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College Students' Perception of an Online Course in Special Education

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When redesigning an online course, obtaining and integrating feedback from students is a critical facet of an iterative design and development cycle. This study examined college students' perceptions of specific elements of a redesigned online course. Elements included course structure, curriculum and instruction, technology, and student connection. In addition, student age and self-reported online course preparedness were also considered. The study used a concurrent nested mixed methods research design that allowed collection of both quantitative and qualitative data. The findings showed that (1) the course structure was the most highly rated element, whereas student connection was lowest, (2) students' age impacted student perception of curriculum and instruction, course structure, and technology course elements, and (3) no significant difference was found in students' online course preparedness and their perception of the course elements. These findings add to a growing body of literature on student perception of online courses and may to some extent shift views on the importance of preparedness and student-student connection in an online learning environment.

Keywords: online course design, student perception, distance education

Introduction

This paper describes student responses to a redesigned, online, undergraduate course offered at the University of Hawaii at Manoa. The course, Special Education 304 - Foundations of Inclusive Schooling (SPED 304) is a prerequisite for all SPED programs. Multiple sections are offered each semester and taught by various instructors. The course has been offered for many years and while course content had been generally agreed upon, over time instructors had modified their individual curriculum leading to inconsistencies across semesters and sections. To standardize course content, the SPED Department, in partnership with the College of Education's Distance Course Design and Consulting Group (DCDC) developed a new online version of the course to be used by all SPED 304 instructors. The site includes readings and multimedia resources, activities for students, assignments and additional assessments. In order to evaluate student response to the new SPED 304 course, DCDC included a link to a "Rate this Course" survey on each page of the course website. The survey included 51 questions (35 quantitative and 16 open-ended) collecting information on a wide range of topics. A portion of the responses to that survey were analyzed in this study.

Students in the United States increasingly opt for hybrid and fully online college level courses, (Allen & Seaman, 2017). The ongoing increased demand for online courses has prompted universities and colleges to meet this need (Song et al., 2004). Despite the overall demand, distance enrollments have been uneven, specifically with a decline in enrollments at private, for-profit institutions (Allen & Seaman, 2017). University of Phoenix and Ashford University have faced the largest drops with a combined loss of 129,019 distance students in the years of 2012 to 2015 (*Ibid.*). The enrollment decrease at these two institutions surpassed the total drop (115,195) among other 50 institutions (*Ibid.*). Many have hypothesized that decreases in student enrollment could be attributed to student experiences in online courses (Rodriguez et al., 2008; Dobbs et al., 2009; Motargy & Boghikian-Whitby, 2010). It is therefore crucial to examine student experience of online courses in order to make relevant, data-driven improvements to the quality of online courses and programs (Lowenthal et al., 2015).

Some students thrive in online learning environments while others languish (Wyatt, 2005). On the positive end, Dobbs et al. (2009)'s study of 180 college students enrolling in online criminology and criminal justice courses found that the majority of students preferred online courses for the positive learning experience and high quality of course content. Specifically, slightly over 70% of students valued the quality of online course content. In addition, a majority of those students reported that they learned more in online courses than face-to-face. As noted by Wyatt (2005) online instruction has proven particularly effective in terms of the quality of academic experience and rigor

over traditional classroom instruction for the students who are successful in online courses. However, the online format does not work for every student. In the Dobbs et al. study previously mentioned, 35.2% indicated that a traditional course format was their first choice for course delivery format. Furthermore, students have been found to rate their face-to-face courses slightly higher on overall course measures (instructor, grading fairness, instructor access, workload, and learning experience) as compared to online (Lowenthal et al., 2015).

