

EDITORIAL

Why a new journal in science education? Why focusing on action research?

Ingo Eilks 

University of Bremen, Germany

ingo.eilks@uni-bremen.de

♦Received 13 June 2018 ♦Accepted 31 July 2018

The rationale for launching ARISE

Publishers and groups are announcing the launch of new journals with a focus in science education quite often. They claim, in one way or another, a justifiable role and need in the field. Clearly, the number of science education practitioners/researchers is growing globally, together with a revived and increased interest from a range of countries to get recognition as being international players in the domain of science education. This creates an increasing pressure on science educators to publish in international journals, as it is the case in other branches of academia. Most of the journals are, however, traditional in nature and mainly focus on science education research of formal type. Formal type research is mostly based in (post-)positivistic or constructivist knowledge claims of (science) education research (knowledge claims might also be called paradigms or philosophical assumptions, epistemologies, and ontologies). Other knowledge claims might provide further, different perspectives with consequences on why to do and how to design educational research (Creswell, 2003, p. 5 ff.). Other knowledge claims may encompass pragmatic, emancipatory, and critical views on why and how to do research in education, e.g. when it comes to action research.

Although several cases show that it is possible to publish innovations in science education based on action research in older or newer journals of traditional type (e.g. Marks & Eilks, 2010), a recent analysis of the literature showed that the quantity of high quality papers on action research in science education is still limited (Laudonia, Mamlok-Naaman, Abels & Eilks, 2018). “High quality” in this context indicates that a paper is published in a respected international journal or book, after successfully passing a careful and rigorous peer review process, which is conducted by “real” experts who voluntarily donate their invaluable time and efforts in order to meaningfully contribute to the field. The number of publications on action research in science education still does not come up with the emphasis and potential that is suggested to action research by national or international educational policies, for evidence-based practice development, teacher continuing professional development, and lifelong learning (European Commission, 2013; 2015; UNESCO UIL, w.y.).

There might be, basically, two reasons for the low representation of action research reports in science education journals: most probably, the first one is the often-described dissemination problem of most kinds of action research, especially for teacher-centered or teacher-driven action research studies. The dissemination problem in teacher-driven action research studies is a result of the missing time among teachers for writing and maybe a lack of interest and skills to write up their action research reports for the purpose of publication. Finding the right channel (i.e. journal) for the manuscript that will readily give a voice to teachers and provide guidance all the way through is also a concern for the teachers. Not being familiar with the necessities and requirements of academic writing and fear of rejection at the end may set an impassable obstacle in the minds of the author. The other reasons might lie also in a lack of understanding among editors and reviewers about how action research is different from traditional, formal research. This could be based in the editors’ and reviewers’ ‘enculturation’ by becoming educational researchers in traditional research schools and having obtained their experiences mainly by more formal types and traditional strategies of educational research.

Action research in science education is different from a traditional, formal understanding of educational research (Bodner, MacIssac & Whyte, 1999). It is different in its intentions and goals, its base and methods, and its practices and underlying knowledge claims. Action research in its basic nature is pragmatic and emancipatory, it is as an alternative approach to innovations in education and educational research. It is not positivistic and also not limited to the tenets of post-positivism or constructivism. The same holds true for several related approaches in science education that incorporate all kinds of practice-research done by or under involvement of teachers. This can encompass design-research for classroom innovation or teacher research done in the teachers’ classrooms. Quite frequently, also these approaches follow different knowledge claims of educational research than the classical ones.

It needs, however, to be said that the field of science education is also largely under-represented in those few international journals dedicated to educational action research. Here reasons might be in the quite low permeation of action research communities by science educators and science teachers. This leads to the situation that also in existing action research journals there is no comprehensive mirror of action research activities in science education in general, and its several sub-disciplines in particular, namely biology, chemistry, physics and geoscience education, or related fields, like environmental education, engineering education, or nano-education.

