

The Impact of Traditional, In-Class and Online, Learner-Centered Exams on Student Learning

Abstract

This study examined the effects of in-class and online exams on student learning through both quantitative and qualitative analysis. In our quantitative analysis, we investigated the effects of in-class exams and online, learner-centered exams on undergraduate students' performance on an in-class comprehensive final (n=141). Six educational psychology sections were randomly assigned to take one exam in a traditional, proctored format and two exams online in a learner-centered format. At the end of the educational psychology course, all sections took a proctored comprehensive final, consisting of a series of multiple choice questions closely aligned with questions from the unit exams. The results of the comprehensive examination were collated and independent sample t-tests were performed, resulting in no significant differences between content items initially assessed utilizing the traditional format and the online, learner-based format at the 0.05 significance level. In our qualitative analysis, participants in one of the six course sections (n=22) were selected to participate in open-ended interviews. A phenomenological method was used to collect and analyze responses to the question: "When thinking about your experiences with both the in-class test and Blackboard tests in [course name], what stands out for you?" Findings from our qualitative analysis resulted in two separate thematic structures. The shared thematic structure for the in-class exams contained three themes, while the shared thematic structure for the online exams resulted in two. The lived experience of the students led to implications around issues related to teaching and learning.

Introduction

The growing popularity of using online resources to teach and assess students in higher education has created a demand for improved teaching methods to maximize the effectiveness of

learning online. A learner-centered theoretical framework provides one such method. According to Weimer (2002), a learner-centered approach to teaching and assessment involves five key changes to traditional, performance-focused teaching practice: shifting the balance of power from teachers to students; seeing the function of content as a means of facilitating changes in how students think and understand; de-centralizing the role of the teacher; helping students develop into responsible life-long, learners; and providing evaluation and assessment that emphasizes process and promotes learning. It is this latter component, assessment, with which this study is concerned.

Literature Review

Within the paradigm of traditional assessments, learners and instructors are often restricted by time, place, and resources. Such limitations may be addressed through carefully designed implementation of online assessments (Buchanan, 1998). However, the administration of online assessments varies as technology now offers instructors a variety of options for evaluating student learning, a fact that is overlooked in some of the literature that concerns online assessment (Clarianna and Wallace, 2002). These technological options allow instructors to decide whether they wish to administer assessments with a performance-centered orientation or a learner-centered orientation.

According to Eggen and Kauchak (2007), a performance-centered approach to learning makes grades and competition a priority contrasted with a learner-centered approach which emphasizes improvement and understanding. Some of the disadvantages often associated with online assessment—learner isolation, a lack of instructor control over assessment conditions, and a lack of security with regard to the test itself (Kerka and Wonacot, 2000)—can be overcome by basing the administration of assessments on a learner-centered approach. A learner-centered

approach to assessment, such as providing learners with multiple opportunities to take an exam, allowing students to use resource materials, and permitting classroom discussion of the exam, makes students more aware of the learning processes involved and takes the focus off grades (Weimer, 2002). For example, allowing students multiple opportunities to take the exam removes the need for instructor control over the assessment and places control over the process and its outcome in the hands of the student. The extent to which students perceive personal control over an academic situation has a strong effect on their academic performance (Perry, 1997 as cited in Weimer, 2002). Traditionally, control beliefs have been difficult to address: "...in school [sic] students often have little control over the curriculum, assignments, grouping, grading and the like" (Schunk and Zimmerman, 2006, p. 363). Allowing students to utilize resources as they take an online exam and affording students the opportunity to discuss and provide feedback regarding the exam offers students opportunities to exercise self-regulation and to gain additional control over the outcome. Additionally, the impact of a course grade on the achievement of a long-term goal is listed among the top five influences on students' decisions to cheat (Genereux and McLeod, 1995 as cited in Weimer, 2002). Offering students control of the grade outcome of an exam can help eliminate instructor concerns regarding the security of the exam.

Online assessments create an avenue by which reflective learning (Taylor and Maor, 2000) can take place. McCombs and Vakili (2005) point out that online learning has an exciting potential: "Technology can be used to change the role of teachers to that of co-learners and contributors to the social and interpersonal development of students, counterbalancing the potential of computer technology to cause personal and social isolation and alienation"

(McCombs and Vakili, 2005). A learner-centered approach to online evaluation has much research to recommend it.

A great deal of literature exists discussing the benefits of utilizing online formats of instruction. However, additional understanding is needed related to guidelines impacting the design and application of online assessments. Understanding of this nature will serve to astutely inform the learning and teaching modules developed by instructors. Additionally, knowledge of the experiences of students engaged in taking traditional and online assessments may aid in guiding assessment design.

