Teaching Online: Where Do Faculty Spend Their Time?

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Abstract

An understanding of online teaching time requirements provides essential information to inform scheduling, course size and instructor workload; in addition, awareness of the distribution of time across online teaching tasks provides insight to focus faculty efforts and tailor professional development to target instructional needs. The purpose of the current study is to examine the investment and distribution of instructional time as a function of instructor experience, class size and course duration. Findings reveal instructors spend 12.69 hours per week per online course (with an average class size of 22 students); teaching time is distributed across a range of instructional activities with approximately 40% spent on grading and feedback, 30% on discussion facilitation, 10% on asynchronous, one-to-one communication, 10% on synchronous communication, and 10% on content development. While there was a trend for novice instructors to require more time than more experienced faculty, there was not a relationship between instructional time and number of students in the course. Recognizing the ubiquitous nature of the online classroom lacks inherent benchmarks to guide start or stop times, results are discussed in relation to mental anchors that may influence faculty time investment in online teaching.

Teaching Online: Where Do Faculty Spend Their Time?

As the number of faculty teaching online continues to grow (Allen & Seaman, 2011), it is imperative to understand the time investment required to effectively facilitate this mode of learning. Not only does an awareness of instructional time requirements provide essential information to the university to inform scheduling, course size and instructor workload considerations, but recognizing how online faculty spend their time provides valuable data to help novice faculty plan their instructional time and allows faculty support programming to more effectively tailor services with respect to actual (not theoretical) instructional needs.

While a number of studies have compared the time commitment required for online versus face-to-face teaching (Cavanhaugh, 2005; Christianson, 2002; Mandernach, Forrest, Babuzke & Manaker, 2009; Mupinga & Maughan, 2008; Orellana, 2006; Rockwell, Schauer, Fritz & Marx, 1999; Sheridan, 2006; Sword, 2012; Tomei, 2004; Van de Vord & Pogue, 2012), there is less information available on what online instructors do with their instructional time. Specifically, to gain a better understanding of the time investment required for online teaching, it is important to understand the distribution of time across the various activities involved in effective online instruction.

Online education can be defined as instruction using the Internet and computers (Allen & Seaman, 2008). This instructional delivery method has changed the way higher education is accessible to

those who were unable to attend due to time and/or distance constraints (Kentnor, 2015). In the online modality, instruction is provided through written lectures, videos, and other multimedia vehicles. This modality has benefits for learners such as the access to materials at any time or location (Ally, 2004). The author stated that both asynchronous and synchronous online delivery methods have benefits for students. Asynchronous online learning takes away the time and distance constraints and synchronous online learning provides real time interactions between students and instructor (Ally, 2004). There are also benefits for the instructor of the online courses such as time and location constraints and the ability to update materials in real time (Ally, 2004). Because of the popularity and growth of online learning, it is imperative for instructors to implement effective and efficient teaching strategies.

Within this framework, Mandernach, Hudson and Wise (2013) asked faculty teaching online to reflect upon their time investment in each aspect of online course facilitation. In this research, faculty were asked to make holistic reflections on their time investment into various aspects of online teaching. In this study, time estimates were not directly tied to a specific course, context or teaching experience, rather faculty responses to the survey were a holistic reflection on where faculty believe they are most likely to spend their time. While this information provides a starting point to understand instructional workload in the online classroom, reflective assessments of time investment may be misaligned with actual behavioral data (Jacobs, 1998). The purpose of the current study is to more accurately gauge behavioral investment of online instructional time by having faculty monitor and report their actual teaching time as they are actively facilitating an online course.

Methods

Participants

Participants include twenty-three fulltime online instructors (8 male, 15 female) who volunteered to participate in this study by monitoring and recording the time investment and frequency of instructional activities for one week of one of their courses. All instructors in the study teach online fulltime at a designated teaching center (fulltime online faculty work an 11:00 am to 7:00 pm, Monday-Thursday, and 8:00 am to 5:00 pm, Friday schedule) and facilitate approximately four online courses at a time (80-100 total students). Within this institutional context, the sole obligation of fulltime online faculty is to teach online courses. Unlike traditional campus-based faculty, fulltime online faculty focus exclusively on online course facilitation and have no required research or service components tied to their faculty role.

Instructors represented a range of experience (ranging from 1 month to 54 months of experience teaching online at the current institution) with mean experience teaching online at this institution of approximately 2.45 years (29.44 months). Recognizing the disparity in experience, instructors were classified as novice (less than 12 months), intermediate (13-24 months) or advanced (25+ months) according to the length of time that they have been teaching online at this institution. Table 1 provides a breakdown of the frequency of instructors by experience.

