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ORGANIZING EXPERIMENTAL TESTING TO IMPROVE THE METHODOLOGY FOR DEVELOPING STUDENTS' SCIENTIFIC WORLDVIEW THROUGH PHILOSOPHY

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ABSTRACT

The development of a scientific worldview in students is critical for fostering intellectual independence, critical thinking, and a deeper understanding of the world. Philosophy, as a discipline, plays a pivotal role in this process by addressing fundamental questions about existence, knowledge, and values. This article explores the organization of experimental testing to enhance methodologies for cultivating students' scientific worldview through philosophy. It outlines the design of experimental interventions, including the use of philosophical dialogues, debates, and case studies, aimed at integrating scientific concepts into philosophical education. The research involved a control and experimental group of students, focusing on qualitative and quantitative metrics to assess the impact of the intervention. Results demonstrated significant improvements in students' ability to analyze, evaluate, and synthesize philosophical and scientific ideas, highlighting the effectiveness of the proposed methodology. Recommendations for educators are provided to implement innovative techniques for fostering a scientific worldview in philosophical education.

KEYWORDS: Scientific worldview, philosophy education, experimental testing, critical thinking, methodology, student development, interdisciplinary learning.

INTRODUCTION

In an era defined by rapid scientific and technological advancements, fostering a scientific worldview among students is essential for equipping them with the skills to navigate a complex world. A scientific worldview is characterized by a rational, evidence-based approach to understanding natural phenomena, critical analysis of information, and the ability to connect knowledge from diverse fields. Philosophy, as a discipline, provides a unique platform for developing these skills by encouraging students to engage with fundamental questions and ideas. However, traditional pedagogical approaches in philosophy often overlook the integration of scientific principles, creating a need for methodological innovations. This article examines the design and implementation of experimental testing aimed at improving the methodology for developing a scientific worldview in students through philosophy. The research focuses on creating a dynamic learning environment that bridges philosophical inquiry and scientific reasoning.

V.I. Vernadsky defined the scientific worldview as follows: "By the name of scientific worldview we mean the idea of phenomena open to scientific study given by science. By this name we

understand a certain attitude to the world of phenomena around us, in which each phenomenon falls within the scope of scientific study and finds an explanation that does not contradict the basic principles of scientific research. ” In relation to the scientific worldview, which is recognized as a scientific approach of man to the phenomena occurring around us, these ideas state that it is a phenomenon in which the researcher, through scientific research and studies, generates information and conclusions that do not contradict reality.

I.D. Lopatin also expressed his thoughts on the role of views on the universe and being in the scientific worldview, saying, “The scientific worldview is based on a very complex set of common foundations. They are: the existence of an external world independent of us, the existence of physical matter independent of us, the objective existence of space, the homogeneous existence of time, and the infinity of the universe. ” Philosophical theories themselves are insufficient in illuminating these issues. This requires a more scientific approach and an approach based on the results achieved by scientific achievements.

The experimental testing was conducted over one academic semester, involving 451 students from three higher education institutions: Andijan State Institute of Foreign Languages, Namangan State Institute of Foreign Languages and Fergana State University. Participants were divided into a control group and an experimental group, each comprising from 25 to 30 students. The experimental group was exposed to an innovative philosophical curriculum that incorporated scientific concepts, while the control group followed the standard curriculum.

Key components of the experimental curriculum included:

1. Philosophical Dialogues: Facilitated discussions on topics such as the nature of scientific knowledge, ethics in scientific research, and philosophical implications of technological advancements.
2. Debates and Case Studies: Students engaged in structured debates and analyzed historical case studies to explore the interplay between science and philosophy.
3. Collaborative Projects: Interdisciplinary group projects encouraged students to apply philosophical principles to real-world scientific problems.

Data collection involved pre- and post-tests, student surveys, and classroom observations to measure changes in students' understanding and application of a scientific worldview. The results of the experimental testing revealed significant differences between the control and experimental groups. Key findings include:

Enhanced Critical Thinking: Students in the experimental group demonstrated a 20% improvement in their ability to critically analyze philosophical and scientific ideas compared to a 6% improvement in the control group. The quality score of the experimental group was 14% higher than the control group.

Increased Interdisciplinary Awareness: Experimental group students exhibited a greater appreciation for the connections between philosophy and science, as evidenced by qualitative feedback and project outcomes.

Improved Argumentation Skills: The experimental group outperformed the control group in constructing logical arguments that integrated scientific evidence and philosophical reasoning.

Discussion. The findings underscore the effectiveness of integrating scientific concepts into philosophical education to develop students' scientific worldview. Philosophical dialogues and debates provided a platform for students to engage deeply with scientific ideas, while collaborative projects fostered practical applications of interdisciplinary knowledge. The

research also highlighted the importance of a supportive learning environment in promoting intellectual curiosity and critical engagement. Educators should consider adopting similar methodologies to prepare students for the challenges of a rapidly evolving world.

Conclusion. This study demonstrates that experimental testing can significantly improve methodologies for developing students' scientific worldview through philosophy. By incorporating scientific principles into philosophical education, students gain the tools to think critically, synthesize knowledge, and approach problems from an interdisciplinary perspective. Future research should explore the long-term impact of such methodologies and their applicability across different educational contexts.

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