10-2016

Online Graduate Educational Technology Program: An Illuminative Evaluation

Andrew Topper
Grand Valley State University, toppera@gvsu.edu

Sean Lancaster
Grand Valley State University, lancasts@gvsu.edu

Studies in Educational Evaluation 51 (2016) 108–115

Contents lists available at ScienceDirect

Studies in Educational Evaluation

journal homepage: www.elsevier.com/stueduc

Online graduate educational technology program: An illuminative evaluation

Andrew Topper, Ph. D.[a,*], Sean Lancaster, Ph. D.[b]

[a] Educational Psychology, Grand Valley State University, Grand Rapids, MI 49504, United States
[b] Special Education, Grand Valley State University, Grand Rapids, MI 49504, United States

ARTICLE INFO

Article history:
Received 7 January 2016
Accepted 11 October 2016
Available online 21 October 2016

Keywords:
Educational technology
Program development
Program evaluation
Graduate education
Online instruction
Higher education

ABSTRACT

With continued growth in online courses and programs in higher education a pressing need exists to evaluate their perceived quality and effectiveness. Evaluation criteria – course evaluations, student surveys and retention data – from previous online program evaluations were used in this study. An illuminative evaluation using descriptive and scientific analysis was undertaken for a graduate degree program in educational technology. Course and program-level data were analyzed to compare quality for two programs – an existing hybrid and new online. Analysis of student enrollments, course evaluations, survey results, retention, and time to completion reveal similar experiences reported from students in both programs. Results suggest that a majority of students were satisfied with their graduate experience and view those experiences as worthwhile. This illuminative evaluation provides evidence that online graduate programs are comparable and can satisfy stakeholders' expectations while maintaining high levels of quality.

1. Introduction

Allen and Seaman (2011) reveal that 77% of individuals surveyed in public universities agree with the statement "online education is critical to the long-term strategy of my institution" (p. 29). The same study reported online enrollment as 31.3% of total enrollment in those public universities. Regarding online education, Allen and Seaman found a 34.4% steady enrollment in 2011 (p. 38) and a growth rate for online enrollment of 9.3%, with 32% of students taking at least one online course. Their definition of an "online course" is one having at least 80% of course content delivered online.

This growth in online courses and programs raise questions concerning effectiveness and student success when compared with traditional, on-campus offerings. Concerns about students' persistence and success in online courses surfaced shortly after institutions started offering them (Simonson, Schlosse, & Orellana, 2011). Deka and McMurry (2006) offered a baseline definition of student success: "Two common indices for measuring success are class grade and retention rates" (p. 2).

Tallent-Runnels et al. (2006) examined early studies of online courses and found that most were descriptive and lacked sufficient rigor. The authors defined three types of courses: traditional, face-to-face; hybrid or blended, with some online activities; and online, with no face-to-face activities. Four themes that impact online instruction emerged from their review: course environment, learner outcomes, learner characteristics, and institutional administrative characteristics. Conclusions drawn from this research identify students' preferences for convenience and self-paced approach to online courses, especially those with prior experience, the critical role of interactions in student success. Other researchers have identified loss of social connectedness, often operationalized in the literature as social presence, as an additional drawback with online courses.

1.1. Student success in online courses

Initial online course research demonstrated mixed results, which likely reflects the multiple factors successful online learning is dependent on – i.e., institutional support, pedagogy, faculty objectives, content, student characteristics, etc. Hara and Kling (2000) evaluated student experiences in Internet-enabled courses (hybrid) using a qualitative case study approach and found no evidence of isolation, increased student anxiety and frustration. They identified adequate technical support, clear expectations,

* Corresponding author.
E-mail addresses: toppera@gvsu.edu (A. Topper), lancasts@gvsu.edu (S. Lancaster).

http://dx.doi.org/10.1016/j.stueduc.2016.10.002

development of social presence and prompt feedback from faculty as indicators of success.

More recent research comparing student course evaluations in online, hybrid and traditional formats (Topper, 2007) did not find statistically significant differences using measures of instructional quality. Richardson (2009) also found no significant difference in academic quality for online courses, with students adopting a different approach to learning spending more time learning, as well as appropriate training and support required for faculty.

In contrast, Atchley, Wingerbach and Akers (2013) reported statistically significant differences in course completion and academic performance between 2004 and 2009 based on format and discipline. Mayes, Luebeck, Akarasriworn, and Korkmaz (2011) identified learners, faculty, medium, community and discourse, pedagogy, assessments and content as elements of successful online courses.

Lee and Choi (2011) reviewed research on online course dropout rates and identified three main categories that influence students' decisions: student factors, course/program factors and environmental factors. Student factors include academic background, knowledge and skills, and psychological attributes, while course/program factors include design, institutional support and interactions. Environmental factors include work commitments and supportive learning environments. The authors also provide specific strategies for addressing these factors in their review.

