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## A Bibliography of Articles on Technology in Science Education

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When leaders from a variety of content-specific education organizations met at the National Technology Leadership Retreat 2001 to discuss technology's role in education, they were asked why more teacher educators were not integrating educational technology in their instruction (see [Bell, 2001](#), for the full list of participants, as well as other issues discussed). One of the common issues cited by representatives—including those from the Association for the Education of Teachers in Science—was the perceived inadequacy of the literature supporting technology in education.

A limited body of knowledge exists that examines technology's benefits to student learning, and many teacher educators are unfamiliar with the literature that has been published. Much of the literature discussing technology use in teacher preparation is based on anecdotal evidence. ([Bell, 2001](#))

We left the conference curious about whether that perception was accurate specifically in the field of science education. Over the past year we have conducted an extensive search of the education literature to identify articles dealing with the topic of technology in science education. The result of this effort is a bibliography of published articles and book chapters related to applications of technology in K-12 science teaching or in science teacher preparation.

Because technology changes so rapidly, and contemporary research on technology is likely to be most relevant, we chose to include only publications dated 1994 or later (this was the year Carl Berger and colleagues published their review of the literature on technology in science education in

the *Handbook of Research on Science Teaching and Learning*). We did not expect to find many articles published on this topic over the past 8 years, but the results of our search were enlightening.

It turns out that between 1994 and 2002, over 200 articles have been published that specifically address the use of digital technology in the teaching of science content. Although we have not critically reviewed the entire bibliography, the articles in this list represent all areas of scholarly work, including descriptions of technology use, theoretical and policy pieces, and qualitative and quantitative research.

In addition, the reason that “many teacher educators are unfamiliar with the literature that has been published” became clearer to us in the process of this literature search. The following is a breakdown of the number of articles published in journals most familiar to science educators:

<i>Journal of Research in Science Teaching:</i>	23
<i>Science Education:</i>	4
<i>Journal of Science Teacher Education:</i>	9
<i>International Journal of Science Education:</i>	5
<i>School Science and Mathematics:</i>	14

Almost 80% of manuscripts related to technology in science education over the past 8 years have been published in journals that are not read regularly by most science teacher educators, such as the *Journal of Science Education and Technology*, the *Journal of Computers in Mathematics and Science Teaching*, and the *Journal of Technology and Teacher Education*. With this bibliography we hope to make the literature addressing technology in science education more accessible to the science education community.

Although we have made every effort to make the bibliography complete, it should not be seen as exhaustive, and we welcome additions to it. As a matter of fact, our plan is to take advantage of the online medium of CITE Journal and make the list dynamic, updating it periodically.

The bibliography that follows lists publications in two categories: “K-12 Science Education” and “Science Teacher Preparation.” To make this bibliography more useful to educators, we are including a link to a rich text file (.rtf) of this bibliography, as well as a link to a rich text file of the bibliography categorized by nine selected topics:

[Bibliography](#)

[Bibliography - categorized](#)

We hope that this bibliography will pique your curiosity about the use of technology in science education, and we encourage you to examine the literature. You may gain a broader perspective of its value in science teaching, as well as insight into new directions for research.

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