Faculty Attitudes toward Online Learning: Failures and Successes

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Abstract: Faculty attitudes about online learning have become a topic of considerable national investigation with consistently negative results reported. This descriptive study reviews some of these results to frame a follow up investigation in which it is hypothesized that context can predict variability in attitudes. A replication of a recent national study of faculty attitudes is presented documenting such systemic variation. Results are interpreted to consider alternative explanations for the more positive attitudes toward online learning outcomes among respondents in the replication study. It is concluded that, just as variability in outcomes characterizes decades of research in distance and online education, faculty attitudes about online education also vary with context and may be amenable to change.

Introduction

"A continuing failure of online education has been its inability to convince the most important audience – higher education faculty members – of its worth. (Allen & Seaman, 2014)."

Numerous national studies have documented issues of acceptance of online learning on the part of faculty in US higher education. For example, more than a decade of survey research conducted by Sloan-C and the Babson Survey Research Group has found that Chief Academic Officers report a minority of faculty in their institutions accept the "value and legitimacy" of online education. Indeed, in the most recently study for which data was collected only 27.6% of academic leaders believed faculty at their college accepted online education, a lower percentage than when the first study was conducted in 2002 (Allen & Seaman, 2015). This finding appears in tandem with equally consistent results that a majority of CAOs report online learning to be crucial to the long term strategy of their institutions. This incongruence is concerning if we believe that online education will continue to present a vehicle for increased access to higher education for a growing population of non-traditional students in need of greater flexibility.

While administrator's reports are concerning enough, it has also been amply documented that faculty themselves report skepticism about the effectiveness of online learning. In 2012 a national study found that 66% of faculty expressed some level of agreement with the statement that learning outcomes in an online course were inferior to those in a face-to-face course (Allen, Seaman, Lederman & Jaschik, p. 10, 2012). An even more recent national survey of faculty attitudes (Jaschik & Lederman, 2014) concluded that only 9% of the professoriate nationwide strongly believes outcomes for online learning were equivalent to classroom outcomes. Further, even experienced online instructors had negative attitudes about online learning outcomes (and those who had not taught online were even more skeptical). For those who had taught an online course only 16% strongly believed that learning outcomes for online education were equivalent to classroom outcomes at any institution compared to an even more dismal 5% of faculty who had not taught an online course (Jaschik & Lederman, 2014, p. 11).

Faculty concerns about online learning outcomes may be understandable as this mode of instruction is still relatively new, at least when compared to classroom instruction. However the

bases for these concerns do not appear to be empirical. The question of comparative outcomes between online and classroom-based learning environments in higher education has been thoroughly investigated and summarized using both traditional literature reviews (e.g. Tallent-Runnels, 2005) as well as meta-analytic reviews of the literature (e.g. Bernard et. al, 2004). Bernard and his coauthors (2014), summarizing the meta-analytic findings on outcome in distance and online education (DE/OL) and classroom instruction (CI) had this to say, "Literally thousands of comparative primary studies (…) have pitted DE/OL against CI and since 2000, sixteen major meta-analyses have been mounted to assess the differences between CI and DE/OL (…) there is general consensus of the effectiveness of all forms of DE (including OL) compared with CI (Bernard et. al., p.1, 2014)."

Despite the overall equivalence of the two modes of instruction Bernard and his colleagues also noted wide variability among studies, from those strongly favoring distance and online forms of instruction to those favoring classroom instruction. There is reason to believe that the same variation exists among faculty with regard to their attitudes toward online learning and a challenge is to understand "what makes the difference?" (Zhao et. al 2005). We posit that the possibility exists that more positive attitudes can be fostered through a culture that investigates, supports, recognizes, and rewards online education. In order to understand variance in attitudes we must first identify it, which is the main goal of this study.

This is a replication study of Jaschik and Lederman's work (2014) which used a different sample to examine questions about faculty attitudes toward online learning. The sample for this research draws from the Center for Online Teaching Excellence in the integrated Open SUNY system of online education in which thousands of college professors have experienced an extensive faculty development program, common student support system, and robust course design approaches. The Open SUNY Program, formerly the SUNY Learning Network, developed over the course of more than two decades, has been acknowledged as a model for online program administration, faculty support, and research with national recognition from the Sloan Consortium (now OLC), EDUCAUSE, and the United States Distance Learning Association (USDLA). SUNY is one of the largest systems of higher education in the US with more than 450,000 students in a variety of higher education institutions across its 64 campuses. More than 200,000 enrollments in online courses were recorded across the SUNY system in 2014.

A guiding hypothesis in the current study was that a positive culture of online education may have a powerful influence on faculty attitudes about the efficacy of online learning. If this is the case we believe we should find more positive attitudes within SUNY than are reported at the national level. This initial investigation provides evidence in support of this conjecture.

Method

Permission to use the instrument was sought and granted from the authors of the national study of faculty attitudes. The online survey was developed and administered to SUNY faculty who

had both taught an online course and to those who had not. The analysis includes answers from all respondents who took the survey in the 59 day period from Monday, May 04, 2015 to Thursday, July 02, 2015. In all 402 responses to the survey were collected from within the SUNY system. Comparative demographic data for the national survey and the SUNY survey respondents are included in Table 1. Data were not statistically adjusted (weighted) in either study.

Research Questions:

1. Do SUNY faculty hold different attitudes about online learning than do faculty in a recent national study?
2. What demographic and experiential factors predict faculty perceptions of outcomes and quality of online education?
3. Do perceptions of level of institutional resources (e.g., institutional support and technology use) predict perceptions of outcomes and quality of online education over and above experiential and demographic characteristics?
4. Does the strength of the relationship between perceptions of institutional resources and perceptions of outcome and quality of online education depend on demographic factors and other experiences?