Student satisfaction with online courses is associated with various factors including course structure (Gray & Diloreto, 2016; Eom et al., 2006), learner-learner interaction (Eom et al., 2006; Swan, 2001; Mclaren, 2010), learner-instructor interaction (Kuo et al., 2013 & 2014; Eom et al., 2006; Swan, 2001; Arbaugh, 2000), self-regulation and learner-content interaction (Kuo et al., 2013 & 2014), instructor feedback, self-motivation, and learning style (Eom et al., 2006), clarity of design (Swan, 2001), curriculum, faculty involvement, and student engagement (Evans, 2009), academic status (graduate versus undergraduate), and gender (Beqiri et at. (2010), Internet self-efficacy (Kuo et al., 2013 & 2014; Chu & Chu, 2010), instructor knowledge and facilitation, and instructor presence (Gray & Diloreto, 2016). Age may also be related to student satisfaction (Barczyk et al., 2017; DiBiase & Kidwai, 2010). Of these variables, this study explored college students' perceptions of course structure, curriculum and instruction, course technology, student connection, perceived preparedness, and age.

Course structure in particular has been identified as a critical variable, having a significant and direct effect on student satisfaction (Gray & Diloreto, 2016). While course structure may seem an obvious construct, it has been defined in various ways. As defined by Gray and Diloreto (2016) course structure is a combination of the alignment of learning outcomes and objectives, course navigation, course layout, student participation instructions, and course purposes. Eom et al. (2006) described it as "course objectives/expectation and course infrastructure" (p. 221). More specifically, course structure referred to basic course information including a list of course topics in the syllabus, a description of required workload for students, a definition of class participation, and a list of assignments.

Learner interaction is also often considered a predictor of student satisfaction in online courses. However, it depends on the context of the course and the aspects of learner interaction that are considered. A general definition of learner interaction emcompasses three types of interaction: learner-learner, learner-content, and learner-instructor interaction (Moore, 1989). However, When more closely considering each of the three types of learner interaction, Kuo et al. (2013) found that learner-learner interaction had a significant effect on student satisfaction. Despite this, it was "a poor predictor" of student satisfaction as compared to learner-content and learner-instructor (p. 30). This may be because "if collaboration among learners is not required, then learner-learner interaction may not affect student satisfaction at all (p. 44). General learner interaction may not be required for students to be satisfied with an online course (Gray & Diloreto, 2006). Learner-learner interaction can be a useful variable when gauging student satisfaction if students are expected to learn about effective group functioning, group leadership, and group membership (Phillips et al., 1988), that communities of learning need to be established (Wenger et al., 2002), or if being used to motivate young learners (Moore, 1989). Adult learners that are time-pressured are highly selective the time they spend on course activities. These students tend to engage with the course materials and activities most directly helpful to completion of their assignments, with other resources and activities becoming ancillary (Murray et al., 2012).

Age is another variable considered when gauging student satisfaction in online courses, with varying results. Some have found age to impact student satisfaction with an online course (Walker & Kelly, 2007) while others (Simonds & Brock, 2014; Wyatt, 2005) have found it to not have an impact. Age could be predictive of students' preference for certain types of online learning activities. For example, older students have indicated a strong preference for watching videos of the professor lecturing whereas younger students indicated preferring more interactive learning strategies (Simonds & Brock, 2014). Wyatt (2005) reported a statistically significant relationship between students' age and their perception of the quality of online instruction, with older students rating the quality of online instruction higher than younger students. In addition, age may influence success in online courses (DiBiase & Kidwai, 2010; Barczyk et al., 2017) with older learners struggling less with online courses than younger learners.

Lastly, students' previous online course experiences or their comfort level with technology may also relate to their satisfaction with online courses. Novice students who had taken less than three online courses rated the clarity of netiquette guidelines as more important than more experienced online students (Hixon et al., 2016). The more experienced students placed high value on the cohesiveness of the course experience including clear performance expectations, alignment of instructional components, logical navigation, and availability of required tools and resources as most important. When considering levels online learning experience, Rodriguez et al (2008) noted a relationship between comfort level with technology and online course satisfaction. Interestingly, the comfort level was not related to the number of online courses taken. The more online course experiences a student had, the less satisfied they were with their online courses.

This study reviewed how undergraduate students taking a redesigned online course format at the University of Hawaii at Manoa. The study set out to answer the following questions: 1) Which of the four course aspects (course structure, curriculum and instruction, technology, and student connection) were most highly rated by students? 2) To what extent do student perceptions of the four course aspects differ across age groups? and 3) To what extent do students who rated themselves as more prepared to take an online course rate the course differently from those who rated themselves as less prepared?