Purpose of the Study

This study was designed to inform instructors about the effects of assessment design on teaching and learning. The purpose of the study was twofold, including both a quantitative and qualitative component. First, we aimed to determine the extent to which online assessments and traditional, in-class assessments affected undergraduate students' performance on traditionally administered comprehensive examinations. Additionally, we explored the lived experiences of undergraduate students taking both in-class and online assessments. We designed the online exams using what Weimer (2002) refers to as a learner-centered approach, with the participants provided immediate feedback and allowed to take the exam multiple times with access to course materials. Thus, our research questions were based on the idea that the online exams were more learning-focused in comparison to the in-class, timed exams which emphasized performance. The research was guided by the following two questions: (a) Is there a difference between the mean scores of content items on an in-class, comprehensive final exam initially assessed utilizing an in-class format and those initially assessed with a learner-focused, online assessment? (b)

What are the lived experiences of undergraduate students taking in-class and learner-focused, online assessments?

Methods

Findings

The findings of this study are presented in two sections. In the first section, we present the descriptive and inferential statistics related to the test items administered in either the in-class or the online format. In the second section, we explore the shared thematic structure that emerged from the phenomenological interviews.

Participants

The participants were 141 pre-service teachers enrolled in one of six sections of a required senior level educational psychology course at a large southeastern university in the United States. All of the participants had been admitted into the College of Education teacher preparation program and were preparing for the PRAXIS, a standardized national teacher exam. Each course section was taught by a graduate teaching assistant enrolled as a doctoral student in the department of Educational Psychology and Counseling. All course requirements were standardized across all six sections. Data were collected as a regular part of our course requirements on only the students who signed a consent form agreeing to participate in the study. For these participants, data was collected throughout the semester for our quantitative analysis.

Quantitative Design

The main instruments used for the quantitative analysis were the three course exams and the comprehensive final. The three course exams contained forty multiple choice items and two essay questions, with each of these unit exams focusing on one portion of the course content. Test items were drawn from a test bank created by the authors of the course textbook. The first unit exam assessed students' understanding of professional knowledge and development,

theories of motivation and related application, as well as principles of classroom management. The second unit exam assessed students' understanding of major theories of learning. The third unit exam assessed students' understanding of learner diversity, classroom assessments, and standardized testing. The final exam was comprehensive in nature, including content drawn from each of the unit exams.

Each of the six educational psychology sections was randomly assigned to one of three groups as shown in Table 1. Group one was assigned to take exam one in class and the remaining two exams online. Group two took the second exam in class and the first and third exams online. Finally, group three took the third exam in class and the first two exams online.

Table 1. Randomly Assigned Grouping of Sections Indicating the Format of Each Administered Exam				
	Unit Exam 1: Professional Knowledge and Development, Motivation, and Classroom Management	Unit Exam 2: Behavioral, Social Cognitive, and Constructivist Theories	Unit Exam 3: Learner Diversity, Classroom Assessment, and Standardized Testing	Comprehensive Final Exam
Group 1	In-Class Exam	Online Exam	Online Exam	In-Class Exam
Group 2	Online Exam	In-Class Exam	Online Exam	In-Class Exam
Group 3	Online Exam	Online Exam	In-Class Exam	In-Class Exam

All in-class exams were administered during a one hour and fifteen minute time frame with no access to course materials. The untimed online exams were presented through Blackboard, a commercially designed software program. The students were allowed unlimited attempts over a one-week period and provided immediate feedback related to submitted answers. The feedback indicated solely whether their response was correct or incorrect. With each new

attempt of the exam, the order of the questions was randomized. For online exams, the students were encouraged to use all available course materials. The in-class and online exams consisted of the same questions. At the end of the course, all students in each section took an in-class comprehensive final exam during a one hour and fifteen minute time frame. The comprehensive final exam consisted of sixty multiple choice questions that were closely aligned with twenty questions drawn from each of the unit exams. All of the questions were coded allowing the researchers to identify which questions were drawn from a given unit exam. The coded test items on the comprehensive final exam were collated for each group depending upon whether the course section had been initially given the exam in an online or an in-class format. The comprehensive final test items aligned with unit exam one were collected for group one (n=51) who initially took unit exam one in the in-class format and were compared to groups two and three (n=90) who initially took unit exam one in the online format. The comprehensive final exam test items aligned with unit exam two were collected for group two (n=40), who initially took unit exam two in the in-class format and were compared to groups one and three (n=101), who initially took unit exam two in the online format. The comprehensive final exam test items aligned with unit exam three were collected for group three (n=50), who initially took unit exam three in the in-class format and were compared to groups one and two (n=91), who initially took unit exam three in the online format. A series of independent t-tests and a one-way analysis of variance utilizing the SPSS statistical software package were applied to the collected data.

