

Development and validation of the Online Instructor Support Survey (OISS)

Swapna Kumar

University of Florida, USA

Albert Ritzhaupt

University of Florida, USA

Neuza Sofia Pedro

University of Lisbon, Portugal

Abstract

Online instructors play a critical role in online student success and need various forms of institutional support to succeed in online teaching. This article describes the creation, validation, and results of the Online Instructor Support Survey (OISS) based on seven areas identified in the literature: (a) technology infrastructure; (b) technical support; (c) online course development and teaching; (d) instructor rewards and incentives; (e) administrative and academic support; (f) institutional policies and culture; and (g) program and legal support. Online instructor ($N = 275$) responses highlighted areas of support that are largely prevalent and areas where further support and awareness of such support is needed at higher education institutions. A 7-factor model explained 67% of the variance in these data. A discussion and limitations are provided.

Keywords: faculty support, online education, institutional support, online teaching, online instructor survey, online instructor support

Kumar, S., Ritzhaupt, A., Pedro, N. S. (2022). Development and validation of the Online Instructor Support Survey (OISS). *Online Learning*, 26(1), 221-244. DOI: 10.24059/olj.v26i1.2622

Online education has experienced tremendous growth in the last two decades, with over one-fifth of higher education institutions (HEI) in the 2019 CHLOE report (Garrett et al., 2019) reporting that more than 50% of their courses were offered online. The median growth rate of enrollment in fully online courses at participating institutions in the United States between spring 2017 and 2018 was 10% (Garrett et al., 2019). HEI around the world are expanding their online course offerings, and several temporarily transitioned to emergency remote teaching (Hodges et al., 2020) due to the COVID-19 pandemic. Sixty-nine percent of reporting institutions in the 2020 CHLOE report provided additional resources (e.g., technologies, faculty development) for the pivot to remote teaching during the pandemic (Garrett, Legon, Fredericksen et al., 2020), and 18% were planning to convert remote courses to fully online courses. The adoption of online education requires changes to processes and the provision of various types of support for the large numbers of faculty expected to teach online or transition to online teaching. Online instructors play a critical role in online course success, student engagement, and student learning (Kibaru, 2018), and need institutional support structures to ensure they can teach successfully in online environments that facilitate student learning.

The purpose of this research was to create a survey to explore online instructors' perceptions of support available to them at their institutions. Faculty support has been identified as a critical factor for successful online learning and as a key element of online learning quality (Daniel & Uvalic-Trumbic, 2013; Martin et al., 2017). The Online Learning Consortium identifies Faculty satisfaction as a pillar of online learning quality (<http://olc.org>). Much research also exists on the barriers faced by faculty who teach online, based on which researchers have identified several areas for faculty support and professional development (Berge et al., 2002; Kebritchi et al., 2017; Lloyd et al., 2012). Given the importance of faculty support for online teaching, it would be helpful to institutions, departments, and administrators to be able to use a survey to identify the various forms of support available to online instructors at their institutions, and those that might be needed for online education to succeed. As increasing numbers of HEIs around the world adopt online education or expand their online offerings, such an instrument can be useful to administrators, support centers, those that engage in faculty development, and faculty themselves to assess the types of support already in existence, and how online instructors can be supported better.

Review of Literature

The first phase of survey development involved a review of literature on faculty support for online teaching, as well as a review of quality frameworks and standards in online post-secondary education to identify institutional support that is recommended for quality online teaching in higher education (Pedro & Kumar, 2020). The literature reviewed was independently analyzed and discussed by two researchers to identify different forms of support for online instructors. This resulted in seven identified areas of support for online instructors in higher education: technology infrastructure; technical support; online course development and teaching; online instructor incentives and rewards; administrative and academic support; institutional culture and policies; and program and legal support.

Technology Infrastructure

Technology infrastructure has been documented as foundational for successful distance teaching and learning for over two decades (Berge et al., 2002). For online education to take place and succeed at higher education institutions, infrastructure has to be in place in the form of

hardware and servers, cloud storage, bandwidth, and software for several purposes. Institutional support includes the provision of technology infrastructure such as “learning management systems and their associated systems; library systems; cloud-based tools and services; mobile technologies, hardware (computers, telecommunications, and ancillary equipment) and networks, both internal and external” (Sankey et al., 2014, p. 20) that facilitate online education. Additionally, such systems must be aligned and function across an institution and its various campuses or units and embedded in a larger support framework. Moore and Fodrey (2018) assert that four critical components—systems, objectives, evaluation, and personnel—are needed for technology infrastructure in online education.

Furthermore, online instructors do not always have access to the hardware (e.g., cameras) and software (e.g., to create Screencasts) that they might need in order to create online materials and teach online (Martin et al., 2019). These resources must be provided, maintained, and managed by the institution. To facilitate faculty mobility and online teaching from on-campus and beyond, infrastructure in the form of mobile devices for faculty (e.g., laptops) as well as secure connections (e.g., VPN connections) must be provided (Kear et al., 2016). Technologies for synchronous communication and group collaboration, as well as discipline-specific technologies or software needed for specific types of research should also be provided and accessible to online learners/instructors in online programs (Kumar & Dawson, 2018).

Technical Support

Faculty often do not possess the technical knowledge or skills to use the technologies needed for online education (Weaver et al., 2008). Both online instructors and students need to be aware of the technology available at their institution and should receive technical support to successfully access and use such technologies. Technical support for students ensures that online instructors do not have to become technical experts and can focus on teaching (Espiritu & Budhrani, 2019; Pedro & Kumar, 2020). Technical support for hardware (e.g., mobile devices), software, and all technologies needed for online learning (e.g., the Learning Management System) should be available 24/7 to assist faculty and students who always teach and learn online at their own pace (Olcott, 2014; Online Learning Consortium, 2016; Sankey et al., 2014). Furthermore, such support should be provided in different formats, such as online, by telephone, and in the form of online materials or tutorials (Kear et al., 2016).

Technical support staff should not only constantly update the technologies and assist faculty, but also have access to professional development and opportunities to update their skills (Hartman et al., 2014). The integrity, privacy, and security of data and information that is exchanged and amassed during online education should also be maintained (Martin et al., 2017; Online Learning Consortium, 2016). More recently, faculty also need support to access and view the different types of data available to them within the systems and technologies being used, in order to effectively apply that data to improve online courses and to be able to reflect and improve their online teaching (Kumar et al., 2019; Pedro & Kumar, 2020).