Table 1: Frequency of Instructors by Experience

Instructor Experience	**Frequency**	**Mean Months Experience**	**Standard Deviation of Mean Months Experience**
Novice	2	4.00	4.24
Intermediate	10	20.90	2.23
Advanced	11	41.82	8.88

Instructors in this study focused primarily on undergraduate, introductory (100- or 200-level) courses (n=20) with a minority focusing on upper-division courses (n=1) or graduate courses (n=2). As indicated in Table 2, courses represent a range of disciplines and content areas.

Table 2: Online Course Targets for Instructional Time Logs

Level	Categorization	Topic	Course	Level	Frequency	Course Duration
Undergraduate	General Studies	University Success	UNV104	100	4	7 weeks
		University Success	UNV303	300	1	8 weeks
	Humanities	English Composition	ENG105	100	4	7 weeks
		Christian Worldview	CWV101	100	1	7 weeks
		21st Century Skills: Critical Thinking and Problem Solving	PHI105	100	4	7 weeks
	Natural Sciences & Technology	Environmental Science	BIO220	200	1	7 weeks
	Social Sciences	U.S. History Themes	HIS144	100	1	7 weeks
		Psychology in Everyday Life	PSY100	100	1	7 weeks
	Education	Educating the Exceptional Learner	SPE226	200	4	7 weeks
Graduate	Education	Advanced Methodologies of SEI	ESL533	500	2	8 weeks

The number of students in each course was relatively similar (ranging from 14 to 29 students per class) with a mean class size of 22.57 (SD = 4.077); this did not vary substantially regardless of whether the class was undergraduate (M = 21.81; SD = 4.082) or graduate (M = 20.00; SD = 4.24).

All courses at this institution utilize a faculty-created centralized curriculum. The courses last 7- or 8-weeks in duration (see Table 2) and are organized into weekly, time-limited, asynchronous modules. All modules contain online lecture information (primarily text-based overviews with embedded multimedia supplements), discussion activities and homework assignments. Course development is completed independently of course facilitation, so during an active term, instructors are responsible solely for the teaching of the course with no required time investment in the course's content development or maintenance. As such, the investment of time in this investigation examines only the time required for faculty to facilitate existing online course content, but does not measure time required for online course development. Recognizing that the distribution of time across instructional activities may vary depending on the timing within the course (i.e., beginning, middle or end of the course), faculty were allowed to select any week of the course for the target of their time log. Table 3 provides an overview of the timing of the instructional logs divided according to the beginning, middle or end of the course.

Table 3: Frequency of Instructional Logs within Course Timing

Course Timing	Target Week	Frequency	Total Frequency
Beginning	Week 1	2	9
	Week 2	7	
Middle	Week 3	1	12
	Week 4	1	
	Week 5	7	

	Week 6	3	
End	Week 7	1	2
	Week 8	1	

Procedures

Each instructor completed a daily log monitoring the frequency of various activities and the time required to complete each activity for each course. The daily time log included five categories of online instructional activities with specific indicators listed for each activity:

Instructional Activities	**Specific Indicators**
Asynchronous, One-to-One Communication	• Number of emails/messages received and responded to • Time spent on email
Synchronous Communication	• Number of phone calls • Time spent on phone • Number of online synchronous interactions • Time spent on online synchronous interactions
Preparing Instructional Content	• Time spent preparing instructional materials • Time spent creating CATs
Facilitating Discussion Forums	• Time spent in discussion forums • Number of discussion posts • Nature of the discussion posts • Time spent facilitating CATs • Number of CATs related posts • Nature of CATs related posts
Grading and Feedback	• Time spent grading discussions • Number of discussion forums graded • Time spent grading assignments • Number of assignments graded • Time spent grading papers • Number of papers graded • Nature of papers graded

Appendix A provides a copy of the daily activity log. Faculty were instructed to record their time investment in each activity in minutes and to keep track of their activities throughout the day (rather than making a reflective record at the end of the day). Each faculty member completed a daily log that only included the time invested on the target course; logs were submitted at the conclusion of each work day.

Results

Overall Time Investment

An analysis of overall time investment shows that faculty spend a mean of 12.69 hours (SD = 5.42) per week per online course that they teach. The wide range of time investment (from 4.25 to 26.03 hours) reveals considerable individual variability in instructional time requirements. Assuming that the target class is representative of the other courses taught by each instructor, the mean weekly time commitment for teaching four simultaneous online courses is 50.76 hours (SD = 21.68) with a range of 17.00 to 104.13 hours.

While there was a trend for experienced instructors to require less time to teach the online course, a one-way ANOVA did not find a significant difference [$F(2, 20) = 1.14, p = .339$] as a function of this trend (note: lack of statistical significance may be a function of small group size for novice instructors). Table 4 provides the mean time investment per week for teaching an online class as a function of the instructor's level of experience.