Hart (2012), in her review of the literature on student persistence in online courses, provides a more nuanced interpretation of persistence, contrasting it with attrition – withdrawal from an online course – and identified factors that might contribute to persistence: satisfaction with online learning, a sense of belonging or community, motivation, peer and faculty support, time management and increased communication with instructors. Crawford-Ferre and Wiest (2012) identified course design, interactions and faculty preparation and support as necessary for effective online instructional practices.

While initial evidence regarding online courses indicate some areas of concern – retention, increased student anxiety, frustration, timely faculty communication and lack of social presence – more recent research measuring student experiences in online courses are comparable with traditional and hybrid formats. Research examining experiences of students in online or distant programs is less prominent but early results are promising.

1.2. Student success in online programs

Online graduate program evaluations are less prominent in the literature, as indicated by Horne and Sandmann (2012). Of over 150 published research articles they reviewed, only five met the author's criteria for inclusion in their literature review. The author's found that: "Program evaluation research is needed to test theoretical evaluation models or approaches to determine which are most useful and valuable in program planning and evaluation" (p. 575).

Martinez, Liu, Watson, and Bichelmeyer (2006) evaluated an online instructional design and technology master's degree using faculty and administrator interviews, and student surveys collected in 2004. Their results indicate the online program was equivalent in terms of quality, admission and evaluation criteria, while faculty found it more difficult and time consuming teaching online. Mills (2007) evaluation of an online and on-campus nursing program from 1997 to 2003 included student admissions, outcome measures, course grades, time to completion, retention and graduation rates. The author found that online students took longer to complete their program but had a higher overall retention rate, and while online graduate program enrollment increased, on-campus enrollment steadily declined.

Muller (2008) interviewed undergraduate and graduate women enrolled in on-campus and online programs focusing on learners' persistence to completion and found multiple barriers or factors that contribute to persistence: motivation, engagement in learning communication and appreciation for the convenience of online programs.

Faculty responsibilities typically include course development, instruction, course structure, evaluation and assessment among other factors (Crews, Wilkinson, Hemby, McCannon, & Wiedmaier, 2008). Faculty members are also responsible for timely communication with students, developing a sense of community or belonging, assessment, and structuring course materials in pedagogically appropriate and accessible forms.

McDonnell et al. (2011) evaluated an online teacher education program at the University of Utah in severe disabilities using pre- and post-test scores, IEP scores, performance within the program, average GPA in specialized courses, PRAXIS II composite scores, and student course evaluations. The authors' report no significant differences for students in the online program compared with their on-campus cohorts on measures of learning.

Paul and Cochran (2013) describe institutional responsibilities including infrastructure (e.g., server space, reliable internet speeds, and learning management systems), tutorials for students and faculty, instructional technology support, and help desks among other factors associated with successful online programs. While essential for successful development and implementation of online programs, institutional factors were addressed prior to program implementation in the North Central Association (NCA) accreditation proposal and are not considered as part of this illuminative evaluation.

A case study by Czerkawksi (2013) described an online educational technology master's degree implemented in 2008 focusing on emerging technologies using a case study approach, highlighting the importance of pedagogical effectiveness for measuring program quality with attention on influences of university culture. The author recommends conducting a preliminary evaluation before a more comprehensive program evaluation.

Gazza and Hunker (2014) focused on factors that contribute to increased student retention in online programs – social presence, course/program quality and individual student characteristics. Their analysis of twenty-three articles exploring retention in online programs indicate that the issue is multidimensional and recommend specific strategies including holding virtual office hours, promptly replying to student inquiries, establishing clearing criteria, soliciting feedback via course and program evaluations, offering mandatory online student orientation and facilitating student-to-student and student-to-faculty interaction.

The small number of online program evaluations published to date provide some optimism for the future. Comparisons with on-campus and hybrid programs measuring quality, grades, time to completion, retention and graduate rates all indicate similar results online. A variety of factors clearly are required for success, including student characteristics, faculty development and pedagogy, and institutional support.

Based on a review of the salient research on online graduate course and program evaluations, the following data was used in this study: course-level – enrollments, student evaluations, perceptions of course quality, and retention rates; and at the program level – enrollments, retention rates, time to graduation and student perceptions of quality and value.

1.3. Purpose

The purpose of this illuminative evaluation was two-fold: (a) to examine data reflecting enrollments and quality of an online graduate degree program in educational technology, compared

with a hybrid program, and determine the extent to which they are similar or different; and (b) to add to the small, but growing, body of evidence regarding the quality and effectiveness of online graduate courses and programs.

2. Research questions

1. *Can enrollments in an online graduate program offset reductions in a hybrid program?*
2. *How do student experiences in online graduate courses and program compare with other formats – hybrid?*
3. *How do the results of this illuminative evaluation compare with and contribute to previous research on online graduate courses and programs?*

3. Background

A regional institution in the Midwest United States primarily serving students in the local geographic area within a College of Education provides undergraduate teacher education, as well as master's level programs, certificates and courses, serves as the context for this illuminative evaluation. The college has the largest population of part-time graduate students in the university, but has seen a steady decline in enrollments over the past few years due to a variety of factors – changes in state requirements for teacher professional certification, elimination of graduate tuition reimbursement, changes in adult populations and other economic conditions.

