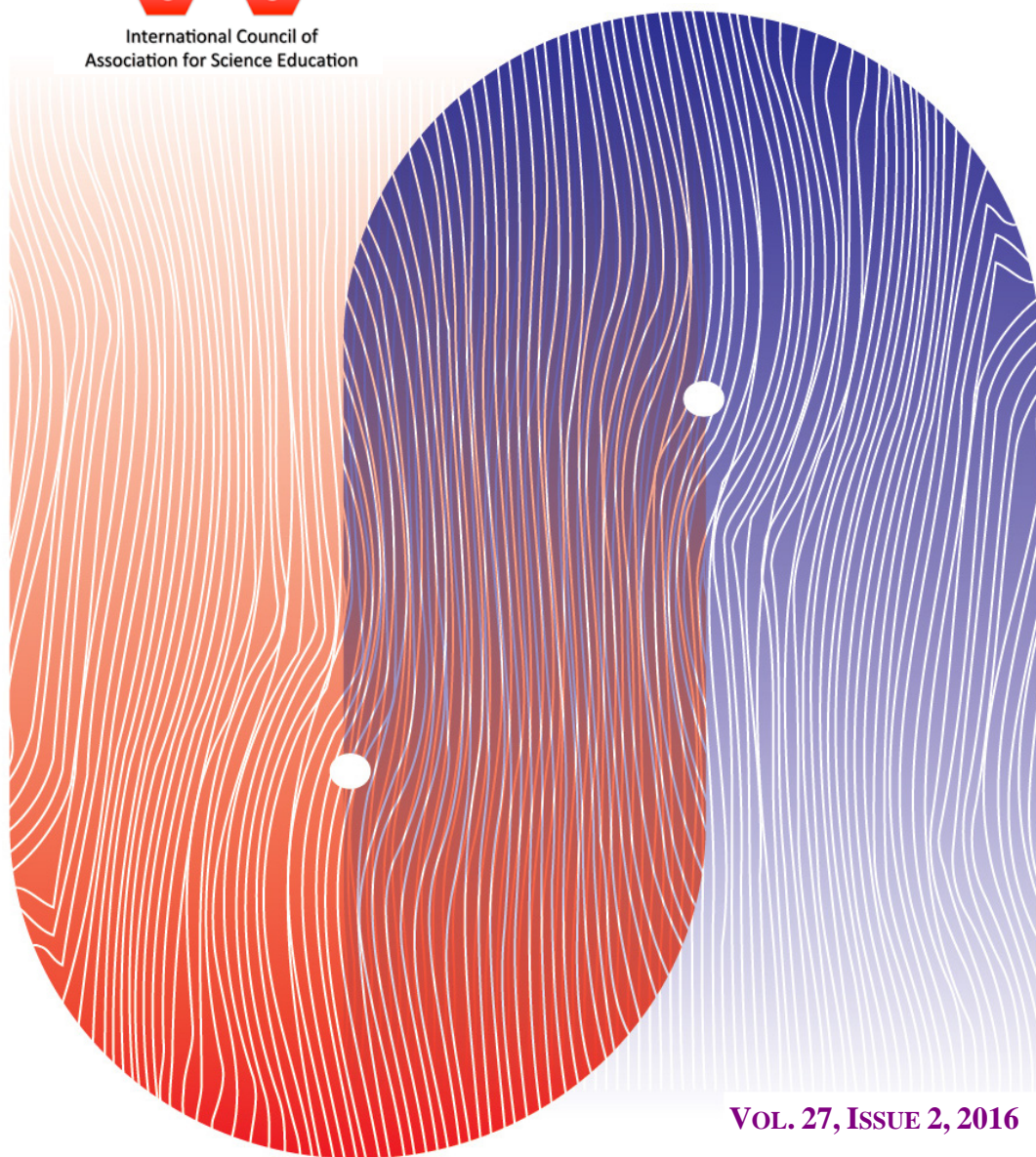


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Editorial

B. H. ZHANG, J. HOLBROOK

This issue goes out at a special period of time. Although we congratulate Yasemin Ozdem Yilmaz on her new appointment, her resignation from the SEI editorial team has left much editorial work undone. We have understood better about how much work has been involved, and thus feel more appreciative of what Yasemin has done for the journal. With help from Bulent Cavas, the current small editorial team has been working mainly on accepted papers, taking advantage of Yasemin's legacy. We are grateful that much of the editing work is undertaken with collaboration from authors in finalizing and formatting papers. Therefore, with seven papers from the US, Estonia, Belgium, and Turkey, respectively, we hope this issue maintains its high quality.