Table 4: Mean Overall Time per Week per Course by Instructor Experience

Level of Experience	Mean Hours	Standard Deviation	Range	Estimated Hours per Week
Novice	17.08	4.60	13.83 – 20.33	68.32
Intermediate	13.39	5.01	7.67 – 21.08	53.56
Advanced	11.25	5.77	4.25 – 26.03	45.00
Overall	*12.69*	*5.42*	*4.25 – 26.03*	*50.76*

An analysis of instructional time investment per week as a function of whether or not the course duration was 7- or 8-week found no significant difference [$F=(1, 21) = .660, p = .426$]. Courses lasting 7-weeks (n = 14) required an average of 11.95 (SD = 5.81) instructional hours per week compared to 13.84 (SD = 4.86) for courses lasting 8-weeks (n = 9). While the two hour difference per week failed to reach statistical significance, it is important to note that the compound effect of this difference per class may have a substantial impact on overall workload for an instructor teaching four simultaneous courses.

In addition, there was no significant difference [$F=(2, 20) = .60, p = .558$] in the time required to teach an online course as a function of the timing of the course within the academic term. Table 5 provides mean time investment per week as a function of course timing.

Table 5: Mean Overall Time by Course Timing

Timing within Term	Mean Hours	Standard Deviation	Range
Beginning	11.61	4.27	6.03 – 20.75
Middle	13.87	6.39	4.25 – 26.03
End	10.50	4.01	7.67 – 13.33

Descriptive analysis of the mean time invested in each instructional activity reveals that instructors spend the vast majority of time on grading and feedback (43.42%) and facilitation of discussion threads (28.57%). While there were no significant differences in distribution of instructional time as a function of instructor experience (see Table 6 for ANOVA results; note that small group sizes may

have influenced significance testing), it is worth noting some trends in instructor time that vary with experience. In four of the five instructional activities (asynchronous, one-to-one communication was the only exception), novice instructors required more time than their more experienced colleagues. While intermediate and advanced instructors spent comparable time on asynchronous communication, synchronous communication, and discussion facilitation, time invested in content development and grading/feedback decreased as a function of more experience. Table 7 provides an overview of time invested in various instructional activities in relation to instructor experience. Figure 1 illustrates the proportion of all instructional time that is spent on each activity.

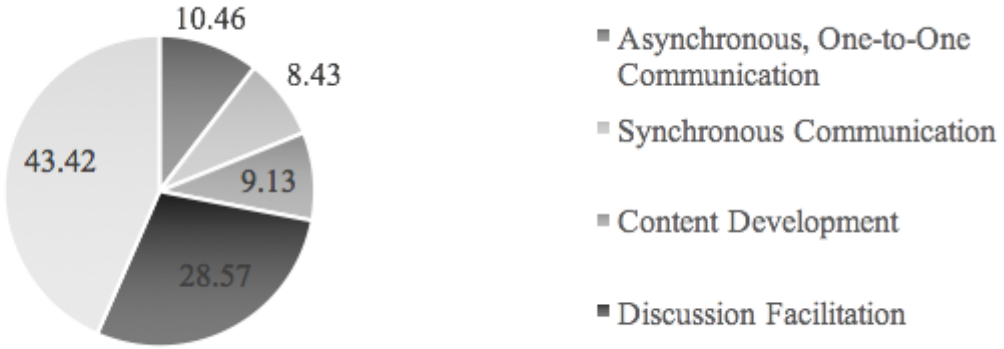
Table 6: ANOVA Results for Time Investment by Instructor Experience

Instructional Activity	**df**	***F***	***p***
Asynchronous, One-to-One Communication	2, 20	.270	.766
Synchronous Communication	2, 20	.335	.719
Content Development	2, 20	1.252	.307
Discussion Facilitation	2, 20	.492	.619
Grading & Feedback	2, 20	1.526	.242

Table 7: Mean Time in Weekly Minutes per Instructional Activity by Instructor Experience

Instructional Activity	**Instructor Experience**			***Total***	***Percentage of Teaching Time***
	Novice	**Intermediate**	**Advanced**		
Asynchronous, One-to-One Communication	40.00	89.00	78.36	*79.65*	*10.46%*
Synchronous Communication	87.50	56.50	66.91	*64.17*	*8.43%*
Content Development	117.50	81.30	50.00	*69.48*	*9.13%*
Discussion Facilitation	307.50	199.10	217.91	*217.52*	*28.57%*
Grading & Feedback	472.50	377.60	262.00	*330.57*	*43.42%*
Total Time Minutes	*1025.00*	*803.50*	*675.18*	*761.39*	
Total Time Hours	*17.08*	*13.39*	*11.25*	*12.69*	

Figure 1: Mean Percentage of Overall Time per Instructional Activity



A correlation between number of students in the course and the time investment required to teach the course was not significant [$r(23) = .124, p = .571$].

