

IS THE INQUIRY-BASED SCIENCE EDUCATION THE BEST?

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Dear readers of our journal, this issue included many interesting and also important articles, which can shift the problematic of education in the more prospective way. I am very thankful to editor of the journal for the space how to express ideas about current problems of education.

The science education is fighting with a relatively big problem. Many academicians, teachers and also laic society are still perceiving difficulty in understanding of concepts from science subject and lack of interest about this group of subjects. In the past the teaching process was very formal focused on the memorizing of the facts without any deeper understanding of the processes in the nature. Pupils and students knew all definitions about concepts in the science subjects, but practical application was on the low level. The academicians, teachers and other people interested in the science education were eager to change system of education. They wanted to include new approach into science education. The inquiry-based science education (IBSE) seemed to be as the right way for the better understanding of science process by pupils and students. IBSE can be traced back to the 1950s, when Jean Piaget investigated the different ways in which children thought and processed information. Innovative science curricula were developed in the 1960s, particularly for primary schoolchildren. Science education research gained more popularity in the 1970s and 1980s. Constructivism became a dominant theory of learning. Since around 1990, IBSE has become the most widely advocated teaching approach among science education researchers and leaders (Gormally et al. 2009). The propagators of IBSE mentioned many advantages of this approach like: it leads to more motivated students; it helps to develop information literacy and critical thinking skills; it results in better long term retention of information; it helps to develop deeper understanding of subjects; it helps students become better learners and helps prepare them to be life-long learners; it encourages self-direction; it reinforces physical, emotional and cognitive growth; it encourages development of interpersonal and team skills; it emphasizes intrinsic rather than extrinsic rewards; it can give students the opportunity to teach and learn from each other; it may engage students who do not function well in a more traditional learning environment; it validates the knowledge and experiences of students, including those from minorities and disadvantaged groups; it can be adapted for any age group and others (e.g. Justice 2009). We can only agree, that all these are positive, but we can ask one simple question: "Is this approach good?" The problem with this approach is also mentioned in the study of Osborne (2014). The main problem in the perception of science through ISBE is that it represents a confusion of the goal of science. The main aim of science is to discover new knowledge about the material world, but ISBE is trying to build an understanding of the existing ideas about scientific phenomena. The IBSE seeks not to create new knowledge, but rather to help pupils and students understand a body of existing, consensually agreed and well-established old knowledge. So, what is the idea of a new approach, which can lead to discover new knowledge from the science perspective? The answer is, that the practice could change the IBSE as the approach, which can help students interest about science subjects. Because as it is possible to see, the IBSE has not got always only the positive effect on the students perception of science subjects. The interest about this group of

subject is not on this level as it was awaiting after incorporation of IBSE. Engaging in practice only has value if: (a) it helps students to develop a deeper and broader understanding of what we know, how we know and the epistemic and procedural constructs that guide the practice of science; (b) if it is a more effective means of developing such knowledge; and (c) it presents a more authentic picture of the endeavor that is science. Currently, there is little evidence that science education is achieving such goals (Osborne 2014). The primary aim of engaging in practice is to develop students' knowledge and understanding required by that practice, how that practice contributes to how we know what we know, and how that practice helps to build scientific knowledge. Knowledge of how we know (knowing how) is reliant on a developing a body of procedural knowledge or concepts of evidence (Gott et al., 2008).

So, this is only a possibility how to make science subject more interesting for pupils and students, because situation is still not changing for over the years. IBSE is a very good concept, which can lead to the better understanding of science. But, is this concept right for the better attitude of pupils and students toward science subjects? And will pupils and students be more interested in this group of subjects? There is also one problem, in some countries the IBSE has got a relatively long tradition, but in some countries it is only in the beginning of the application in the learning process.

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