METHOD

Participants included 402 faculty from the SUNY system. Women represented 64% of the sample. Male participants were significantly older than female participants, $\chi^2(df=4)=17.61$, $p=.001$ but there were no gender differences on the remaining demographic variables listed in Table 1.

Table 1

Demographic Characteristics by Gender

Demographic Characteristics		Male		Female		Total	
		Fr.	*Percent*	*Fr.*	*Percent*	*Fr.*	*Percent*
Age	< 39	11	2.8	19	4.8	30	7.6
	40-49	29	7.3	53	13.4	82	20.8
	50-59	32	8.1	96	24.3	128	32.4
	60-69	49	12.4	72	18.2	121	30.6
	> 70	21	5.3	13	3.3	34	8.6
Status	Part-Time	55	14.2	82	21.1	137	35.3
	Fill-Time	86	22.2	165	42.5	251	64.7
Years of Service	<10 Yrs.	47	11.8	95	23.9	142	35.8
	>10	96	24.2	159	40.1	255	64.2
Tenure	Not Tenured	67	16.9	117	29.5	184	46.5

	Tenured	75	18.9	137	34.6	212	53.5
Institution Type	Community Coll.	59	15.1	123	31.4	182	46.4
	Four Year	83	21.2	127	32.4	210	53.6
Liberal Arts Institution	Yes	94	24.0	161	41.1	255	65.1
	No	48	12.2	89	22.7	137	34.9

The variables in listed in Table 1 were all used in subsequent analysis. In addition, we used survey items assessing various aspects of participants' experiences with online and non-online instruction (e.g., *taking online courses, teaching a fully online course, teaching a blended course, and teaching face-to-face course*). These experiences were measured with four single items with Yes and No response options. Four scales were constructed from Likert-type items using principal component analysis. The scales were labeled: *Institutional Support for Online Faculty/ Instruction: Support, Perceptions of Quality of Online Courses: Quality, Perceptions of Online Learning Outcomes: Outcomes,* and *Technology/ Learning Management System Use: Technology.* Individual responses to items comprising each scale were summed up and a total scale score on each scale was created for each participant. The Cronbach internal consistency of the scales were .90, .80, .93, and .83, respectively.

Support. Perceptions of institutional support were captured by eight items asking the respondents to indicate the degree to which they believe that their institutions show support for online instruction by acknowledging contributions made to digital pedagogy and the demands of online course load, compensating fairly for online instruction and for the development of online course, rewarding teaching with technology, possessing strong policies to protect intellectual property, and providing adequate technical support for teaching online and for creating online courses.

Quality. The scale was comprised of eight indicators of quality: content delivery, level of student-faculty interaction during and outside class, meeting students' learning needs, reaching exceptional students and students at risk, quality of communication about logistical and other issues, and quality of grading and communicating about grading. The respondents rated indicators of quality relative to a traditional courses using the response options: "worse than", "same as" and "better than" a traditional course.

Technology. The variable represents the sum of the responses to survey items assessing how often the respondent uses his or her institution's Learning Management System to share syllabus information with students, track student attendance, record grades, provide eTextbooks and related material, integrate lecture capture, communicate with students, and identify students who many need extra help.

Outcomes. The scale consisted of four items soliciting ratings in terms of the extent to which online courses can achieve student learning outcomes that are at least equivalent to those of in-person courses at any institution, at the participant's institution, in the participant's department or discipline, and in the participant's courses.

RESULTS

Respondents

The most prominent difference between the survey respondents was around gender. SUNY had a higher percentage of women than did the national study (64% female in SUNY v. 46%

nationally). The respondents to the SUNY survey were also more likely to be tenured and somewhat older. The SUNY sample also had fewer humanities faculty and more social science faculty than did the national sample. These and other differences are addressed in the discussion section below.

Attitudes

In the previous study by Jaschik and Lederman (2014) it was reported that few faculty members (9 percent) strongly agreed that online courses can achieve student learning outcomes that are at least equivalent to those of in-person courses at any institution. In the current study, as indicated in Figure 1, more than three times that number of SUNY faculty (33%) strongly agreed that online learning outcomes are at least equivalent to classroom outcomes, with a majority (57%) expressing some level of agreement (agree/strongly agree).

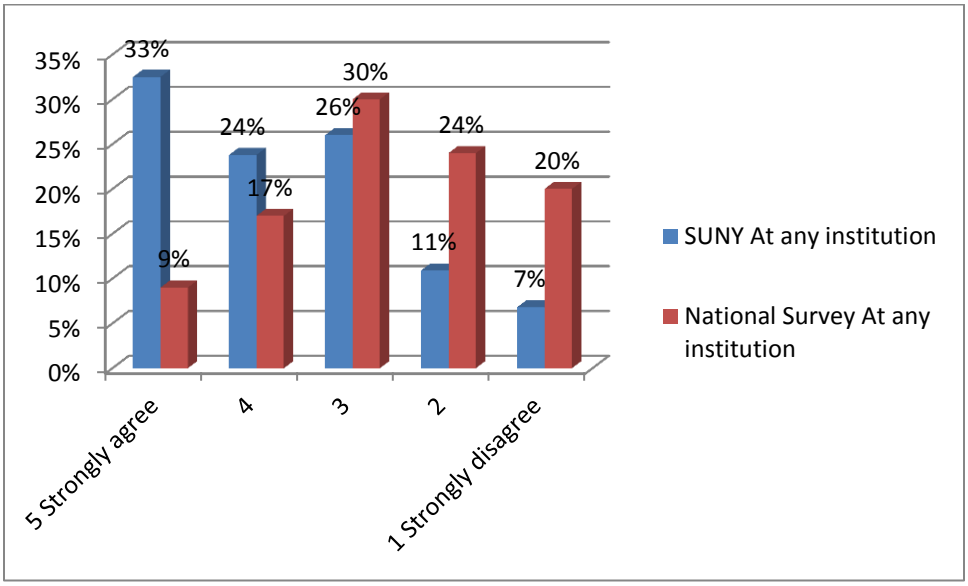

Figure 1. Online courses can achieve student learning outcomes that are at least equivalent to those of in-person courses at ANY institution.

