

Preparation of Teachers of Science for English Language Learners

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Happy New Year! According to the National Center for Educational Statistics (2019) (https://nces.ed.gov/programs/coe/indicator_cgf.asp), the percentage of public school students in the United States who were English Language Learners (ELL) was higher in 2016 (9.6 percent, or 4.9 million students) than in 2000 (8.1 percent, or 3.8 million students). The percentage of students who were ELLs was higher for school districts in more urbanized areas than for those in less urbanized areas, and based on locale, ELLs constituted an average of 14.0 percent of total public school enrollment in cities, 9.3 percent in suburban areas, 6.5 percent in towns, and 3.8 percent in rural areas. Regarding science performance (https://nces.ed.gov/programs/coe/indicator_cne.asp), the average science scores for ELLs in grade 4, grade 8, and grade 12 were lower than their non-ELLs peers' scores, with an achievement gap between non-ELLs and ELLs of 36 points, 46 points, and 152 points, respectively (NCES, 2017).



In light of these statistics, schools, districts, and states are challenged to deliver high-quality instruction to ELLs (NSF, 2006). It is also essential that educators who teach science are prepared to ensure that all students, including ELLs, have opportunities to learn and excel in science. Additionally, the Teachers of English to Speakers of Other Languages (TESOL) Standards (2006) promote academic language proficiency in science and supports pedagogical approaches for integrating language acquisition and science learning. Moreover, research has shown that effective teacher preparation and professional development results

in positive change in teachers' beliefs and practices in integrating science and literacy for ELLs (Buck, Mast, Ehlers, & Franklin, 2005; Hart & Lee 2003; Stoddart, Pinal, Latzke, & Canaday, 2002).



Accordingly, the National Science Teaching Association (NSTA) recommends in their Position Statement on Science for ELLs that teacher preparation and professional development programs focus on science content and pedagogy for ELLs and help teachers (<https://www.nsta.org/about/positions/ell.aspx>):

- recognize and build on ELL students' "funds of knowledge" (i.e., knowledge students gain from their family and cultural backgrounds) as a foundation for learning scientific ideas and practices;
- recognize that students who are learning English or who are from cultural and linguistic backgrounds different from the teachers' background may express what they know in ways that are unfamiliar to their teachers;
- use instructional strategies that simultaneously promote science learning and English proficiency for ELLs; and
- meet regularly with fellow teachers to share ideas, experiences, tasks, and materials that are effective in teaching science to ELLs.

The Innovations journal is continuously in need of fresh new perspectives on preservice science teacher education and professional development programs that focus on science for ELLs. The Innovations journal provides a place for science teacher educators to share detailed descriptions of how their science for ELL programs or professional development programming is conducted. Innovative science for ELLs activities are also essential for science teacher educators and classroom teachers, as both attempt to improve science teaching and learning. Thus, we encourage science teacher educators, scientists, science coordinators and supervisors, and informal science educators who prepare and provide professional development for teachers of science at all grade levels to share their innovative ideas with our international science education community through the Innovations journal.

Innovations is the official peer-reviewed online practitioner journal of the ASTE that serves as a forum for disseminating effective instructional practices that are innovative and inspirational. So, take some time right now to reflect back on the innovative aspects of your science for ELL programs for science teachers. Do you have an innovative idea to share with your colleagues? Consider sharing your ideas and lessons learned with colleagues by submitting a manuscript describing your outstanding work with preservice and inservice science teachers!



Also, be sure to check out our website to learn more about publishing in Innovations in Science Teacher Education by using the following link: <https://innovations.theaste.org>. Please be sure to review the instructions for authors section prior to submitting to ensure that your manuscript adheres to format guidelines and addresses each criterion. We look forward to receiving your manuscripts and want to thank everyone who is, and will be, participating in the submission and review of manuscripts. We hope that you have an amazing 2020!



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