

## Dear Readers and Writers!

Two different professions are engaged in science education: 'subject-specific (physics/chemistry/biology) educators' (i.e. people who do it) and 'science education researchers' (people who study it).

Many subject-specific educators at the university and school levels often analyse physics/chemistry/biology education in general or particular concepts and areas of their specific discipline. The selection of the content for the curriculum, as well as the level and depth at which concepts should be taught feature in such discussions.

Science educators are engaged in educational research – advancing pedagogical knowledge in science. They started about thirty years ago to see science education from a different perspective, that of the process of learning. Their attention was focused not on the curriculum but on the student. Another change was the fact that such studies are not theoretical but are carried out by means of experimental (empirical) investigations. As with research in science, characteristics of educational research are that it is theory based, it is data based, and it produces generalisable results.

Educational research has, or should have, as one of its major goals the improvement of education. However, the impact of research on the practice of science education has remained relatively low. It is remarkable how unaware practising science teachers are of the findings from science education research and how unwilling they are to take such findings into account in the design and organisation of their teaching strategies and procedures.

Educational and practitioners' journals should pay more attention to connecting research and practice. This journal can play an important role in this connection. To this end, papers that report educational research findings should pay special attention to discussing their implications for the practice of teaching and learning. Papers that review the education research literature in a specific field of study are also very useful, particularly if they also pay attention on the effect of the research on practice.

But there are other types of educational studies. Many science educators introduce into their teaching innovative methods that deserve to become widely known. It is essential that such methods can be supported by science education theory. On the other hand, it is highly desirable that empirical support is provided to the proposed innovation. Unfortunately, these people are often unaware of educational research methodology, and/or do not have the time to design and carry out an educational research study. A middle way is to collect some data from trying out their method with students (such as from performance on tests – especially comparative data – or from answers to questionnaires). The proposed method and the data can then be included in a paper that reports *effective practice* of science education.

Last but not least, science education journals (and this journal should be no exception) should be happy to publish position papers by both established scientists/science educators and science education researchers. Such papers should analyse in depth issues of direct relevance to science education research and practice.

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