Online Course Development and Teaching

HEI have reported faculty development and training to be a top priority, followed by the provision of instructional design support for online instructors (Garrett et al., 2019). The transition to online education necessitates a shift from teacher-centered to learner-centered paradigms that is difficult for instructors and that should be scaffolded and supported in various ways (Baran & Correia, 2014; Kibaru, 2018). Online instructors need instructional design support for online course development and continuous improvement that HEIs provide in various

ways at the institutional, college, or departmental level (Kumar & Ritzhaupt, 2017). Such support includes guidance during instructional design and online course development processes, such as the conceptualization and creation of new online courses, course materials, online activities, and assessments; revisions to existing online courses; and the creation and provision of resources, job aids, and checklists that can help online instructors (Kumar & Ritzhaupt, 2017; Lion & Stark, 2010; Pedro & Kumar, 2020). Additionally, instructional design support encompasses the development of course materials and media for online courses (e.g., graphic design, video production, screencast production), and guidance on the appropriate use of existing resources (e.g., Fair Use, Creative Commons) as needed by online instructors (Baran & Correia, 2014; Barker, 2002; Fetzner, 2003; Online Learning Consortium, 2017; Wang et al., 2009).

In addition to support for online course development and improvement, professional development and guidance in online teaching are needed by all instructors, and especially by those with little experience (Hunt et al., 2014). Centers of Teaching and Learning or Teaching and Learning Development Units at HEIs often provide such support (Herman, 2012). Professional development for online instructors addresses technologies used for teaching online; the facilitation of online activities and discussions; online course design, communication, and assessment; appropriate use of online resources; and policies and processes related to online teaching (Almpanis, 2013; Bailey & Card, 2009; CHE, 2014; Fetzner, 2003; Kibaru, 2018; Phipps & Merisotis, 2000; Vaill & Testori, 2012). Institutions provide faculty orientations to online teaching and mentoring opportunities for online instructors, and sometimes require mandatory training before online teaching (Lion & Stark, 2010; Vaill & Testori, 2012). In addition to on-campus and online workshops and hands-on training, self-paced training, communities of practice, peer mentoring, and other forms of peer support can also be helpful to online instructors (Baran & Correia, 2014; Rhode & Krishnamurthi, 2016; Wang et al., 2009). Furthermore, such professional development opportunities should be available in a flexible manner so that solely online or adjunct online faculty can also take advantage of them (CHE, 2014; Sankey et al., 2014; Sprute et al., 2019).

Online Instructor Incentives and Rewards

Online instructors who develop online courses and learn how to design, teach, and assess online courses invest a significant amount of time in doing so. In fact, the time investment in both online course development as well as online teaching has been recognized as more than the time spent on an on-campus course (Mandernach et al., 2013; Seaman, 2009). The lack of institutional recognition of this effort and the increased workload involved in this process were identified by Bolliger and Wasilik (2009) as significant barriers in online education. Along with providing professional development and support for course development or teaching, institutions must create supportive environments that enable faculty to participate in such learning opportunities, and reward faculty who engage in online education (Orr et al., 2009; Phipps & Merisotis, 2000).

Such incentives and rewards can take several forms. Institutions can recognize online teaching in several ways with awards, spotlights and recognition for online instructors, and financial support for professional development (Lion & Stark, 2010). This can also encompass compensation, stipends, time incentives, or course releases for online course development as well as online course improvement; technology rewards; rewards for online teaching excellence; funds for conference attendance; and the integration of online education activities in both evaluation and tenure and promotion processes (Herman, 2013; Kear et al., 2016; Kibaru, 2018; Marek, 2009; Mohr & Shelton, 2017; Wang et al., 2009). Finally, encouragement and

recognition of the scholarship of online teaching in the form of support for instructors to research and improve their online teaching should also be provided (Pedro & Kumar, 2020; Olcott, 2014).

Administrative and Academic Support

The availability of online student support for administrative and academic processes such as student admissions, registration, financial aid, program planning, or graduation can help online instructors focus on online teaching and advising (Barker, 2002; Online Learning Consortium, 2017; Wang et al., 2009). Qualified staff who are dedicated to online student support in such areas can be very helpful to online instructors (Olcott, 2014). Online instructors might not have knowledge of administrative and academic processes for online students, and it can be challenging for them to support students in these areas in addition to teaching online (Pedro & Kumar, 2020; Wang et al., 2009).

Online student support in accessing and using library resources to complete their academic requirements; academic writing support for all levels of online students; advising and counseling services that are available and accessible to online students; and support for online study skills contribute to students' academic success and support online instructors (Kear et al., 2016; Kumar & Dawson, 2018; Marek, 2009; Online Learning Consortium, 2016; Oomen-Early & Murphy, 2009). At the same time, online instructors need to be provided information about such resources, so that they might communicate these to students. In a study conducted during the transition to online teaching during the COVID-19 pandemic, Johnson et al. (2020) found that the majority of faculty and administrators named increased support for students as the main area in which they needed help. Online orientations for students, resources and guidance in navigating the online environment, and in self-regulation and time management should be provided by the institution to lessen the need for online instructors to address these areas in their online courses in addition to their discipline-specific content (Johnson et al., 2020; Pedro & Kumar, 2020).

Institutional Policies for Online Education

An institutional culture that promotes and supports online education, as well as nurtures faculty engagement in online education is important for online instructor satisfaction and success at an HEI (Baran & Correia, 2014; Hicks, 2014; Kibaru, 2018; Orr et al., 2009). Such a culture would entail the involvement of stakeholders at all levels in online education, collaborations between stakeholders supporting online education across the institution, and the adoption or revision of policies that support online teaching (Espiritu & Budhrani, 2019; Marek, 2009; Weaver et al., 2008). Online teaching can involve large class sizes, an increased workload, and changes in teaching strategies or approaches that necessitate revised policies that support online instructors and ensure online instructor satisfaction (Pedro & Kumar, 2020; Wingo et al., 2017). Such policies should encompass not only full-time online instructors, but also adjunct online instructors who often work under difficult conditions in higher education (Sprute et al., 2019). Institutions should also institute clear policies to address the ownership and intellectual property of online course content or online courses, especially when online instructors work with online program management companies on the development of online courses (Herman, 2013; Online Learning Consortium, 2016; Garrett et al., 2020).

Additionally, an institutional strategy, a strategic plan, and goals for the implementation of online education; leadership that supports the strategy, investment in the learning development of online instructors; transparency and communication of strategic plans and policies to online instructors; and coordination between different support services and structures for faculty are

needed (Hartman et al., 2014; Lion & Stark, 2010; Orr et al., 2009; Seaman, 2009). To ensure the quality of online education, HEIs should implement quality assurance processes such as online course quality guidelines and standards that online instructors can adopt when designing and continuously improving online offerings (Online Learning Consortium, 2016; Wang et al., 2009). Finally, the collection of data related to the effectiveness and evaluation of online education at an HEI can be helpful and should be made available to online instructors as they try to improve their online teaching or online courses (Olcott, 2014; Online Learning Consortium, 2016; Pedro & Kumar, 2020).

Program and Legal Support

Along with institution-wide policies and administrative and academic support for online students, support with the management of online programs is also an emerging area of support for online faculty. As the number of online programs increases, such programs are often led by full-time faculty who need support to deal with the processes essential for online program success and who might not have prior experience with running on-campus or online programs, managing and mentoring online courses or online instructors, hiring consultants or online adjunct instructors, or engaging in a review of overall program quality (Barker, 2002; Olcott, 2014; Pedro & Kumar, 2020; Sankey et al., 2014). The support and integration of teaching assistants and/or online tutors at the program level or in online courses is also an area where online faculty need assistance (Kear et al., 2016; Martin et al., 2019; Online Learning Consortium, 2016).

