

Article Critique # 3

"Children and education technologies"

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ETEC 500 – Section 65D

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2011

Technology has touched all walks of our life and education is no exception. In today's generation where kids are exposed to computers starting Kindergarten, educational technology holds the promise to offer tremendous opportunities for teaching and learning both at school and at home. Educational research provides guidance on how technology can be leveraged to enhance teaching and learning, however, it is sobering to find that majority of the scholarly work fails to directly affect teaching. There seems to be a gap between research and practice due to which the accumulated knowledge cannot be readily applied to solve every day problems in educational institutions.

This objective of this article is to summarize and critique three research studies, synthesize common characteristics and finally try to uncover the reasons why they are not persuasive enough to allow generalization and direct application.

### **Summary and Critique**

In the first article, Beck & Fetherston (2003) describe their ethnographic study aimed to investigate student's attitude and motivation towards writing when using word processors. Based on convenience sampling, seven year three students were given to complete two handwritten and two word processed stories using Storybook Weaver Deluxe software over a six week period and data was gathered via interviews and observations. The study revealed positive effects of using a word processor for story writing as the students constructed better stories, expressed increased motivation and risk taking behaviour compared to those using traditional pencil and paper.

A critical analysis reveals that the study lacks clear problem definition, fails to underscore the intuitive multimedia storyboarding features of the 'so called' word processing software, and has significant flaws in approach and evaluation. Given that the students were

concerned about the neatness of their work to impress teachers and get better grades, the motivation for using the word processing software may be questionable. Storyboarding software may help some students with writing challenges to write neat, legible essays, however, given the small sample size, it would be naive to generalize such a claim.

In the second article, Miller et al. (2001) conduct a quantitative study to examine the historical gender differences among American youth in access, use and knowledge of computer technology. They surveyed 512 middle school students from eight public and private schools in the Texas state. Based on the subsidized lunch percentage of the school population, a stratified sample was recruited from various economic groups in near equal gender. The students were tasked to complete a 68 item questionnaire including closed and open ended questions during a science or computer technology class. The self reported survey findings inform that the gender gaps in technology outcomes were fading owing to the increased internet presence in American schools and homes.

Although I generally agree with the survey conclusions, I have concerns around the sampling process and instrument accuracy that limit the ability to generalize results over a wider population. The fact that most students breezed past the survey in mere 30 minutes shows lack of reflective thinking and perhaps a bias towards the researchers' claim due to which the accuracy, reliability and validity of results are questionable.

In the third article, Dickey (2011) describes her qualitative case study focussed on reviewing two popular online virtual reality environments and analyzing their suitability for teaching and learning in K-12 using grounded theory methodology, an iterative process of data gathering and analysis that helps to construct a theory. Eight teachers from an American state

university participated in a two week course covering ‘Active Worlds’ and ‘Second Life’ virtual world applications and explored it from the perspective of a learner, instructional designer and teacher. Four teachers worked with early childhood learners, two with middle and two with adolescent learners covering various subject areas. Data gathered via field notes, observation notes, learner’s work and email interactions was analyzed for identifying themes and patterns. The findings revealed that both applications provided an engaging, constructivist environment for collaborative learning although there were some concerns around security, cost and time for authoring content as well as the need for having such tools built around pedagogical practices rather than vice-versa.

I found Dickey’s article well organized and easy to read as various sections were neatly broken down under specific headings. Considering the exploratory nature of the study, it’s a good first step although the sampling strategy, broad scope, short time frame and potential bias of teachers towards virtual worlds present significant limitations. The study provides a good technology review, however it lacks any concrete next steps on further research and application.

### **Synthesis**

The articles have common threads and are focussed around the use of technology for teaching and learning. There seems to be a general consensus among educators to research generation friendly tools and facilitate the continuous learning requirements of today’s learners. The studies are fairly well organized and supported by comprehensive literature review although there are weaknesses in approach, research procedures and drawing of conclusion because of which they don’t seem authoritative enough for solving everyday issues in schools.

The authors used convenience sampling technique to recruit volunteers for study in a specific geographical region which presents challenges to generalize the findings. In addition, the researchers do not account for the limitations of their measuring instruments and how they affect the validity of the findings. For instance, Dickey's findings are based on the reflections of few school teachers who wanted to learn the constructivist environment of virtual worlds and may have had an inherent bias towards the simulation technology. Finally, due to problems in research procedures, I found the conclusions were not persuasive enough for teachers to apply in day to day teaching or plan next phase of research. For instance Miller et al. (2001) found that 97% of students knew how to use computers and 80% of them had access to internet at home and school. Based on these findings, would Australian teachers provide online activities to year three students with a fair assumption that they could complete that work properly?

### **Conclusion**

The goal of educational research is to “describe, explain, predict, or control educational phenomena” (Gay, Mills, & Airasian, 2009). For the research to be valuable to educators, it is imperative that the researchers have razor sharp focus on the education problems they are trying to address, define clear scope boundaries considering the time and resources at hand, and meticulously plan the activities, milestones to achieve the end result. It almost sounds like researchers should take cues from project managers on how to plan and execute the research procedures.

Considering the blazing speed of technological changes, research needs to be action oriented so that the results are useful for teaching and learning before they become outdated.

## References

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