The survey asked the same question with regard to the institution in which the respondent was employed. At the national level it was reported that 13% of respondents agreed with the statement that online courses can achieve student learning outcomes that are at least equivalent to those of in-person courses at their own institutions. As indicated in figure 2 below results show again that nearly 3 times as many SUNY faculty (37%) strongly agreed with this statement with 66% indicating some level of agreement.

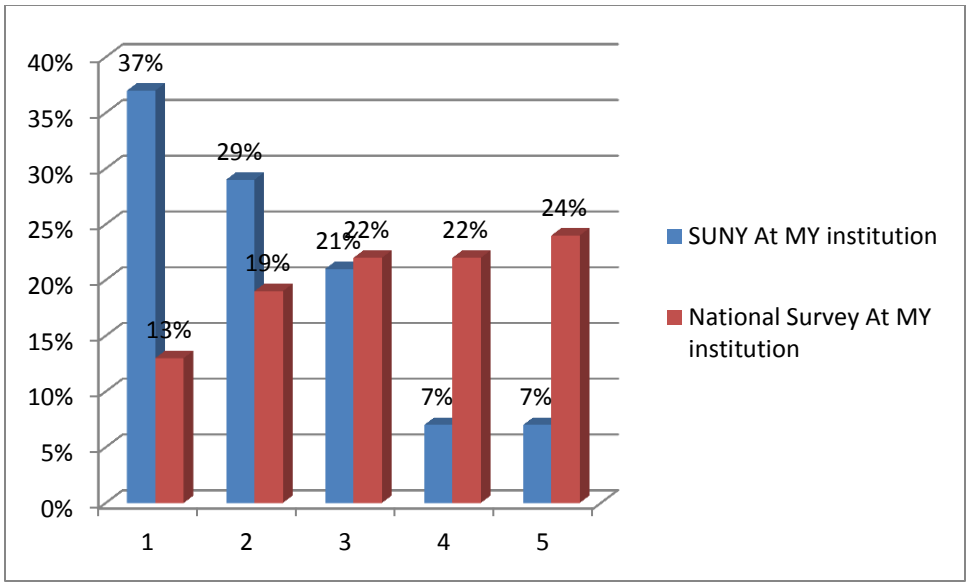

Figure 2. Online courses can achieve student learning outcomes that are at least equivalent to those of in-person courses at MY institution.

Respondents were asked the same question with regard to the effectiveness of online learning within the discipline or department with which they affiliated. At the national level it was reported that 12% of faculty strongly agree that that online courses can achieve student learning outcomes that are at least equivalent to those of in-person courses within their discipline or department. Overall 44% of SUNY expressed strong agreement with this statement with another 22% expressing some form of agreement (see figure 3 below).

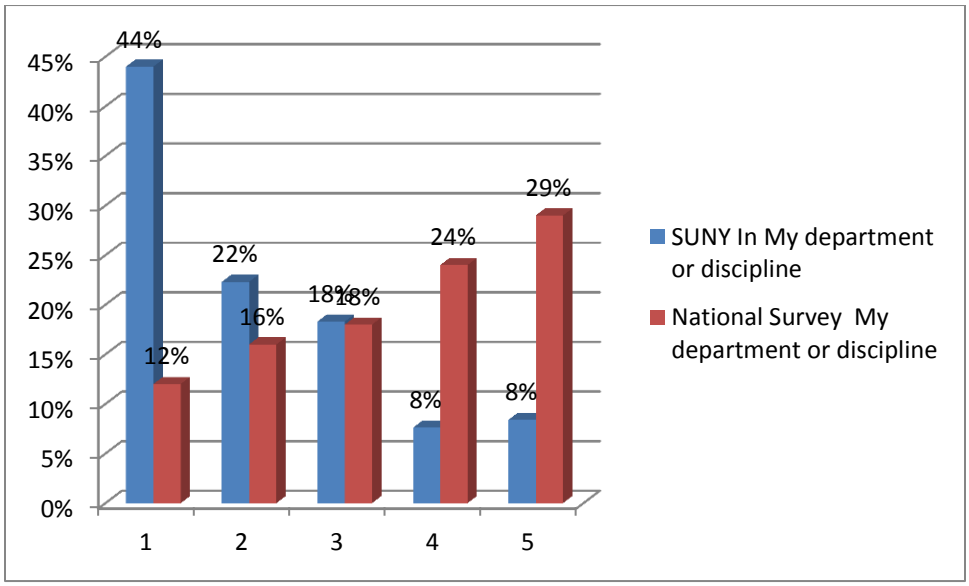

Figure 3. Online courses can achieve student learning outcomes that are at least equivalent to those of in-person courses in my discipline or department.

Finally, for the purposes of this report, respondents were asked the same question with regard to the effectiveness of online learning in the courses they taught. Jaschik & Lederman reported that 14% of faculty nationwide strongly agreed with this statement. Within the SUNY survey over 52% of faculty expressed strong agreement with another 19% expressing some form of agreement (figure 4).