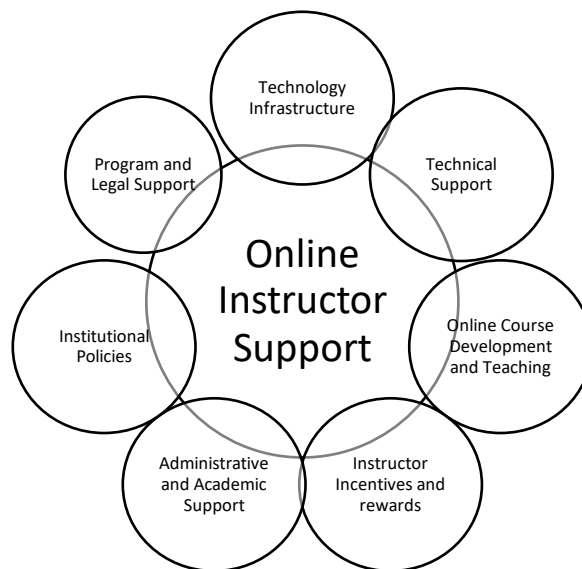
In addition to professional development in copyright or fair use of materials and open educational resources, and institutional policies related to the intellectual property of online course materials and courses, online instructors also need guidance and legal support in these areas (Online Learning Consortium, 2016; Pedro & Kumar, 2020; Phipps & Merisotis, 2000). Resources and staff to assist with issues concerning privacy and student data have to be provided by institutions (Martin et al., 2017). Intellectual property rights when designing and revising online courses serve as motivation for online instructors (Herman, 2013), but are also areas for concern and online instructor support given the various online education models and policies at HEIs, for example when partnerships with Online Program Management (OPM) companies exist (Garrett et al., 2020).

Conceptual Framework

The conceptual framework shown in Figure 1 formed the basis for survey development and is based on the seven areas identified in the literature: technology infrastructure; technical support; online course development and teaching; instructor rewards and incentives; administrative and academic support; institutional policies and culture; and program and legal support.

Figure 1

Conceptual framework for the development of the Online Instructor Support Survey



Research Questions

The purpose of this study was to develop, implement, and provide validity and reliability evidence of a survey to investigate the types of support available to online instructors at their institutions. The following research questions drove the study:

1. What are online instructors' perceptions of support available to them at their institutions?
2. What evidence of reliability and validity are available within this sample for the Online Instructor Support Survey?

Methodology

Survey Development

Based on the conceptual framework, a list of forms of support was created and organized according to the seven areas in the framework. It was analyzed independently by two researchers for similarities and redundancies across the seven areas. Following discussion, survey items were created in each of the seven areas from the list of types of support. Upon further discussion, the researchers decided to combine technology infrastructure and technical support into one section of the survey and integrate items pertaining to program and legal support into the administrative and academic support area. This resulted in a survey with five sections: (a) Technology and technical support; (b) Online Course Development and Teaching support; (c) Online Education Administrative and Academic Support; (d) Institutional Policies for Online Education; and (e) Online Instructor Recognition, Rewards, and Incentives. Each of the five sections began with the statement, "Please identify to what extent your institution provides:" followed by the list of items in the section. A 5-point Likert Scale ranging from "not at all" to "to a very great extent" (1 = Not at all, 2 = to a small extent, 3 = to some extent, 4 = to a great extent, 5 = to a very great extent) was used.

Demographic items such as online instructors’ experience with online teaching, gender, discipline, years of teaching at that institution, etc. were included. The survey then underwent an expert review by a panel of five reviewers. Two reviewers were experts in quantitative methods and survey development who have taught online, and three reviewers were online education researchers who have experience with online teaching. Both methodology experts recommended the addition of a “don’t know” option to the Likert-scale. Additionally, the experts recommended supplementing unclear items with examples, rephrasing some items, separating out a double-barreled item, moving two items to different sections, and adding a demographic question about instructor rank.

Data Collection

Following Institutional Review Board (IRB) approval, the Online Instructor Support Survey (OISS) was disseminated through professional organization listservs (Association for Educational Communications and Technology and Educause), resulting in 117 responses. Additionally, four leaders of Online Learning at two public universities in the U.S. sent out the survey and a follow-up reminder to about 1,500 online instructors, resulting in 238 responses. Although scheduled to be disseminated in March 2020, the survey was implemented during June and July 2020, during the COVID-19 crisis, which might have impacted the total number of survey responses.

Participants

A total of 355 participants opened the online survey and completed at least the informed consent page. As several of the participants did not complete the full survey, a decision was made to retain only participants that had responded to the full survey, which decreased the number of participants to $N = 275$ complete responses to the full survey. Since the intended purpose of this research was to validate the survey measure employed, incomplete responses would not provide sufficient information to the statistical models employed in this research.

Of the 275 participants, 60% ($n = 166$) were female, 36% ($n = 98$) male, 3.6% ($n = 10$) did not wish to respond, and 0.4% ($n = 1$) chose “other.” Eighty-eight percent ($n = 242$) worked at public institutions, 10% ($n = 28$) at private institutions, and 2% ($n = 4$) at for profit institutions. Ninety-five percent ($n = 261$) of these were at four-year institutions and 5% ($n = 13$) at two-year institutions. Sixty-nine percent ($n = 189$) of respondents were full-time instructors, 27% ($n = 74$) were adjunct or part-time instructors, and 4% ($n = 12$) were teaching assistants. Fifty percent of the participants had at least six years of online teaching experience (Table 2).

Table 1
Faculty Experience at Current Institution

Years at current institution	Frequency	Percent
	2	0.7
0–1 Year	17	6.2
2–3 Years	59	21.5
4–5 Years	35	12.7
6–10 Years	58	21.1
More than 10 years	104	37.8
Total	275	100.0

Table 2
Faculty Online Teaching Experience

Online Teaching Experience	Frequency	Percent
	1	0.4
0–1 Years	30	10.9
2–3 Years	56	20.4
4–5 Years	52	18.9
6–10 Years	67	24.4
More than 10 years	69	25.1
Total	275	100.0

Data Analysis

Data were subjected to a variety of analyses, including descriptive statistics analysis, internal consistency reliability analysis, exploratory factor analysis (EFA), and correlation analysis (i.e., Pearson r correlations among factors). EFA was conducted to explore the underlying structure of the data collected using the OISS and to provide meaningful labels to the factors. Descriptive statistics analysis was conducted to examine the patterns in this cross-sectional dataset, and to characterize the various factors on the OISS. Internal consistency reliability using Cronbach's alpha was used to provide reliability evidence for these data. Correlation analyses were employed to examine the internal structure of the measures. Underlying assumptions of the various statistical methods were evaluated. All quantitative analyses were conducted using SPSS version 25. An alpha level of .05 was used for all statistical tests.

