

Mini Review- “Inquiry and Practice” is Teaching Strategy and Trend to Promote Scientific Learning

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Introduction

The evolution of science and technology is often the main reason for the growth of the country and society. However, in the past traditional education strategies, the connection between the transmission of many knowledges and the application of life was very weak, resulting in a gap between abstract concepts and practical thinking. Therefore, when people face the truly problems in life, it is difficult to use the background knowledge to solve the problems [1]. The Next Generation Science Standards [2] proposed by the United States was mentioned at the beginning that “when people want to understand current affairs, apply technology and even choose important health care, scientific understanding plays an important role”. In other words, it is often necessary to use scientific attitudes and methods to solve problems in daily life, and such problem-solving skills are increasingly important in the contemporary environment, especially we all live in a rapidly changing environment.

To improve students’ problem-solving skills, the content of their courses or activities must include life-oriented, cross-domain, sufficient problem space, and practical experience. To fit the above requirements. Golombek et al. [3] pointed out that inquiry is the process of finding and solving problems. It is also an in-depth thinking mode through searching for data, gathering data, and understanding the process of things. Through the participation of inquiry courses, learners can rethink and organize.

In general, in order to help students, obtain the scientific ability to face the needs of future life, many countries have made adjustments in the direction of education. Among them, the deepening of the combination of inquiry and practice is regarded as an important strategy of improving students’ scientific learning and scientific literacy.

However, in addition to the exploration of thought experiments, the learning content of the practice has multiple key qualities, such as scientific process skills, scientific experiment variable control, scientific evidence collection and interpretation, scientific argumentation and conclusions, etc., that is, the so-called “inquiry and practice” is not only an experiment to complete the classroom operation, but also to let students understand that there are multiple ways to solve scientific problems [4].

To sum up, the whole concepts of scientific inquiry must simultaneously pay attention to students’ exploration of scientific phenomena or problems through exploring and practice [5]. Students and learners should enhance their scientific literacy through improving their

scientific attitude and scientific skills in inquiry and practice. Further, the process of overall scientific inquiry and practice is a process in which individuals use logic and interpretation skills to solve scientific problems, including forming problems, proposing hypotheses, and designing solutions, selection of reasonable explanations, etc. [6]. In addition to the inspiration brought by the PISA assessment, the United States announced the further developed of education need to combine inquiry and cross-disciplinary practice. This shows that “inquiry and practice” is teaching strategy and trend to promote scientific learning. This article looks forward to sharing opinions in the form of mini-reviews and expect to provide multiple ideas for science education.

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References

1. Liben LS, Coyle EF (2014) Developmental interventions to address the STEM gender gap: exploring intended and unintended consequences. *Advances in Child Development and Behavior* 47: 77-115.
2. NGSS, Lead States (2013) Next generation science standards: For states, by states. The National Academies Press, Washington, DC, USA.
3. Golombek PR, Johnson KE (2017) Re-conceptualizing teachers’ narrative inquiry as professional development. *Profile* 19(2): 15-28.
4. Lederman JS (2009) Teaching scientific inquiry: Exploration, directed, guided, and opened-ended levels. *National Geographic Science: Best Practices and Research Base* pp. 8-20.
5. Minner DD, Levy AJ, Century J (2010) Inquiry-based science instruction-what is it and does it matter? Results from a research synthesis years 1984 to 2002. *Journal of Research in Science Teaching* 47(4): 474-496.
6. Windschitl M (2003) Inquiry projects in science teacher education: What can investigative experiences reveal about teacher thinking and eventual classroom practice? *Science Education* 87(1): 112-143.

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