With the launch of *ARISE – The Journal of Action Research and Innovation in Science Education* we want to provide a forum for publishing action research and related approaches in science education by respecting the differing knowledge claims they are established in. We welcome contributions from all domains of science education and related areas, e.g. environmental education, engineering education, or nano-education. Contributions may focus on all aspects of student learning, motivation, attitudes, etc. We also welcome papers on teacher education and continuing professional development by action research and all its related strategies. We do not want to restrict ARISE to formal education but also welcome contributions from non-formal and informal educational settings. The only type of papers in this realm being not appropriate for

ARISE are mere suggestions for change in practices and innovation that are not evidence-based and not clearly showing that they indeed work; evidence needs to be provided at least along cases respecting their certain circumstances. In this respect, it is also a valuable contribution to show why a long time cherished practice does not actually work the way it is meant to (at least in some cases or situations), or could be much improved in a particular and/or definite way.

In ARISE we will accept three types of contributions: reviews or perspective papers on the role and methodology of action research in science education; action research studies and cases of innovation from science classrooms; lastly, short communications on any aspect relevant to action research and innovation studies. ARISE is a fully peer-reviewed academic journal. Every submission will be evaluated by scholars from the field of science education and its related fields. Peer-review will be conducted with a serious concern on scientific rigor. Peer review is, however, done with respect to the specific approaches action research and innovation studies provide and taking into account that action research cases are operated and documented by or in cooperation with teachers and take place in authentic classroom practice settings. An international editorial board has been established to help and support the editors in their decisions.

The editors of ARISE hope for continued interest of both the researcher and practitioner communities in science education. The journal shall provide a forum of exchange and inspiration to dig deeper into the methods and applications of action research and related approaches in all fields of science education for the sake of better education in science and its related fields for the coming generations. A journal lives by the contributions of authors, editors, and reviewers. Hence, you are cordially invited to raise the performance and impact of ARISE with your contribution. On behalf of the editors and the whole ARTIST consortium, I kindly ask your collegial help by maintaining a long term interest in ARISE in order to make it a successful new venue for disseminating action research, design and innovation studies.

ARISE is funded as part of the project *ARTIST – Action Research To Innovate Science Teaching*. ARTIST is a project of ten partners from seven different countries. It takes place from 2016-2019 and comprises professional development measures for teacher education staff to implement action research into science teacher education. ARTIST is co-funded by the ERASMUS+ program of the European Union under the interest of CBHE – Capacity Building in Higher Education. On behalf of all ARTIST members, I gratefully acknowledge the funding and support by the European Union.

References

- Bodner, G. M., MacIsaac, D., & White, S. R. (1999). Action research: overcoming the sports mentality approach to assessment/evaluation. *University Chemistry Education*, 3(1), 31–36.
- Creswell, J. (2003). *Research design – Qualitative, quantitative and mixed methods approaches*. Thousand Oaks. Sage.
- European Commission (2013). *Supporting teacher educators for better learning outcomes*. Brussels: European Commission. Retrieved from the World Wide Web, April 14, 2018, at ec.europa.eu/dgs/education.../support-teacher-educators_en.pdf.
- European Commission (2015). *Shaping career-long perspectives on teaching. A guide on policies to improve initial teacher education*. Brussels: European Commission. Retrieved from the World Wide Web, April 14, 2018, at ec.europa.eu/dgs/education_culture/repository/education/library/reports/initial-teacher-education_en.pdf.
- Huberman, M. (1993). Linking the practitioner and researcher communities for school improvement. *School Effectiveness and School Improvements*, 4, 1-16.
- Laudonia, I., Mamlok-Naaman, R., Abels, S., & Eilks, I. (2017). Action research in science education - An analytical review of the literature. *Educational Action Research* advance article.
- Marks, R., & Eilks, I. (2010). Research-based development of a lesson plan on shower gels and musk fragrances following a socio-critical and problem-oriented approach to chemistry teaching. *Chemistry Education Research and Practice*, 11 (2), 129-141.
- UNESCO Institute for Lifelong Learning (UIL) (w.y.). *Action research*. Retrieved from the World Wide Web, May 22, 2018, at <http://uil.unesco.org/literacy/action-research>.