Methodology

This study used a concurrent nested mixed methods research design with qualitative data embedded in a quantitative design (Creswell & Plano Clark, 2007). A survey consisting of 51 quantitative and qualitative questions was administered to SPED 304 students. In order to specifically answer the questions proposed by this study, data from 26 of the 51 questions was considered. These questions were both quantitative and qualitative. Cronbach's Alpha coefficients were computed to examine the internal consistency of the 15 five-point scale questions on student preparedness (1 item), overall learning experience (1 item), and student perception of the course aspects (13 items) with the results showing a high reliability of the questions ($\alpha = .915$). In this study quantitative data were analyzed with SPSS software, 24.0. Descriptive statistics including mean values and frequencies were calculated to address the first research question. An analysis of variance (ANOVA) was used to explore whether there was a difference in students' perception of course aspects across age groups (research question 2) and their online preparedness levels (research question 3). Qualitative questions were intended to offer students an opportunity to elaborate on their answers to the quantitative questions. However, response rates to the qualitative questions were low. Therefore in this study, qualitative responses are considered unique and treated as a secondary data source in support of the interpretation of some of the quantitative findings.

Participants

The target population of the study included college students registered in SPED 304 across multiple sections and semesters at the University of Hawaii at Manoa. A total of 138 students were enrolled in sections of SPED 304 between Spring 2012 and Fall 2013 and taught by four different instructors. Of these students, 74 completed the survey. Thirty nine students took the course with Instructor 1, 11 with Instructor 2, 13 with Instructor 3, and 11 with Instructor 4.

Of the 74 who completed the survey, 89.2% were female and 10.8% male. Seventy three percent were between 18 and 22 years old, and the remaining were 23 years and older. The majority studied full-time (83.8%) with the remainder both working and studying (16.2%). Less than half of the students (42%) reported that SPED 304 was their first online course.

SPED 304

SPED 304 is a primarily asynchronous online course. The course design includes synchronous online meetings in the schedule, but instructors choose whether to hold them. The course website was built with WordPress and access is provided through the SPED 304 course site in the University's Sakai course management system. Students access course content and instructions on the WordPress site and submit assessments in Sakai. Figure 1 shows a screenshot of the course site homepage.

Figure 1. Screenshot of SPED 304 course site homepage

Each box represents a week of the course. When a student clicks on the box, they will be taken to that week's page that includes standardized headers including Introduction, Objectives, Resources, and Due this Week.

Results

Preparedness and overall learning experience

As displayed in Table 1, the majority of the students reported that they were prepared to take an online course and were satisfied overall with the course. Specifically, 68.9% believed that they were well-prepared, 21.6% were unsure and 9.5% indicated they had not been prepared. Regarding their learning experience, an overwhelming number of the students, 97.2% expressed that they were satisfied, with the mean values equal to 4.622 (*SD* = .656). If given a choice between attending online or face-to-face, 79% indicated that they would prefer to take this course online.

Table 1
Descriptive Statistics (Frequencies)

Items	1-2 (%)	3 (%)	4-5 (%)
Preparedness (*M* = 3.932, *SD* = 1.127)	9.5	21.6	68.9
1. I was prepared to take on online class.			
Overall Learning experience (*M* = 4.622, *SD* = .656)	1.4	1.4	97.2
2. I am satisfied with my overall learning experience in this course.			

1 -2: Strongly disagree (1) to disagree (2); 3: Neither disagree nor agree (3); 4-5: Agree (4) to strongly agree (5)

Ratings of the five online course aspects

Table 2 summarizes the descriptive statistics featuring the mean (*M*) values and associated standard deviation (*SD*) of the ratings for individual course aspects. Ratings were on a 5-point scale with 1 indicating maximum disagreement and 5 indicating maximum agreement. Of the four course aspects (course structure, curriculum and instruction, technology, and student connection), structure was the most highly rated (*M* = 4.611, *SD* = .626) followed by curriculum and instruction (*M* = 4.500, *SD* = .680), then technology (*M* = 4.431, *SD* = .616).