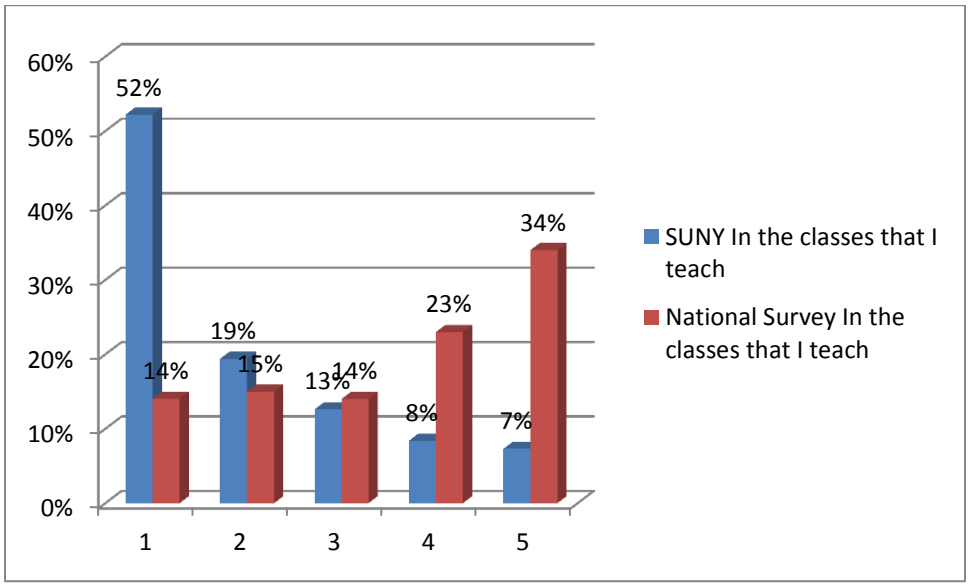

Figure 4. Online courses can achieve student learning outcomes that are at least equivalent to those of in-person courses in the classes I teach.

To better understand what might explain higher levels of acceptance of online learning in SUNY, research questions 2-4 were addressed with multiple regression analysis.

2. What demographic and experiential factors predict faculty perceptions of outcomes and quality of online education?
3. Do perceptions of level of institutional resources (e.g., institutional support and technology use) predict perceptions of outcomes and quality of online education over and above experiential and demographic characteristics?
4. Does the strength of the relationship between perceptions of institutional resources and perceptions of outcome and quality of online education depend on demographic factors and other experiences?

Two sequential multiple regressions were performed in four steps. The dependent variables were *Outcomes* and *Quality*. In each regression, demographic characteristics and dichotomous variables assessing experiences were entered at *step 1* (Research Question 1). The model was re-evaluated after inclusion of the derived variables *Support* and *Technology* at step 3 and step 4 to assess the incremental effects of the latter (Research Question 2). Finally, we examined all possible 2-way and 3 way- interactions between demographic characteristics,

experiential factors, and perceptions of support and technology use. Interaction terms were tested one at a time in separate regression models. Those found significant were then re-evaluated as part of the main regression analyses at *step 4*. Table 2 presents the results from the regression with *Quality* as a criterion. Table 3 presents the results from the regression of *Outcomes* on the same predictors.

Table 2

Predictors of Faculty Perceptions of Quality of Online Education

	Step 1		Step 2		Step 3		Step 4	
	Est	*SE*	*Est.*	*SE*	*Est.*	*SE*	*Est.*	*SE*
Intercept	14.694**	1.236	14.321**	1.209	15.439**	1.191	14.157**	1.274
Female	.421	.410	.504	.400	.225	.391	.272	.385
Full-time	-1.171*	.554	-1.062*	.541	-.671	.529	-.518	.527
Yrs. Service	.103	.477	.376	.470	.661	.458	.811	.453
Tenured	-.331	.542	-.416	.529	-.207	.513	-.247	.505
Age	.090	.213	.009	.208	-.105	.203	-.095	.199
Four Yr. Inst.	.120	.392	.428	.390	.240	.379	.282	.374
LA Institution	-.548	.409	-.741	.401	-.608	.389	-.567	.387
Took Online	.167	.425	.269	.416	.004	.405	.036	.399
Taught Online	1.222*	.612	1.179*	.597	.593	.590	.770	.593
Taught Blended	.854*	.420	.965*	.411	.674	.402	.578	.396
Taught F2F	-.070	1.049	-.059	1.023	-.809	1.001	.063	1.043
Support			.095***	.023	.085***	.023	.167***	.037
Technology					.203***	.043	-.081	.135
Gender*Support							-.131**	.046
Tech*F2F							.298*	.139
R^2_{change}	.074		.048		.061		.032	
F_{change}	2.231*		16.566***		22.844***		6.241***	

Note. * p<.05, ** p<.01, *** p<.001

The baseline model (Step 1 in Table 2) revealed that full-time faculty tend to view online education less favorably, relative to traditional classroom instruction (b=-1.171, p = .05). Faculty with experience teaching online (b = 1.222, p<.05) and those with experience teaching blended courses (b= .854, p<.05) are more likely to rate online education as being equally good or better than traditional education. The baseline model explained 7% of the variance in perceptions, *F* (11, 307) =2.231, p=.013. The model with institutional support in the equation, explained an additional 5% of the variance in perceptions, R^2 = .122, *F*(12, 306)=5.53, p<.001, suggesting that perceived level of institutional support has a notable positive effect on perceptions of quality (b=.095, p<.001). The inclusion of the variable technology use also resulted in improved

prediction of perceptions, R^2 = .183, $F(13, 305)=5.248$, p<.001. Faculty who frequently use the institutional LM systems are much more likely to have a high regard of online education (b=.203, p<.001). Moreover, both technology use and support act as mediators in the relationship between perceptions of quality, full time teaching status and online teaching experience. The results for the final model (R^2 = .215, F (15, 303)=5.537, p<.001) suggest that gender modifies the effect of institutional support on perceptions of quality. This interaction of gender and institutional support is further modified by age, with the endorsement of older men for the quality of online learning being more greatly contingent on the existence of institutional support. The same holds true for experience teaching face-to-face. The interaction effects are illustrated in Figures 1 through 5.