Results

Data were analyzed using independent t-tests at the 0.05 level of significance. The comprehensive final exam mean score for the unit one test items for the two course sections that initially took the unit exam one in class was 90.69 and the mean score for the four course

sections that initially took the unit exam one online was 88.44. To determine whether the mean scores were significantly different, a t-test for independent means was conducted. The results indicated ($t(139) = 1.17, p > 0.05$) that there was no significant difference between the means as shown in Table 2.

Table 2. Comprehensive Final Exam Mean Scores on Unit One Test Items Initially Assessed Utilizing an In-Class or Online Format

Test Format	N	Mean	Std. Deviation	Std. Error Mean	t-value	df	Significance (2-tailed)
In-Class	51	90.69	9.64	1.35	1.17	139	0.24
Online	90	88.44	11.55	1.22			

$p < 0.05$

The comprehensive final exam mean score for the unit two test items for the two course sections that initially took the unit exam two in class was 77.50 and the mean score for the four course sections that initially took the unit exam two online was 79.65. To determine whether the mean scores were significantly different, a t-test for independent means was conducted. The results indicated ($t(139) = -1.25, p > 0.05$) that there was no significant difference between the means as shown in Table 3.

Table 3. Comprehensive Final Exam Mean Scores on Unit Two Test Items Initially Assessed Utilizing an In-Class or Online Format

Test Format	N	Mean	Std. Deviation	Std. Error Mean	t-value	df	Significance (2-tailed)
In-Class	40	77.50	9.06	1.43	-1.25	139	0.21
Online	101	79.65	9.31	0.93			

$P < 0.05$

The comprehensive final exam mean score for the unit three test items for the two course sections that initially took the unit exam three in class was 75.80 and the mean score for the four course sections that initially took the unit exam three online was 78.68. To determine whether the mean scores were significantly different, a t-test for independent means was conducted. The results indicated ($t(139) = -1.54, p > 0.05$) that there was no significant difference between the means as shown in Table 4.

Table 4. Comprehensive Final Exam Mean Scores on Unit Three Test Items Initially Assessed Utilizing an In-Class or Online Format

Test Format	N	Mean	Std. Deviation	Std. Error Mean	t-value	df	Significance (2-tailed)
In-Class	50	75.80	11.13	1.57	-1.54	139	0.13
Online	91	78.68	10.32	1.08			

$p < 0.05$

The six course sections' mean scores from the three units assessed on the comprehensive exam were analyzed using a one-way ANOVA and Tukey post hoc to determine whether there were significant differences between and within course sections. No significant differences between and within the six sections were found.

Qualitative Design

The qualitative analysis of this study employed a phenomenological methodology to investigate the lived experience of undergraduate students in an educational psychology course completing both in-class and online assessments. In this study, students from one randomly selected course section were invited to participate in phenomenological interviews ($n=22$). Prior

to the interviews, the selected participants had completed the first unit exam and comprehensive final in class and the second and third unit exams online.

Unstructured, open-ended interviews were conducted by five members of the research team, lasting from seven to sixty minutes. Each of the participants was interviewed following the completion of the course. We began each interview with one general question that allowed for a broad range of descriptive responses: “When thinking about your experiences with both the in-class test and Blackboard tests in [course name], what stands out for you?” Other follow-up questions were asked as needed, not to produce more information, but simply to clarify information already given, refocus on unfolding themes, add details, and/or provide examples. To assist the interviewers in avoiding the tendency to lead participants based upon their assumptions, a bracketing interview was conducted with each of the interviewers in order to bring to light possible assumptions and biases held.

All interview transcripts were analyzed by a research team experienced in a hermeneutic method developed at the University of Tennessee by Emeritus Professor of Psychology, Howard Pollio, influenced not only by Husserl and Heidegger, but also by Merleau-Ponty. With this method, each participant’s transcript was read out loud while team members noted what stood out for them. A discussion took place in which members elaborated upon what Robbins (2006) aptly calls *meaning units*. Members justified their ideas as others challenged them to find support within the transcript for each meaning unit and to see and to answer Churchill’s (2006) question: *How is it that I am standing such that I see what I see?* Themes, defined as “patterns of description that repetitively recur as important aspects of a participant’s description of his/her experience” (Thomas and Pollio, 2002, p. 37), began to emerge revealing the invariant structure shared by all participants.

