

Assignment 3—Critique of Group 5's Pilot Field Study

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The use of certain educational technologies can help deliver personalized instruction to students. Tools can be customized to match students' learning styles. It is, therefore, possible—with the utilization of technology—to differentiate teaching. To that end, research was conducted to measure teacher implementation of differentiated instruction using technology tools. The report, written by a team of four members, was derived from a pilot study.

The researchers framed the study with a literature review. It briefly discussed the need for teachers to have more professional development training on both variables in the study: differentiated instruction and educational technology implementation. The literature suggested that differentiation supports constructivist learning.

Although the reviewed research was useful, including a paragraph defining differentiated instruction would have benefitted the reader. Carol Ann Tomlinson is one of the foremost experts on the topic. Just as one would expect Jean Lave and Etienne Wenger's definition of communities of practice in a paper on situated learning, this reader anticipated Tomlinson's definition. She was cited in the reference section; yet, she was not mentioned by name in the report. Nevertheless, the literature review was thorough enough to justify the pilot study. It sufficiently hooked and piqued the interest of the reader.

Research Design

It was clear that the researchers gave thoughtful consideration to the design of the study. The team's survey included qualitative and quantitative survey questions, as well as randomly selected open-ended qualitative interview questions. A pragmatic worldview for mixed methods was chosen. This approach comes with particular

affordances; researchers are free to “emphasize the research problem and use all approaches available to understand it” (Cresswell, 2014, p. 245).

The pilot study was upfront about its underlying goal: to be a field test on how to create reliable and valid data collection instruments. Care was given in the design of the survey. Five questions were asked using a nominal and Likert-scale. This strategy resulted in data sets that could be readily sorted. For example, the teaching experiences of the participants could be parsed out and analyzed. Interestingly, the researchers stated that choosing a Likert-scale might not have been the best choice. The reasons pertained to the lack of interval in the design of the survey questions, in which “measurement scales are based on a continuum where the interval (or distance) between any two numbers is always the same” (Kurpius & Stafford, 2006, p. 3). The team’s pilot study was, in fact, inconsistent in its use of equal intervals.

The researchers included interviews from a small focus group of participants. It was clear that measures were taken to ensure that the subjects included in the focus group interviews were randomly chosen. Reasons why eight participants were selected were more nebulous. Why not seven or nine? Perhaps it can be assumed that the researchers selected about half of the participants to interview (n=17; eight people were interviewed). It was further stated that grade level taught was a factor in clustering. The researchers desired two teachers represented from each of the surveyed schools.

The researchers attempted to establish construct validity. Due to the brevity of survey questions, as well as the small pool of respondents, it was difficult to assess whether the team was ultimately successful in validating their own measurement instruments. Because the task was to design a pilot study, globalizing the validity may

never occur. That said triangulating responses was an appropriate approach to achieving answers to the two research questions. As Cresswell notes, “if themes are established based on converging several sources of data or perspectives from participants then this process [triangulation] can be claimed as adding to the validity of the study” (2014, p. 201). Triangulating responses, based on whether differentiated instruction was “student-centered” or “teacher driven,” tested the validity and reliability of the two posed research questions. Perhaps utilizing Julian Campbell and Donald Fisk’s “multi-trait—multi-method matrix” would have further aided the study by adding further data points, including observed behaviors from participating teachers (Salkind, 2006, pp. 71-75).

Value of Findings

The points in which the researcher team looked for patterns in the responses were an effective way to illustrate that the survey questions were valid and reliable. The examples given—including student use of the Internet and cloud-based tools—supported the survey’s construction. In other words, the participant’s answers to different questions consistently answered the two posed research questions.

The researchers exhibited confidence in reflecting on the survey’s biases and shortcomings. Because the researchers were teachers, just like the participants, the survey contained many inherent biases. It was noted that some participants might have confused technical jargon (e.g., SMART Boards are a type of interactive whiteboard). Also discussed was that respondents may teach multiple grade levels. As a result, the randomness of choosing an even distribution of interview subjects may have been compromised. The same issue persisted in the assessment of content discipline areas taught.

The findings were embedded in the report via visuals and screenshots; however, there was no immediate narrative follow-up. It would have been more helpful for the reader to have descriptions about the raw data under each figure. Another approach would have been to create a longer appendix section, in which the data could be referenced.

Recommendations

Wrapping a pilot study about technology integration with an educational theory is a smart approach. There is a utility to be gained from correlating differentiated instruction with educational technology tools. It would have benefited the study to parse out tools used for content creation, as opposed to content consumption. Each has inherent predilections towards student-centered or teacher driven learning. Using VoiceThread, mentioned by Participant G in Interview 7, is a collaborative presentation, authoring tool. On the other hand, the mobile application EduCreations is a flipped learning application more likely to be used by the teacher.

Future iterations of this study would benefit from refinements to the wording and design of the closed and open-ended questions. Because this study pertained to differentiated instruction, a deeper explanation should have been included in the survey instrument. Differentiated learning approaches date back to the 1980s; without sufficient professional development training, more veteran (“20 years or more,” as assessed on the survey tool), may have missed this window. Also, teachers may misinterpret “differentiated learning” with “multiple intelligence theory.” It is worthwhile, then, to add questions determining the participant’s background in educational theories, as well as the application of research to everyday teaching.

References

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