One-to-One Asynchronous Communication

A descriptive analysis of time spent on one-to-one communication finds that online faculty send and receive three to four messages per day per class; this interaction required approximately 15.93

minutes per day (79.65 minutes per week) per class interacting via email, questions to instructor forum, and the individual forum. While there were no outliers represented in the number of emails or individual forum messages received or sent, an outliner analysis identified 3 cases (all 100-level undergraduate courses) in which the time spent on one-to-one asynchronous communication was not reflective of the overall body of scores. When these outliers were removed from the analysis, the mean time spent on one-to-one communications decreased to 54.35 mean minutes per week (SD = 22.97) or 10.86 mean minutes per day. Table 8 provides an overview of the frequency and time invested in asynchronous one-to-one communications.

Table 8: One-to-One Asynchronous Communication

Instructional Activity	Frequency Count				Time in Minutes			
	Week			Daily Mean	Week			Daily Mean
	Mean	Range			Mean	Range		
		Minimum	Maximum			Minimum	Maximum	
Emails and One-to-One Messages Received	17.09 (SD = 8.00)	2	29	3.42	79.65 (SD = 83.51)	15	420	15.93
Emails and One-to-One Messages Sent	19.39 (SD = 10.41)	5	38	3.88				

Synchronous Communication

A descriptive analysis of the time and frequency of synchronous communications (i.e., phone calls, online chat and video conferencing) shows very little time invested in synchronous communication. Faculty generally receive, on average, less than one phone call per day and engage in synchronous online communication one to two times per day. Total time investment in synchronous interactions requires approximately 13 minutes per day. Table 9 provides an overview of the frequency and time investment required per course per week for synchronous communications.

Table 9: Synchronous Communication

Instructional Activity	Frequency Count				Time in Minutes			
	Week			Daily Mean	Week			Daily Mean
	Mean	Range			Mean	Range		
		Minimum	Maximum			Minimum	Maximum	
Phone Calls	4.17 (SD = 3.27)	0	10	.83	50.26 (SD = 38.73)	0	155	10.05
Online Synchronous Interactions	9.17 (SD = 24.81)	0	116	1.83	13.91 (SD = 26.75)	0	85	2.78
Overall					*64.17*			*12.83*

Preparing Instructional Content

An examination of the mean time invested in content development finds that faculty, in this context, spend approximately 14 minutes per day per course developing supplementary instructional content. It is important to remember that in the current study all faculty are teaching courses from a standardized curriculum that already contains all required instructional materials, assignments, assessments and activities. As such, preparation of instructional content in this context is limited exclusively to instructor-generated content designed to supplement a complete course. Table 10

overviews the frequency and mean time investment required for preparation of supplemental instructional content.

Table 10: Preparing Instructional Content

Instructional Activity	Frequency Count				Time in Minutes			
	Week			Daily Mean	Week			Daily Mean
	Mean	Range			Mean	Range		
		Minimum	Maximum			Minimum	Maximum	
Developing Instructional Content					46.78 (SD = 42.66)	0	150	9.36
Developing classroom assessment techniques	9.74 (SD = 6.55)	1	28	1.95	22.70 (SD = 27.28)	0	100	4.54
Overall					*69.48*			*13.90*

Facilitating Discussion Forums

An examination of time investment in the discussion forums found that instructors spend approximately 37 minutes per day in the discussion forums and post an average of 6 times per day per class in the asynchronous discussions. A Pearson product correlation examining the relationship between the number of students in a class and the time invested facilitating threaded discussions was not significant [$r(23) = .236, p = .278$]; however, there was a significant correlation between the number of instructor discussion posts and the time spent facilitating discussions [$r(23) = .790, p < .01$]. Table 11 highlights the frequency and time investment required for facilitating asynchronous discussions.

Table 11: Facilitating Discussion Forums

Instructional Activity	Frequency Count				Time in Minutes			
	Week			Daily Mean	Week			Daily Mean
	Mean	Range			Mean	Range		
		Minimum	Maximum			Minimum	Maximum	
Discussion posts	28.48 (SD = 18.59)	13	106	5.70	183.57 (SD = 133.61)	70	690	36.71

Grading and Feedback

Descriptive analysis shows that instructors spend most of their online teaching time on grading and feedback; this single activity requires just over an hour per day per class. Within this timeframe, the majority of time investment is devoted to grading papers requiring approximately 39 minutes per day. A Pearson product correlation found no significant relationship between the number of students in a class and the time spent on grading and feedback [$r(23) = -.056, p = .799$]. Table 12 provides the frequencies and time investment required for grading and feedback.