The paper by McGinnis and his colleagues was concerned about how science educators from different contexts (e.g. in or outside higher education) believed their roles and responsibilities in climate change education. They took a hybrid theoretical perspective (interactionism and social constructivism) to analyze the written data obtained from participants. "Diffusion of responsibility" provided a useful interpretative lens. It could be damaging when the data suggested that science educators from different groups held differing role and responsibility views for climate change education. The study indicated that science educators should be mindful of stakeholders perspectives when thinking about their roles and responsibilities to teach important science topics.

The study by Kotkas, Holbrook, and Rannikmäe, on intrinsic relevance focused on the importance of relevance in the eyes of students in the learning of science. The purpose was to determine how Teaching-Learning modules addressed the issue of student relevance so as to facilitate students seeing the importance, meaningfulness or usefulness of the learning, at least at the initial stage. The study examined titles and introductory texts (scenarios) of a large number of Teaching-Learning modules, designed to address issues of science relevance for students through a context-based approach. The study found that a title given as a question was heavily favoured, with the text addressing a social-scientific aspect. However, some Teaching-Learning modules tended to place too much initial emphasis on 'relevance to the curriculum', when the science over-dominated and led to situations where the context became unfamiliar to

students. The study thus pointed out the need for Teaching-Learning modules to pay much more attention to focusing on student's linking of their prior background or knowledge to strengthen the relevance of the science learning.

The paper by Lee and Shea explored how to build confidence of pre-service elementary teachers (PSETs) when preparing them to teach inquiry-based science in a science methods course in an university in the US. They used pre-test and post-test questionnaires of attitudes and knowledge and semi-structured one-on-one interviews of the participants to assess the changes caused by the science methods course. The study showed that PSETs' understanding of inquiry-based science teaching is a key step to build their confidence and efficacy of teaching science. The results showed the relationship between PSETs' understanding of inquiry-based science teaching and their self-reported confidence and efficacy of teaching science, which has implication in designing pre-service science teachers' methods course and pre-service teacher education.

Ates and Saracoglu's paper was also about pre-service teachers' (PST) education, in this case in Turkey. The authors wanted to know pre-service science teachers' (PSTs') views about nuclear energy and whether gender and type of universities affected their views. Participants were PSTs from two Turkish universities. Results showed that participants all supported nuclear energy when it was concerned electricity and energy generation, national defense and prestige in the international community. The authors found statistically significant difference regarding the university of instruction, but no significant differences between genders in both the risk and benefit dimensions. The PSTs who studied at Erciyes University supported nuclear energy more than the PSTs who studied at Ahi Evran University. Reasons for the similarities and differences warranted further studies.

The paper by Kapucu, Öcal and Şimsek presented a study on high school students' understanding of the relationship between mathematics and physics. In order to achieve the goal, a Relationship between Mathematics and Physics Questionnaire (RMPQ) was developed first. A total of 718 high school students participated in this study. Results showed the instrument was reliable, and the majority of the students believed that mathematics and physics were closely related to each other with regard to their content and daily-life relations. The study might help students to raise awareness of the importance of mathematics when learning physics.

The paper by Cox, Steegen and Cock, highlighted issues related to misconceptions in the teaching of astronomy. While a number of such misconceptions were seemingly well known to teachers and strategies have been developed to address these, other misconceptions were poorly recognised by teachers. In this study, focus group interviews were held with geography teachers plus individual interviews with managers of geography teachers. From

the discussions, it emerged that elliptical orbits are often seen by students as too elliptical and this leads to difficulties in understanding the causes of day and night in the polar regions. Of concern was that teachers did not apply effective methods of differentiating the variation in comprehension between students and did not really appreciate that misconceptions of students still existed after classroom teaching. Also the importance of preconceptions was not sufficiently addressed by teachers.

The study by Sen & Yılmaz intended to develop a structural equation model identifying key variables for impact of attitudinal attributes on preservice teachers' self-regulated learning. Five key variables were chosen and both direct and indirect effects were considered in modelling. By using a literature identified, 'motivated strategies for learning questionnaire', the authors were able to show that (ER) effort regulation, (SELP)self-efficacy for learning and performance and (MSR) metacognitive self-regulation had a direct impact on (TSEM) time and study environment management. The authors pointed out that motivational beliefs (such as control of learning beliefs and self-efficacy for learning and performance) could explain why some learners were successful in the process of learning, whereas others were not. Highly motivated learners could use learning strategies that facilitate learning and coding processes in a more effective way. The researchers also proposed that cognitive strategies were not effective for academic achievement by preservice teachers when no self-regulatory strategies were put into place.

We are glad to present this issue to our readers. This is a difficult period for the journal after the editorial duties are rearranged. However, with everybody's kind will to level up the journal's quality, a new and more responsive editorial system is also being developed, we expect the journal to maintain its excellence, and later to be more representative and influential.