Table 3
Predictors of Faculty Outcomes of Online Education

	Step 1		Step 2		Step 3		Step 4	
	Est	*SE*	*Est.*	*SE*	*Est.*	*SE*	*Est.*	*SE*
Intercept	13.709**	1.612	13.282**	1.558	14.364**	1.543	12.842**	1.553
Female	.750	.524	.847	.506	.507	.500	.486	.486
Full-time	-1.108	.706	-.925	.682	-.521	.672	-.274	.660
Yrs. Service	-.243	.610	.186	.595	.500	.585	.734	.571
Tenured	-.413	.685	-.624	.663	-.420	.648	-.478	.630
Age	.098	.268	-.041	.260	-.192	.257	-.168	.249
Four Yr. Inst.	-.487	.499	.012	.492	-.179	.483	-.140	.469
LA Institution	.348	.524	.051	.509	.124	.497	.246	.489
Took Online	.589	.544	.746	.526	.426	.519	.511	.505
Taught Online	2.771***	.773	2.744***	.746	2.148**	.742	2.457**	.734
Taught Blended	.630	.539	.782	.521	.481	.514	.290	.501
Taught F2F	-.887	1.344	-.985	1.297	-1.608	1.274	-.715	1.258
Support			.144***	.029	.135***	.029	.258	.046
Technology					.218***	.053	-.350	.187
Gender*Support							.586**	.191
Tech*F2F							-.203***	.057
R^2_{change}	.101		.065		.043		.051	
F_{change}	3.135***		23.911***		16.617***		10.371***	

Note. *p<.05, **p<.01, ***p<.001

TO DO…The findings from the second regression are remarkably similar to those reported with respect to Quality; while, the trend in the data is the same, the relationships between the predictors and the outcome variable appear to be stronger. Notably, perceptions that institutions support online instruction adequately and more frequent use of Blackboard or similar learning systems are associated with stronger beliefs that online education can achieve intended learning

outcomes (Step 3: R^2=.209, F(14, 306)=6.206, p<.001). The final model explains more variation in perceptions of outcomes, R^2=.26, F(15, 304)=7.091, p<.001.

Step 1 R^2=.101, F(11.308)=3.135, p<.001

Step 2 R^2=.166, F(12, 307)=5.08, p<.001

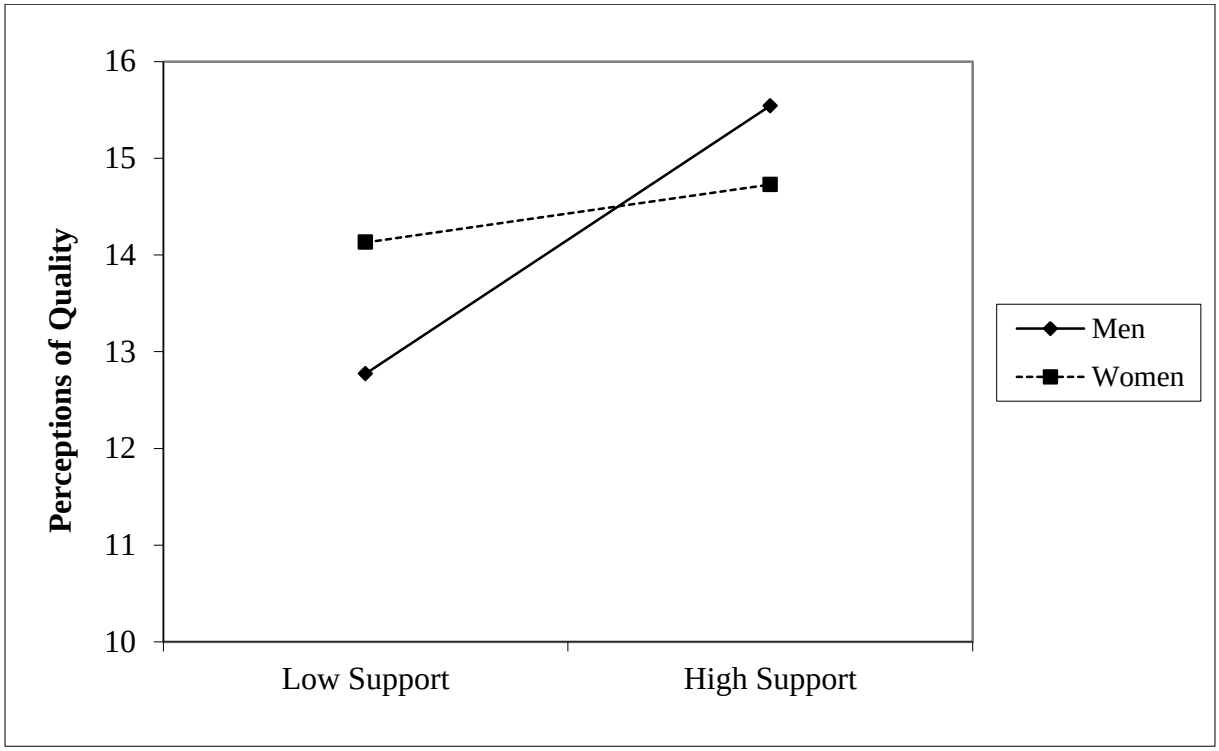

Figure 1. Effect of institutional support on perceptions of *Quality* mooderated by gender