Table 12: Grading and Feedback

Instructional Activity	Frequency Count				Time in Minutes			
	Week			Daily Mean	Week			Daily Mean
	Mean	Range			Mean	Range		
		Minimum	Maximum			Minimum	Maximum	
Grading	33.09	7	90	6.62	93.09	19	250	18.62

Discussion Forums	(SD = 24.67)				(SD = 57.93)			
Grading tests, quizzes or short assignments	12.57 (SD = 12.39)	0	50	2.51	43.17 (SD = 52.47)	0	180	8.63
Grading papers	18.39 (SD = 10.73)	0	40	3.68	194.30 (SD = 168.30)	0	610	38.86
Overall					*330.56*			*66.11*

Discussion

While research indicates that the time required to teach an online course is likely to vary in relation to a number of influences (i.e., teaching field, course level, number of students, and individual faculty engagement; Mupinga & Maughan, 2008), current findings suggest that teaching an online course (offered in an accelerated format and taught by fulltime faculty) requires an average of 12.69 hours per week. These findings are relatively consistent with holistic, reflective findings of teaching time investment (Mandernach, Hudson & Wise, 2013) that estimated fulltime online faculty invest approximately 11 hours per week per course that they teach.

The 12.69 hour metric in the current study is strictly limited to time invested to teach an active online course but does not include time requirements for course development. While course development and teaching are interwoven (and inseparable) for face-to-face courses, the two functions can, and should, be independently analyzed to clearly understand online teaching workload requirements. Freeman (2015) reports that initial development of an online course can often take over 100 hours, but once an online course has been developed (structure, instructional content, assignments, discussion questions, resources, formatting, etc.), the time required for maintenance and upkeep on the basic course content is dramatically reduced. In contrast, online teaching time should be relatively stable as it is a function of the day-to-day activities required to facilitate an active course. While ongoing teaching time requirements may decrease somewhat as a function of experience, the overall teaching time required is a more stable metric for understanding faculty workload.

Van de Vord and Pogue (2012) conducted research to see if online teaching takes more time than face-to-face teaching. Within that study, the authors created five time log categories to measure time investments: interacting with students, evaluating student's work, lecture prep/modification to course, recording grades, and technical issues. Table 13 shows the comparison for three of the five categories. The mean time investments from the Van de Vord and Pogue (2012) study were transposed to percentages of time investments for the purposes of comparison. Three of the Van de Vord and Pogue categories aligned with the current investigation: interacting with students, evaluating student's work, lecture prep/modification to course.

Of the three categories, there is a trend for interacting with students and evaluating student's work. The highest percentage for both studies is in the area of evaluating student's work (63.33%, 43.42%; see Table 13). These high percentages show the time commitments of grading and feedback in online courses. While the percentages are higher in Van de Vord and Pogue's study, they both show that a majority of time is spent here. The next highest category for both studies is interacting with students (29.08%, 18.89%). While these two categories make up most of the time spent in Van de Vord and Pogue's (2012) study (92.41%), it is only 62.31% of the time commitment for the online full time faculty in this study. This could be because of the online full time faculty working conditions that promote collaboration with other faculty at the campus on best practices and supplemental materials. This also allows for the difference in the category of lecture prep/modification to course (0.80%, 9.13%).

Table 13: Comparison of Current Study and Van de Vord & Pogue (2012)

Van de Vord & Pogue (2012) Categories	Percentage of time invested (Van de Vord & Pogue, 2012)	Instructional Activities Categories (Current Study)	Percentage of time invested (Current Study)
Interacting with students	29.08%	Asynchronous, One-to-one Communication/Synchronous Communication	18.89%
Evaluating student's work	63.33%	Grading & Feedback	43.42%
Lecture Prep/Modification to Course	0.80%	Content Development	9.13%
Recording Grades	5.90%	N/A	N/A
Technical issues	1.14%	N/A	N/A

The current study shows that there are some tasks where the time investment seems to shift based on experience level of faculty. Participants were broken into experience categories that included novice (12 months or less), intermediate (13-24 months), and advanced (25 or more months) based on experience as an online full time faculty. While most tasks seemed to take more time for novice instructors, there was an exception with asynchronous, one-to-one communication. Novice instructors appeared to spend nearly half less than advanced instructors (see table 7). This could be attributed to the amount of time that all other tasks require from the novice instructor, which leaves less time for emails and other methods of asynchronous communication. Intermediate instructors spent the most time in this area, while a little less time was taken once the instructors became advanced.

All of the remaining areas require more time from novice instructors. The most dramatic difference between novice, intermediate, and advance is in content development. Novice instructors spent nearly two hours a week in this area (117.50 minutes) compared with intermediate (81.30 minutes), and advanced (50.00 minutes). The difference from the novice instructor to advanced is over an hour of time (67.50 minutes) that could be used in other areas. This makes sense since advanced instructors have much more familiarity with the course that they are teaching.

The total amount of minutes used by instructor per course saw a major change by experience level as well. The results of the study show that novice instructors require an average of 17.08 hours per week per course, compared with intermediate at 13.39 hours, and 11.25 hours for advanced instructors. In different terms, novice instructors spend approximately six hours extra in each course than advanced instructors. Once instructors become more experienced, it is clear that their efficiency increases.

