

## THE ADVANTAGES OF EXPERIENTIAL LEARNING IN SCIENCE: A COMPREHENSIVE ANALYSIS

*by:*

**Jaymarc V. Buan**

*Teacher I, San Pablo Elementary School*

Experiential learning in science has gained recognition as a practical approach to engage students and enhance their scientific knowledge. It involves actively experiencing and reflecting on scientific phenomena, encouraging students to participate actively in the learning process. This article aims to provide an academic exploration of the advantages of experiential learning in science.

According to DeBoer (2020), experiential learning allows students to engage in hands-on activities that reinforce theoretical concepts. Students develop a deeper understanding of scientific principles by conducting experiments, manipulating equipment, and observing phenomena firsthand. The tactile nature of experiential learning helps students bridge the gap between theory and practice, leading to enhanced conceptualization.

Walker et al. (2020) mentioned that engaging students in experiential learning activities in science promotes active participation and heightened motivation. Students become personally invested in the learning process by immersing themselves in practical experiments and real-world applications. Experiential learning captures their attention, ignites curiosity, and fosters a sense of ownership over their scientific inquiries.

To Kolb & Kolb (2020), experiential learning in science nurtures critical thinking and problem-solving skills essential for scientific inquiry. Through hands-on experiences, students learn to analyze data, make observations, draw conclusions, and apply their

knowledge to solve complex problems. These skills are transferrable and valuable in various scientific and real-life contexts.

In addition, Gelb (2020) stated that participating in experiential learning exposes students to the scientific method, allowing them to grasp its significance in scientific investigations. By designing experiments, collecting data, and analyzing results, students gain firsthand experience in the iterative nature of scientific inquiry. Experiential learning instills a profound appreciation for the scientific process, promoting critical thinking and curiosity.

Furthermore, Kuh et al. (2020) indicated experiential learning enhances long-term retention and application of scientific knowledge. The hands-on nature of the learning experiences creates lasting memories and connections, making the learned concepts more meaningful and memorable. Students are more likely to retain and apply knowledge gained through active experimentation, leading to a deeper understanding of scientific principles.

Experiential learning in science offers a range of advantages, including enhanced understanding, improved engagement, and the development of critical thinking and problem-solving skills. By actively participating in hands-on experiences, students deepen their appreciation for the scientific method and foster long-term retention and application of knowledge. Incorporating experiential learning into science education can significantly benefit students' scientific understanding and ignite their passion for inquiry. Experiential learning remains a powerful tool in science education as educational approaches continue to evolve.

#### *References:*

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