Members of the six member research team interpreted the data together to provide more validity and reliability, recording those themes in the words of the participants. These phenomenological researchers then sought to understand how each of the participants was oriented in relation to the in-class and online course exams. Rather than causality and prediction (Polkinghorne, 1989), phenomenological research focuses on meaning and understanding, the “what” and not the “why” of an experience (Thomas and Pollio, 2002), resulting in a shared thematic structure.

Results

The thematic structure was developed around patterns emerging from the words of the participants. The data analysis resulted in two thematic categories, representing the two test formats, in-class and online. From these two experiences, the research team identified three themes for the in-class exams and two themes for the online exams as shown in Table 5.

Table 5. Thematic Structure of In-Class and Online Examinations	
In-Class Exams	Online Exams
<i>Theme 1. It's just like any other normal test</i>	<i>Theme 1. It let me focus on learning a) It took the pressure off b) I had control over the score</i>
<i>Theme 2. I had no idea what to expect</i>	<i>Theme 2. It just depends on how you look at it: Go back and Re-search/Just take it and get it over with</i>
<i>Theme 3. I knew it to where I could do it: It's more thinking involved/Didn't matter if I understood</i>	

The themes that emerged for the in-class exams were:

- Theme 1. *It's just like any other normal test;*
- Theme 2. *I had no idea what to expect;* and

- Theme 3. *I knew it to where I could do it: It's more thinking involved/Didn't matter if I understood.*

The themes and sub-themes for the second category, the experience of the online exams, were:

- Theme 1. *It let me focus on learning* and its sub-themes;
 - Sub-theme 1a: *It took the pressure off;*
 - Sub-theme 1b: *I had control over the score;* and
- Theme 2. *It just depends on how you look at it: Go back and Re-search/Just take it and get it over with.*

For most of the themes, a majority of the participants made explicit statements indicating agreement. To better understand those participants who did not fully agree with each theme, the researchers re-analyzed each interview for evidence of performance and/or learner-focused orientation when taking the exam. Within the following discussion of each theme, this is explored when applicable.

Category One: In-Class Examinations

It's Just Like Any Other Normal Test

The first theme, *it's just like any other normal test*, is about the participants' perception of the in-class exam as being "similar to other in-class exams I've had in other courses." For some of the participants, the idea of a "normal test" was often associated with the feeling of "I'm not going to get a second chance so I mean, kind of a 'do or die' there." The following participant's words provide a description of a traditional, in-class exam:

I have grown up taking the same exam, same format all through my school. I didn't have much alternate assessments. Just a real exam – studying the material covered in class and in the book and then coming in and taking it with a pencil in a classroom, silent, I guess the traditional classroom exam.

The in-class one I just studied like for a regular test, like I have for years.

Many of the participants noted that these traditional, in-class exams created a sense of stress, as illustrated by the following participant's words:

It's stressful to study for a test. It's stressful to be in the environment where everybody is silent and filling in the bubbles.

Sarros and Densten (1989) conducted a study asking undergraduate students to rate thirty-four potential stressors within their college experience. Nine out of the top 10 noted stressors were related to evaluation activities, such as classroom exams and grades.

Interestingly, the participants in our study expressed similar feelings of anxiety related to the in-class exams.

Tests make me nervous [laughs quietly] and in a classroom setting where you've had to study for several chapters and in these chapters there's so many different theories and so many concepts to grasp onto so you're studying an overall, a lot of material. So that can get stressful because you don't know exactly what's on the test.

I Had No Idea What to Expect

Much of the anxiety related to "what's on the test" appeared to stem from what the participants expressed as the second theme: *I had no idea what to expect.*

I was very stressed out about the in-class exam because my class took it first, and I had no idea what to expect.

Well, you never know what to expect when you take the first test in a class. So my first one [in-class exam] was just kind of like, "Oh man, this is bad."

One aspect of the lived experience was simply that the in-class exam was the first versus the second or third course exam; thus, many participants expressed that not knowing what to expect was what really stood out for them. In that the research design involved only interviewing participants in one randomly selected section, and that this section took the first exam in class, the experience was somewhat framed within the context of having no prior knowledge of the kind of questions that would be used on exams in this course. It was interesting to hear them

express a difference in their experience when comparing the first in-class unit exam with the comprehensive final exam.

