

INNOVATION AND CONTRIBUTION TO FORMULATE SPECIFIC RESEARCH QUESTIONS OR HYPOTHESES BASED ON MATERIALS DEVELOPMENT

Ismailova Charos

English teacher of the 41st general education school,
Okdarya district Samarkand region

Abstract

This article highlights the importance of formulating clear research questions or hypotheses when developing materials, and provides several examples and approaches to assist in this process.

Keywords: idea, hypothesis, creativity, reasoning, research, innovation, development.

Аннотация

В этой статье подчеркивается важность формулирования четких исследовательских вопросов или гипотез при разработке материалов, а также приводятся несколько примеров и подходов, помогающих в этом процессе.

Ключевые слова: идея, гипотеза, креативность, рассуждение, исследование, инновация, разработка.

The development path of modernizing Uzbekistan opened a wide path for the development of science in various directions. Special attention was paid to the hard work and creative pursuits of scientists. Today, special attention is being paid to the implementation of scientific discoveries and inventions of scientists to ensure the integrity of science and production, and for this, mastering the method of conducting scientific research is of great importance.

Hypothesis - an approximate opinion about the legal connection of events, a hypothesis. The hypothesis is the basis for the development of scientific knowledge. The hypothesis has stages such as transition to direct knowledge based on logical analysis (comparison, analysis and synthesis, abstraction and generalization), discovery of laws based on causal connection. A general hypothesis is an assumption about the nature and cause of a group of events, processes, and a specific hypothesis is an assumption about the cause of individual events and processes. Any hypothesis requires testing. As a result, its probability increases or decreases, its truth is proven or rejected. When new facts cannot be explained by old theories, a hypothesis is needed to explain a limited number of facts and observations. It paves the way for further knowledge, investigations, and new theories give rise to another hypothesis. Hypothesis is important as an integral part of the cognitive process.

The hypothesis, in turn, is divided into the following types: simple, complex and alternative.

A simple hypothesis is a hypothesis that reflects one condition related to the application of legal norms. For example, the President of the Republic of Uzbekistan assumes his position from the moment he takes the oath at a meeting of the Oliy Majlis of the Republic of Uzbekistan (Constitution of the Republic of Uzbekistan, Article 92).

In the complex hypothesis, it is shown that the validity of the legal norm depends on the existence or non-existence of two or more conditions. For example, "Adult, able-bodied children are obliged to take care of their parents" (Constitution of the Republic of Uzbekistan, Article 66).

The alternative hypothesis states that the validity of legal norms depends on one of the listed conditions.

Formulating specific research questions or hypotheses is essential in developing materials. Here are some examples and approaches to help you in this process:

1. Features of the new material:

- What are the mechanical properties (eg strength, elasticity) of the newly developed material?
- What is the thermal conductivity and electrical conductivity of this material?

2. Practical application of the material:

- In which areas can this material be most effectively used?
- What is the long-term use and stability of the material?

3. Environmental Impact:

- How does the production process of new material affect the environment?
- What are the possibilities of material processing?

Hypotheses

1. Features:

- "The mechanical strength of the new material is 20% higher than that of conventional materials".

2. Application:

- "When this material is used in the automotive industry, it increases fuel efficiency by 15%".

3. Environmental Impact:

- "The production process of the new material requires less energy than traditional materials".

Updates and Improvements

- Analysis of research results: Constantly analyzing the obtained results and updating questions and hypotheses.

- Public Feedback: Refine research questions by soliciting feedback from industry experts and consumers.

- Innovative approaches: Development of research questions by applying new technologies and methods.

The examples and approaches above can help you formulate specific research questions or hypotheses when developing materials.

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