Student and Faculty Satisfaction: Can Distance Course Delivery Measure Up to Face-to-Face Courses?

Suzanne Young & Mary Alice Bruce

University of Wyoming

Abstract: *The purpose of the present study was to examine higher education undergraduate student, graduate student, and instructor preferences and satisfaction for various modes of course delivery. Instructors and students in a College of Education who had participated in courses using face-to-face, video-conferencing (Zoom), online, and hybrid deliveries were asked to complete an online survey. Face-to-face and online courses were the most preferred delivery modes. Not surprising, participants indicated the most satisfaction with face-to-face courses; but of the distance delivery modes, participants were least satisfied with online courses. When considering the enrollment trends of higher education and the long-term impact of COVID-19, declines in campus enrollment and increases in distance enrollment, Zoom and hybrid course deliveries may be the mode of distance education for the future.*

Overall, while higher education enrollments continue their three-year downward trend, the number of distance education students continues to increase (Allen & Seaman, 2017). In 2016, the United States Department of Education reported that the number of distance education students at degree granting institutions of higher education exceeded 20 million, with more than 5.5 million students taking at least one online course (Allen & Seaman, 2016). Undergraduates comprised 83% of those distance students with most distance students enrolled at public institutions (Allen & Seaman, 2017). With the potential long-term cost savings for institutions who optimize their distance education offerings (Cole, 2016; Guest, Rohde, Selvanathan, & Soesmanto, 2018), the patterns of enrollment seem likely to continue.

Distance education (DE) offers benefits for undergraduate and graduate students including convenient access to a variety of program and degree opportunities as well as flexibility in pacing and timing of learning; however, social isolation, increased anxiety, technical startup costs, and reliance on self-motivation may prove challenging (Porter, Pitterle, & Hayney, 2014). Attrition rates for online courses are higher compared to traditional courses (Cole, 2016); possible barriers for distance students may include lack of access to student support services in addition to the lack of informal interactions with instructors and classmates (Furlonger & Gencic, 2014). Often, DE instructors and students express concern about their perceived difficulty in creating meaningful, personal connections that may affect the level of student motivation and interest in academic content (Chingos, Girriths, Mulhern, & Spies, 2017; Guest et al., 2018). According to Joo, So, and Kim (2018), student satisfaction with their experiences influences their plans to continue studies

Correspondence concerning this article should be addressed to Suzanne Young, E-mail: syoung@uwyo.edu

via distance education. Thus, the purpose of the present study was to examine student and instructor satisfaction and preferences across four general categories of course delivery: face-to-face (F2F), video-conferencing (Zoom), online, and hybrid (blended).

LITERATURE REVIEW

Students in higher education consider a myriad of advantages and disadvantages when choosing a program course delivery model, if indeed they have a choice. Increasingly, the focus is on the quality of the educational experience among the different delivery modalities with the concept of quality measured in a variety of ways related to control, improvement, and assurance (Gómez-Rey, Barbera, & Fernández-Navarro, 2016). Perhaps more informative for higher education is measuring quality by bringing together student learning outcomes and student satisfaction therein valuing both the "cognitive and social aspects" (Gómez-Rey et al., p. 148) that integrate input, output, and the learning process.

Researchers have determined that student learning outcomes for distance education are not significantly different than those of F2F (Chingos et al., 2017). For example, Furlonger and Gencic (2014) purported that overall student learning outcomes for DE were found consistently to equal or exceed those of traditional F2F classrooms. According to Chen, Lambert, and Guidry (2010), the National Survey of Student Engagement (NSSE) showed that students reported their learning outcomes as significantly better for DE than for traditional F2F instruction. Ives, Brock, Negrete, and Carpenter (2006) showed similar findings in a study for which they controlled for content, presentation, and instructors. They found that their DE students reported stronger outcomes and were more favorable toward their course experience compared to their face-to-face counterparts. In a meta-analysis of 45 studies, Means, Toyama, Murphy, and Bakia (2013) found that online students performed similarly compared to those in the traditional classroom. According to Kuo and Belland (2016), student performance is positively related to student satisfaction.