Table 2. *Ratings of Course Aspects*

Course Aspects	**1-2 (%)**	**3 (%)**	**4-5 (%)**
Course Structure **(*M* = 4.611, *SD* = .626)**	1.4	6.8	91.8
1. The organization of the course content was logical and easy to follow.			
2. I could easily pick up the course where I last left off.			
3. The layout of the course made it easy to navigate.			
Curriculum and Instruction **(*M*= 4.500, *SD* = .680)**	2.7	5.4	91.9
4. The curriculum is comparable in academic rigor to courses offered in face-to-face.			
5. This course covers the kind of material I think based on the program I am in, my future career goals, etc.			
6. The activities and assignments were aligned with course objectives.			
7. I am satisfied with the quality of instruction provided by my online teacher.			
8. I felt like I knew what to expect from my instructor in terms of grade, feedback, email, etc.			
Technology **(*M* = 4.431, *SD* = .616)**	1.4	14.9	83.7
9. The technology was used in a way that helped my learning.			
10. I would like this course to be easily accessible on mobile devices and tablets.			
11. The material presented was easy to read and view.			
Student Connection **(*M* = 3.101, *SD* = .860)**	32.5	45.9	21.6
12. I knew my classmates in this online class at least as well as I do in my face-to-face classes.			
13. Knowing my classmates is important to me			

1 -2: Strongly disagree (1) to disagree (2); 3: Neither disagree nor agree (3); 4-5: Agree (4) to strongly agree (5)

As displayed in Table 2, 91.8% of the students reported that they could easily pick up the course where they had left off, the course layout made it easy for them to navigate, and the course content was organized in a logical and easy-to-follow manner. A very slightly larger number (91.9%), responded positively to the curriculum and instruction and 83.7% responded positively to the technology aspects of the course. Overall, more students provided neutral responses when asked to rate the technology aspect of the course (11 compared to 4 in the case of the curriculum and instruction aspect, respectively). Comments provided in the open-ended questions indicated an issue of accessing some videos. For instance, one participant stated, "s*ome of the videos uploaded for homework assignments did not work on a Macintosh/Apple computer. Really liked how the other videos were available on YouTube instead of the library resource. For some reason the videos uploaded from the library did not work."*

The ratings for student connection differed from those of the other course aspects and had the smallest mean values, $M = 3.101$ ($SD = .860$). More students (45.9%) indicated their neutrality towards student connection; specifically, if they knew their classmates in this course as well as they would have in face-to-face classes and if getting to know their classmates was important to them. The findings showed 32.5% of students disagreeing to these statements. Only 21.6% rated this as important. One student commented *"Well, I just feel that I don't NEED to know my classmates to be learning the course content. I liked that I got to read different perspectives and stuff but I don't feel that I need to know them."* Other students held differing opinions with one sharing *"I definitely do NOT know my classmates in the online class as well as I know my classmates in other classes. I like being able to really know my classmates and have conversations and interact with them."* A participant noted that the course design did not provide a method for getting to know classmates *"there really wasn't a way to really get to know my classmates as much as I would know them if I had a face to face class. The only interaction was the replies to the discussions."* Yet another noted the difficulty despite synchronous tools saying,
"Although I think the Collaborate sessions were much more interactive than other online courses I've taken, I don't think you can successfully get to know your fellow students online. You still need the face-to-face interaction to really get to know them."

Perception of course aspects across age groups

A one-way ANOVA was conducted to explore if there was a difference in perception of the four aspects of the course between the two student age groups. there were significant differences between student age groups in their perception of all of the course aspects with the exception of student connection, Curriculum and instruction was $F(1,72) = 6.089$, $p = .016$ Technology was $F(1,72) = 5.648$, $p = .020$ and Course Structure was $F(1,72) = 4.942$, $p = .029$. However, the associated Levene's F test revealed that the homogeneity of variance assumption for curriculum and instruction [$F(1, 71) = 8.586$, $p < .05$] and the course structure [$F(1, 71) = 8.401$, $p < .05$] were not met. Since the assumption was violated, the obtained Welch's adjusted F ratios were used with the new results showed that both Welch's F ratios were significant at the .05 alpha level: Welch's $F(1, 71.647) = 12.343$, $p < .05$ [curriculum and instruction] and Welch's $F(1, 71.998) = 10.406$, $p < .05$ [course structure]. The findings also show that student perception of all the course aspects with the exception of student connection significantly differed between the age groups. Seventy three percent of students were between 18 and 22 years old, with the remaining

being 23 years and older. Particularly, students in the older age group scored the curriculum and instruction, technology, and course structure aspects significantly higher than the younger students (Mean difference of .354 to .425).