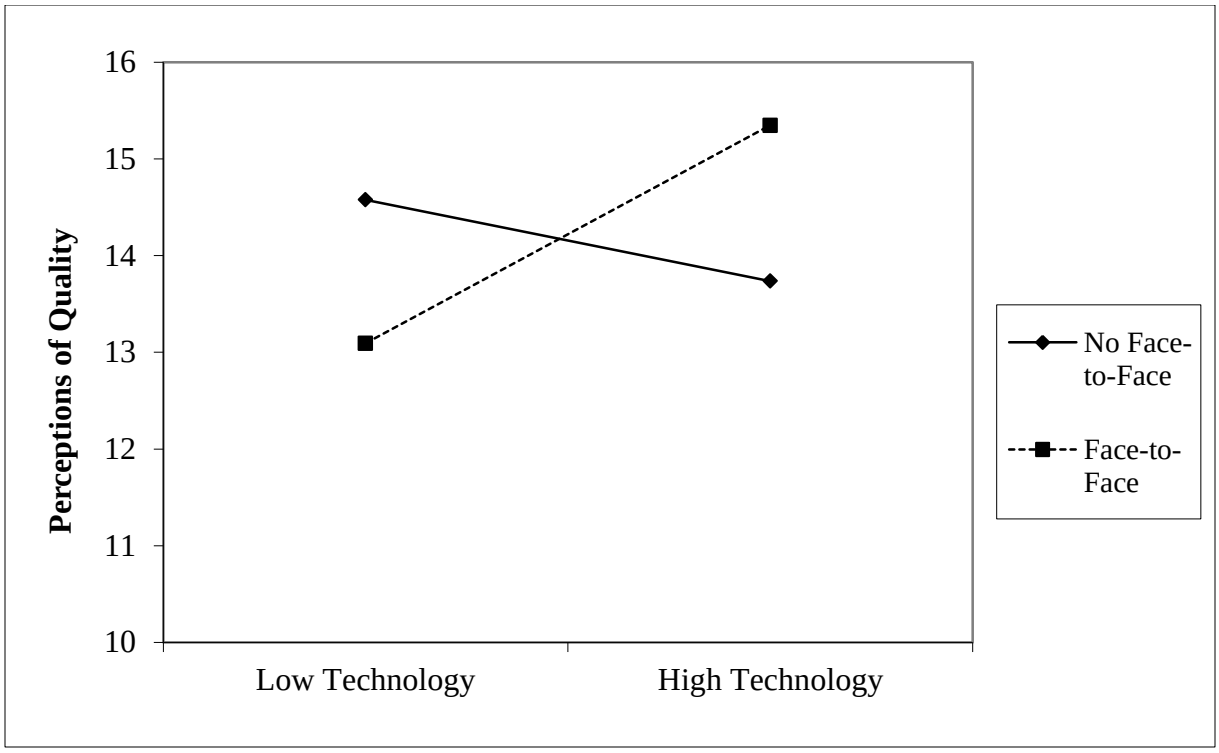

Figure 2. The effect of *Technology Use* on perceptions of *Quality* moderated by exterience teaching face-to-face courses

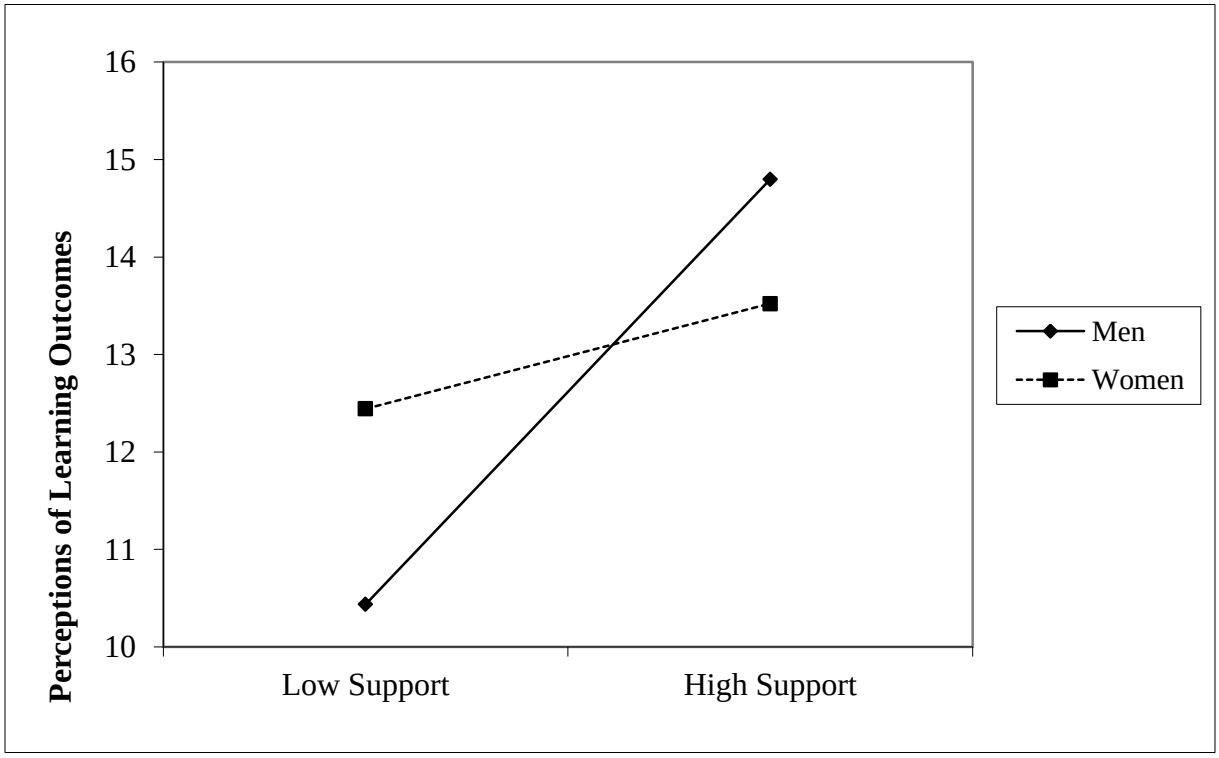

Figure 3. Effect of institutional support on perceptions of *Outcome* mooderated by gender