The social aspect that contributes to the engagement and quality of learning is characterized as student satisfaction, and in the past, student satisfaction has typically been higher for F2F when compared to DE programs in higher education (Furlonger & Gencic, 2014). Consistent social support, easy instructor access, and F2F community rapport reduced stress and resulted in enhanced student satisfaction for traditional on-campus programs. Personal interactions continue to be a primary predictor for student satisfaction whether the course is F2F or delivered by distance (Cole, 2016; Gómez-Rey et al., 2016; Guest et al., 2018). Many DE instructors recognize the need to use effective instructional strategies and careful course design specifically appropriate for DE that incorporate a variety of learning activities, timely responses, student interactions, and thoughtful feedback. In addition, instructors must consider the impact of different cultural factors such as individualism/collectivism (Aparicio, Bacao, & Oliveira, 2016) and individual student variables such as class level (undergraduate or graduate) and gender (Kuo, Walker, Belland, & Schroder, 2013).

Meanwhile, in response to learner demands and ever evolving technological innovations, the line between F2F and DE is increasingly blurred with the emergence of hybrid or blended delivery models. Currently, program course delivery models are characterized as traditional face-to-face (F2F); hybrid learning that brings together online and F2F instructional activities; video-conferencing that allows for synchronous web-based learning; or online, wherein at least 80% of the course is delivered online (Jorissen, Keen, & Riedel, 2015; Margolis, Porter, & Pitterle, 2017). The hybrid learning model is rapidly emerging as able to create a truly learner-centered

environment that offers student satisfaction exceeding that of F2F (Chen & Chiou, 2014). Alexander, Lynch, Tavinovich, and Knutel (2014) found that, while hybrid learning models vary widely, synchronous (real-time) and asynchronous (delayed time) interactions as well as a focus on active learning appear to be important factors related to student satisfaction. Another satisfying benefit for students is the flexibility in student attendance that accommodates a combination of F2F presence when a student is on-campus along with an online presence option. The institution also benefits by the ability to combine F2F and DE class sections together rather than have to cancel an undersubscribed course.

According to Teo (2014), the method of course delivery can significantly affect student satisfaction in higher education. Student satisfaction is of the utmost importance to institutions with far-reaching implications for overall student success, retention, and graduation rates (Joo et al., 2018; Porter et al., 2014) that contribute to an institution's financial stability, reputation, and future recruitment benefits**.**

PURPOSE OF THE STUDY

The purpose of the present study was to examine higher education student and instructor preferences and satisfaction for various modes of distance course delivery. Instructors and students in a college of education who had participated in courses using F2F, Zoom, online, and hybrid deliveries were asked to complete an online survey. The following research questions guided the study:

(1) What is the preferred instructional delivery mode for undergraduate students, graduate students, and instructors in the College of Education?
(2) In the College of Education, how does satisfaction differ for the delivery modes?
(3) What are the differences among College of Education undergraduate students, graduate students, and instructors in their satisfaction for the four delivery modes?

METHOD

This section describes the participants, procedure, and instrumentation used in this study. The study was conducted in a College of Education at a medium-sized university in the Rocky Mountain region. During the semester of data collection, enrollment included 1,206 students and 62 full-time faculty members. The College of Education offers all master's and Doctor of Education (Ed.D.) programs through distance delivery. No undergraduate or Philosophy of Education (Ph.D.) programs are provided exclusively via distance but many courses are offered via distance modalities.

PARTICIPANTS

The present study examined student and instructor preferences for delivery of instruction as well as satisfaction level for different types of distance delivery for courses in a College of Education. In order to generalize findings to all courses without the additional burden of surveying all faculty and students, thirty-three percent of all education courses were randomly selected from the entire offering of spring courses and chosen proportionately based on the percent of F2F, Zoom, online, and hybrid courses offered during that semester. Students and instructors in all selected courses were invited to participate. Sixty-six percent of the courses were F2F, 7% were

Zoom, 16% were online, and 11% were hybrid. A total of 1,206 students and 62 instructors were invited to participate in the study.