Results

We first examined the data for the assumptions for conducting EFA. Bartlett's test of sphericity for these data had a Chi-square of 3,357.2 ($p < .001$), which suggested the intercorrelation matrix contained adequate common variance. The Kaiser-Meyer-Olkin measure of sampling adequacy was 0.95, which is above the 0.50 recommended limit (Kaiser, 1974). The participant-to-item ratio for the data was approximately ~6:1. While the participant-to-item ratio is below the 10:1 ratio suggested by Kerlinger (1974), the ratio is near thresholds described as more than adequate by some researchers in maintaining factor stability (Arrindell & Van der Ende, 1985; de Winter, Dodou, & Wieringa, 2009; Guadagnoli & Velicer, 1988). Thus, these data appeared to be well suited for EFA.

Exploratory Factor Analysis

The EFA model was executed using principal axis factoring and an oblique (promax) rotation, as the factors were anticipated to be related. The number of factors retained was based on the Kaiser criterion (Eigenvalue > 1) and inspection of the screen plots generated. Items were assigned to factors based on the greatest values in the pattern matrix. The EFA data from the initial model showed seven factors and data were extracted in eight iterations. The data did not exhibit a purely simple structure in the pattern matrix as there were some cross-loadings; however, all coefficients used to assign items to factors in the pattern matrix were at or above 0.275 with an average loading of 0.612. The factor model explained ~67% of the variance in these data with the seven-factor solution. The items did load into a meaningful factor structure to explain these data. Thus, the seven-factor solution was adopted for these data. Table 3 provides

the results from the EFA by factor label along with the number of items, eigenvalue and cumulative percent of variance explained, reliability coefficients, and mean and standard deviations by factor.

Table 3
Factors Extracted from the OISS and Relevant Statistics

Factor Names	Item # of Items	Eigenvalue	Cumulative %	Cronbach Alpha	M	SD
1. Online course development, teaching support, and professional development	14	18.29	43.55	0.96	3.59	1.03
2. Institutional policies and procedures for online education	9	2.68	49.94	0.92	3.13	1.09
3. Incentives and recognition for online course development and teaching	5	2.00	54.70	0.92	2.44	1.17
4. Support for teaching assistants, program leaders, and legal issues	5	1.77	58.92	0.90	2.91	1.15
5. Technical support services for online education	2	1.33	62.08	0.95	3.92	1.16
6. Technology infrastructure for online education	2	1.14	64.79	0.72	4.46	0.73
7. Academic and administrative support services for online education	5	1.12	67.46	0.87	3.65	1.00

Correlational Analysis

Table 4 provides the correlation matrix for the seven factors extracted from the EFA of the OISS. As can be gleaned, all of the correlations were positive and significant at a .01 level, which suggests the factors of the OISS appear to measure a unifying set of constructs.

Table 4
Correlation Matrix of the Seven Factors From the OISS.

Factors	1	2	3	4	5	6	7
1. Online course development, teaching support, and professional development	1						
2. Institutional policies and procedures for online education	.806**	1					
3. Incentives and recognition for online course development and teaching	.648**	.735**	1				
4. Support for teaching assistants, program leaders, and legal issues	.832**	.799**	.647**	1			
5. Technical support services for online education	.493**	.457**	.235**	.378**	1		
6. Technology infrastructure for online education	.500**	.450**	.309**	.276**	.391**	1	
7. Academic and administrative support services for online education	.810**	.798**	.629**	.804**	.569**	.481**	1

** Significant at a .01 level.

Descriptive Statistics

The descriptive statistics for the seven factors are presented in this section. Participants rated the provision of the different types of support at their institutions between “not at all” (1) and “to a very great extent” (5), but also had the option “Do not know” (0).

Online course development, Teaching support, and Professional development

The highest-rated items in this factor, with a mean rating over 4.0, were Item #7 “Online access to self-help technical support materials” (M = 4.20), Item #8 “Regular technical training activities targeted at instructors’ technical needs” (M = 4.13), and Item #9 “Instructional Design support for course development” (M = 4.07). All other items had a mean rating between 3.08 to 3.99, except for Item #21 “Assistance with the use and analysis of data for learning design or course planning” (M = 2.89). Twenty-one percent of participants chose the “do not know” option for this item, indicating that such assistance might have existed at their institutions, but they might have been unaware of it.

Table 5

Online Course Development, Teaching Support, and Professional Development.

Item	M	SD	1	2	3	4	5	0
(7) Online access to self-help technical support materials (e.g., tutorials, etc.)	4.20	0.97	1.45	4.00	17.09	26.18	49.09	2.18
(8) Regular technical training activities targeted at instructors' technical needs (e.g., workshops)	4.13	1.06	2.91	5.82	14.18	27.64	47.64	1.82
(9) Instructional Design support for course development	4.06	1.06	1.45	8.00	18.55	24.36	44.36	3.27
(10) Support for multimedia (e.g., videos, screencasts) and course material development	3.84	1.05	1.09	9.45	27.64	24.36	34.18	3.27
(11) Instructional Design for continuous improvement of courses	3.69	1.26	4.73	14.91	21.45	18.55	36.00	4.36
(12) An orientation to online teaching	3.77	1.25	5.82	11.64	17.09	24.00	36.00	5.45
(13) Support for online teaching/course delivery during a course offering	3.99	1.09	3.27	6.18	20.00	27.27	40.73	2.55
(14) Access to regular professional development/training/workshops on topics related to online teaching.	3.97	1.12	3.27	8.73	17.09	28.00	41.45	1.45
(15) Other professional development opportunities related to online teaching (e.g., faculty Mentoring projects, Seminars, Online communities of practice, Podcasts, etc.)	3.53	1.25	5.82	15.64	22.91	20.73	28.00	6.91
(16) Online access to self-help pedagogical materials for online teaching (e.g., templates, best-practices showcases, etc.)	3.70	1.16	4.00	12.73	21.09	28.73	29.45	4.00
(17) Mentoring for online instructors	3.08	1.38	14.91	17.45	17.82	19.27	17.45	13.09
(18) Professional development for adjunct online instructors	3.22	1.39	9.45	14.18	10.55	16.36	15.64	33.82
(21) Assistance with the use and analysis of data for learning design or course planning (e.g., Learning analytics)	2.89	1.44	17.45	19.27	12.36	15.27	14.91	20.73
34) Has certification processes in online education for online instructors	3.34	1.52	15.64	10.55	11.27	16.73	26.18	19.64

M = mean, SD = standard deviation, 1 = Not at all, 2 = To a small extent, 3 = To some extent, 4 = To a great extent, 5 = To a very great extent, 0 = Don't know.

Institutional policies and procedures for Online Education

The highest mean ratings for items within this factor were for Item #37 “Collects data about student satisfaction with online courses” (M = 3.89), Item #35 “Has quality assurance procedures and standards specific to online education” (M = 3.80), and Item #29 “Has an institutional strategy for online education” (3.64). This indicates that processes for continuous improvement of online courses and online teaching are implemented at the participants’ institutions, and that online education is part of the institutional goals. The lowest mean rating was for Item #33 “Has clear procedures for online course development and implementation” (M = 2.48), but 34.5% of participants also chose the “do not know” option for this item.