Within the context of the current study, it is important to note that the time investment metrics may be unique to this particular faculty population and may actually *underestimate* the time required by faculty in other contexts. All faculty in the current study teach fulltime online in a dedicated teaching center; this role involves teaching four online courses simultaneously on a year-round schedule. This unique setting leads to a number of factors that may influence the teaching time required by this faculty population:

1. *Experience* – Because faculty teach four simultaneous online courses on a continuous, year-round schedule, they are able to rapidly gain experience with online pedagogy. Repeated exposure to, and interaction with, the learning management system, support technologies, online resources, and online teaching techniques may increase a faculty member's teaching

efficiency when compared to colleagues who teach online courses less frequently.
2. *Support* – All faculty are working in a dedicated teaching center surrounded by other faculty who are teaching online. The physical environment of this workplace fosters an integrated network of similar professionals with extensive online teaching expertise. The support available in this environment may provide faculty with access to additional resources, insight and expertise that allows them to perform their role more efficiently.
3. *Focus* – Unlike traditional, campus-based faculty, the faculty in the current study have limited research and service obligations. As such, this group of faculty may not only have more time available for their online teaching, but without competing work obligations, may be more focused on their online teaching tasks.

Simply put, the faculty in the current study may be more efficient in their online teaching due to their immersion in this mode of instruction. The nature of this online teaching role simultaneously increases experience, support, access to expertise and focus on teaching activities.

But, within this unique context, it is also important to consider that investment of teaching time may be influenced by the environment itself. Because all faculty in this study work a traditional, scheduled 40-hour work week, this timeframe may create an anchor for managing teaching time. While findings indicate that faculty are spending additional instructional time beyond their scheduled hours (as shown by the estimated hours per week ranging from a mean 45.00 to 68.32 hours depending on the experience level of the instructor), it is still likely that the contracted work hours provide a mental anchor for how available time should be distributed across teaching tasks.

This mental anchor may be particularly powerful in relation to the ubiquitous nature of the online classroom. Unlike a traditional face-to-face class in which an instructor manages instructional time as a function of the number of class meetings, length of class periods and time delay between class periods, the online classroom is not equipped with these natural stops and starts. In the ubiquitous online environment, each instructor must create their own time management plan. Not only does this time management plan need to ensure that time is invested in the various components of online teaching but that time is invested in relation to competing obligations and the financial compensation one receives for their teaching activities. Since the online classroom is available 24 hours a day, 7 days a week, determinations of time investment in teaching and management of teaching time rest solely on the online instructor.

Because faculty in the current study are contracted to work 40-hours per week, they have a mental anchor to guide their investment of online teaching time. This mental anchor has the potential to either increase teaching time beyond what is necessary (i.e., being more leisurely in teaching activities, creating additional instructional supplements, etc.) or to decrease teaching time to fit expectations (i.e., incorporation of more efficient instructional strategies, less time invested in non-essential activities, etc.). In the current study, all faculty shared the same mental anchor but worked more than 40-hours per week; the voluntary extension of teaching time beyond contractual requirements lends support to assumption that faculty dedicate attention to decreasing the time investment to align with the mental anchor. Examining this trend more closely, experience with online teaching appears to equip faculty with the necessary knowledge and/or skills to more effectively align time investment with existing anchors. Specifically, novice faculty spent considerably more time per week (68.32 hours) on online teaching compared to faculty with intermediate (53.56 hours) or advanced (45.00 hours) experience. Recognizing that there were only minor differences in how instructional time was distributed across teaching activities as a function of experience (only an overall decrease in time investment in relation to increased experience) it appears as though experience allows faculty to more closely align teaching time with the mental time expectation anchor.

Related to the mental anchor and instructional time availability, it is important to consider that all courses in the current study were taught in an accelerated format (as is often the case with online

course offerings). As such, findings indicate that teaching each online course required 11.95 hours per week for 7-week courses and 13.84 hours per week for 8-week courses. This equates to an overall instructional time investment of approximately 83.65 hours per 7-week online course and 110.72 hours per 8-week course. This metric, in relation to the course duration, highlights the need to differentiate between time *required* and time *invested*. This study effectively measured time *invested* in online teaching, but investment of time is an interaction between obligations, expectations and available time. Time *invested* may or may not align with the optimal time *required* to teach effectively in the online modality.

Analyzing this more closely, it is important to examine overall instructional time as a function of both modality (online or face-to-face) and duration (accelerated or traditional). Let's assume a traditional, campus-based faculty member is teaching four simultaneous courses (either face-to-face or online) in a traditional semester (i.e., 16-week semester) under the fulltime framework of a typical 40-hour work week. Like the fulltime faculty in this study, this creates a mental anchor of approximately 10-hours per week per course. But while the mental anchor is identical, it has a dramatic impact on the teaching time commitments as a function of the duration of a course. In an accelerated schedule, this anchor would lead to a baseline expectation of 70 to 80 hours of overall teaching time (depending on the duration of the accelerated schedule); but in a 16-week semester, this translates to 160 hours of overall instruction time per course. Because of the ubiquitous nature of online teaching, faculty may be more likely to manage their investment of time as a function of existing anchors concerning expectations of their time investment as opposed to gauging time investment solely as a function of what is required to effectively teach the course.