PROCEDURE

The university's registrar's office provided names and email addresses for all students and instructors in selected courses. All potential participants received an email that briefly described the study and provided a link to the online survey. After the initial email, three follow-up emails were sent to non-respondents over a period of three additional weeks.

INSTRUMENTATION

The survey (see Appendix) began with a consent form to explain the details of the study and, if participants agreed to complete the survey, they continued on to the main survey. The following description of the four modes of delivery was provided on the first page of the main survey:

- **Face-to-face** is traditional classroom delivery at a specific time (synchronous) and location. Students and instructors attend in person.
- **Zoom** courses are delivered entirely using a video-conferencing, web-based technology. The delivery is similar to face-to-face but students and instructors "attend" class using a computer with a webcam, speaker, and microphone. They attend at a location that is convenient to them. Class occurs at a specific time (synchronous) but not a specific location. At times, a "Zoom" class is offered in a specific classroom for students who would like to attend in person with the instructor.
- **Online** is web-based and students and instructors do not participate at the same time or at any specific location. Most interaction takes place through "threaded discussions" and instruction is provided through documents, instructor videos, links to websites, etc. Online courses are defined as at least 80% asynchronous.
- **Hybrid** courses are a combination of deliveries. They consist of a portion of face-to-face, Zoom, or online activities. For example, a hybrid course could be synchronous (such as Zoom) to meet on a regular basis and then be asynchronous for online discussions.

Respondents were first asked to rank order their preferred mode of course delivery and to provide demographic information: student/faculty, undergraduate/graduate, and gender.

The 17-item scale followed the question about preferences. The scale was designed to measure satisfaction and was constructed by the researchers, based on the literature. Items were developed in the following areas: social presence; classroom interaction; learning content; and general learner satisfaction. All respondents were asked to rate each of the 17 items for all four modes of delivery in which they had experience using a response scale that ranged from extremely dissatisfied (1) to extremely satisfied (5).

To further establish content validity, the scale items were reviewed by an expert in the area of teaching effectiveness (a teacher educator in a college of education and highly published with a focus on teaching effectiveness), a measurement expert (a tenured university faculty member teaching assessment and research methods), and an expert on distance education (a faculty member with experience and recognized expertise in teaching all types of distance delivered modalities). Based on their feedback, items were revised for clarity and completeness.

The survey was piloted with a group of 10 instructors and 10 students. Additional revisions were made to a small number of items, primarily focused on word choice familiar to respondents.

To establish internal reliability, Cronbach's Alpha coefficient was calculated on the 17-item scale and found to be 0.97.

RESULTS

The three research questions are addressed below. Data analysis included use of frequencies, means and standard deviations, repeated measures Analysis of Variance, and one-way Analysis of Variance.

Of the 1,206 students and 62 faculty, 815 students and 30 instructors responded (with response rates of 68% for students and 56% for instructors). Of those, 164 students and 25 instructors completed the survey indicating their preferences and satisfaction for various deliveries. Students were further identified by their level of study; 55 undergraduate students and 109 graduate students completed the survey. See Table 1 for a summary of demographics.

Table 1
Frequency and Percent for the Sample

	Frequency	Percent
Role		
Undergraduate students	55	29%
Graduate students	109	58%
Instructors	25	13%
Gender		
Males	50	27%
Females	133	70%
No Response	6	3%

PREFERRED DELIVERY MODE

What is the preferred instructional delivery mode for undergraduate students, graduate students, and instructors in the College of Education? Participants were asked to choose their preferred modes of instructional delivery. Table 2 shows the number of undergraduate students, graduate students, and instructors who preferred each mode of instructional delivery.

Overall, each group indicated their most preferred mode of delivery was face-to-face, with online delivery as the second most preferred. For all three groups, Zoom (videoconferencing) was the least preferred mode of delivery.