The online master's degree in educational technology was designed to serve full-time educators who reside outside the local area while maintaining high levels of instructional quality allowing the university to operate in a competitive market. For students who currently do not have access to graduate education, including alumni, an online master's degree provides opportunities for continued professional education in areas not served by existing on-campus offerings.

The institution is accredited by the NCA, a regional association comprised of higher educational institutions in north central states of the U.S. Within the NCA, the Higher Learning Commission (HLC, http://www.hlcommission.org/) is responsible for postsecondary education accreditation. Following internal approval for the online graduate program, an on-site HLC visit was required before the online/distant program could be offered and the institution received approval in 2011.

Criteria evaluated by HLC focus on institutional context and commitment, curriculum and instruction, faculty and student support, and evaluation and assessment using required standards established by the Western Cooperative for Educational Communications (*Best practices for Electronically offered Degree and Certificate Programs,* 2002). The institution requires new graduate programs develop a formal evaluation plan targeted at sharing results with university stakeholders. The original evaluation plan focused on assessment data, for purposes of accreditation, and a more formal illuminative evaluation approach was adopted following program implementation.

3.1. Common program elements

Both master's programs provide an emphasis on educational technology integration, have the same faculty members, courses, curricula, assessments, and result in the same degree awarded – a master's degree in educational technology. The 33-credit master's degree includes six graduate courses in educational technology, two foundations of education courses, two elective graduate courses and a capstone experience. All courses are 3-credits and used synchronous and asynchronous computer-mediated communication tools in BlackBoard® along with other web-based tools and digital media. Data were analyzed across both graduate programs, focusing on course as well as program-level experiences.

The college offered a master's degree in educational technology in a traditional format until 2004, when it was converted to a hybrid format with some on-campus activities and majority of the work completed online. After an analysis of interest, an online option was developed and approved in 2011.

Tenured and tenure-track faculty developed and teach most of the hybrid and online graduate courses, with a smaller number taught by adjunct or affiliate faculty. Faculty members also have experience and expertise related to educational technology integration and online/hybrid instruction. Instructors use tools, like synchronous chats, to develop a sense of community in their online courses and an online advising portal is available for students as well.

3.2. Online program

No on-campus activities are required for the online program and students who live outside the state pay in-state tuition for their graduate credits. Only students who reside outside the local geographic area are eligible to enroll in online courses.

4. Significance

The results of this program evaluation, when added to similar published studies, provide evidence of the quality and effectiveness of graduate programs in an expanding marketplace. Together with previous studies of this kind, the results reported here contribute to evidence of additional quality online graduate offerings, as well as suggested criteria for evaluating those offerings.

5. Theoretical framework

5.1. Illuminative evaluation

Traditional educational program evaluations have inherent limitations and are typically focused on measurement as opposed to description. Alternative evaluation approaches offer flexibility and a more naturalistic method for educational programs. The theoretical framework used is program evaluation, or implementation analysis (Ryan, 1999), and the methodology used is illuminative evaluation (Parlett & Hamilton, 1972).

The illuminative approach to evaluation provides a range of information and a degree of flexibility that cannot be duplicated by using any evaluation paradigm concentrated on effectiveness testing. Gordon (1991) p. 373.

Parlett and Hamilton (1972) developed a program evaluation method focusing on details, such as goals and objectives, pedagogical approach, course content and overall philosophy. Illuminative evaluation involves observation, inquiry and explanation, with dual focus on instructional systems as well as the learning milieu. The instructional system is defined by the original scope, goals and assumptions of the program developed, while the learning milieu is the realization of the program influenced by the actual assumptions, contributions and experiences of the stakeholders.

Illuminative evaluation has been used in a variety of domains, including government educational initiatives (Alderman, 2015; Miles, 1981), professional nursing education (Ellis & Nolan, 2005), workplace learning (Van Rensburg, 2008) and social work (Gordon, 1991). Illuminative evaluation allows researchers to focus on both

intentional and unintentional consequences which typically occur in program implementation (Alderman, 2015).

Steps in illuminative evaluation are: design the evaluation by identifying evaluation questions, data sets, as well as themes from the literature; data collection and analysis, in this case using descriptive statistical analysis, student surveys and course evaluations, and program-level data; interpretation of results by reviewing themes from literature making connections to them; and preparation of an evaluation report and dissemination of findings for stakeholders.

This approach to program evaluation is rooted in social anthropology, has an explicit focus on the contexts where educational innovation operates and is designed to develop a comprehensive examination of a complex social system. Illuminative evaluation was selected because it is formative, emphasizing interpretation and understanding, whereas traditional methods of evaluation are rooted in positivistic theories and prescriptive, focusing on effectiveness and causality. A copy of the program evaluation report has been shared with stakeholders to inform program evolution and the illuminative evaluation process is ongoing.