Like you walk in with just like a timidness because you're like "What's this? What's this [in-class exam] gonna be like?" So . . . But with the comprehensive final, that was in class too, and I didn't have that at all. I mean I studied for it and I was like, "Yeah, it's comprehensive, but I studied over the previous test. I studied my notes that I had taken in class."

If you knew the material that was tested [on the final exam], then you would be fine on this test. It wasn't throwing any curve balls like, "Oh, you should have studied page 43." Or you know, that second paragraph – there wasn't any surprises. Yeah, and I guess since I was so prepared, the second one [in-class final] wasn't bad at all. With the first one I guess I didn't know what to expect and maybe if I had taken the in-class exam as a second or third one instead of the first one I might have...so I think everyone was a little bit – well you never know what to expect when you take the first test in a class.

And so, since I didn't really know what to expect or anything like that, I just like over studied pretty much.

I Knew It to Where I Could Do It

The preceding participant seemed to respond to the idea of not knowing what to expect on the first in-class exam by doing what she referred to as over-studying. The majority of the participants expanded on this idea of preparing for the in-class exam as expressed in the third theme, *I knew it to where I could do it*.

With in-class tests, it was more stressful, but I actually read the information and learned, like knew it to a point to where I could do it without the book in front of me.

While most of the participants referred to some knowing of the course content, there was an implicit difference in how they defined this “knowing,” ranging from critically thinking to the simple regurgitation of information.

It's more thinking involved/Didn't matter if I understood

A continuum of “knowing” emerged with *it's more thinking involved* on one end and *didn't matter if I understood* on the other end as illustrated by the following quotes:

Being in-class [exams] where it is more critical thinking because you have a, you get, it's like separating your mind in two different places. You have the test and then you have your database of information that you have studied and it's the process of associating that information that you have studied to the test, as opposed to a blackboard [online] – it's more of a – look at the question and find the answer. There is no actual thinking involved so I feel like, when I'm in the in-class [exam] I – because I've done that critical thinking, it's more thinking involved. That means I feel I have more retention of the process as opposed to just regurgitating facts on blackboard [online].

Really didn't matter to me at that point if I really, I would say understood exactly – I have really good memorization so to me, if I can just memorize it word for word – maybe not even understand what it meant but just get it down I would have a pretty good shot I would think at being able to answer the questions.

Well, when I memorize I just, I know all the information and I see it long enough to write it down for the test and then when I'm done with the test I don't really care anymore [laughs]. And it goes away. I mean it will come back if I have to take a test again but it's not something that pops up in my mind all the time or I can – it's not useful to me and in like a year or two I won't remember it or in a week or two sometimes.

The preceding quotes represent two ends of the experience related to “knowing it” with the remaining participants either implicitly or explicitly existing somewhere between critical thinking or pure regurgitation of information as depicted with the following:

I had a history teacher; she was always like, “Understand... don't memorize.” ‘Cause if you understand something you will remember it mostly, but if you just try to memorize facts or memorize answers, it's not gonna stick, because it's just this whole list and stuff that's gonna get lost.

In the preceding quote, “knowing” is perceived as more than merely memorizing information; it is inherently connected to an in-depth understanding. While this quote applies to traditional in-class exams, the same underlying belief guided our design of online exams with our emphasis on the process and promotion of learning.

Category Two: Online Examinations

Although the participants talked about knowing the content for the in-class exams, ranging from critical thinking to rote memorization, many of the participants also described the

nature of their knowing in relation to the online exams as articulated by the following participants' words:

For the online exams, I took that one question, the one area it was asking and studied that in-depth in the book, like everything about it, you know and so I had more understanding of the concepts like an individual concept in-depth in the whole chapter... because for the first exam [in-class] I knew a little bit about everything but for the second two [online] I knew a lot about a few things.

Within the category of online exams, two themes resulted.

It Let Me Focus on Learning

The first theme, *it let me focus on learning*, is about how online exams led to a lessened sense of pressure within the frame of control over the final grade, thereby providing an opportunity for the participants to focus more on learning the material. This focus on learning is illustrated by the following participant's words:

It [online exams] gives you the ability to do as well as you want, also. Obviously, you're taking it multiple times so you don't take away that sense of control. I didn't do as well as I wanted to on the first test [in-class], I didn't feel that I prepared myself enough to take the test in class, but there was a little bit of relief knowing that I could do as well as I was willing to do on the next [online] test and having some control over that. Like, I could make a hundred on the next two tests, if that's my goal. And I don't know why you wouldn't—take it as many times as you could [laughs]. I don't know if people did or not, but it was nice to have that control. It took the pressure of the grade away a little more and let you focus on learning.