While the current study clearly measured the investment of time across instructional activities (and not optimal time required for online teaching when all anchors or benchmarks are removed), research is needed to know if the time investment estimates in the current study are limited to online teaching in the accelerated environment or can be generalized to online courses taught in a traditional, semester format. In other words, research is needed to determine if online teaching time varies as a function of mental anchors or if teaching an online course simply requires a relatively standard amount of time. If anchor expectations of time have an influence on time investment, the weekly estimates of time provided in the current study are relevant across both accelerated and traditional course durations. But if online courses simply require a standardized amount of time (as found in this study, approximately 100 hours), then weekly time requirements for teaching can be determined by dividing the overall time requirements by the number of weeks in the term.

But, this calculation may not be so simple. Examining this issue more closely, Van de Vord and Pogue (2012) found that teaching online requires 12.32 minutes per student per week in a 16-week semester. If we figure the minutes-per-student in the current investigation, an instructor would spent approximately 29.96 minutes per student per week in an 7-week term (dividing the 11.95 hours spent per course per week by 23.93 students per class) or 40.62 minutes per student in an 8-week term (dividing the 13.84 hours spent per course per week by 20.44 students per class). If the accelerated nature of the course simply compresses the time required into a shorter period, we should be able to divide the 40.62 minutes per week per student time investment in an 8-week course in half (20.31 minutes) to determine equivalence. Likewise, if we apply the same metrics to the average online class size in the Van de Vord and Pogue study (53 students) across a 16-week term, teaching an online course required approximately 174 hours (compared to the 111 hours per course found in the current investigation using an 8-week term). While this logic fails to account for course-by-course and instructor-by-instructor variability in level, focus, content, experience or philosophy, it challenges our understanding of faculty workload to extend beyond a simple calculation of course size or format.

One of the interesting findings of this study was that instructional time invested was *not* correlated with the number of students in the course. Contrary to past research (Cavanhaugh, 2005; Mupinga & Maughan, 2008; Rockwell, Schauer, Fritz & Marx, 1999), instructors who were teaching more

students did not invest any more time in their teaching than instructors with less students. While it intuitively makes sense that more students would translate into more instructional time (particularly in the online classroom where time is heavily invested in grading and participation in discussion forums), the lack of this finding in the current study may also be explained as a function of mental time anchors or the application of Parkinson's Law (Gutierrez & Kouvelis, 1991). As explained by Parkinson's Law "work expands so as to fill the time available for its completion." Similarly, according to the same principles, work also narrows to fit the time available for completion. Thus, the lack of variation in instructional time as a function of the number of students may simply be the result of a fixed amount of time available to complete each instructional task. In this case, regardless of the number of students, faculty (particularly those with an established anchor for time investment in each activity) only have a limited amount of time available to dedicate to each pedagogical activity. Thus, if three hours are available to complete an instructional activity (such as grading), faculty will complete that instructional activity in the designed time whether there are 14 (smallest class size in the current study) or 29 students (largest class size in the current study). While Parkinson's Law provides a viable explanation for the lack of a correlation between number of students and online teaching time in the current study, it is important to note the limits of this principle.

Further, the lack of relationship between the number of students and the time required to teach the course may be limited to courses within a designated size range. The average class size in the current study was 22 students with a range from 14 (smallest class size in the current study) to 29 students (largest class size in the current study). While there was not a difference in time requirements for courses with less than 30 students, it is likely that much larger classes (classes with 40, 60, 80, 100 or more students) will required additional teaching time as a function of the increased time required for facilitation and feedback for considerably larger classes.

In the context of the current study, the time limits were clearly delineated by the scheduled work week; and while traditional faculty appointments are not so defined, faculty still have limited time within a busy schedule. The amount of time faculty have to teach is relatively constant, regardless of the number of students that they teach. With this in mind, the key issues may lie in: 1) determining the ideal class size to simultaneously maximize enrollments and student learning; and 2) supporting faculty to invest time in online instructional tasks with the greatest impact. The ubiquitous nature of the online classroom provides few natural barriers to assist faculty in determining exactly how much time in necessary to maximize instructional effectiveness, as such, it is essential to create an environment (class size, course load, course structure, schedule) that allow faculty sufficient time to dedicate to the necessary teaching tasks. As highlighted previously by Parkinson's Law (Gutierrez & Kouvelis, 1991), "work expands so as to fill the time available for its completion." Reflective of this, time invested in online teaching may fluctuate as a function of the overall time available as opposed to the number of students; awareness of this tendency mandates online learning administrators have a clear understanding of the workload demands of online teaching to ensure a high-quality teaching and learning experience. Likewise, higher education leaders may benefit from applying this information to inform scheduling. While instructors are in their first year of full time instruction, it may be helpful to keep the course load down to make workloads equitable with more experienced online instructors. Conversely, intermediate instructors could handle a higher student load, while advance instructors could teach the highest number of courses effectively and efficiently.