Table 2
Number of Undergraduate Students, Graduate Students, and Instructors Preferring Each Mode of Delivery

Delivery	Undergraduate students (n=55)	Graduate students (n=109)	Instructors (n=25)
Face-to-face	43	42	14
Zoom	2	8	1
Online	5	26	7
Hybrid	4	22	3
No response	1	11	0

DIFFERENCES IN SATISFACTION AMONG DELIVERY MODES

In the College of Education, how does satisfaction differ for the four delivery modes? Satisfaction was designed to measure social presence, classroom interaction, learning content, and general learner satisfaction. Researchers assessed satisfaction by averaging the 17 items on the scale for each delivery mode. Using repeated measures Analysis of Variance, 83 respondents reported experience using all four delivery modalities. Their responses revealed significant differences among satisfaction for the four delivery modes ($F(3, 246)=17.79$, $p<.001$). Follow-up Bonferroni post-hoc comparisons showed that participants were significantly more satisfied with F2F compared to the other three deliveries. Using Cohen's (1988) guidelines for interpretation of effect sizes, F2F delivery showed a medium (Zoom and hybrid) to large effect (online) of delivery on satisfaction. In addition, satisfaction with both Zoom and hybrid delivery was significantly greater compared to online delivery, with large effect sizes. Zoom and hybrid delivery did not differ significantly and had only a trivial effect size ($d=0.01$). See Table 3 for results.

Table 3
Means, Standard Deviations, and Effect Sizes Comparing Four Delivery Modes on Satisfaction (N=83)

	M	*SD*	Face-to-face	Zoom	Online	Hybrid
Face-to-Face	4.46	0.62	--	0.58	0.85	0.60
Zoom	4.02	0.89		--	0.30	0.01
Online	3.70	1.16		--	--	0.30
Hybrid	4.01	0.88		--	--	--

Note: Scale responses range from 1 (extremely dissatisfied) to 5 (extremely satisfied); Effect sizes are calculated using the highest mean minus the lowest mean.

DIFFERENCES IN SATISFACTION AMONG UNDERGRADUATE STUDENTS, GRADUATE STUDENTS, AND INSTRUCTORS FOR DELIVERY MODES

What are the differences among College of Education undergraduate students, graduate students, and instructors in their satisfaction for the four delivery modes? Four one-way ANOVAs were used to examine satisfaction among the three groups of participants for the four types of course delivery. Significant differences were identified using an alpha level of 0.01 (with a Bonferroni adjustment, 0.05/4). See Table 4 for results.

The four one-way ANOVAs yielded significant differences among groups when comparing undergraduate students, graduate students, and instructor satisfaction for Zoom ($F(2, 118)=9.29$, $p<.001$), online ($F(2,177)=5.30$, $p=.006$), and hybrid ($F(2,109)=5.90$, $p=.004$) deliveries; F2F comparisons did not indicate significant differences among groups ($F(2,141)=1.52$, $p=.223$). Follow-up comparisons (using Least Significant Differences) for the three significant ANOVAs indicated that graduate students and instructors were significantly more satisfied than undergraduate students for Zoom delivery, with small to large effect sizes ($d=.35$ and $d=.96$, respectively). Also, graduate students were significantly more satisfied than undergraduate students for both online and hybrid delivery, with moderate effect sizes of $d=.53$ and $d=.78$, respectively. Other comparisons did not show significant differences and effect sizes were trivial to small.

Table 4
Means, Standard Deviations, and Effect Sizes Comparing the Three Groups on Satisfaction for the Four Delivery Modes

	M	*SD*	Undergraduate Students	Graduate Students	Instructors
Face-to-face (*n*=144)					
Undergraduate Students	4.37	0.66	--	0.15	0.50
Graduate Students	4.47	0.64	--	--	0.33
Instructors	4.65	0.46	--	--	--
Zoom (*n*=121)					
Undergraduate Students	3.42	0.95	--	0.96	0.35
Graduate Students	4.28	0.84	--	--	0.08
Instructors	4.34	0.60	--	--	--
Online (*n*=112)					
Undergraduate Students	3.49	1.12	--	0.53	0.16
Graduate Students	4.06	1.02	--	--	0.34
Instructors	3.68	1.21	--	--	--
Hybrid					
Undergraduate Students	3.63	0.88	--	0.78	0.28
Graduate Students	4.27	0.76	--	--	0.41
Instructors	3.90	1.05	--	--	--

Note: Scale responses range from 1 (extremely dissatisfied) to 5 (extremely satisfied); Effect sizes are calculated using the highest mean minus the lowest mean.