The next participants' words further highlight how the very nature of the online format provided a way to “know” and “learn” the content:

I think with having to find it on my own and having the resource in front of me, I felt like it stuck better in my mind when I went back through it to know. To have it in front of me and to have it on the test to go through, it stuck in my mind for me.

The good thing is that I did learn it because I went over it and over it, and over it again; and it wasn't just something I was memorizing, because I didn't have to memorize it because it was right there in front of me and I was actually reading what it said rather than memorizing the words.

Interestingly, four of the twenty-two participants explicitly disagreed with this theme, seeming to approach the task of completing the online exams from more of a performance-oriented mindset. Performance-oriented perspectives tend to focus on “high grades, public displays of ability and performance compared to others” as compared to the emphasis of learning-focused approaches on “effort, continuous improvement and understanding” (Eggen and Kauchak, 2007). Many of the participants who disagreed with the theme, *it let me focus on learning*, indicated that they approached the task of online exams by simply looking at the question and finding an answer as opposed to focusing on learning the content.

A blackboard [online test] – it’s more of a – look at the question and find the answer. There is no actual thinking involved.

I think I maybe didn’t learn as much through the blackboard [online] tests because I would just look it up in the book as I did it instead of reading it.

In spite of the disagreement expressed by this minority, all the participants agreed that online exams reduced the amount of pressure to some extent.

It took the pressure off

Within the context of “letting me focus on learning,” emerged a sub-theme, *it took the pressure off*. This sub-theme related more specifically to “how” online exams allowed participants to “focus on learning” through this lessened sense of pressure as reflected in the following participants’ words:

The online tests, you know, you were able to breathe a little easier because you’re learning as you’re going.

I mean, obviously it gives you a window to be able to take the test, I don’t have to study it and know all the information by Tuesday or Thursday at 9:40. I, I can have it between Friday night at whatever o’clock until Sunday, you know what I’m saying? It kind of gives you that window to kind of you know, when you have time.

But the other one was nicer [online exam] because I was just sitting on my couch and you could do it when you wanted to and when you had the time . . . in the comfort of my own home.

I felt more at ease with the online tests in terms of just reading the material and coming to class and discussing it because I knew while I was doing that, the online test, I wasn't worried as I was reading about getting all the knitty-gritty. I was really reading it, trying to just get the big picture.

I had control over the score

A second sub-theme, *I had control over the score*, brought forth the idea of how the sense of influence or control of a grade influences achievement. Perry, as cited in Weimer (2002), suggested that a student's sense of control, or lack thereof, strongly influenced academic achievement. In one study, Perry and Magnusson (1987) reported that a student's sense of control or perceived measure of influence upon academic outcomes had a more powerful effect than an instructor who was perceived by students as highly effective. Thus, it was intriguing to discover that the participants' perceived control over the score with online exams was often referenced in relation to their motivation and willingness to persist with the material.

I guess, the second test I took was online and I kept getting a seventy-six out of eighty and there were two questions that um I was getting wrong over and over. But since they switched out and it wasn't in order, it took me a long time and I kept thinking, "Seventy-six [out of eighty] is not so bad." And then I was, "No way. I'm going to get an eighty."... I wasn't settling for the seventy-six. So I did it all the way and it took me a long, long time.

I guess my motivation was stronger on the blackboard test to do better because I knew that I had control over it. Even after I had taken it the first time I was able to go back and fix what I had missed. Whereas in the classroom tests, I was not given the opportunity, so what I got wrong was what I got wrong, so it was sad. It, I guess, decreased my motivation to go back and find out the answers cause I had already gotten the final grade.

Many of the participants spoke about this control over the score in relation to their level of motivation. Attribution theory further explicates this idea, suggesting how a learner's explanation of their success and failure deeply influences motivation and behavior (Eggen and

Kauchak, 2007). This theory states that a student's belief that an academic outcome is attributable to "internal, stable, and controllable causes" impacts their willingness to persist within a given task (Schunk and Zimmerman, 2006). Although many of the participants expressed a willingness to persist in completing the online exams, the nature and understanding of this persistence appeared on a continuum between *Go back and re-search* and *Just take it and get it over with*; where they were on the continuum was contingent upon how they "looked at it."

