formulated, a rational conclusion is then drawn. This conclusion is the result of a thought process that moves from the general to the more specific

5. Verifying conclusions

The final step is to review the conclusions reached. The goal is to ensure that the conclusions are correct, rational, and consistent with the general statement and premises used.

B. Understanding the Inductive Approach

According to Purwanto in Rahmawati (2011:75) the inductive approach to learning is an approach that begins by presenting a number of specific conditions which can then be concluded into a fact, principle or rule.

The inductive approach emphasizes first observing, then drawing conclusions based on those observations. This method is often referred to as a specific-to-general approach. The inductive approach is a reasoning process that begins with specific circumstances and moves to the general.

Meanwhile, according to Yamin (2011:75) the inductive approach begins with the providing of cases, facts, examples, or causes that reflect a concept or principle. Then, students are guided to strive to synthesize, discover, or include the basic principles of the lesson. Teaching with an inductive approach is a way of teaching by presenting students with a specific example to then be concluded into a rule, principle, or definite fact.

Characters of the Inductive Approach:

1. Learning begins with a specific example or fact
2. Students observe the given example
3. Students analyze the information to discover the concept
4. The teacher acts as a facilitator in the learning process

Steps of the inductive approach:

1. The teacher gives examples or certain phenomena

The teacher first provides several examples, pictures, or events related to the lesson material so that student have an initial idea.

2. Students observe and analyze examples

Students then observe, pay attention to, and discuss the examples to find information or relationships from the examples given.

3. Students draw general conclusios

From the results of observations, students make conclusions or general concepts based on the examples thay have studied.

4. The teacher provides confirmation of the concpt

The teacher re-explains and clarifies the conclusions that the students have found so that their undetstanding becomes more precise.

C. Advantages of the Deductive Approach in Learning

The advantages of the deductive approach compared to other approaches are:

1. It dosent take much time.
2. The properties and formulas obtained can be directly applied to concrete questios or problems.

D. Advantages of the Inductive Approach in Learning

The advantages of the inductive approach comparad to other approaches are:

1. Provides students with the opportunity to try a concept on their own, thetrby improving retention.
2. Students understand properties of formulas through a series of examples. Any doubts about the concept can be addressed early on
3. Can increase student enthusiasm for learning

E. Disandvantages of the Deduktive Approach in Learning

The disadvantages include:

1. Students often have difficulty understanding the meaning of mathermatics in learning.
This is because they only grasp concepts after being presented with various examples.
2. Students have difficulty understanding the methematics lessons given because thay receive mathematical concepts directly from the teacher.

3. Students tend to get bored with learning using a deductive approach, because here they directly receive mathematical concepts from the teacher without having the opportunity to discover them for themselves.
4. Students cannot remember concepts well.

F. Disadvantages of the Inductive Approach in Learning

The disadvantages include;

1. It takes a lot of time
2. Sometimes only a portion student are actively.
3. The properties and formulas obtained still require practice or application to understand them
4. Systematically [formal], the properties or formulas obtained using the inductive approach do not guarantee general validity

G. Comparison between deductive and inductive

Aspect	Approach Deductive	Inductive Approach	Combination of Deductive and Inductive Reasoning
Definition	Starting from general theory tested specific data	Starting from observations or data to form pattern or theories	Connecting empirical observations with theremins
Direction of Reasoning	General to specific	Especially for the general public	Direction of Reasoning: General to Specific, Especially for the General Public (Inductive and Deductive)
Initial step	Using the mayor's theory or presumption	Emprirical data collection	Observation and testing of theory at the same time
Main focus	Testing or confirming a theory	Finding patterns and building theories	Building and testing therories at the same time
Examples in Tourisme Research	Testing the satisfaction theory with survey data on tourist loyalty	Observing tourist feedback from social media to understand satisfaction	Using data from tourist to develop theories, then testing them against existing theories

Superiority	Structured can be generalized	Flexible, contextual, enabling of new theories	Provides a holistic and relevant understanding of the dynamics of inductive
Limitations	Lack of sensitivity to context and new findings	Less generalizable, subjective	More complex and requires time as well higher expertise

CONCLUSION

The deductive and inductive approaches are two learning approaches that play a crucial role in helping students understand subject matter. The deductive approach emphasizes a learning process that begins with general concepts or principles and then applies them to more specific examples, allowing for a more systematic and structured presentation. Meanwhile, the inductive approach begins with the presentation of principles. Both approaches have their own advantages and disadvantages. The deductive approach is more efficient in delivering material and requires less time, but tends to make students more passive. Conversely, the learning process is affected by this approach. Therefore, teachers need to understand the characteristics of both approaches so they can choose or combine them appropriately according to learning objectives, the material being taught, and the students' conditions, so that the learning process can take place effectively and meaningfully.

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