Why Evidence?

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A goal of JERIC is to support educational practice by publishing articles that are useful to classroom instructors. One way of ensuring this utility is to require that claims are backed up by evidence. This evidence allows the reader to evaluate the potential effectiveness and transferability of any appraoches presented in these articles to their own courses and situations.

We view JERIC as supporting teaching practice by publishing articles that are useful to instructors in the classroom. In accord with this goal, we developed a set of explicit review criteria for JERIC papers (see http://www.acm.org/pubs/jeric/authorGuidelines.html). Embodied in these criteria is the need for evidence—claims and findings must be supported.

How does evidence increase the usefulness of these articles?

- *Challenging the status quo.* You cannot reasonably expect people to use a new technique or tool from papers without *some* evidence that they will be effective in actual use. Since change is costly (in the time and energy to refashion curricula, lectures, and laboratories, for instance), the burden

of proof is on the innovator to demonstrate how an innovation improves on the status quo. By providing evidence that an approach is successful, an author makes it more likely that his or her idea gets adopted by others.

- *Transferability to new contexts.* The evidence and its analysis provide insight into how readily an idea might transfer to a reader's specific context. Will ideas designed for one context with a particular set of students and a given technological infrastructure, transfer to a setting in which all of these might be different? For instance, will a gaming environment to teach introductory programming to mathematics students at a liberal arts university in the USA be effective in teaching programming to informatics students at a large, public university in France? Thus evidence of the form "The students I talked to said it was great" may not say anything about other students in the same classroom, or, more importantly, whether it would work for *my* students.

- *Comparability.* Teaching innovations are not isolated; they exist within a set of existing tools, techniques, and approaches. Being able to compare the underlying evidence may allow us to more rationally choose between conflicting approaches than simply consulting our own intuitions. By making public our evidence from trials of educational innovations within one setting, our collective knowledge as computing educators accumulates, and this knowledge can then be used, built upon, and made public by others.

Our expectation is that by presenting approaches with evidence, the readers will be better able to evaluate whether an approach is likely to work for them and whether they agree with the author's conclusions as to its worth.

A key goal of evidence-based education [Davies 1999] is that practitioners can find and evaluate evidence in the literature and use it to inform their practice. JERIC is part of that literature, providing results that teachers can apply in their classrooms. The evidence and analysis in these articles should be transparent to the readers so they might evaluate any ideas, materials, or interventions as to their suitability.

IN THIS ISSUE

Many instructors integrate the use or development of games into their computing courses. In this issue, we present an article, "Cognitive Science Implications for Enhancing Training Effectiveness in a Serious Gaming Context" by Frank Greitzer, Olga Anna Kuchar, and Kristy Huston. They look at gaming in the context of training systems, particularly the use of "serious" games: games that "infuse instruction into the game play experience, thus providing a delivery system for organizational video game instruction and training." Evidence is of two primary types: links to the literature in cognition and a usability study of the software in use. With an eye toward developing effective serious games, the authors present cognitive learning principles and associated guidelines for designing training systems, the characteristics of engaging games, and consider how they might be integrated. They present examples

and evaluation over a broad range of factors from a particular game/training environment.

REFERENCES

DAVIES, P.   1999.   What is evidence-based education? *British Journal of Educational Studies 47*, 2, 108–121.