It Just Depends on How You Look At It

This continuum of approaches to the online exams is more fully understood in light of the second theme, *it just depends on how you look at it*. This theme illustrates that the way an individual participant perceived the exam deeply influenced the way they approached it. Although the online exams were designed to provide immediate feedback, multiple opportunities to retake, and access to course materials in hopes of emphasizing the process of learning, not all of the participants shared this understanding. Thus, on this continuum, one end consisted of participants who simply saw the online exam as something to take and "get it over with" while on the other end of the continuum, participants spoke about taking the exam multiple times as they went back to research further concepts and ideas.

One end of the continuum, *go back and re-search*, speaks to the very nature of our online exams, whereby the participants were provided an opportunity to take the exam an unlimited number of times during the one week timeframe, enabling them to continually revisit the course content. Many of the participants spoke about how the immediate feedback often led them not only to improve their performance, but enhanced their understanding as well.

With the test online, I felt like I could research the answers more carefully. I would take the test to see what I knew up front, and then the ones that I got incorrect, I would go back through and really look in the book and really research what the question was asking and go through all the answers. So I feel like I learned more that way.

For me, it was “Well, if I got it wrong, I will go back over the notes and the book in that particular section and think about why could this answer be wrong?” So think about what I’m reading and try and analyze it in a different way and figure out what the answer was.

I understand the material in those [online exams] a lot better than the material I took in class, because I looked at it once and then didn’t look at it again until the final. But the ones I did online, because I was able to do them over and over and over until I got the grade I wanted, I think I got the material a lot more.

This concept seems to also hint at the idea of self-regulated learning, with one feature of such being characterized by Zimmerman (1989) as occurring when “students monitor the effectiveness of their learning methods or strategies and respond to this feedback in a variety of ways” (p. 4). The following participant responded to such feedback by re-teaching a given test concept to herself.

I guess that the way to remember it is to go back over it when you’ve gotten something wrong. It’s not just, Ok, I got the question wrong. It’s to go back over it and either the teacher re-teach it or you re-teach yourself the concept.

And finally, on the other end of this continuum, a minority of participants described online exams as being something to *just take and get it over with*. This theme highlighted the experience of those who approached the online exams as something to simply “check off my list” of things to complete. It was interesting to note that only 4 out of the 22 participants articulated a disposition toward this end of the continuum and tended to approach the task of online exams from a more performance-oriented mindset, as voiced by the following participants:

I studied more of the information to memorize it and like learn it and understand it more [for in-class exam] than just to answer the test – the questions on the [in-class] test because I had to remember it for a longer period of time to take the in-class than just to take it online and get it over with.

It's because, on the in-class tests, we are preparing for something and you don't have that relaxed feel where, you know, "I don't really have to study for this, this blackboard test, because I could just look up the answer really quickly."

Some of these participants spoke about simply using a process of elimination when completing the online exams.

. . .if they are given multiple chances to get the correct answer, well then eventually they are going to keep up with what's right and what's wrong and they just go back and click through it.

This idea of just getting it over with emerged predominately when discussing the practice of not inquiring further about test questions that were difficult to understand or that the participant disagreed with from the online exams.

I still probably should have asked about that [online test question], but I didn't because I just checked it off my list, "Ok, I took the test" I ended up getting it right and doing well.

The vast majority of the participants, however, explicitly disagreed with this end of the continuum, *just take it and get it over with*, often referring to the extensive amount of time they needed to complete the online exam, as expressed by the following participant's words:

I thought I could just look at the question, find it in the book and that would be it, it would take like 30 minutes. But finding it in the book was more, more of a task than I thought it would be and it did take more time because I went through the first time just trying to see what I knew and then trying to find that in the book and then I would miss it and have to take it again or something like that so it, it was more time consuming than I, you know, what I previously anticipated.

It was interesting to note that many of the participants did approach the process of the exam with the idea of engaging actively in the learning experience, yet, at the same time, others did not. The shared thematic structure of the in-class and the online exams resulted in a deeper consideration of both the limitations and the implications of the findings.

Limitations

Limitations to the study include the scheduling and coverage of material for the in-class exams and the varying course formats. The first traditional in-class exam covered six chapters, the second in-class exam covered four chapters, and the third traditional in-class exam covered three chapters. The choice of what was covered by each exam was determined by the logical organization and relevance of content and instructional alignment. Consequently, those students taking the first exam ostensibly had more chapters to cover than did those students who took the traditional exam at a later time. Even though the amount of relevant content was roughly the same, some students who took the first exam in class expressed concern that they had to cover more chapters. Of the six classes studied, the class randomly chosen to be interviewed for the study included those students who took the traditional exam as their first exam. These students indicated that having to cover more chapters, as well as having their first experience of testing in the course, impacted their performance on the exam. Perspectives from students taking later traditional in-class exams may have differed had they been chosen for interviews.