Table 6
Institutional Policies and Procedures for Online Education

Item	M	SD	1	2	3	4	5	0
(3) Discipline-specific online technologies for online Teaching and Learning	3.29	1.32	10.50	13.10	25.80	15.30	22.20	13.10
(29) Has an institutional strategy for online education	3.64	1.22	6.18	9.45	22.18	22.91	28.00	11.27
(30) Clearly defines the roles and responsibilities of online instructors (ex. time for response to online students)	3.22	1.38	12.73	17.82	21.45	17.45	23.27	7.27
(31) Identifies an online instructor-student ratio that recognizes online education as time-intensive and avoids excessive workload for faculty.	2.72	1.42	24.36	16.00	19.27	13.82	13.45	13.09
(32) Has clear procedures for recruiting, hiring, and maintaining online instructors	2.48	1.39	21.82	15.64	10.91	9.09	8.00	34.55
(33) Has clear procedures for online course development and implementation	3.27	1.38	12.73	16.36	17.82	20.73	22.91	9.45
(35) Has quality assurance processes and standards specific to online education (e.g., Quality Matters)	3.80	1.36	8.73	8.36	12.00	18.91	37.82	14.18
(36) Collects data about faculty satisfaction with online courses	2.80	1.50	23.64	13.82	13.09	14.91	14.91	19.64
(37) Collects data about student satisfaction with online courses	3.89	1.22	4.00	10.18	14.55	20.73	37.09	13.45

M = mean, SD = standard deviation, 1 = Not at all, 2 = To a small extent, 3 = To some extent, 4 = To a great extent, 5 = To a very great extent, 0 = Don’t know.

Incentives and Recognition for online course development and teaching

All items in this section had a mean rating between 2 and 3. Item #38 “Incentives for online course development” (M = 2.84) was rated the highest and the lowest mean rating was Item #40 “Incentives for attending training and other professional development initiatives related to online education” (M = 2.33). Twenty-three percent of participants and 18% of participants responded

they “do not know” if “Support for scholarship of teaching and learning related to online education” and “Recognition for instructor engagement and/or excellence in online education,” respectively, was provided at their institutions.

Table 7

Incentives and Recognition for Online Course Development and Teaching

Item	M	SD	1	2	3	4	5	0
(38) Incentives (e.g., time, compensation) for online course development	2.84	1.36	20.00	18.18	25.09	13.45	14.91	8.36
(39) Incentives (e.g., time, compensation) for online course improvement	2.39	1.45	36.00	14.55	17.45	7.27	12.73	12.00
(40) Incentives (e.g., time, financial support) for attending training and other professional development initiatives related to online education.	2.33	1.34	31.27	22.18	14.91	8.36	9.45	13.82
(41) Recognition for instructor engagement and/or excellence in online education (e.g., awards, value in promotion or tenure processes)	2.56	1.35	23.27	21.82	14.55	13.09	9.45	17.82
(42) Support for scholarship of teaching and learning related to online education	2.55	1.32	21.45	20.73	14.18	13.45	7.64	22.55

M = mean, SD = standard deviation, 1 = Not at all, 2 = To a small extent, 3 = To some extent, 4 = To a great extent, 5 = To a very great extent, 0 = Don't know.

Support for Teaching assistants, Program leaders, and Legal issues

Items within this factor had mean ratings ranging between M = 2.6 for Item #27 “Access to legal staff support and to legal matters related to online teaching and learning” and M = 3.29 for Item #20 “Professional development related to online education for leaders of online programs.” The percentage of respondents who chose “Do not know” for the items within this factor was high: 47% for Item #26 “Dedicated staff for online student assistance with financial support”; 42% for Item #27 “Access to legal staff support as well as to legal matters related to online teaching” and learning; 41% for Item #19 “Professional development for teaching assistants or tutors.” These are areas that many faculty members might not need to engage with unless they are advising students, have intellectual property or copyright questions, or are supervising teaching assistants or tutors.

Table 8

Support for Teaching Assistants, Program Leaders, and Legal Issues

Item	M	SD	1	2	3	4	5	0
(19) Professional development for teaching assistants or tutors	3.03	1.39	10.91	12.36	10.55	14.18	10.91	41.09
(20) Professional development related to online education for leaders of online programs	3.29	1.40	8.36	14.18	9.82	15.27	17.09	35.27
(25) Teaching assistants for online courses	2.68	1.40	24.36	15.27	21.09	12.00	12.36	14.91
(26) Dedicated staff for online student assistance with financial support	2.94	1.38	10.91	10.55	12.00	10.91	9.09	46.55
(27) Access to legal staff support as well as to legal matters related to online teaching and learning (e.g., Intellectual properties issues, data protection, etc.)	2.60	1.34	16.36	12.73	13.09	9.82	6.18	41.82

M = mean, SD = standard deviation, 1 = Not at all, 2 = To a small extent, 3 = To some extent, 4 = To a great extent, 5 = To a very great extent, 0 = Don't know.

Technical support services for Online Education

Both items in this factor, which pertained to technical support services for online instructors and online students had a mean rating of 3.92.

Table 9

Technical Support Services for Online Education

Item	M	SD	1	2	3	4	5	0
(4) Technical support services for online instructors (24-hour helpdesk)	3.92	1.17	5.45	5.45	18.91	25.82	38.91	5.45
(5) Technical support services for online students (24-hour helpdesk)	3.92	1.19	4.73	7.64	14.55	23.64	37.09	12.36

M = mean, SD = standard deviation, 1 = Not at all, 2 = To a small extent, 3 = To some extent, 4 = To a great extent, 5 = To a very great extent, 0 = Don't know.

Technology infrastructure for Online Education

Both the items in this factor had high mean ratings above 4, with Item #1 “Technical infrastructure for online courses” having the highest mean rating (M = 4.60) for any item on the OISS.

Table 10

Technology Infrastructure for Online Education

Item	M	SD	1	2	3	4	5	0
(1) Technical infrastructure for online courses (e.g., Learning Management system or Virtual Learning Environment)	4.60	0.77	1.09	2.18	4.73	19.64	72.00	0.36
(2) Technology for synchronous communication between instructors and students	4.31	0.90	1.09	2.55	14.91	26.18	53.45	1.82

M = mean, SD = standard deviation, 1 = Not at all, 2 = To a small extent, 3 = To some extent, 4 = To a great extent, 5 = To a very great extent, 0 = Don't know.

Academic and Administrative support services for Online Education

All items in this factor had mean ratings above 3.5. Item #6 “Well-qualified technical support staff” (M = 4.27) had the highest mean rating, followed by Item # 22 “Dedicated administrative staff to support online programs” (M = 3.72).