Essential to an understanding of the time investments found in this study is an explicit awareness that the current data is limited to fulltime faculty teaching online. As highlighted in this discussion, the unique nature of this role and the context in which these faculty work creates anchors that likely guide time investment in various instructional activities. While this information is essential to help guide novice faculty and to inform faculty support services, it should be generalized to other faculty populations with caution. Faculty teaching online courses as part of their campus-based course load can utilize this data to help gauge what is a relevant and appropriate distribution of teaching time. For example, regardless of the overall amount of time a faculty member has available to teach their

online course, it is a helpful guide to know that approximately 40% of time should be spent on grading and feedback, 30% on discussion facilitation, 10% on asynchronous, one-to-one communication, 10% on synchronous communication, and 10% on content development. As many faculty enter online teaching with little exposure to (or awareness of) online pedagogy, this type of guidance on time investment may help to ensure that faculty are focusing on the instructional tasks that provide the greatest impact on the student learning experience.

Implications and Conclusion

Not only do institutions need to know how much time faculty are spending on their online teaching, but, more importantly, it is essential to provide faculty with guidance on how to invest limited time to have the greatest impact on student learning. With faculty juggling an increasing number of obligations (Kezar, Maxey & Eaton, 2014), the old adage "work smarter, not harder" has never been more important. It's not enough that faculty are simply logging contact hours into the online classroom, it is essential that institutions provide faculty guidance and direction on how to maximize the impact of their instructional time.

By understanding how faculty invest their online teaching time, administrators can more effectively support faculty via enhanced professional development, prioritized scheduling and insight into workload management. Since the majority of instructional time is dedicated to grading and feedback, best practices should be taught in professional development classes on how to be efficient in this area. Faculty trainings and professional development offerings should be proportionate to the amount of time that an instructional task requires. While faculty require professional development targeting best practices in the key instructional areas, they also need support in understanding the practical aspects of implementing the best practices in an efficient manner. In essence, they not only need insight on *what* to do, but also on *how* to do it within the practical, realistic confines of the online classroom.

Likewise, faculty should be advised to structure workdays with the average time commitments in mind. While the overall number of hours worked may vary as a function of course level, class size, instructor experience and related factors, it is still useful to provide faculty with guidelines on how to distribute the time available between the various instructional tasks within the online classroom. Based on the findings of this study, the recommended times for instructional activities include 40% spent on grading and feedback, 30% on discussion facilitation, 10% on asynchronous, one-to-one communication, 10% on synchronous communication, and 10% on content development. By implementing institution-wide guidelines and expectations for online teaching, new or inexperienced faculty will have an increased understanding of how to manage their time to maximize student success. In addition, these types of guidelines may assist experienced online faculty with their own time management (an issue of heightened importance within the ubiquitous context of online education).

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Appendix A: Daily Log of Instructional Activity per Course

Course Information
Course Number: _____
Number of students in course: _____
Number of students actively participating in course: _____
Current week of the course: _____

Daily teaching log PER COURSE:

Activity	Follow-Up Questions	Instructor Records
Emails, Individual Forum & Questions	How many student emails/messages did you receive today for this class?	
	How many student emails/messages did you reply to today for this class?	
	How long did you spend today on emails/messages related to this class?	
Synchronous Interaction	How much time did you spend on the phone with students today?	
	How many students did you talk to on the phone today?	
	How much time did you spend in synchronous communication with students via the computer today?	
	How many students did you interact with via online synchronous communication?	
Preparing Instructional Material	How much time did you spend today preparing instructional materials (lectures, supplemental information or announcements)?	
Facilitating Discussion Questions	How long did you spend in the discussion forum today?	
	How many posts did you make?	
	What was the nature of the discussion question(s) (i.e.,	

	knowledge, application, synthesis, evaluation, etc)?	
Grading & Feedback	How much time did you spend today grading discussion forums?	
	How many different discussion questions/forums did you grade?	
	How much time did you spend today grading tests, quizzes or short-answer assignments?	
	How many students' tests/quizzes/short-answer assignments did you grade?	
	How much time did you spend today grading papers?	
	How many students' papers did you grade?	
	What was the assigned word count of papers?	
	What was the nature of the paper assignment (answering questions, journal/reflection, theory/literature review, research, etc)?	
Classroom Assessment Techniques (CATs)	How much time did you spend today creating CATs?	
	How much time did you spend today facilitating CATs (i.e., posting, responding, grading, redirecting, etc)?	
	How many posts did you make specifically with CATs?	
	What was the nature of these posts (i.e., knowledge, application, synthesis, evaluation, etc)?	