SUMMARY OF RESULTS

In summary, all participant groups preferred F2F delivery more than the other three types of delivery, with online delivery ranked as the second most preferred by all three groups. Respondents with experience in all delivery modes reported the greatest satisfaction with their F2F courses and the least satisfaction with online delivery. Even though online delivery was the second strongest preference for all participant groups, their satisfaction with online delivery was lowest compared to all other delivery modes. Graduate students were more satisfied than undergraduate students with all types of distance delivery (Zoom, online, and hybrid). Finally, instructors were more satisfied with Zoom delivery compared to undergraduate students.

DISCUSSION AND IMPLICATIONS

Distance education is clearly on the rise in higher education, and online course delivery has become increasingly prevalent (Allen & Seaman, 2017). However, as instructors and instructional designers begin to understand ways to satisfy and engage students in their learning, it may be that hybrid or Zoom approaches will replace F2F and online deliveries as a strategy to maximize the advantages and minimize the disadvantages of various delivery methods (Alexander et al., 2014; Chen & Chiou, 2014).

Similar to the findings of Furlonger and Gencic (2014) and Cole (2016), this study found satisfaction for all College of Education groups combined to be significantly higher for F2F deliveries compared to other modes of delivery. F2F, the traditional approach to course delivery, is seen by undergraduate students, graduate students, and instructors as the delivery that provides a strong sense of social presence, classroom interaction, content learning, and general satisfaction. However, the current landscape of course delivery is moving away from campus-based, F2F courses and offering an increasing number of distance courses. In this study, when satisfaction was compared among all four delivery modes, respondents were least satisfied with online delivery. Of particular note is the large effect of satisfaction for F2F delivery when compared to online delivery (d=.85), indicating that delivery with F2F, synchronouse, interaction is much more preferable to no F2F interaction.

When comparing the satisfaction of College of Education undergraduate and graduate students, graduate students were significantly more satisfied with all types of distance deliveries compared to undergraduate students, with medium to large effect sizes ranging from 0.53 to 0.96. Reflecting on this comparison calls for consideration of the expectations that each group may have of interpersonal connections in teaching and learning as well as their recent experiences. For undergraduate students, most recent learning experiences are in the P-12 school systems, where the vast majority of classes are F2F; undergraduates may expect strong F2F communication with instructors and peers in their higher education classrooms. Although Zoom, online, and hybrid deliveries provide interactions, they do not typically offer the same rewarding interpersonal connections compared to F2F. In graduate programs, many institutions offer courses via distance delivery in order to reach the many students who are site-bound due to work or family obligations. Thus, graduate students may have more experience with and be more appreciative of courses delivered by distance. They are, however, less satisfied with online delivery compared to Zoom or hybrid.

When considering the satisfaction of College of Education instructors compared to students, effect sizes were small to medium and instructors were significantly more satisfied than undergraduate students only for Zoom delivered courses. Instructors reported satisfaction levels similar to graduate students in all areas, possibly reflecting experiences and opportunities that are comparable.

Implications from this study focus on the potential of Zoom or hybrid delivery modes that shows major benefits related to supporting interactions among students and instructors. As described by Sung and Mayer (2012), students appreciate being able to respond in a timely manner, offer their perspectives, exchange information and feedback, share personal experiences, and experience a unique identity in their learning community. Such rewarding communication encourages social presence and a sense of inclusion that contribute directly to student learning (Cole, 2016). Ives et al. (2006) had similar findings, reporting that students appreciated the opportunity to engage in distance courses without having to attend F2F classes on campus.

Meanwhile, online course delivery is challenging in offering the promise of meaningful interactions and active learning experiences for undergraduate and graduate students. When compared to other approaches, online delivery necessitates a well-planned course with constant, intentional oversight by the instructor in order to encourage meaningful social presence in the entire learning community (Gómez-Rey et al., 2016; Guest et al., 2018). Instructors must have adaptive teaching styles, offer a wide variety of learning activities, design active learning experiences, and facilitate ongoing engagement to support social presence. Students desire timely feedback, prompt replies, and a sense of individual connection with instructors. Although students

and instructors prefer the flexibility of online courses, they are not as satisfied with their experiences when compared to other types of distance deliveries.