6. Materials and methods

6.1. Participants & sample

A purposeful, convenience sample was drawn from students in an online graduate educational technology program between May 2011 and April 2014. As of May 1, 2014, 71 students were enrolled in the online program, with a majority of students being full-time educators, enrolled part-time, with 81% female, primarily teaching in K-12 settings, and two-thirds under the age of 35. Student demographics are similar with those of the hybrid graduate program.

6.2. Data sources

Student course evaluation (SCE) data were provided by the institution and supplemented with surveys from recent graduates of the program, as well as other program-specific data. Course data included (**C1**) enrollments, (**C2**) student evaluations, (**C3**) surveys, and (**C4**) retention rates. Program-specific data included – (**P1**) enrollments, (**P2**) student surveys, (**P3**) time to graduation and (**P4**) retention rates. Where applicable, hybrid program and course data are used as a baseline for comparing students' experiences. Analysis included use of descriptive statistics along with Kruskal–Wallis and Mann-Whitney U.

6.3. Ethical issues

A university institutional review board approved all aspects of this research and participants were provided all required security and privacy protections for ethical educational research. All data collected and analyzed for this illuminative evaluation meet ethical standards for treatment of human subjects in research. The authors' do not have any vested interests in the outcome of this evaluation.

7. Results

7.1. Course-level results

Comparisons of course-specific data for different formats, including fully online, hybrid – with some on-campus activities but the majority done online – and other – traditional weekly class sessions on campus with 3–4 online sessions, as well as weekend class sessions (Friday evening and all day Saturday) and condensed sections (8-class sessions over 2-weeks, 8:30 am – 3:00 pm) are included in this section. Table 1 (below) summarizes student enrollments (**C1**) for courses offered between 2010 and 2014 by format.

Course enrollments (**C1**) have fluctuated since the online program was implemented, with online courses increasing initially and again in 2013–14, while hybrid enrollments have dropped since 2011–12 and other formats increased initially before dropping between 2012 and 14. A downward trend in student course enrollments has been seen in other graduate courses in the college during the same time period.

7.1.1. Student course evaluations

SCE response rates for online courses have been reported by researchers (Stowell, Addison & Smith, 2012) as significantly lower than those for face-to-face courses. Average response rates for SCE data (**C2**) collected for this illuminative evaluation where multiple sections of some courses are offered each term, show small variations – see Table 2 below – indicating a lower rate for hybrid formats than online or other.

Using a multi-level model incorporating course, year/term and format, provides an accurate representation of the effect format has on SCE scores by taking into account the variability associated with different courses. Data analysis conducted using a pairwise comparison shows three significant differences – see Results in Table 3 below.

An overall *F* test before post hoc analysis using pairwise comparisons was used only where overall *F* test is statistically significant – see Table 4 below.

Results of the analysis reveal that mean SCE scores are generally lower for hybrid courses when compared with online and other formats while mean scores for online and other formats are not statistically different.

7.1.2. Student survey results

Thirty-four online survey (**C3**) invitations via SurveyMonkey were emailed to all completers of the masters programs. Thirty responses were received for a response rate of 88% and these data included 13 completers of the online program and 17 completers of the hybrid program. Students also enroll in other, traditional course formats, while those in the online program do not so these data are analyzed using the two program formats – online versus hybrid/on-campus. Responses reveal that students in both programs rated course offerings as "sufficiently flexibility to meet their needs," with online program students preferring online course (offerings with 0 face-to-face class sessions) while students in the hybrid program rated hybrid highest, followed by fully online courses.

As suggested by de Winter and Dodou (2010), a nonparametric Mann-Whitney-Wilcoxon (MWW) test was used to compare the two groups (see Table 5) – hybrid (H) and online (O) programs – on a 5 point Likert-type scale from Strongly Disagree (1) to Strongly Agree (5).

Table 1
Graduate course enrollments 2010–2014.

Academic Year	Hybrid	Online	Other
2010–11	114	15	43
2011–12	128	52	56
2012–13	118	42	76
2013–14	91	66	38

Table 2
Sce response rates 2011–2014.

Response Rates	Hybrid	Online	Other
Sections	14	6	7
Avg. Response Rate	61.82%	70.11%	69.61%

Table 3
Multi-level sce model results.

	Mean, SD			Overall F Test
Item	Hybrid	Online	Other	Statistic, *p*-value*
7	4.08, 0.43	4.33, 0.39	4.58, 0.21	6.52, **0.0252**
8	4.19, 0.49	4.40, 0.35	4.52, 0.32	2.98, 0.1158
9	4.11, 0.45	4.28, 0.29	4.61, 0.23	4.51, 0.0552
10	3.85, 0.65	4.19, 0.41	4.31, 0.35	3.02, 0.1131
11	3.84, 0.68	4.21, 0.38	4.50, 0.49	4.40, 0.0579
12	4.11, 0.47	4.18, 0.44	4.57, 0.29	3.47, 0.0899
13	3.96, 0.42	4.16, 0.34	4.49, 0.42	6.25, **0.0277**
14	4.11, 0.48	4.17, 0.36	4.56, 0.27	3.70, 0.0802
15	4.16, 0.27	4.23, 0.35	4.49, 0.16	3.75, 0.0781
16	3.92, 0.66	4.06, 0.39	4.46, 0.25	2.54, 0.1477
17	4.02, 0.43	4.21, 0.30	4.44, 0.15	6.50, **0.0254**

Note: DF = 7, 95% confidence with Bonferroni correction *p*-value less than 0.05/3 = 0.0168 implies statistically significant differences.