Table 11

Academic and Administrative Support Services for Online Education

Item	M	SD	1	2	3	4	5	0
(6) Well-qualified technical support staff	4.27	0.94	1.82	3.64	12.36	29.45	52.36	0.36
(22) Dedicated administrative staff to support online programs	3.72	1.27	6.55	11.27	17.09	22.91	33.82	8.36
(23) Dedicated library staff to support online programs	3.52	1.32	7.64	11.27	16.36	19.27	24.00	21.45
(24) Dedicated staff for student course enrollment	3.67	1.32	7.27	8.36	11.27	21.45	25.45	26.18
(28) Other student-related services for online education (e.g., Writing centers, Counselling, Professional Integration, Internships/Scholarships, etc.)	3.49	1.19	5.09	12.00	22.55	21.82	20.36	18.18

M = mean, SD = standard deviation, 1 = Not at all, 2 = To a small extent, 3 = To some extent, 4 = To a great extent, 5 = To a very great extent, 0 = Don't know.

Limitations

There were several limitations to this study. First, the sample size is relatively small, and participants were mainly from four-year institutions (95%), although the survey was disseminated both through professional organizations and at two four-year institutions. Additionally, 88% of participants were at public institutions and 69% of them were full-time faculty members. It is therefore not possible to generalize the results to all types of institutions and all types of online instructors. Second, all data were self-reported and the actual presence of different types of support for online instructors was not verified. Third, the different types of support listed were drawn from the literature review and might not be an exhaustive list of the

types of support available at higher education institutions. Although an open-ended question was included asking participants about any other types of support that might not have been listed in the survey, they did not provide additional factors. The few open-ended responses only provided additional information about the existing items.

Discussion

The conceptual framework created from the literature review that formed the basis of this study consisted of seven areas of online instructor support. Of these, two areas (Technology Infrastructure and Technical Support) were combined, and one area (Program and Legal Issues) integrated into Administrative and Academic support, to form the five sections in the OISS survey. The EFA, however, revealed seven factors (Table 12). It is important to acknowledge that the various areas of online instructor support identified in this survey are combinedly needed for online instructor success.

Table 12
Conceptual Framework and Factors

Areas in Conceptual Framework		Factors following EFA
1	Technology infrastructure	Technology infrastructure for online education
2	Technical support	Technical support services for online education
3	Online course development and teaching	Online course development, teaching support, and professional development
4	Instructor rewards and incentives	Incentives and recognition for online course development and teaching
5	Administrative and academic support	Academic and administrative support services for online education
6	Institutional policies and culture	Institutional policies and procedures for online education
7	Program and legal support	Support for teaching assistants, program leaders, and legal issues

Online education has been adopted at varying levels across higher education institutions over the last two decades. Researchers have studied barriers to online education implementation since the early 2000s (Maguire, 2005; Muilenburg & Berge, 2001) to identify the different types of resources and support needed for successful online education. Online instructors' experiences, skills, challenges, self-efficacy, and views of online education (e.g., perceptions of effectiveness) influence their satisfaction with online teaching and their need for support (Wingo et al., 2017). The level and types of support available to online instructors at an institution can vary based on how long an institution has been engaged in online education. According to Berge, Muilenburg, and Haneghan (2002), "organizational maturity" (p. 1) with distance or online education leads to institutions largely overcoming barriers of technology, administrative and organizational issues, student access, and student support. Following the dynamic increase and expansion of online education offerings across higher education institutions in the U.S. (Garrett et al., 2019; 2020), the results of our study reinforce these assertions. Over 58% of the faculty participants in our study had worked at their institutions for six years or more, and approximately 50% of them had at least six years of online teaching experience, with another 38% having taught online for at least two years. The results revealed a culture of support for online teaching (Espiritu & Budhrani, 2019; Marek, 2009), with higher support in the areas of technology infrastructure,

technical support, online course development and teaching support, institutional policies and procedures, academic and administrative support, and less support in the area of incentives and recognition for online course development and teaching, and support for teaching assistants, program leaders, and copyright issues. The results also uncovered a lack of online instructor awareness of whether support is available in several areas, indicating a need for increased communication and information about support for online education at higher education institutions.

Participants rated the availability of technology infrastructure and technical support at their institutions as the most prevalent of all types of support, demonstrating awareness of the technologies available to them (Hartman et al., 2014), and alluding to the presence of technical infrastructure and support that are essential to successful online education (Martin et al., 2019; Sankey et al., 2014). However, 12% of the participants chose “do not know” for the item pertaining to technical support for online students. This indicates that institutions must make all online instructors, whether adjunct or full-time instructors, aware of technical support available to students, and provide them with such information. This can help online instructors communicate such information to students when they need technical support and can reduce any challenges that they might face trying to support their students with technology.

Corresponding to the CHLOE 3 report (Garrett et al., 2019), where faculty development and instructional design support for course development have been cited as a top priority of higher education institutions, participants in this study rated support for online course development, teaching support, and professional development quite high. This indicates that institutions at which the participants worked provided instructional design support, technical training, online access to self-help materials, support for course material development, and other forms of support necessary for online instruction (Herman, 2012; Lion & Stark, 2010; Pedro & Kumar, 2020). Faculty development and learning opportunities at higher education institutions typically take the form of instructional design guidance and training programs or workshops, with fewer opportunities for formal mentoring (Herman, 2012). This was reflected in our study where mentoring for online instruction was rated lowest in the types of learning opportunities for online instructors.

Assistance with data use for learning design or course planning was the lowest rated item, indicating that much has to be done in the area of communications and professional development about learning analytics and the availability and use of data for faculty (Kumar et al., 2019; Pedro & Kumar, 2020). Furthermore, 21% of respondents chose the “do not know” option for this item, indicating that they were unaware about such opportunities at their institutions. Likewise, 33% of respondents chose the “do not know” option when asked about professional development for adjunct online instructors. Given that 69% of the respondents were full-time faculty, it is highly likely that they were unaware of professional development opportunities for adjunct online instructors.

Although participants indicated support for online course development, teaching support, and professional development, all items pertaining to incentives and recognition for online course development and teaching had an average rating below 2.84. Despite the acknowledged increased workload and time taken for online course development and teaching (Bolliger & Wasilik, 2009; Mandernach et al., 2013; Seaman, 2009), and the need for compensation, incentives, and rewards to motivate faculty to engage in online education (Herman, 2013; Kibaru, 2018; Mohr & Shelton, 2017) this study reveals that institutions have yet to implement adequate support for online instructions in these areas, even if they have been engaged in online

education for several years. Compensation and incentives are not only needed for online course development, but for continuous improvement of online courses. A lack of incentives can affect faculty motivation and satisfaction, which is crucial to the success of online education (Bolliger & Wasilik, 2009; Orr et al., 2009). In addition to student satisfaction, which is almost always considered by institutions engaging in online education, faculty satisfaction should also be assessed regularly and addressed.

Academic and administrative support for online programs and online education, which can be of great help to online instructors and influence online student success (Kear et al., 2016; Wang et al., 2009) were perceived by participants to be largely prevalent at their institutions. Twenty-one percent and 26% of participants chose “do not know” for the items pertaining to the availability of dedicated library staff and dedicated student support staff to support online, both areas essential to quality in online education (Olcott, 2014; Oomen-Early & Murphy, 2009). While these could correspond to the 27% of participants who were adjunct or part-time instructors, these ratings point to the need for increased awareness of the availability of these types of support.

