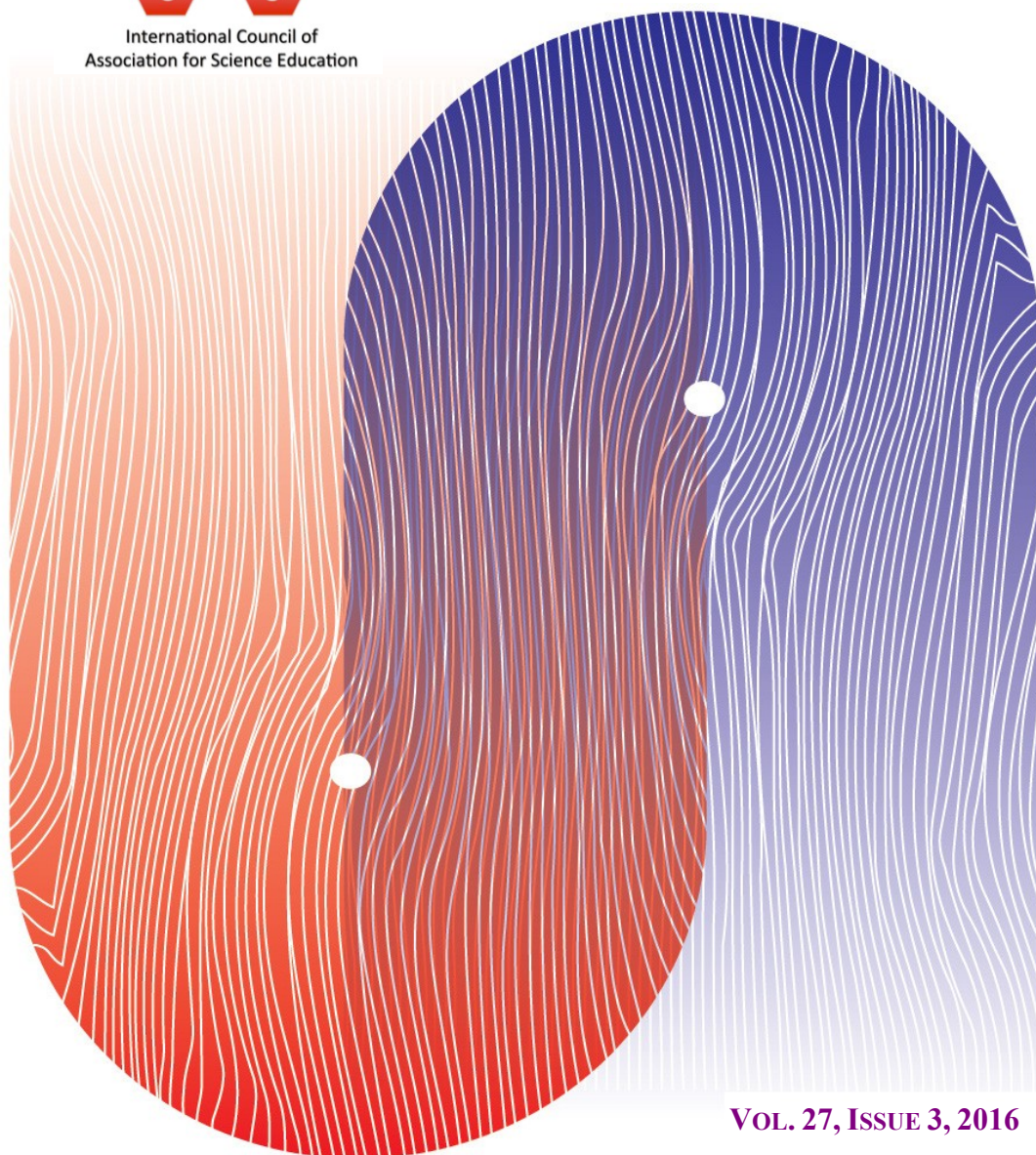


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SCIENCE EDUCATION INTERNATIONAL

Volume 27, Issue 3, 2016

Table of Contents

Editorial

BaoHui Zhang, Jack Holbrook 317

An Examination of Prospective Elementary Science Teachers' Perspective towards Socio-Scientific Argumentation

Ali Yiğit Kutluca, Aydin 320

The Application of School Science by Urban High School Youth through Problem-solving in Everyday Life

Wanja Gitari 344

Implementation of Argument-Driven Inquiry in a General Chemistry Laboratory Course

Hakkikadayifci, Ayseyalcin-Celik 369

The Systemic Impacts of An Educational Project Conducted by One University in Partnership with Fifteen Organizations

João Alberto Arantes do Amaral, Claudia Henriquez Frazão 391

Examining the Effect of Our World Exhibit on Student Visitors: A Science Center Case

Mehmet C. Ayar 419

Educational Reforms and Implementation of Student-Centered Active Learning in Science at Secondary and University Levels in Qatar

Sheila Qureshi, Katherine L. Bradley, Venkat Rao Vishnumolakala, David F. Treagust, Daniel C. Southam, Mauro Mocerino, Joseph Ojeil 437

Editorial

B. H. ZHANG, J. HOLBROOK

This issue of the journal comprises six papers, but we apologise for its late appearance. The journal is seeking to overcome the lack of an operational structure and have a more effective editorial operation mechanism. With an imminent ICASE executive board member meeting, SEI editorial board and reviewer meeting, and an SEI author meeting associated with the November ICASE 2016 conference (<http://www.icas2016.org>), all issues can be discussed and solutions found to sustain the level of the SEI journal.