In this study, College of Education instructors and students indicated strong satisfaction for Zoom and hybrid deliveries, even though they may be more costly, less flexible, and less convenient when compared to an entirely online delivery. Students and instructors reported the lowest level of satisfaction with online delivery, yet it was the second most preferred, possibly because of its flexibility. Online courses continue to be popular and desirable in higher education, with nearly 70% of all institutions reporting that online education is an important component of their long-term enrollment strategy (Allen & Seaman, 2013). While realizing the potential cost-savings related to instructional planning and delivery of ongoing online courses (Chingos et al., 2017), institutions must balance possible disadvantages for student success as well as student and instructor satisfaction.

This study was limited in scope due to the population of only students and instructors in the College of Education. College of Education students and instructors may have more experience with distance delivered courses compared to other colleges or disciplines; this college was specifically selected for the study because of the large number of distance-delivered courses compared to other colleges. The results of this study may not generalize to other universities or other colleges of education due to this limited selection.

Recommendations for future study include expanding data collection to other colleges and universities to look for patterns of satisfaction. Also, the low level of satisfaction for online delivery in this study should be examined in more depth in order to determine the rationale for this finding so that instructors and instructional designers can find ways to enhance online course delivery. In addition, due to the potential long-term impact of the Corona Virus pandemic, distance delivery will likely become a new norm in higher education; thus, ways to increase satisfaction for all distance course delivery should be explored.

CONCLUSION

Overall, it appears that Zoom and hybrid course deliveries are the distance education of the future, as instructors and students navigate ways to form effective learning communities that build on the strengths of online and F2F methods of course delivery. Nearly two decades ago, researchers predicted that hybrid delivery would be one of the top trends in higher education (Rooney, 2003; Young, 2002), yet still the most prevalent distance delivery mode is online. In 2013, Means et al. concluded, in their meta-analysis examining online and blended learning, that a combination of F2F and online delivery, or hybrid, is more effective than F2F or online alone. They suggested that "a major reason for using blended learning approaches is to increase the amount of time that students spend engaging with the instructional materials" (p. 36). Kay and Pasarica (2019) agreed with Means et al. by noting that one goal of course delivery should be to maximize "the convenience and benefits of online learning without sacrificing the social interactions available in synchronous face-to-face formats" (p. 409). Zoom delivered courses may actually have more characteristics in common with hybrid courses because they offer a synchronous experience and often an asynchronous online supplement. Even though online courses offer a great deal of flexibility for students and instructors, as a primary delivery mode they do not provide a consistently satisfying experience for the participants due to isolation and limited interactions. The National Center for Education Statistics (2018) reports that a demographic shift has been occurring in higher education since the mid-nineties. This has resulted in unique concerns that must be

addressed by institutions. Currently, the 17 million undergraduates increasingly display characteristics of nontraditional students such as the following: single parent, financially independent, at least 30 years of age, and part-time attendance. Thus, institutions must consider changing student needs for child care, financial aid, virtual advising, tutoring, and course delivery. However, F2F courses do not offer the flexibility needed in this changing world of higher education that must serve the needs of many students who are unable or do not choose to spend time on campus. According to Allen and Seaman (2017), the number of students attending courses on campus declined 6.4%, or approximately one million students, from 2012 to 2016. During the same period of time, the number of students taking at least one distance course has increased every year.

With an ever-increasing number of students considered to be digital natives, instructors and students may see a Zoom or hybrid delivery model as a way to maximize advantages and minimize disadvantages of all distance delivery models (Beetham & Sharpe, 2013; Means et al., 2013). Zoom and hybrid deliveries offer students and instructors flexibility, convenience, social connections, motivation, and engagement. These are very clearly a preferable alternative to online course delivery, as undergraduate students, graduate students, and instructors can use these approaches to overcome the limitations of distance education by offering increased opportunity for communication and social interactions, leading to enhanced levels of satisfaction for both teaching and learning.