Another limitation occurred in part as a result of the realities of the university's class schedule which caused course formats to vary. One class was taught in the evening, one time per week for three hours; one class was taught with a team-teaching approach two times per week for one and a half hours; and four classes were taught by individual instructors two times per week for one and a half hours per class. However, each class met for a weekly total of 180 minutes with a standardized syllabus and with the same order of presentation for content. The area of format variability bears mentioning, though it is unclear how or if it might have affected the outcome of the research study. Despite the noted limitations, the findings provided a wealth of understanding related to assessment formats.

Summary of Findings

The overarching aim of this study was to examine the effects of exams administered in a traditional and online format. One of the strengths of this study is that it involved both a quantitative and qualitative analysis, thereby providing a richer understanding of the effects. Our quantitative analysis resulted in no significant differences between the mean scores of the content items on the comprehensive final that were initially assessed with an in-class exam and those initially assessed with an online exam. This was an important finding because it suggested that a traditionally administered exam did not necessarily result in better performance on a traditionally administered comprehensive final. With all of our participants being required to take standardized licensure exams, such as the PRAXIS, it was important for us to consider how the traditional or the online exam format affected their performance on comprehensive exams given under conditions similar to those the participants would experience while completing exams for their professional licensure.

Our understanding was deepened through the phenomenological analysis. This qualitative analysis provided a rich description of the experience of our participants, allowing us to consider more holistically the effects of exams administered in a traditional or online format. Through this, we were given an opportunity to look more deeply at the perceptions of the participants, seeing how they saw the two test formats.

As discussed in the *Qualitative Findings* section of this paper, two categories emerged. In the first category of in-class exams, three themes were noted: 1) It's just like any other normal test; 2) I had no idea what to expect; and 3) I knew it to where I could do it: It's more thinking involved/Didn't matter if I understood. The second category, online exams, revealed two themes: 1) It let me focus on learning, with its two sub-themes, it took the pressure off and I had control

over the score; and 2) It just depends on how you look at it: Go back and Re-search/Just take it and get it over with. Our qualitative findings did suggest that the participants experienced the exam formats differently.

Implications

One of the notable implications of this study related to the course instructors. Instructors involved in this study noticed that when a performance-based assessment was introduced into the course curriculum, their methods of teaching changed. For example, instructors lectured more frequently, used traditional in-depth PowerPoint presentations more frequently, and felt they had less time for experiential activities and real-world tasks. All of the instructors, who viewed themselves as constructivists, found themselves operating outside of their theoretical comfort zone. The instructors further viewed performance-based assessments as damaging to their relationship with students. Instructors reported feeling isolated from students, especially during the administration of the in-class exam. Communication with students tended to be limited to questions pertaining to the exam. Even though the instructors had considerable experience administering performance-based assessments to students in other educational contexts, during this study they expressed an uncomfortable awareness of a disjunction between their philosophy and what they were doing in the classroom. When the instructors claimed to be learner-focused and then interjected performance-focused assessment in their teaching practice, the instructors viewed themselves as not “practicing what we preach.”

Students expressed the same sentiments regarding the disconnect between having an instructor who identified herself as learner-centered and taking a course that required performance-centered exams. In written feedback provided by students at the end of the class period and written feedback given during end of the course instructor evaluations, students used

the expression “practice what you preach” to describe what they felt instructors should but did not do.

Soliciting students’ perspectives also generated various reflections regarding factors influencing the students’ level of motivation and the source of that motivation. Many of the students made performance-focused comments related to a feeling of being over-extended; some student were taking more than 18 semester hours, balancing exams required by this course with exams or deadlines in other classes. Students’ comments also shifted from learning-centered to performance-focused as they described feeling stressed by these constraints on their time. One such student described approaching the online exam as “another thing to check off my list.”

Conclusion

This research prompted further examination of the assumptions instructors make regarding students’ ease in understanding, preferring, and using a learner-centered approach to online tests. These findings help uncover the learners’ perceptions and orientation towards test-taking and instructors’ needs to more explicitly teach students to value and use learner-based approaches. Technology affords the opportunity to find effective methods of learner-centered evaluation, to encourage students to become more deeply involved in learning experiences, and to become more self-regulated and persistent learners within the realities of a system where grades still count. As Chickering and Gamson assert, “Learning is not a spectator sport” (1987, as cited in Huba and Freed, 2000); offering assessments with which students can actively engage, gain feedback, ask questions about, and feel genuine competence toward, can help students move out of the stands and onto the playing field.

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