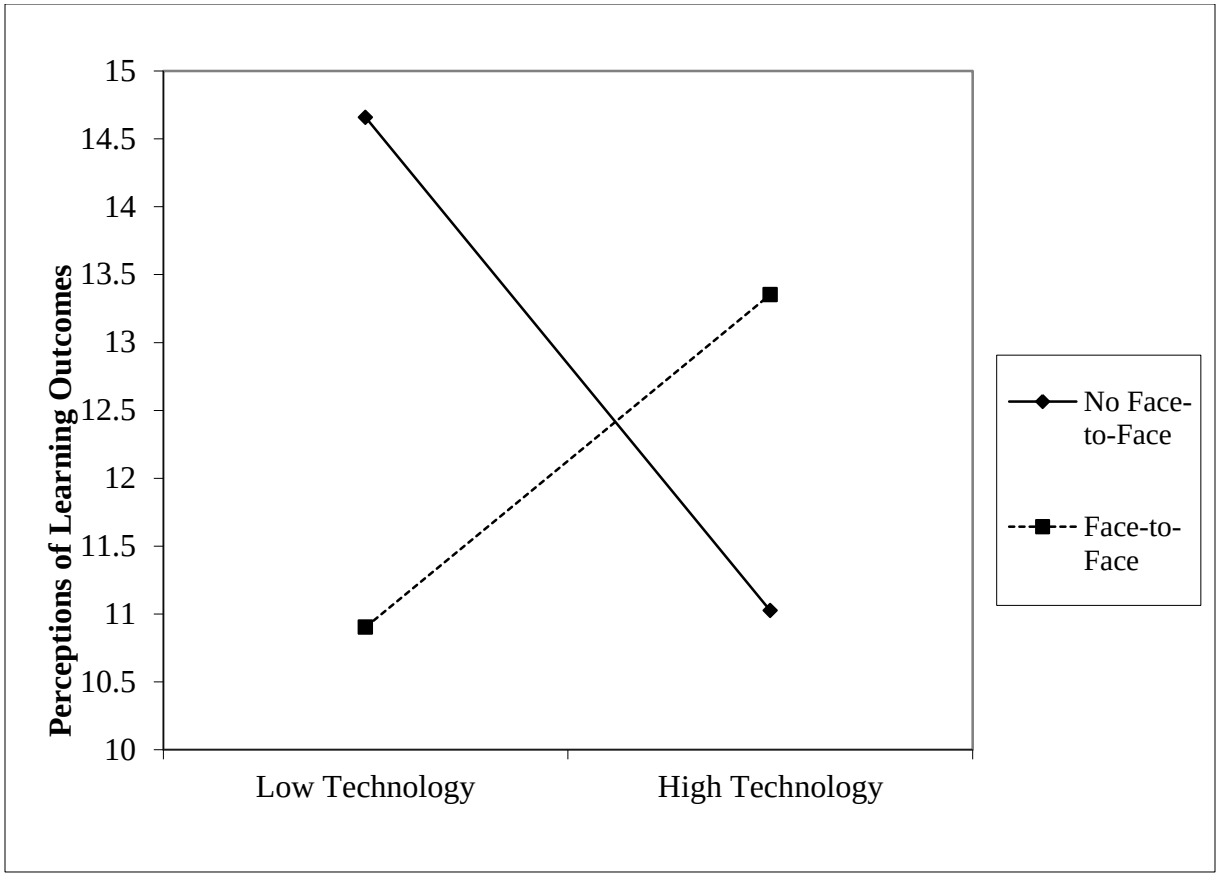

Figure 4. The effect of *Technology Use* on perceptions of *Outcome* moderated by exterience teaching face-to-face courses

