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A Multi-Case Study of Student Perceptions of Online Course Design Elements and Success

Liz Fayer
About the program and course...

Several years ago, I became the coordinator and instructor of a post-baccalaureate secondary online teacher certification program. The online course used in this study is typically taken the semester prior to student teaching. The study was completed post student teaching in order to obtain the case study student perspectives after their student teaching experience.
In classroom discussions, when students are talking to their peers they have made comments such as...

“I agree that we should give feedback as soon as possible, the other day I received a comment from another class for something I did weeks ago, and there was a question about my answer, I could not recall what my answer was at the time, so I had to dig to find out what it was. I think that the hard part of online classes is the lack of instant interaction.”
As an instructor, I began to think about and question online teaching and learning through a different lens. It lead me to think about researching online learning as being different for students and student learning:

‡ Guiding this research was the idea that a fundamental pedagogical shift is needed for online student success due to asynchronous communication and the necessity of extensive course pre-planning.
Purpose of the Study

The purpose of this IRB approved instrumental (i.e. focus of research known in advance) multi-case study was to gain an in-depth understanding of students’ perceptions about four important course design elements in an online education course taken the semester prior to student teaching.


These were determined to be important using previous research and relevance to the course taught (Davis, 2013; Dreon, 2013; LaPointe & Reisetter, 2008; Reisetter, LaPointe, Korcuska, 2007; Sockalingam, 2012; Tunks, 2012; Westberry & Franken, 2012).
Three students piloted the questionnaire and gave feedback.

Three other students were asked if they would participate in a research study.

“The laddering technique emerged in the clinical psychology area introduced by Dennis Hinkle (1965) in order to model the concepts and beliefs of people.”

“Laddering is highly recommended in research that elicits hierarchical constructs and became especially popular in investigating personal values according to the models of the Means-End Chain (MEC) theory…”

“In a triadic sort, three distinguished elements are presented to a respondent, who is asked about similarities and differences that two of them have in relation to the third.” Modesto Veludo-de-Oliveira, T. M., Ikeda, A. A., & Campomar, P. (2006).
The data from the three cases were analyzed as per Creswell’s (2007) multiple case study analysis, which included first analyzing the three case studies independently to determine the course design elements that students perceived most supported their success.

Then, coding for multi-case themes using the data of all three case studies was examined for assertions and generalizations, or in this study, the value of online course design elements that best supported student success. Multiple cases provided a more rigorous study due to the triangulation of the cross-case data (Merriam, 2009; Yin, 1994).
Following the analysis, member checks were utilized as participants were asked to read and comment on their individual case study findings in terms of the emergent themes and values, and the supporting evidence.

According to Gay (2006), this step addresses validity or the degree to which the qualitative study measured the intended research question.
Using Laddering to design the questionnaire!

Section 1:
General questions to activate background knowledge.

Section 2:
Triad Sort to elicit value of the four course design elements:

Section 3:
Final ranking to summarize student thoughts.
Example Triadic Sort Question:

What is your perception of *course organization* opposed to *feedback* and *rubrics* in the course being studied and your success in the course?

(General questions about these are found in the general questions in the section above to activate background knowledge)
The importance of Validity in Qualitative (QL) Research!

What is Validity?

Validity determines whether the research truly measures that which it was intended to measure or how truthful the research results are.

(Reliability: The extent to which results are consistent over time and an accurate representation of the total population under study is referred to as reliability and if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable.)
**Triangulation:** According to Merriam (2009), there are three major sources of data: Interviews, observations, and documents. “If at all possible, researchers are encouraged to use more than one method of data collection as multiple methods enhance the validity of the findings.” (Merriam, 2002, p. 12).

This study included three data sources for each of the three cases: responses to questionnaires sent to three students via email, written responses during online peer discussions, and assignments, course data, and course documents.
Simultaneous Data Collection and Analysis:

“In qualitative research, data analysis is simultaneous with data collection. That is, one begins analyzing data with the first interview, the first observation, the first document accessed in the study. Simultaneous data collection and analysis allows the researcher to make adjustments along the way, even to the point of redirecting data collection, and to “test” emerging concepts, themes, and categories against subsequent data. To wait until all the data are collected is to lose the opportunity to gather more reliable and valid data…” (Merriam, 2002 p. 14).
QL Validity continued...