Perception of course aspects and preparedness

To explore if there was a significant difference in perception of the course aspects by participants' preparedness levels, a univariate ANOVA was conducted. The test initially showed significant differences in the means of the course structure, the technology, and the curriculum and instruction; however, the Levene's *F* test found that the homogeneity of variance assumption was not met for these three aspects. Alternatively, the obtained Welch's adjusted *F* ratio was used with an effort of reexamining the results. Surprisingly, all the Welch's *F* ratios were not significant at the .05 alpha level as evidenced by Welch's $F(4, 8.806) = 2.467$, $p > .05$ [course structure], Welch's $F(4, 9.333) = 3.158$, $p > .05$ [technology], and 3) Welch's $F(4, 9.539) = 1.448$, $p > .05$) [curriculum and instruction]. The findings revealed that students' online course preparedness were not related to their perception of individual course aspects defined in the present study.

Discussion and Conclusion

This study examined students' perception of various aspects of the SPED 304 course and explored whether perception differed across age groups and online preparedness levels. There were several important findings.

Preparedness and overall experience

Students' online course preparedness did not seem to be related to overall learning experience. The study found that over 97% of the students reported being satisfied with their learning experience despite the fact that 69% of them reported feeling unprepared or/and unsure of their preparedness for an online course. Previous studies, including those of Dobbs et al. (2009) and Wyatt (2005) found that online instruction could provide a positive learning experience for the majority of students. However, those online learning experiences and more specifically the number of experiences do not necessarily then translate into student satisfaction with online learning (Stokes, 2003). Novice and experienced students rate their online course satisfaction differently, depending on their expectations of the course (Hixon et al, 2016) and more experienced online students do not report being more satisfied with online courses (Rodriguez et al., 2008). Future studies should look more closely at the underlying factors contributing to students' perceptions of their overall online learning experience.

Preparedness and perception of individual course aspects

No significant difference was found in student perception of the individual course aspects across students' preparedness for an online course. That is to say student perception of the course aspects was independent of if students perceived to be prepared for this online course. This finding does not seem to agree with previous findings that students' perception of online learning varies based on their experience with online learning (Hixon et al., 2016; Rodriguez et al., 2008). Particularly, that experienced learners tend to rate course quality elements (e.g. appropriateness of assessments, relevance and quality of instructional materials, ease of navigation) as more important than novice or intermediate online learners. It has also been suggested that those who understand the online learning environment, those that have more experience, would be more successful in their online courses than those who lack experience (Cintrón, & Lang, n.d.). Some have also found that students with more online course experiences tend to be less satisfied with online courses (Rodriguez et al., 2008). Two possible explanations for these contradictory results are that the course redesign efforts could have taken into account the issues typically experienced by less experienced online leaving no room for student preparedness to impact experience and success in the course. Another explanation could be that instructors' effective use of online teaching strategies could have mitigated students' perception of being novice or experienced online learners. Further research should be conducted to confirm these findings and explanations.

Course structure

Another important finding is that students in the redesigned SPED 304 highly valued all of the course aspects with the exception of student connection. Course structure was the most highly rated by the students as compared to the other two course aspects (curriculum and instruction, technology). An overwhelming number of students agreed that the logical and easy-to-follow course content organization and layout enabled an ease of course navigation and

content retrieval. Previous research studies, such as Gray and Diloreto (2016), and Eom et al. (2006) found the course structure to be a critical variable significantly influencing student satisfaction.