REFERENCES

Alexander, M. M., Lynch, J. E., Rabinovich, T., & Knutel, P. G. (2014). Snapshot of a hybrid environment. *The Quarterly Review of Distance Education, 15*, 9-21.

Allen, I. E., & Seaman, J. (2013). *Changing course: Ten years of tracking online education in the United States.* Retrieved July 3, 2017 from Babson Survey Research Group website: http://www.onlinelearningsurvey.com/reports/changingcourse.pdf

Allen, I., & Seaman, J. (2016). *Online report card: Tracking online education in the United States.* Babson Park, MA: Babson Survey Research Group. Retrieved September 9, 2018 from http://onlinelearningsurvey.com/reports/onlinereportcard.pdf

Allen, I. & Seaman, J. (2017). *Digital learning compass: Distance education enrollment report 2017.* Babson Survey Research Group, e-Literate, and WCET. Retrieved September 8, 2018 from https://onlinelearningsurvey.com/reports/digtiallearningcompassenrollment2017.pdf

Aparicio, M, Bacao, F., & Oliveira, T. (2016). Cultural impacts on e-learning systems' success. *Internet & Higher Education, 31*, 58-70. doi: 10.1016.j.iheduc.2016.06.003

Beetham, H., & Sharpe, R. (2013). *Rethinking pedagogy for a digital age: Designing for 21st century learning.* London: Routledge.

Chen, P. D., Lambert, A. D. & Guidry, K. R. (2010). Engaging online learners: The impact of web-based learning on college student engagement. *Computers & Education, 54*, 1222-1232. doi: 10.1016/j.compedu.2009.11.008

Chingos, M. M., Griffiths, R. J., Mulhern, C., & Spies, R. R. (2017). Interactive online learning on campus: Comparing students' outcomes in hybrid and traditional courses in the university system of Maryland. *The Journal of Higher Education, 88*(2), 210-233. doi: 10.1080/00221546.2016.1244409

Cohen, J. (1988). Statistical power analysis for the behavioral sciences, 2nd Edition. Hillsdale, NJ: Erlbaum.

Cole, A. W. (2016). Testing the impact of student preference for face-to-face communication on online course satisfaction. *Western Journal of Communication, 80*(5), 619-637. doi: 10.1080/10570314.2016.1186824

Furlonger, B., & Gencic, E. (2014). Comparing satisfaction, life-stress, coping and academic performance of counseling students in on-campus and distance education learning environments. *Australian Journal of Guidance and Counselling, 24*(1), 76-89. doi: 10.1017/jgc.2014.2

Gómez-Rey, P., Barbera, E., & Fernández-Navarro, F. (2016). Measuring teachers and learners' perceptions of the quality of their online learning experience. *Distance Education, 37*(2), 146-163. doi: 10.1080/01587919.2016.1184396

Guest, R., Rohde, N., Selvanathan, S., & Soesmanto, T. (2018). Student satisfaction and online teaching. *Assessment & Evaluation in Higher Education, 43*(7), 1084-1093. doi: 10.1080/02602938.2018.1433815

Ives, B., Brock, C. H., Negrete, S., & Carpenter, K. (2006). Same content, same presentation, same instructors, but different students: Do student predispositions predict distance education outcomes? *Journal of University Management and Academic Development, III*(5-6), 37-47.

Joo, Y. J., So, H., & Kim, N. H. (2018). Examination of relationships among students' self-determination, technology acceptance, satisfaction, and continuance intention to use K-MOOCs. *Computers & Education, 122*, 260-272. doi: 10.1016/j.compedu.2018.01.003

Jorissen, S., L, Keen, J. P. & Riedel, E. S. (2015). Online Ph.D. program delivery models and student success, *American Journal of Distance Education, 29*, 232-247. doi: 10.1080/08923647.2015.1084839

Kay, D., & Pasarica, M. (2019). Using technology to increase student (and faculty satisfaction with) engagement in medical education. *Advances in Physiology Education, 43*, 408-413. doi: 10.1152/advan.00033.2019

Kuo, Y., & Belland, B. R. (2016). An exploratory study of adult learners' perceptions of online learning: Minority students in continuing education. *Education Technology and Research Development, 64*, 661-680. doi: 10.1007/s11423-016-9442-9

Kuo, Y., Walker, A., Schroder, L. E. E., & Belland, B. R. (2013). A predictive study of student satisfaction in online education programs. *The International Review of Research in Open and Distance Learning, 14*(1), 16-39. doi: 10.1016/j.iheduc.2013.10.001

Margolis, A. R., Porter, A. L, & Pitterle, M. E. (2017). Best practices for use of blended learning. *American Journal of Pharmaceutical Education, 81*(3), 1-8.

