Abstract. We present a new resource for the astronomy education community, with the goal of improving our community’s knowledge and understanding of the educational research pertinent to our work. STEMdex will be a searchable database of summaries of peer-reviewed education papers, written by educators and researchers, and posted for the entire community to use. While we know we should base our EPO work on a solid research foundation, many people have limited time when it comes to staying on top of the literature. STEMdex aims to reduce that workload. Our database will summarize papers across the astronomy education spectrum, including formal and informal education, outreach, pedagogy, evaluation, and other topics.

1. What Is the Problem?

We all agree that astronomy education should be based on sound research, but there are currently 801 peer-reviewed education journals in existence, from Academic Leadership through to Zero to Three. While there are only a handful that expressly tackle the teaching of science, technology, engineering, and mathematics (STEM) subjects, educational issues are so intertwined that articles relevant to STEM education could appear in any of these journals. None of us have the time to look through all the research independently, and many people entering the astronomy education field have no idea where to start.

STEMdex can be found at http://stemdex.ipac.caltech.edu
2. What Is the Solution?

We present a new resource for the astronomy education community, with the goal of improving our community’s knowledge and understanding of the educational research papers relevant to our work. STEMdex will be a searchable database of summaries of peer-reviewed education papers, written by astronomy educators and posted for the entire community to use. STEMdex aims to reduce the astronomers’ workload for the benefit of the entire community. Our database will ultimately summarize papers across the whole of the astronomy education spectrum, including formal and informal education, outreach, grades K–16, pedagogy, evaluation, and many other topics.

3. What Has Been Done so Far?

In March 2013, the STEMdex team analyzed several existing online resources and educational research databases, such as the Education Resources Information Center Structured Abstracts Initiative, Relating Research to Practice, Informal Science, and others to identify the standardized information gathered from each research article, such as the resource citation, study design, data collection and analysis, study demographics, keywords, and others. After compiling the list and developing a working set of definitions for each term used in the various fields, called “controlled vocabularies,” the team created a Google Form to attempt a test-run with two education research journal articles. Through this work, the team identified additional fields to add to STEMdex. Using this test-run, developers at the Infrared Processing and Analysis Center (IPAC) at Caltech set out to create the first version of the STEMdex portal.

4. What Will STEMdex Do for You?

STEMdex will be a database of summaries of research papers relevant to astronomy education. It will provide

- a searchable database, linking to the papers you should read before planning your education proposal or developing a new educational product;
- summaries of those papers, written by astronomy educational professionals; and
- the potential for future integration with NASA Wavelength, NASA's new education resource portal.

5. What Can You Do for STEMdex?

To make STEMdex a viable resource, we need input from the astronomy education community. The STEMdex team invites astronomy educators to

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2 RelatingResearchToPractice.org
3 InformalScience.org
4 www.nasa wavelength.org
• volunteer to summarize research papers,
• suggest the “must-read” papers that everyone entering the field should read,
• suggest new papers that have been published and should be summarized by our team, and
• identify other successful resources similar to STEMdex that the team can use as a model or pattern for our efforts.

6. Contact Information

The STEMdex database is available at http://stemdex.ipac.caltech.edu. The team invites communications from the EPO community at the STEMdex Facebook page, http://www.facebook.com/STEMdex; the STEMdex email address stemdex@ipac.caltech.edu; community members can follow the team’s progress and join in the conversation at the STEMdex Twitter feed, @STEMdex.