Criticisms of Diffusion Research

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Criticisms of Diffusion Research

- No Criticism
- Individual Blame Bias
- Recall Problem
- Issues of Equality
- Pro-Innovation

Librarians and Information Scientists in the Blogosphere: An exploratory Analysis
Use of Smart Boards for Teaching, Learning, and Assessment in Kindergarten Science
Collaborative Research Methodology for Investigating Teaching and Learning: The use of Interactive Whiteboard Technology
Acquisition of Physics Content Knowledge and Scientific Inquiry Skills in a Robotics Summer Camp
Impact of SMART Board Technology: An Investigation of Sight Reading and Observational Learning

Teacher Concerns During Initial Implementation of a One-To-One Laptop Initiative At the Middle School Level

Criticisms
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Whether by design or unintentionally, many diffusion studies are subject to criticism because of bias embedded in the research. The four criticisms of diffusion research are: the pro-innovation bias, the individual-blame bias, the recall problem, and the issue of equality (Rogers, 2003). These criticisms are incorporated into the graphic organizer on the previous page. A fifth category, no criticism, was included in the graphic organizer to encompass those studies that do not fall into any of the previous four. A review of six studies, their biases, and suggestions for reducing bias follows.

Study 1: Librarians and Information Scientists in the Blogosphere: An Exploratory Analysis

The purpose of the study by Aharony (2009) was to identify ways librarians utilize blogs, in particular how they organize tags within blogs. In the graphic organizer it was designated as without bias or criticism. The study was not sponsored by a special-interest agency, it did not seek to place blame, the ability to recall was not a factor, and the study did not focus on any socioeconomic sub-systems. Due to a lack of criticism, there are no suggestions to reduce bias in this study.

Study 2: Use of Smart Boards for Teaching, Learning, and Assessment in Kindergarten Science

Mowbray and Preston (2008) looked at the viability of using of smart board technology with kindergarteners. Their study did not contain any obvious bias. While the study group was limited to one primary science class, the class was typically representative of the population. Special interest groups were not directly involved in the
study, individuals were not subjected to blame placed by systematic problems, the problems of recall for these young subjects did not present a factor, and there were no differences in equality for various socioeconomic groups. Therefore, criticism of their research would be minimized and there would be little suggestion for reduction in bias.

*Study 3: Collaborative Research Methodology for Investigating Teaching and Learning: The Use of Interactive Whiteboard Technology*

Armstrong et al. (2005) looked at whiteboard technology and the interactions between teachers, learners, and technology. This British study, sponsored by the Economic and Social Research Council contains pro-innovation bias. According to the article, the UK Government had already spent £50 million on whiteboard technology prior to conducting research about the new innovation. The study was looking to provide evidence that the technology was worth the expenditure. According to Rogers (2003), pro-innovation bias occurs when there is an economic reason to adopt a technology and when an agency for change funds the study. This study falls into both of these categories. Providing viability research on a small scale prior to a mass purchase of an innovation could help alleviate the need to prove a technology after-the-fact. Understanding why the invention is to be adopted and how policies are made prior to its purchase will help alleviate this criticism of diffusion.

*Study 4: Acquisition of Physics Content Knowledge and Scientific Inquiry Skills in a Robotics Summer Camp*

The study by Williams, Yuxin, Prejean, Ford, and Lai (2007) identified with a certain degree of pro-innovation bias. The authors were trying to encourage adoption of
robotic technology by proving an increase in science content achievement scores. They chose to use LEGO NXT robot kits in the study. Unintentional, pro-innovation bias creeps into research when sponsors of the study already have a certain innovation in mind (Rogers, 2003). The authors could have avoided this criticism by using and comparing multiple robotic technologies rather than one, commercially available product.

**Study 5: Impact of SMART Board Technology: An Investigation of Sight Reading and Investigational Learning**

Although bias that results from issues of equality is usually identified with socioeconomic status, it can surely apply to other special-needs groups as well. Mechling, Gast, and Krupa (2007) singled out a group of three special needs high school students for a study about the use of SMART board Technology and the identification of sight words. Rogers (2003) found that the diffusion of innovations often emphasizes the gap between upper- and lower-status segments of society. The intent of the study was to narrow the achievement gap between low- and high-level learners. Comparing the effects of the technology on a larger and more diverse population could reduce the criticism that was applied to this study. Should the technology, in subsequent studies, prove to narrow the gap, then the bias will not longer apply (Rogers, 2003).

**Study 6: Teacher Concerns During Initial Implementation of a One-to-One Laptop Initiative at the Middle School Level**

As indicated by the title, the study by Donovan, Hartley, and Strudler (2007) tried to identify teacher concerns about implementing laptops in the middle school.
Rogers (2003) stated, “Individual-blame is the tendency to hold an individual responsible for his or her problems, rather than the system of which the individual is a part” (p. 118). In other words, should a problem arise with the laptop program it can be attributed to the concerns expressed by the teachers, not with the innovation, itself. Criticisms to this study can be reduced if researchers remain open to the cause of the problem and if all stakeholders share in the identification of the problems associated with the technology (Rogers, 2003).
Resources


