Critique of Miller, Schweingruber and Brandenbirg

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Abstract

I intend to analyze the article “Middle School Students Technology Practices and Preferences: Re-Examining Gender Differences” and show the flaws in the argument presented by Miller, Schweingruber and Brandenbirg. One major flaw I will examine is the apparently poor selection of subjects for the testing, and some other flaws in the analysis.

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According to Miller, Schweingruber and Brandenbirg, “the rapidity with which acculturation to the web is taking place among America's youth may be responsible for less gender-biased technology outcomes in schools” (L. M. Miller, H. Schweingruber and C. L. Brandenbirg, 2001, p1) . My intention is to examine this claim and point out some flaws in their research methodology.

This study is basically intended to show that girls have nearly caught up to boys in the gender gap in technology. They sample some middle school students in Houston, Texas who come from a “diverse student population representative of urban and suburban schools” (Miller, et al, 2001, p4). The study optimistically shows that the situation is improving in terms of equal access to computers. However the research process they use is itself flawed, for reasons which are unclear to me.

The first flaw that appears in their research is in their selection of students for their study. Their description of how the students were selected is slightly vague, but I can make some inferences to fill in the gaps.

They state “568 middle school students were surveyed”(Miller, et al, 2001, p4), but do not provide the selection process. However, later they stipulate “Students answered the paper and pencil questionnaire during either a science or computer technology class period” (Miller, et al, 2001, p5), from which I can infer that whole classrooms were used as participants. From table 1 (Miller, et al, 2001, p4) in their study, I noticed that the number of students selected from each school can be approximately broken down into class sizes of 25 to 30 students per school.

Such a selection process means that there are inherent validity questions that need to be addressed by this study. How was classroom management addressed by Miller, et al? Who

distributed the surveys, and were all of the surveys taken under the same conditions? If a survey was administered in a science classroom, was there any noticeable difference in responses to the students in the same school during their computer technology classes? How evenly matched were the students in each classroom? Was a common measurement tool used to match the inner city youth to the suburban youth so that other environmental variables could be eliminated as factors (such as reading level)?

Since the authors do not attempt to address these concerns in their report of their work, I must therefore assume that their research holds little, if any, validity.

A second flaw with their report is in the choice of references. Many of the references were reasonably current when the article was published, but some of the references were published as much as 14 years before the study itself was published. In the area of computers, and especially in software during this period, much changed from 1987 to 2001, making the older study less relevant.

One issue I have with this article is the over generalization of their results to a population larger than what was sampled. In their discussion they mention, "[n]ot only do females have the self-confidence to mess around, when asked directly about their Internet expertise, on average they rate themselves toward the positive side of Expert," (Miller, et al, 2001, p12). The use of the word female, and a later use of the word male seems to be a deliberate attempt to generalize their findings.

Another issue that I found was the attention paid to the use of computer games by both genders, especially during the discussion of the research. They also asked questions which seem to be be repetitive and could have been grouped more appropriately.

While I agree with the researchers that home computer use has increased dramatically over the past 20 years, the way that Miller, et al, did their research could have been improved, and the conclusions they drew were overly generalized.

In my experience there are still major gender differences in how computers are used. At the school I am currently working, boys tend to use the computer for computer games, homework, instant messaging and blogging/social networking in that order. Girls tend to use the computer for the same purposes, but computer gaming is somewhat lower on the list. This disparity will continue to exist until other more deep rooted gender issues in our society are resolved.