Participant responses to items about institutional policies and procedures for online education indicate that online education is included in institutional goals and that processes for continuous improvement of online courses and online teaching are implemented at the participants’ institutions (Hartman et al., 2014; Lion & Stark, 2010; Pedro & Kumar, 2020). The item about the identification of an online instructor-student ratio that recognizes online education as time-intensive and avoids excessive workload for faculty had a low mean rating ($M = 2.72$). As mentioned earlier, faculty time and effort are different when teaching in the online environment (Bolliger & Wasilik, 2009), and this needs to be acknowledged in policies and incentives related to online education, also because it impacts faculty satisfaction. Participants’ ratings about the collection of data about faculty satisfaction with online courses was also low, indicating that faculty satisfaction with online courses does not receive as much attention as online student satisfaction at HEIs, although faculty satisfaction is important to student learning (<http://www.olc.org>).

The area of support that emerged as a separate factor in this survey was support for teaching assistants, program leaders, and legal issues, which have been identified as important in the literature (Martin et al., 2019; Mohr & Shelton, 2017; OLC, 2017; Pedro & Kumar, 2020), but are often lacking at higher education institutions. These are also areas with which many faculty members might not need to engage unless they are advising students, supervising teaching assistants or tutors, leading an online program, or experiencing intellectual property or copyright questions. Nevertheless, participant responses revealed a glaring lack of awareness about access to legal staff support as well as to legal matters related to online teaching (42% chose “do not know”), and professional development for teaching assistants or tutors (41% chose “do not know”). Given the increasing number of adjunct faculty and part-time instructors engaged in online education (Sprute et al., 2019), these results emphasize the need for professional development for these stakeholders, but also the need for information and awareness about such opportunities.

Conclusion

The purpose of this study was to create and implement a survey to explore online instructors’ perceptions of support available to them at their institutions. The OISS survey will be useful to administrators, leaders, instructional designers, and distance learning centers who

can assess the types and extent of support available to online instructors at their institutions, identify gaps that might exist, and ensure that opportunities and resources exist in areas of missing or inadequate online instructor support. Given the key role that online instructors and online instructor satisfaction play in the success of online education (Bolliger & Wasilik, 2009; <http://olc.org>), such a survey can be very beneficial.

Given recent events such as COVID-19 that have led to new forms of online teaching such as emergency remote instruction, completely synchronous instruction and HyFlex instruction, and the continuous evolution of online education using emerging technologies (e.g., virtual reality), additional forms of support might be needed by online instructors. Future research can expand or adapt the OISS survey for different forms of online instruction, or other geographies, and consider surveying administrators with the same items to determine if these types of support exist at their institutions.

Declarations

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

The authors received approval from the ethics review board of the University of Florida, USA, for this study.

The authors received no financial support for the research, authorship, and/or publication of this article.

References

- Almpanis, T. (2015). Staff development and institutional support for Technology Enhanced Learning in UK universities. *The Electronic Journal of e-Learning*, 13(4), 366–375.
- Arrindell, W. A., & Van der Ende, J. (1985). Cross-sample invariance of the structure of self-reported distress and difficulty in assertiveness. *Advances in Behavior Research and Therapy*, 7, 205–243.
- Bailey, C. J., & Card, K. A. (2009). Effective pedagogical practices for online teaching: Perception of experienced instructors. *The Internet and Higher Education*, 12(3), 152–155.
- Baran, E., & Correia, A. P. (2014). A professional development framework for online teaching. *TechTrends*, 58(4), 95–101.
- Barker, K. (2002). Canadian Recommended E-Learning Guidelines (CanREGs). https://www.futured.com/pdf/CanREGs_Eng.pdf
- Berge, Z. L., Muilenburg, L. Y., & Haneghan, J. V. (2002). Barriers to distance education and training: Survey results. *The Quarterly Review of Distance Education*, 3(4), 409–418.
- Bolliger, D. U., & Wasilik, O. (2009). Factors influencing faculty satisfaction with online teaching and learning in higher education. *Distance Education*, 30(1), 103–116.
- Council on Higher Education (CHE). (2014). Distance higher education programmes in a digital era: Good practice guide. <http://hdl.voced.edu.au/10707/342233>
- Daniel, J., & Uvalic-Trumbic, S. (Eds.) (2013). *A guide to quality in online learning*. <https://www.academicpartnerships.com/Resource/documents/A-Guide-to-Quality-in-Online-Learning.pdf>
- de Winter, J. C. F., Dodou, D., & Wieringa, P. A. (2009). Exploratory factor analysis with small sample sizes. *Multivariate Behavioral Research*, 44(2), 147–181.
- Espiritu, J. L., & Budhrani, K. (2019). Cultivating an e-learning culture. *Scientia Pedagogica Experimentalis*, 56(1), 3–32.
- Fetzner, M. J. (2003). Institutional support for online faculty: Expanding the model. *Elements of quality online education: Practice and Direction*, 4, 229–241.
- Garrett, R., Legon, R., & Fredericksen, E. E. (2019). *CHLOE 3 behind the numbers: The changing landscape of online education 2019*. <http://qualitymatters.org/qa-resources/resource-center/articles-resources/CHLOE-3-report-2019>
- Garrett, R., Legon, R., & Fredericksen, E. E. (2020). *CHLOE 4: Navigating the mainstream, the changing landscape of online education*. qualitymatters.org/qa-resources/resource-center/articles-resources/CHLOE-project
- Garrett, R., Legon, R., Fredericksen, E. E., & Simunich, B. (2020). *CHLOE 5: The pivot to remote teaching in spring 2020 and its impact*. The Changing Landscape of Online Education. qualitymatters.org/qa-resources/resource-center/articles-resources/CHLOE-project
- Guadagnoli, E., & Velicer, W. F. (1988). Relation of sample size to the stability of component patterns. *Psychological Bulletin*, 103, 265–275.
- Hartman, A., Barnet, B., Pfeifer-Luckett, R. Mann, P., & Wong, L. (2014). *Faculty and staff survey on online teaching, learning, and support report*. <https://www.wisconsin.edu/systemwide-it/projects/fac-survey/Item#fs20141>
- Herman, J. H. (2012). Faculty development programs: The frequency and variety of professional development programs available to online instructors. *Journal of Asynchronous Learning Networks*, 16(5), 87–106.

