

Process of Article Selection

Studies selected for this review were published between 1982 and 2012. All selected articles focused on science teaching. For studies on elementary teaching, there had to be a clear focus on the teaching of science. At least half of the participants needed to be newly hired science teachers in articles with secondary teachers. For example, a study with two science teachers and six mathematics teachers would not be included in this review. A study with one newly hired science teacher and three experienced science teachers would not be included either. Studies with preservice teachers were not included unless at least half of the participants were newly hired science teachers, or the study followed participants into their first years of teaching.

These articles were found in two different ways. First, we searched through selected journals article by article. These journals were top-ranking, peer-reviewed science education journals published throughout the time period of interest. The journals we searched through were the *European/International Journal of Science Education*, *Journal of Research in Science Teaching*, and *Science Education*. We also identified ten education journals with the highest impact factor ratings. Out of these ten journals we selected journals that would potentially include articles about newly hired science teachers (i.e., not explicitly focused on areas outside of science education). Based on these criteria, we searched through the *American Educational Research Journal*, *Journal of the Learning Sciences*, and *Learning and Instruction* for relevant articles.

Second, we electronically searched the abstracts of peer-reviewed articles in the ERIC and EBSCO Host databases. These searches included the term 'science' along with: beginning teacher(s), induction teacher(s), beginning elementary teacher(s), newly qualified teacher(s),

mentoring, mentors, novice teacher(s), and new teacher(s). This second search identified several additional articles.

Each of the articles identified was reviewed for quality. Studies that did not meet the quality standards were excluded from the review. Quality standards were based on guidelines published by the American Educational Research Association (2006), as well as criteria used in Clarke, Triggs, and Nielson (2013) and Bybee (1982). Drawing upon these resources, we created a rubric to judge the quality of articles based on four elements: (1) a clear research question and focus, (2) appropriate methodological approaches and tools, (3) claims consistent with and supported by data, and (4) the contribution to the literature. Articles that supplied limited or no information about methodology or that made claims beyond their data were eliminated. Studies that adequately met these guidelines were included in this review. From this search process we selected 108 studies for inclusion in this review.

References

- American Educational Research Association (AERA). (2006). Standards for reporting on empirical social science research in AERA publications. *Educational Researcher*, 35(6), 33-40.
- Bybee, R. W. (1982). Historical research in science education. *Journal of Research in Science Teaching*, 19(1), 1-13. doi: 10.1002/tea.3660190102
- Clarke, A., Triggs, V., & Nielsen, W. (2013). Cooperating teacher participation in teacher education: A review of the literature. *Review of Educational Research*. doi: 10.3102/0034654313499618