Means, B., Toyama, Y., Murphy, R., & Bakia, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. *Teachers College Record, 115*(3), 1-47.

National Center for Education Statistics. (2018, April). Characteristics of postsecondary students. Retrieved September 9, 2018 from: https://nces.ed.gov/programs/coe/indicator_csb.asp

Porter, A. L., Pitterle, M. E., & Hayney, M. S. (2014). Comparison of online versus classroom delivery of an immunization elective course. *American Journal of Pharmaceutical Education, 78*(5), 1-9.

Rooney, J. E. (2003). Blending learning opportunities to enhance educational programming and meetings. *Association Management, 55*(5), 26–32.

Sung, E., & Mayer, R. E. (2012). Five facets of social presence in online distance education. *Computers in Communication & Information, 2*, 23-49. doi: http://dx.doi.orb/10.1016/j.chb.2012.04.014

Teo, T. (2014). Preservice teachers' satisfaction with e-learning. *Social Behavior & Personality: An International Journal, 42*, 3-6. doi: 10.2224/sbp.2014.42.1.3

Young, J. (2002). "Hybrid" teaching seeks to end the divide between traditional and online instruction. *Chronicle of Higher Education, 48*(28), A33-A34.

APPENDIX: COURSE DELIVERY SURVEY

Please use the following definitions for course delivery:

Face-to-face is traditional classroom delivery at a specific time (synchronous) and location. Students and instructors attend in person.
Zoom courses are delivered entirely using a video-conferencing, web-based technology. The delivery is similar to face-to-face but students and instructors "attend" class using a computer and a location that is convenient to them. Class occurs at a specific time (synchronous) but not a specific location.
Online is web-based and students and instructors do not participate at the same time or at any specific location. Most interaction takes place through "threaded discussions" and instruction is provided through documents, instructor videos, links to websites, etc. Online courses are defined as at least 80% asynchronous.
Hybrid courses are a combination of deliveries. They consist of a portion of face-to-face, Zoom, or online activities. For example, a hybrid course could be synchronous (such as Zoom) to meet on a regular basis and then be asynchronous for online discussions.

1. What is your preference for course delivery? Please rank order the following four types of delivery according to your preference for optimal teaching and learning.
   Face-to-face
   Online
   Zoom
   Hybrid

2. As you complete this survey, please consider only one course you are teaching/taking this semester. Among the following, please choose the type of delivery type for your course:
   Face-to-face
   Online
   Zoom
   Hybrid
   Other (please describe)

3. Please indicate how satisfied you are each of the following (scale is not satisfied, somewhat satisfied, neither satisfied nor dissatisfied, generally satisfied, very satisfied):

   (Social presence)
   Q6 Personal interactions

Q7 Social support
Q8 Inclusion in the classroom

(Instructor and learner interaction)
Q9 Ease of instructor access
Q10 Timely instructor responses
Q11 Thoughtful feedback

(Instruction/learning content)
Q12 Variety of learning activities
Q13 Consideration of cultural factors
Q14 Consideration of student characteristics
Q15 Consideration of learning style

(Instructional style preference & organization)
Q16 Active learning
Q17 Flexible pacing of instruction
Q18 Opportunity for challenging learning
Q19 Learner-centered environment

(Learner satisfaction)
Q20 Valuable learning outcomes
Q21 Worthwhile teaching/learning experience
Q22 Valuable knowledge for the field

4. Demographics:
    a. Are you a student or an instructor?
    b. If you are a student, are you an undergraduate or graduate student?
    c. What is your gender?