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Evidence Based Library and Information Practice

# Students Think Science Literacy Is Important and Improves with Lifelong Learning

## Holden, I. I. (2010) Science literacy and lifelong learning in the classroom: A measure of attitudes among university students. Journal of Library Administration, 50:3, 265-282. https://doi.org/10.1080/01930821003635002

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**Evidence Based Library and Information Practice**

*Evidence Summary*

# Students Think Science Literacy is Important and Improves with Lifelong Learning

**A Review of:**
Holden, I. I. (2010) Science literacy and lifelong learning in the classroom: A measure of attitudes among university students. *Journal of Library Administration*, *50*:3, 265-282. https://doi.org/10.1080/01930821003635002

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**Abstract**

**Objective** – Investigate student attitudes to science literacy and lifelong learning as outlined in Standard Five of the Information Literacy Standards for Science and Engineering/Technology (ILSTE): The information literate student understands that information literacy is an ongoing process and an important component of lifelong learning and recognizes the need to keep current regarding new developments in his or her field (2006).

**Design** – Survey.

**Setting** – A large public American R1 university.

**Subjects** – Undergraduate students in two classes: Information Literacy in the Sciences (Science group) and Information Literacy (Non-Science group).

**Methods** – A 13 question survey was administered to students by a colleague of the author. Three categories of questions were asked: students' perceptions of the important of science literacy, students' assessment of their own science literacy skills and students' perceptions of lifelong learning in relation to Standard Five.

**Main Results** – Survey participation included 13 students from the Science group and 18 students from the Non-Science group. Students agreed that science literacy is an important part of civic literacy and responsibility, and should be taught to undergraduates in the United States. Students from the Science group frequently had more positive responses to statements than the students in the Non-Science group. For example, 81% of Science students either agreed or strongly agreed with the statement, "Every responsible citizen should be aware of the latest scientific discoveries" compared to 61% of Non-science students. Students felt that their science literacy skills had improved since high school. Most students were confident in their research skills including using emerging communication technologies. Students believed that life-long learning and staying current contribute to good information literacy and science literacy.

**Conclusion** – Students think science literacy is an important part of being a responsible citizen. They also believe being a life-long learner improves science literacy.

**Commentary**

This research article was written in 2010. Since that time the ACRL Framework for Information Literacy in Higher Education (ACRL Framework, 2016) was established. There has been an explosion in new and emerging communication application technologies. In addition, a considerable body of literature has been published on science literacy in the intervening years.

This commentary uses the CAT critical appraisal tool (Perryman & Rathbun-Grubb, 2014). The author, as an information literacy instructor, has demonstrated expertise in the field. The objective and the rationale for the study were clearly outlined and the literature review provided definitions and background for science literacy, lifelong learning, and Standard Five of the ILSTE (2006). The author stated that it was mostly science librarians who were bringing attention to science literacy. In the intervening years, education researchers and scientists in various disciplines have also published on the topic of science literacy as evidenced by a quick search in the Scopus database. This demonstrates an ongoing interest in the topic.

Overall this was a very well conducted study. To address the research question, the author chose a survey design. She received ethics approval and had a colleague administer the survey and send letters of consent to study participants, and only received the responses post grading. The survey questions were provided in the results section of the article.

In the results, the author provided clear graphic, tabular, and narrative summaries for the various questions. Figure 5 compared student literacy before college and at present. It would have been interesting to see the population broken down by Science and Non-Science students, similar to the first four figures. Question 7 asked, "Studies at the university have helped me to increase my level of science literacy," with potential answers ranging from strongly disagree to strongly agree. Although this question confirmed that students' self-perceived science literacy improved since being at university it did not specifically ask about the impact of the IL course. A question getting at the impact of the IL session itself could have been useful. Overall the survey questions and the results helped provide a clear picture of students' views. The author also addressed the study's limitations acknowledging the small sample size and the reliance on self-assessment.

The author did an excellent job of making the connection between lifelong learning and science literacy. It is clear from the survey results that the students also saw this connection. In the conclusion the author asks why the general standards for information literacy do not include the same standard. Lifelong learning is now incorporated in the ACRL Framework.

The Framework recognizes lifelong learning through the ongoing development of skills and knowledge as learners progress from novice to expert. The author was prescient in asking the

question in 2010. This study remains relevant today. Recent articles (Reed, Hiles & Tipton, 2019; Sharon & Baram-Tsabari, 2020; Vraga, Tully & Bode, 2020) propose better information and science literacy skills can help combat misinformation. For science literacy instructors, these studies point to the need to make explicit the connection between lifelong learning, information literacy, and science literacy to help prepare their students to engage with the world. This study also provides an excellent example of how to conduct research with student participants.

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