Table 4
Course format pairwise comparisons**.

Other vs Hybrid	Other vs Online	Hybrid vs Online
0.0118	0.2995	0.0751
0.0098	0.1060	0.2338
0.0130	0.3578	0.0633

Note: **p*-values less than or equal to 0.05 indicate statistically significant differences, NumDF = 2, DenDF = 7.

Data reveal that the two groups of students had **no statistically significant differences** on any of the Likert-type scale course items surveyed.

7.1.3. Course retention data

Students elect to leave online courses for a variety of reasons as Willging and Johnson (2009) discovered. The authors began by defining elements of "retention" or student success in online courses and included two factors in their definition: withdrawals from courses after the term begins and students receiving failing grades (D or F) in a course.

Course retention data (**C4**) suggest that a significant percentage of students completed courses receiving a passing grade while a small number dropped out. When taken as a percentage of total course enrollments, retention data looks even more positive. Table 6 (above) represents student withdrawals and failing grades from 2011 to 2014 with percentages for all course formats.

Table 7 (below) provides student course retention data, absent failing grades, for all graduate courses in the college between 2011 and 2014. Course withdrawal or dropout data from hybrid courses offered during the same period are comparable with those from other graduate courses within the college, while online withdrawal or dropout rates are lower.

Table 6
Course retention rates.

	Hybrid	Online	**Other**
Enrollment	322	169	129
Withdrawals	10: 3.1%	2: 1.18%	0
Failing Grades	2: 0.62%	2: 1.18%	0
Retention Rate	96.28%	97.64%	100%

7.2. Program-level results

Analysis of hybrid and online program-level data are analyzed in this section. As of May 1, 2014 there were 71 students in the online program. Table 8 (below) compares program enrollments (**P1**) for both master's degree programs – hybrid and online – between 2011 and 2014.

Program enrollments have declined steadily since 2011–12, with the both programs seeing reductions since 2011–12. Offering an online program has offset, to some extent, the overall drop in program enrollments which is likely to continue in the future.

Table 7
College-wide course retention data.

Academic Year	2011–12	2012–13	2013–14
Enrollment	854	1397	916
Withdrawals	31: 3.6%	45: 3.2%	31: 3.4%
Retention Rate	96.4%	96.8%	96.6%

Table 5
Student survey results regarding online courses.

Survey item	N	Mean	Std Dev	p
Courses in the Ed Tech program seem relevant for positions in the ed tech field (e.g., teaching and or technology support).	H = 17 O = 13	1.47 1.69	• .717 • .751	0.36
The amount of coursework required seems appropriate	H = 16 O = 13	1.31 1.77	• .479 • .832	0.18
Course offerings are sufficiently flexible to meet my needs	H = 17 O = 13	1.81 2.00	• .656 • .707	0.53
I received honest and useful feedback on my class performance.	H = 17 O = 13	1.41 1.38	• .618 • .506	0.96
Faculty use a variety of effective instructional practices	H = 17 O = 13	1.59 1.69	1.00 0.630	0.39

Note: p > 0.05, H = hybrid students, O = online students, Std Dev = standard deviation.

Table 8
Program enrollments 2010–2015.

Academic Year	Hybrid	**Online**	**Total**
2010–2011	31	0	31
2011–2012	38	25	63
2012–2013	27	26	53
2013–2014	24	20	44

7.2.1. Student survey results

Student survey (**P2**) results (Table 3) included some additional items that were administered to students in the online program. Thirteen (13) graduates of the online program (65%) responded to items regarding their experiences and perceptions of the value of those experiences in their educational technology program. Table 9 (below) reflects the results of survey items related to program quality where students Agree or Strongly Agree with the statement using the Likert-scale.

Surveys also reveal that 77% have recommended the program to colleagues and 86% are satisfied, overall, with their experiences. Comparing results across both programs, for survey items related to program quality, there were **no statistically significant differences** observed. When these numbers are combined with responses for other items – recommending the program to colleagues and overall satisfaction – the results indicate that the majority of students in both programs regard their graduate experience as satisfying and worthwhile.

7.2.2. Time to graduation

A review of students' average time to graduation (**P3**) over the past 5-years reveals that students are finishing the online program earlier and in larger numbers. Table 10 (below) represents the number of graduates from each program, by academic year, with average time to graduation (TTG) in terms or semesters since the online program was implemented in 2011.

Time to graduation data suggests, at least initially, that students in the online program move more quickly through the courses than their counterparts in the hybrid program. Given the small sample, it is too soon to determine whether this trend will continue in the future and future research should build on these results to confirm their validity over time.