- Herman, J. H. (2013). Faculty incentives for online course design, delivery, and professional development. *Innovative Higher Education*, 38(5), 397–410.
- Hicks, M. (2014). Professional development and faculty support. In O. Zawacki-Richter & T. Anderson (Eds.), *Online Distance Education: Towards a Research Agenda* (pp. 267–286). Athabasca University Press.
- Hodges, C., Moore, S., Lockee, B., Trust, T., & Bond, A. (2020). The difference between emergency remote teaching and online learning. *Educause Review*, 27. <https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning>
- Hunt, H. D., Davies, K., Richardson, D., Hammock, G., Akins, M., & Russ, L. (2014). It is (more) about the students: Faculty motivations and concerns regarding teaching online. *Online Journal of Distance Learning Administration*, 17(2), 62–71.
- Johnson, N., Veletsianos, G., & Seaman, J. (2020). U.S. faculty and administrators' experiences and approaches in the early weeks of the COVID-19 pandemic. *Online Learning*, 24(2), 6–21.
- Kaiser, H.F. (1974). An index of factorial simplicity. *Psychometrika*, 39, 31–36.
- Kear, K., Rosewell, J., Williams, K., Ossiannilsson, E., Rodrigo, C., Sánchez-Elvira Paniagua, Á., Santamaría Lancho, M., Vyt, A., & Mellar, H. (2016). *Quality assessment for e-learning: a benchmarking approach*. <https://oro.open.ac.uk/34632/>
- Kebritchi, M., Lipschuetz, A., & Santiago, L. (2017). Issues and challenges for teaching successful online courses in higher education: A literature review. *Journal of Educational Technology Systems*, 46(1), 4–29.
- Kibaru, F. (2018). Supporting faculty to face challenges in design and delivery of quality courses in virtual learning environments. *Turkish Online Journal of Distance Education*, 19(4), 176–197.
- Kumar, S., & Dawson, K. (2018). *An online doctorate for researching professionals: Program design, implementation and evaluation*. Athabasca University Press. <http://www.aupress.ca/index.php/books/120272>
- Kumar, S., Martin, F., Budhrani, K., & Ritzhaupt, A. (2019). Award-winning faculty online teaching practices: Elements of award-winning courses. *Online Learning Journal*, 23(4), 160-180. <https://olj.onlinelearningconsortium.org/index.php/olj/article/view/2077>
- Kumar, S. & Ritzhaupt, A. R. (2017). What do instructional designers in higher education really do? *International Journal on E-learning*, 16(4), 371-393.
- Lion, R. W., & Stark, G. (2010). A glance at institutional support for faculty teaching in an online learning environment. *Educause Quarterly*, 33(3), 23–39.
- Lloyd, S. A., Byrne, M. M., & McCoy, T. S. (2012). Faculty-perceived barriers of online education. *MERLOT Journal of Online Learning and Teaching*, 8(1), 1–12.
- Maguire, L. L. (2005). Literature review—faculty participation in online distance education: Barriers and motivators. *Online Journal of Distance Learning Administration*, 8(1), 1–16.
- Mandernach, B. J., Hudson, S., & Wise, S. (2013). Where has the time gone? Faculty activities and time commitments in the online classroom. *Journal of Educators Online*, 10(2), 1–15.
- Marek, K. (2009). Learning to teach online: Creating a culture of support for faculty. *Journal of Education for Library and Information Science*, 275–292.
- Martin, F., Polly, D., Jokiahho, A., & May, B. (2017). Global standards for enhancing quality in online learning. *The Quarterly Review of Distance Education*, 18(2), 1–10.

- Martin, F., Wang, C., Budhrani, K., Moore, R. L., & Jokiahio, A. (2019). Professional development support for the online instructor: Perspectives of U.S. and German instructors. *Online Journal of Distance Learning Administration*, 22(3).
- Mohr, S. C., & Shelton, K. (2017). Best practices framework for online faculty professional development: A Delphi study. *Online Learning Journal*, 21(4).
- Moore, R. L., & Fodrey, B. P. (2018). Distance education and technology infrastructure: Strategies and opportunities. In A. Pina, V. Lowell, & B. Harris (Eds.), *Leading and Managing e-Learning* (pp. 87–100).
- Muilenburg, L., & Berge, Z. L. (2001). Barriers to distance education: A factor-analytic study. *American Journal of Distance Education*, 15(2), 7–22
- Pedro, N. S. & Kumar, S. (2020). Institutional support for online teaching in quality assurance frameworks. *Online Learning Journal*, 24(3), 50-66. <https://doi.org/10.24059/olj.v24i3.2309>
- Phipps, R., & Merisotis, J. (2000). *Quality on the line: Benchmarks for success in internet-based distance education*. The Institute of Higher Education Policy. <https://eric.ed.gov/?id=ed444407>
- Online Learning Consortium. (2016). *Quality scorecard for the administration of online programs*. <https://onlinelearningconsortium.org/consult/olc-quality-scorecard-suite/>
- Oomen-Early, J., & Murphy, L. (2009). Self-actualization and e-learning: A qualitative investigation of university faculty's perceived barriers to effective online instruction. *International Journal on E-Learning*, 8(2), 223–240.
- Olcott, D. (2014). *AVU quality assurance framework for open, distance and eLearning programmes*. http://www.avu.org/avuweb/wp-content/uploads/2016/05/QA_FRAMEWORK.pdf
- Orr, R., Williams, M. R., & Pennington, K. (2009). Institutional efforts to support faculty in online teaching. *Innovative Higher Education*, 34(4), 257–268.
- Rhode, J., & Krishnamurthi, M. (2016). Preparing faculty to teach online: Recommendations for developing self-paced training. *International Journal of Information and Education Technology*, 6(5), 376.
- Sankey, M., Carter, H., Marshall, S., Obexer, R., Russell, C., & Lawson, R. (2014). *ACODE benchmarks for technology enhanced learning*. Australasian Council on Open, Distance and eLearning (ACODE), Canberra, Australia. <http://www.acode.edu.au/mod/resource/view.php?id=216>
- Seaman, J. (2009). *Online learning as a strategic asset. Volume II: The paradox of faculty voices-views and experiences with online learning*. Association of Public and Land-Grant Universities. Babson Survey Research Group.
- Shelton, K. (2011). A review of paradigms for evaluating the quality of online education programs. *Online Journal of Distance Learning Administration*, 14(1). <https://www.westga.edu/~distance/ojdl/spring141/shelton141.html>
- Sprute, K., McCabe, C., Basko, L., Danuser, P., & Mandernach, J. (2019). Virtual professional communities: Integrative faculty support to foster effective teaching. *Journal of Instructional Research*, 8(2), 34–43.
- Vaill, A. L., & Testori, P. A. (2012). Orientation, mentoring and ongoing support: A three-tiered approach to online faculty development. *Journal of Asynchronous Learning Networks*, 16(2), 111–119.
- Wang, H., Gould, L. V., & King, D. (2009). Positioning faculty support as a strategy in assuring quality online education. *Innovate: Journal of Online Education*, 5(6).

- Weaver, D., Robbie, D., & Borland, R. (2008). The practitioner's model: Designing a professional development program for online teaching. *International Journal on E-Learning*, 7(4), 759–774.
- Wingo, N. P., Ivankova, N. V., & Moss, J. A. (2017). Faculty perceptions about teaching online: Exploring the literature using the technology acceptance model as an organizing framework. *Online Learning*, 21(1), 15–35.