Reader Comments

What Evidence Would Change Your Mind About the Learning Benefits of Serious Games?

A Reply to Parker, Becker, and Sawyer

Richard E. Clark

In a recent *Point of View* article (Clark, 2007), I argued that all well-designed empirical research evidence supported the view that games intended to teach do not yield more learning than much less expensive, alternative ways to teach the same knowledge. The article also argued that while there was very little evidence that games are a more motivating way to learn than other forms of instruction, the existing evidence cautions that increasing motivation may actually yield less learning than other alternative ways to teach and train. On a more positive note, I offered my view that the ideal role for "serious" games is to support continued practice in game environments that mimic the application setting for skills and knowledge being learned. This type of continued practice might have a powerful effect on the flexible automation of skills and their transfer to complex environments. My article also offered a number of suggestions for the design of future search and evaluation of serious games.

The Rejoinder: Parker, Becker, and Sawyer (2008) take me to task for "unfortunate errors and misapprehensions" in my article and offer "another side of the argument." They are concerned that I misrepresented the expense involved in producing the typical serious game and feel that my estimate was more typical of entertainment games and not those intended to teach. Yet they offer no evidence on costs beyond their own guess about game economics or that serious games are more cost-effective than other alternative instructional delivery vehicles. They criticize my use of Wikipedia to define "serious games" but offer no alternative definition. They agree with my conclusion that no peer-reviewed and published research evidence supports the learning benefits of games yet protest that evidence about the impact of games has been developed by commercial game manufacturers and has not been published in "academic journals." They dispute the published claim by O'Neil *et al.* (2005) that only 19 of over 4,000 published articles on serious games (as of 2005) reported empirical studies and that of the 19, none reported evidence for learning benefits when compared with non-game alternative ways to teach the same content. The evidence they cite to counter my claims and those of O'Neil and his colleagues come from unpublished doctoral dissertations, personal experience, and the evaluations of educational games by commercial and academic developers.

Inconvenient Evidence: It is most likely that the "other side of the argument" advanced by Parker, Becker, and Sawyer (2007) will resonate with many of the most committed interactive video game advocates. True-believers among us will only accept evidence when it supports their conclusions. It is tempting to avoid the results of well-designed empirical studies when they contradict an *a priori* belief. The argument that game technology continues to evolve is used to discredit inconvenient data reported in studies conducted in the past—even the very recent past. A similar approach to judging the data on medical treatments lead some people to ignore negative evidence that popular treatments for illnesses have no impact and avoid less popular or convenient treatments that can have significant benefits—sometimes at a lower cost. A side-effect of ignoring inconvenient but solid evidence is the gradual rejection of research as a way to help us analyze problems.

A Question for Readers: My question for the reader who takes the time to read both articles is whether it seems rational to trust the evidence collected by those who have a financial or professional development interest in promoting a product while rejecting evidence collected by more objective analysts and then subjected to peer review before publication.

A Shared View: I do share the optimism of Parker, Becker, and Sawyer that games could make a huge contribution to education, and I want to echo their call for interdisciplinary teams to conduct needed research and development. My concern is that games are too often developed and evaluated by people who have not mastered the very impressive body of research on instruction, learning, motivation, and the mixed method design of instructional studies. It is also possible that people who have mastered research design as well as instructional and learning psychology may not understand the unique benefits of serious interactive video games. Yet if we conduct collaborative research we must all be willing, at some point, to subject our research to peer review and accept results that do not support our prior expectations. Well-designed research often gives us the opportunity to try to understand and finally accept consistent counter-intuitive results and so be willing to change our beliefs and expectations. □

References

Clark, R. E. (2007, May–June). Learning from Serious Games? Arguments, evidence, and research suggestions. *Educational Technology, 47*(3), 56–59.

O'Neil, H. F., Wainess, R., & Baker, E. (2005). Classification of learning outcomes: Evidence from the games literature. *The Curriculum Journal, 16*(4), 455–474.

Parker, J. R., Becker, K., & Sawyer, J. (2008, January–February). Re-reconsidering research on learning from media: Comments on Richard E. Clark's *Point of View* column on learning from Serious Games. *Educational Technology, 48*(1), 39–43.

Richard E. Clark, a Contributing Editor, is with the Center for Cognitive Technology at the Rossier School of Education at the University of Southern California, Los Angeles (e-mail: clark@usc.edu).