7.2.3. Retention rates

Researchers examined retention rates (**P4**) – percentage of students who continue to enroll in available courses or graduate –across both programs by identifying inactive students as those who have not enrolled in a graduate course within a 3-year period. Twenty-five students were identified as inactive in the hybrid program with ten students inactive in the online program.

The authors also identified the number of students who graduated from both programs since 2011–eight from the hybrid program and four from the online program. Finally, researchers calculated the retention rate by dividing the number of inactive students by total program enrollment. Student retention data for both programs is summarized in Table 11 above.

Table 10
Average time to graduation.

	Hybrid	TTG	Online	TTG
2011–12	15	10.47	1[a]	20
2012–13	14	13.57	3	6.67
2013–14	8	12.75	5	8.2
Totals	37	10.97	9	9

[a] Started in the hybrid program but shifted to the online program after moving out of the U.S.

Table 11
Program retention data.

	Hybrid	Online	Total
Enrollments	104	70	174
Inactive	25	10	35
Graduated	8	4	12
Retention Rate	74%	83%	78%

As with the other program-level data, retention rates are high for both programs, with a slightly higher rate (83%) for the online program. Future work will evaluate graduation rates as well as revised it time to graduation to provide additional evidence of the quality of the online program.

8. Implications

This illuminative evaluation provides evidence indicating no significant differences in the experiences of students in an online graduate program compared with students in a hybrid program. We consider these results an intentional consequence of designing and implementing an online program following established guidelines and standards. Returning to the illuminative evaluation framework applied in this study, student satisfaction levels were an expected outcome, given previous work by other researchers. The quality of the educational experience, measured via student course evaluations, surveys and retention rates, is comparable across courses and programs.

One unintended consequence of the illuminative evaluation was the discovery that students in the hybrid program prefer online courses. While the original expectation that offering the online program would offset the drop in the hybrid program, this did occur, but at both the course and program level, enrollments continue to decline. The online program did extend and expand graduate offerings beyond the local geographic area. Continued research may result in elimination of the hybrid program based on reduced funding and a variety of other institutional factors.

Illuminative evaluation proved to be an effective framework for online graduate program evaluation and should be considered for future evaluations. These results have important implications for

Table 9
Student survey results regarding online program.

Survey item	
Ed tech program supported my professional goals	85%
Courses in the program seemed relevant for positions in the educational technology field	85%
I feel well prepared to work in the educational technology teaching or related fields	85%
I have been prepared adequately to use available technologies in my work	85%
The program fostered a sense of academic and intellectual curiosity	100%
The program was worthwhile	85%
Faculty in my program are accessible to students	100%
The academic advising I receive is satisfactory	62%
Ed tech program supports my professional goals	85%

the small but growing research of online graduate courses and programs. Certainly this study suggests that when developed and implemented effectively, online graduate offerings – courses and programs – are of similar quality as hybrid options. Graduate students report no significant differences in quality at the course and program level, using a variety of data sources.

8.1. Course-level analysis

Analysis of graduate course enrollments, student course evaluations, survey responses and retention data indicate that there are few, if any, significant differences between online, hybrid and other course formats. Enrollments (**C1**) in hybrid/other formats have declined and fluctuated while online courses have seen a slight increase over time. Study results confirm what others have observed regarding similar students' perceptions of course quality reflected in SCE (**C2**) across different formats (Topper, 2007; Nguyen, 2015; Richardson, 2009): three significant differences for hybrid format courses with no other significant differences observed. Student survey results (**C3**) indicate no significant differences based on course format. Online course retention (**C4**) has been identified as a concern by Atchley et al. (2013) and others, but this data suggests that a majority of students, regardless of format, are likely to complete course requirements and receive passing grades – over 95%.

8.2. Program-level analysis

Program level data provides additional evidence of the overall quality of the program, especially when compared with the hybrid program. Enrollments (**P1**) in the online program have offset steady declines in the hybrid/on-campus program. Student survey results (**P2**) indicate high levels of satisfaction with graduate experiences in the program, while time to graduation (**P3**) is slightly higher for the online program compared with the hybrid/on-campus program, indicating that these are likely to finish the program sooner. Program retention rates (**P4**) have also been identified in the literature (Gazza & Hunker, 2014; Rovai, 2002) as an area of concern, but the data analyzed in this study reflect a slightly higher retention rate for students in the online program with an admittedly small sample size. As with the course-level analysis, evidence gathered regarding similarities and differences across the programs indicate no significant differences.

9. Summary/Conclusions

Graduate course and program enrollments (**research question #1**) have continued to decline across the college, although the online program has offset these reductions. Enrollments are likely to continue to drop in the future, possibly leading to the elimination of competitive graduate programs in the state as more competition arises. Other graduate degree programs within the college have seen reductions in enrollments and some will likely cease to operate in the near future. Offering an online program that draws students from outside the local geographic area appears to lessen the impact of continued declines in student enrollments allowing the educational technology graduate programs to thrive.