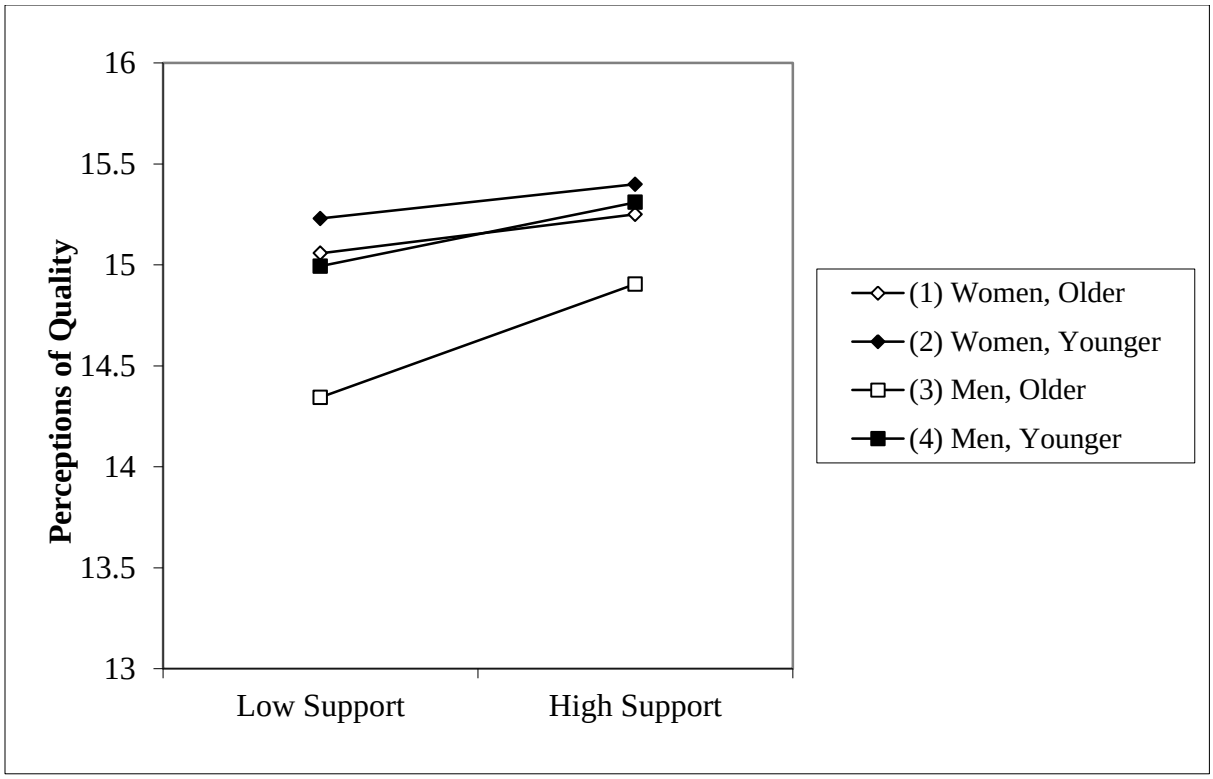

Figure 5. Perception of Quality by Level of Support, Age, and Gender

Discussion

The goal of this investigation was to understand if faculty attitudes toward online learning might parallel the variance found in comparative studies of online learning more generally. In other words investigators have found consistent variability among such comparative studies, from those strongly favoring distance and online forms of instruction to those favoring classroom instruction. The results presented here provide evidence of the same variability as it relates to faculty beliefs about the effectiveness of online learning compared to classroom instruction. SUNY faculty were far more likely to strongly agree with statements indicating the possible achievement of equivalent outcomes between online courses and in-person courses in a variety of contexts than were faculty in a recent national survey (Jaschik & Lederman, 2014).

It is possible that demographic differences explain some of most of this variance. For example, the SUNY sample included more female than male respondents than did the national survey. However, there is little evidence reported elsewhere that female faculty are more positive about online learning than their male counterparts. On the contrary, a recent study found that "Female faculty members appear to be slightly less optimistic than were their male counterparts" about the future online learning (Allen, Seaman, Lederman & Jaschik, p. 5, 2012). Additional analysis by gender within the SUNY data did not indicate differences in the response patterns between men and women (for example 32.6% of men and 32.8% of women strongly agreed that outcomes

can be equivalent at any institution). On the contrary, there were broad differences between the national survey results and the results at SUNY across genders.

The SUNY survey also included more tenured faculty than did the national survey and it is possible that these respondents were more enthusiastic about online education. However, again in a recent national study it was concluded that tenured faculty tended to be more fearful than excited by online learning (Allen, Seaman, Lederman & Jaschik, p. 31, 2012) by an almost 2 to 1 margin. Our sample also included more social science faculty than humanities faculty, but the same pattern of fear rather than excitement about the future of online learning was found among both social science and humanities faculty in the national study (Allen, Seaman, Lederman & Jaschik, p. 31, 2012). Neither of these sampling pattern differences appears to be related to the more positive attitudes among SUNY faculty. Secondary analysis confirms this; for example tenured faculty in SUNY expressed less enthusiastic support for the equivalence of outcomes between online and classroom instruction at any institution (e.g. 26% tenured faculty v. 33% strong agreement for all SUNY respondents). Differences by discipline were also examined and not found to vary greatly between humanities and social science faculty in SUNY.

Stepwise regressional analysis helps to explain variation in attitudes about the quality of online education otucomes among the faculty surveyed. Even among this more enthusiastic group of educators clear patterns indicating the importance of support, technology use, and online experience were dislosed. Perhaps most interestingly interactions between gender and percieved instuitional support were discovered that have not been reported previously.

Significance

We suggest here, following Zhao et. al. (2005), that it is incumbent on researchers to find and ultimately to explain variance in faculty attitudes toward online learning. Within the limited goals of a descriptive study we believe we have achieved the initial objective, i.e. to find general patterns of systemic variance.

Additional qualitative research is currently underway to explore why SUNY faculty in this data set were so much more accepting of the equivalence of online learning and classroom instruction. Again, we conjecture that a broad culture of support, recognition, and reward for online education, starting with the SUNY Learning Network (Fredericksen et. al, 2000), accounts for much of these differences.

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Appendix 1. Comparison of Demographics of Respondents

What is your age?	Overall % National Study	Overall % SUNY Study
Under 30	1	1
30 to 39	14	7
40 to 49	24	20
50 to 59	30	32
60 to 69	26	32
70 and older	6	9
What is your gender	Overall % National Study	Overall % SUNY Study
Male	54	36
Female	46	64
How many years have you served as a	Overall % National Study	Overall % SUNY Study
Less than 6 months	1	1
6 months to less than 3 years	11	6
3 years to less than 5 years	12	5
5 years to less than 10 years	23	21
10 or more years	54	67

What is your current tenure status?	Overall %	Overall % SUNY
Tenured	49	64
Tenure track	11	8
Not tenured	9	5
Not tenure track	31	24
Which of the following disciplines do you associate	Overall %	Overall % SUNY
Humanities*	29	19
Social Sciences*	17	27
Engineering, Physical Science, Biological Sciences	19	10
Computer and Information Sciences	5	8
Professional schools	13	14
Another field	17	22
Do you work part-time or full-time at your institution?*	Overall %	Overall % SUNY
Part-time	23	35
Full-time	78	65

* In fall 2013, there were 1.5 million faculty in degree-granting postsecondary institutions: approximately 12% taught in the humanities and 11% taught in social sciences. 51 percent were full-time and 49 percent were part-time. (SOURCE: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), "Fall Staff Survey" (IPEDS-S:93-99); *Digest of Education Statistics 2014* .