+ **Member Checks:** According to Gay (2006), this step addresses validity or the degree to which the qualitative study measured the intended research question. If possible, having members check the data presentation and conclusion would strengthen the research.
The data from the three cases were analyzed as per Creswell’s (2007) multiple case study analysis, which included first analyzing the three case studies independently to determine the course design elements that students perceived most supported their success. Then, coding for multi-case themes using the data from all three case studies was examined for assertions and generalizations, or in this study, the value of online course design elements that best supported student success. Multiple cases provided a more rigorous study due to the triangulation of the cross-case data (Merriam, 2009; Yin, 1994).
Emergent Themes:
What students perceived they valued most in supporting their success.

+ Strong Course Organization
+ Time-Flexible Feedback
+ Confidence in the Instructor’s Content Ability and Consistent Support
+ Relevance of Both Feedback and Coursework
Theme 1: **Strong Course Organization**
How Can it Be Implemented in Your Online Courses?

- Pre-plan and provide highly organized course documents via email prior to the start date of the course and again in the course on the first day.
- Permit access to all content modules from the beginning of the course allowing students optimal time management opportunities and support for the asynchronous learning environment.
- Pre-plan rigorous and supportive learning modules that target complex information and allow for multiple opportunities to master this content using chunking.
Theme 2: **Time-Flexible Feedback**

How Can it Be Implemented in Your Online Courses?

A second critical value was instructors responding to student posts when students need support most. **Time-flexible Feedback** includes checking posts when students are most apt to be online. This requires flexibility; as online learning is a unique delivery method, instructors best serve their students by providing timely feedback to support asynchronous learning. This may include checking for posts outside of the normal workweek schedule and more than once a day, including weekends and holidays, and providing specific in-text (i.e., within student posts and assignments submitted online) positive and supportive feedback to scaffold learning and allow for the opportunity to resubmit assignments.
Theme 3: Confidence in the Instructor’s Content Ability and Consistent Support
How Can it Be Implemented in Your Online Courses?

Careful pre-planning of modules that increase the understanding of difficult or unfamiliar concepts along with discussion questions that allow for instructor content support and extension of concepts or skills. Supply content clarification in a manner that supports confidence and excitement. Online students don’t regularly ‘see’ their instructor or have consistent face-to-face communication. Therefore, the advantage of being able to talk to everyone ‘on the fly’ is non-existent and so are the non-verbal communication cues such as smiles and other social gestures that normally reassure (Weimer, 2013).

Therefore, in order to reduce student stress asynchronously, the online instructor needs to give consistent positive support so students know they can count on the instructor’s responses when needed.
Theme 4: **Relevance of Both Feedback and Coursework**
How Can it Be Implemented in Your Online Courses?

Supplying each student with individualized feedback that may occur in sequential feedback loops used to obtain student understanding of complex material. As attested to by the Danielson Framework for Teaching (2007), good teaching is extremely complicated. Therefore, in order to bring pre-service teachers to the skill and conceptual understanding level needed for the K-12 classroom using an online format, a great deal of time and contact between instructor and student may be required.

Another implication is that in order to support the knowledge and understanding about the planning phase of teaching, strong course pre-planning is necessary to create modules that not only allow for practice, and building of concepts, but also are clearly relevant to students.
In Summary,…

+ This project was inspired by ‘listening’ to pre-teacher comments about their online course experiences.

+ Student perceptions of course design elements that supported student success in a course that occurred prior to student teaching, while looking through the lens of the fundamental pedagogical shift needed for online student success due to asynchronous communication and the necessity of extensive course pre-planning.

+ Laddering was used as a questionnaire technique to determine perceived value.

+ Emergent themes placed the most value on Strong Course Organization, Time-Flexible Feedback, Confidence in the Instructor’s Content Ability and Consistent Support, and Relevance of Both Feedback and Coursework.
1. The fact that two of the three participants asked questions about Section II of the questionnaire. As each of the four design elements needed to be set up in questions where every possible combination was asked in a triad sort, the in-depth questioning was viewed as redundant. In both cases the participant’s question about redundancy was answered by the researcher in terms of the importance of triad sorting to this research and not in terms of any of the categories, so that the researcher would not introduce bias.

2. An open-ended approach to the questionnaire, instead of limiting the specific course design elements included may have uncovered different themes of additional design aspects.
3. As this is a relatively new program there were only ten official certification students enrolled. Of those only seven completed their student teaching the term following the researched course, which was a requirement of the research study. All six of the students that could have participated due to having completed their student teaching the semester following the course had final course percentages in the 90’s. Therefore a limitation of this research may have been that all of the students that participated in the case study were high-performing, had undergraduate degrees, and undergraduate GPA’s of at least 2.6, which was the minimum requirement for acceptance into the program. Perhaps lower performing students would have expressed different values.
Helpful QL Resources:


Continued...


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