Regarding **research question #2**, data suggests that students have similar experiences, perceptions of course and program quality, and are satisfied with their experiences overall. Students also indicated they will suggest the online program to their colleagues. All of these results combined with program data speak to the overall quality and effectiveness of the online graduate program in educational technology. The course-level results are consistent with existing research comparing online with hybrid or on-campus formats (Atchley et al., 2013; Topper, 2007; Stowell, Addison & Smith, 2012; Young & Duncan, 2014).

This illuminative evaluation also demonstrates that when developed and implemented following available standards and benchmarks, online graduate degree courses and programs can match the quality and effectiveness of existing hybrid programs. Previous studies by Martinez et al. (2006), McDonnell et al. (2011), and Mills (2007) reported similar results: no significant differences between online and on-campus graduate programs. The results reported here, added to the small, but growing, body of evidence suggest that online graduate programs can be similar in quality and effectiveness compared with hybrid programs (**research question #3**).

There are clear limitations in this illuminative evaluation, including a small sample size in the online program, a homogeneous population of students – mostly female, younger, white, etc. – and 3-years of data for analysis. We plan to continue gathering and analyzing data in the future to hopefully confirm findings from this study. Also, any comparison between master's programs within a college may not generalize to other institutions or colleges, based on different student demographics, faculty expertise, program goals, course content, pedagogy, etc. Given these limitations, more work remains from a larger sample in support of the claims made regarding overall online program quality. Hopefully, the conclusions here will provide additional evidence regarding quality online graduate courses and programs.

Appendix A.

Student course evaluation items related to course elements, teaching practices and goals/outcomes

- **Goals & Outcomes**: *I gained an understanding of major concepts in the field.*
- *I developed skills or learned information and concepts that I can apply to my professional life.*
- *I am able to think more critically or deeply about the issues and topics related to this course.*
- **Teaching Practices [Instructor]**: *The instructor explained course objectives and expectations clearly.*
- *The instructor presented course materials in a clear and meaningful way.*
- *The course work allowed me to think critically, problem solve, and inquire more deeply into facts, concepts, and issues related to the course objectives.*
- *The instructor returned papers and other assessments in a timely manner.*
- **Course Elements [Assessments]**: *Assessments helped me think more deeply about the facts, issues, and concepts related to the course.*
- *The course provided enough opportunities for me to demonstrate what I had learned.*
- *Course discussions, lectures, activities, and/or readings prepared me for course assessments.*
- *Course reading materials were helpful in understanding concepts/factors/issues relating to the goals of the course.*

Likert scale {1 = Strongly Disagree, 3 = Neutral, 5 = Strongly Agree}

References

Alderman, L. (2015). Illuminative evaluation applied to government policy in higher education. *Evaluation Journal of Australia 15*(1), 4–14. . Retrieved on 10.04.16.: http://eprints.qut.edu.au/82122/.

Allen, I. E., & Seaman, J. (2011). Going the distance: Online education in the United States. *Sloan Consortium* . . Retrieved online on 02.05.14.: http://eric.ed.gov/?id=ED529948.

Atchley, T. W., Wingerbach, G., & Akers, C. (2013). Comparison of course completion and student performance through online and traditional courses. *The International Review of Research in Open and Distributed Learning*, *14*(4), 104–116.

Crawford-Ferre, H. G., & Wiest, L. R. (2012). Effective online instruction in higher education. *The Quarterly Review of Distance Education*, *13*(1), 11–14.

Crews, T. B., Wilkinson, K., Hemby, K. V., McCannon, M., & Wiedmaier, C. (2008). Workload management strategies for online educators. *Delta Pi Epsilon Journal*, *50*(3), 132–149.

Czerkawksi, B. C. (2013). Strategies for integrating emerging technologies: Case study of an online educational technology master's program. *Contemporary Educational Technology*, *4*(4), 309–321.

Deka, T. S., & McMurry, P. (2006). Student success in face-to-face and distance telecasts environments: A matter of contact? *The International Review of Research in Open and Distance Learning*, *7*(1), 1–15.

Ellis, L., & Nolan, M. (2005). Illuminating continuing professional education: Unpacking the black box. *International Journal of Nursing Studies*, *42*(1), 97–106. http://dx.doi.org/10.1016/j.ijnurstu.2004.05.006.

Gazza, E. A., & Hunker, D. F. (2014). Facilitating student retention in online graduate nursing education programs: A review of the literature. *Nurse Education Today*, *34*(7), 1125–1129. http://dx.doi.org/10.1016/j.nedt.2014.01.010.

Gordon, K. H. (1991). Improving practice through illuminative evaluation. *Social Service Review*, *65*(3), 365–378.

Hara, N., & Kling, R. (2000). Student distress in web-based distance education. *Information, Communication and Society*, *3*(4), 557–579. http://dx.doi.org/10.1080/13691180010002297.

Hart, C. (2012). Factors associated with student persistence in an online program of study: A review of the literature. *Journal of Interactive Online Learning*, *11*(1), 19–42.