The papers were selected and carefully edited from more than 20 submitted manuscripts. As usual, we have tried to include papers from as diverse sources as possible. However, once again more submissions were from Turkey. Thus, this SEI issue included three papers from Turkey, one from Canada, one from Brazil, and another from Qatar, respectively. We hope you found this issue maintaining a high quality.

The paper, *An Examination of Prospective Elementary Science Teachers' Perspective towards Socio-Scientific Argumentation*, by Kutluca and Aaydin from Turkey, focuses on the education of prospective elementary science teachers. It is related to their being involved in socio-scientific issues (SSIs) argumentation discourse as an aspect in guiding teachers towards promoting critical thinking in students, related to their social life. It stresses the value of argumentation as important for raising awareness of the nature of science (NOS) and in promoting more student-centered teaching, when students are co-constructors of learning. The study compared the pre- and post- instruction outcomes after involvement in SSI argumentation engagement and indicated improvement of the science teacher education intervention.

The study, *The Application of School Science by Urban High School Youth through Problem-solving in Everyday Life*, by Wanja Gitari from Canada, investigates non-guided application of school science by high school youth in non-school contexts, where problem solving has value. It shows that youth have the potential for independent knowledge application, but that gaps in knowledge are likely to inhibit motivation to follow through on seeking solutions to problems. Also, a lack of a self-regulated approach can inhibit the overcoming of constraints. A major positive effect for positive application is

personal relevance related to, for example, food, energy and the environment. The paper recognises that school pedagogical perspectives must coach youth to recognise problem-solving opportunities, master effective heuristics and bolster motivation by collective action and by expanding their scope of problem solving. This study points out that for non-guided application of school science, there tends to be a lack of mobilization of know-how and there is thus a need to focus on applications of indigenous knowledge and knowledge from other domains, for problem solving in everyday life.

The paper, *Implementation of Argument-Driven Inquiry in a General Chemistry Laboratory Course*, by Hakkikadayifci, Ayseyalcin-Celik from Turkey, examines the effectiveness of argument-driven inquiry (ADI) within chemistry laboratory courses, as an alternative to traditional laboratory teaching approaches. In the study, earlier verification-type experiments are modified into inquiry experiments for use in the ADI approach, which is based on 7 steps – identification of the tasks, generation of data, production of a tentative argument, interactive argumentation sessions, creation of a written investigation report, double-blind peer review and a revision process. Outcomes indicated that ADI created a suitable environment for reflective thinking. It enabled active participation in experimentation and this led to improved process skills and identification of flaws in arguments. In general, the participants express positive opinions towards ADI.

The paper, *The Systemic Impacts of An Educational Project Conducted by One University in Partnership with Fifteen Organizations*, by João Alberto Arantes do Amaral, Claudia Henriquez Frazão from Brazil, describes a project that provided educational opportunities to people from poor communities of São Paulo, Brazil. Seventy-six course members followed a systemic action research approach. Through a qualitative study based on document review, questionnaires, interviews, videos and observations, the paper provided a mechanism for universities and different parties concerning higher education to promote meaningful actions in their communities to develop their project management and systems thinking skills for social changes. The paper expands the journal's scope by revealing mechanism in reforming higher education in poor areas in developing countries.

The study, *Examining the Effect of Our World Exhibit on Student Visitors: A Science Center Case*, by Mehmet C. Ayar from Turkey, presents the effect of an exhibit called Our World at a science center on student visitors in Turkey. The study describes measures to elicit students' views about the exhibits, zones, and activities, along with their level of interest and experiences. These are achieved through a survey, field notes, observations and interviews. The findings indicate that curiosity and interest are key triggers for visiting the exhibits at the center. Visiting the exhibits helps students acquire science content knowledge. Suggestions are given based on the findings. The paper

expands the journal's scope in regard to studies in informal science settings.

The paper, *Educational Reforms and Implementation of Student-Centered Active Learning in Science at Secondary and University Levels in Qatar*, by Sheila Qureshi and collaborators in a multi-national team, presents past and current educational changes and developments in the organization and staffing of schools over the past decade in an effort to improve the academic performance of school-aged citizens in Qatar. The core idea for the changes is to promote more student-centered, but also teacher-guided development of critical thinking, problem solving, inquiry and investigative skills. The authors argue that the developments and commitment to educational reform in Qatar can act as a guide for other nations that wish to move from didactic teaching to a more student-centered approach.