Student connection

Interestingly, about one-third of the SPED 304 students reportedly did not value student connection or their need to know their classmates, despite the fact that 97% reported being satisfied with their overall learning experience and 91% highly valued the other three course aspects. The majority of them did not consider their getting to know their classmates well to be important to their learning the course content. This finding does not imply that student connection is not at all critical to their learning. In fact, it did matter to less than one-third of the research sample. Of note, the redesigned SPED 304 course did not essentially create opportunities to promote student interaction to the extent which students find their getting to know their classmates important to their learning. Student connection truly reflects its value when the need for it is obvious to students.

While it has been postulated that student-student or student-instructor interactivity is an important component of student satisfaction in online learning (Croxton, 2014), it is reasonable to assume that the nature of the course requirements would also influence the degree of importance. For example, if collaborative work is required in a course, student connection could then be fundamental to student success in and satisfaction with the course. The findings appear to align with Murray et al. (2012)'s that student online learning satisfaction aligns most with the grade received rather than with any other course processes. It could also be true that the interaction among learners was not required for students to succeed in a certain online course (Gray & Diloreto, 2016; Kuo et al., 2014). Kuo et al. (2003) affirmed that the interaction among learners was indeed "a poor predictor" of student satisfaction (p. 30).

Differences in perception across age groups

The last important finding is that the study found a difference in student perception of three course aspects (curriculum and instruction, technology, and course structure) between the two age groups. Specifically, the older group rated these three course aspects higher than the younger one. This finding seems to support the work of other researchers including Wyatt (2005), DiBiase and Kidwai (2010), and Barczyk et al. (2017) who have found that older students seemed to have more positive learning experiences in online courses as compared to younger ones. The current study did not further investigate why the difference; however, one possibility could be age-related preferences for certain types of online learning activities. Interactive learning strategies (e.g. live chats and group projects) have been shown to be more highly-valued by younger students while asynchronous forms of learning (e.g. pre-recorded video lectures) more highly preferred by older students (Simonds & Brock, 2014). While Simonds and Brock found that student-to-student interaction was preferred by younger students, the present study found no significant difference among age groups. Regardless of age groupings, students rated the curriculum and instruction, technology, and course structure highly with both groups rating student connection as least important. Further investigation should be conducted to confirm this finding.

Limitations

The findings of the present study enhance our understanding of student perception of different aspects of an online course taught in a higher educational setting. However, these findings are subject to three important limitations. Firstly, the findings of this study should not be generalized to other online learning settings because the study was conducted with a relatively small group of undergraduate students and the responses to the survey cannot necessarily be considered the opinions of all the students. Secondly, the results on student preparedness and student connection should be interpreted cautiously due to the fact that (1) preparedness was measured based on students' self-reporting without clear definitions provided for "preparedness" and (2) the student connection aspect focused only on students' perceived importance of knowing their classmates as important to their learning in the course. Further research should examine more closely the links between student perception of the four course aspects as well as the age group factor, and students' preparedness. Finally, albeit the quantitative survey questions obtained a high reliability with an α value of .915, it needs a balanced number of questions for the variables (preparedness, overall learning experience, technology, course structure, and student connection) and should be administered on a larger sample size, which may allow for advanced statistical analysis yielding better research results.

Implications

Despite the limitations, the findings of this study present important implications for instructional designers as well as course instructors. That student perception of the course aspects with the exception of student interaction differed between the older group and the younger groups, may indicate that age does matter when structuring a

course, its curriculum and instruction, and the use of technology. In addition, while knowing if students are prepared to take an online course can be vital for instructional designers and instructors when (re)designing or (re)planning for an online course, it may not influence their overall perception of the course. Other variables such as curriculum and instruction, course structure, and technology do impact student awareness of their online learning experience and may compensate for students' limited online course preparedness when a course is carefully designed. Barczyk et al. (2017) suggest that it is important to ensure that 1) online course objectives, assessments, and learning activities are aligned, 2) online courses demonstrate clear organization, easy navigation, and optimal screen readability, 3) assessment criteria are provided with an elaboration on how grades are determined, 4) online courses meet accessibility standards, and 5) online courses value the importance of students' introductions as a foundation for the creation of effective learning community.

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