Horne, E. M., & Sandmann, L. R. (2012). Current trends in systematic program evaluation of online graduate nursing education: An integrative literature review. *Journal of Nursing Education*, *51*(10), 570–576. http://dx.doi.org/10.3928/01484834-20120820-06.

Lee, Y., & Choi, J. (2011). A review of online course dropout research: Implications for practice and future research. *Educational Technology Research & Development*, *59*, 593–618. http://dx.doi.org/10.1007/s11423-010-9177-y.

Martinez, R., Liu, S., Watson, W., & Bichelmeyer, B. (2006). Evaluation of a web-based master's degree program: Lessons learned from an online instructional design and technology program. *Quarterly Review of Distance Education*, *7*(3), 267–283 345–346.

Mayes, R., Luebeck, J., Ku, H.-Y., Akarasriworn, C., & Korkmaz, O. (2011). Themes and strategies for transformative online instruction: A review of the literature and practice. *Quarterly Review of Distance Education*, *12*(3), 151–166 221–222.

McDonnell, J., Jameson, J. M., Riesen, T., Polychronis, S., Crockett, M. A., & Brown, B. E. (2011). A comparison of on-campus and distance teacher education programs in severe disabilities. *Teacher Education and Special Education*, *34*(2), 106–118. http://dx.doi.org/10.1177/0888406410380424.

Miles, W. R. (1981). Illuminative evaluation for formative decision-making: A case study of teaching/learning styles in mathematics. *Evaluation Review*, *5*(4), 479–499. http://dx.doi.org/10.1177/0193841x8100500403.

Mills, A. C. (2007). Evaluation of online and on-site options for Master's degree and post-master's certificate programs. *Nurse Educator*, *32*(2), 73–77. http://dx.doi.org/10.1097/01.NNE.0000264326.10297.e7.

Muller, T. (2008). Persistence of women in online degree-completion programs. *International Review of Research in Open and Distance Learning*, *9*(2), 1–18.

Nguyen, T. (2015). The effectiveness of online learning: Beyond no significant difference and future horizons. *Journal of Online Learning and Teaching*, *11*(2), 309–319.

Parlett, M., & Hamilton, D. (1972). Evaluation as illumination: A new approach to the study of innovatory programs. *Occasional paper 9*. Scotland: Centre for Research in the Educational Sciences, University of Edinburgh. . [Retrieved online on 22.11.15.:] http://files.eric.ed.gov/fulltext/ED167634.pdf.

Paul, J. A., & Cochran, J. D. (2013). Key interactions for online programs between faculty, students, technologies, and educational institutions: A holistic framework. *Quarterly Review of Distance Education*, *14*(1), 49–62.

Richardson, J. T. E. (2009). Face-to-face versus online tutoring support in humanities courses in distance education. *Arts and Humanities in Higher Education*, *8*(1), 69–85. http://dx.doi.org/10.1177/1474022208098303.

Rovai, A. P. (2002). In search of higher persistence rates in distance education online programs. *The Internet and Higher Education*, *6*(1), 1–16. http://dx.doi.org/10.1016/S1096-7516(02)00158-6.

Ryan, N. (1999). Rationality and implementation analysis. *Journal of Management History*, *5*(1), 36–52.

Simonson, M., Schlosser, C., & Orellana, A. (2011). Distance education research: A review of the literature. *Journal of Computing in Higher Education*, *23*, 124–142. http://dx.doi.org/10.1007/s12528-011-9045-8.

Stowell, J. R., Addison, W. E., & Smith, J. L. (2012). Comparison of online and classroom-based student evaluations of instruction. *Assessment & Evaluation in Higher Education*, *37*(4), 465–473.

Tallent-Runnels, M. K., Thomas, J. A., Lan, W. Y., Cooper, S., Ahern, T. C., Shaw, S. M., et al. (2006). Teaching courses online: A review of the research. *Review of Educational Research*, *76*(1), 93–135.

Topper, A. (2007). Are they the same? Comparing the instructional quality of online and face-to-face graduate education courses. *Assessment & Evaluation in Higher Education*, *32*(6), 681–691.

Van Rensburg, E. (2008). *An illuminative evaluation of workplace learning component of Unisa's diploma in Animal Health*. . . Retrieved online on 22.09.15: http://hdl.handle.net/10539/4964.

Willging, P. A., & Johnson, S. D. (2009). Factors that influence students' decision to dropout of online courses. *Journal of Asynchronous Learning Networks*, *13*(3), 115–127.

Young, S., & Duncan, H. E. (2014). Online and face-to-Face teaching: How do student ratings differ? *Journal of Online Learning & Teaching*, *10*(1), 70–79.

de Winter, J. C. F., & Dodou, D. (2010). Five-point Likert items: *t*-test versus Mann-Whitney-Wilcoxon. *Practical Assessment, Research & Evaluation 15*(11), 1–16. . Available online: http://pareonline.net/getvn.asp?v=15&n=11.