Efficient Online Instruction: Maximum Impact in Minimal Time

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Abstract

Higher education faculty have numerous responsibilities that are not limited to instruction of classes. While it is well established in literature that faculty have a diverse set of responsibilities that extend well beyond a 40-hour work week, this information has yet to be cohesively transferred into suggestions for institutions to utilize when promoting instructional efficiency. The present study offers both a conceptual and operational definition of faculty workload in higher education, while addressing faculty workload perceptions and the value of efficiency. In addition, this study offers specific recommendations for instructional efficiency that faculty and institutions of higher education can put into practice. This quantitative study surveyed full-time (n=50) and adjunct faculty (n=368) at a Southwest university. Survey results indicated adjunct faculty rated automatic notification higher than full-time faculty, while both faculty roles agree integration of feedback banks are valuable for increasing teaching efficiency ($\bar{x}$=3.91, SD=1.18); as well as push notifications to students outside the online classroom ($\bar{x}$=3.74, SD=1.23). Overall findings concluded that all faculty believed pedagogical tools had value in increasing the efficiency in online teaching. Therefore, recognition of instructional supplements may foster the efficiency and impact of teaching time. Higher education administrators and curriculum developers can use this evidence to promote decisions supporting improvement of pedagogical tools within online classrooms.

Introduction

Universities struggle to find a balance between what is sustainable and financially feasible, while still optimizing student learning. Within this context, faculty are challenged with increasing workloads and responsibilities (Botha, 2015; Inegbedion, 2017; Kibaru, 2018). Higher education faculty have numerous responsibilities that are not limited to instruction of classes. Additional responsibilities may include service (to the profession, university, college, or department) administrative tasks (setting up classes, checking emails and making phone calls) and research (publications, presentations, and professional development to hone academic methods of teaching) (Apaydin, 2012; Kibaru, 2018). Botha (2015) offered four simplified categories for faculty workload including: 1) instruction 2) administration 3) research and 4) service to the scholarly community. Instruction of classes alone can be time consuming, however, when administrative tasks and other services are added to a faculty member's day, week, or month, faculty can be spread thin, resulting in a type of "university fatigue" (D'Hoest & Lewis, 2015). Fatigue can mean many things, however, Botha (2015) suggests this can include burnout, stress, anxiety, loss of sleep, issues with job satisfaction, absenteeism, cardiovascular disease and high blood pressure. Similarly, Kausar (2010) found a positive relationship between perceived stress and faculty workload. Faculty experience fatigue when they have a volume of duties and expectations to meet, which can influence and dissuade the efficiency of teaching and effectiveness of academic outcomes (Inegbedion, 2017). It is well-established in the current body of research, that faculty must divide their time up among multiple tasks, some of which includes direct faculty to student instruction. However, much of faculty time is spent on tasks that fall under categories such as research, curriculum preparation, professional development and peer-review activities (Inegbedion, 2017; Karakutuk et al, 2003; Meyer, 1998; Seaberg, 1998). While it is well-known that faculty have a diverse set of responsibilities that extend their work week well beyond the typical 40-hours, this information has yet to be cohesively transferred into suggestions for institutions to utilize when promoting instructional efficiency (Hinrich-sen et al., 2002). The authors of this current study address themes within the literature, in addition to offering specific recommendations for instructional efficiency that faculty and institutions of higher education can put into practice.

There are several ways to define faculty 'workload', to include both quantitative and qualitative elements, however this can include specific tasks assigned to faculty (Seaberg, 1998; Inegbedion, 2017). Kibaru (2018) adds that faculty workload includes a balance of job role expectations that are considered equitable and transparent. There appears to be a consensus in the literature that the volume of faculty work should fit into a typical work day and include professional aspects of the job that are related directly to instruction (Meyer, 1998; Karakutuk et al., 2003). However, supplementary tasks that are not part of the everyday aspect of the job can be consuming; yet, they are considered equally important to instruction of students (Apaydin, 2012). Haggerty (2015) suggests there is an increase in faculty workload when the focus in higher education shifts away from pedagogy; focusing instead on technology, presentations and professional development. Tasks such as peer reviewing or critiquing of a colleague's work, implementing and conducting research, preparing materials and lectures for classes, student advising and mentorship, serving as a content expert for curriculum updates and course revision, professional development and required academic training, as well as issuing substantive feedback on student assignments, can all take time out of a faculty member's day (Espasa & Meneses, 2010; Botha, 2015; Inegbedion, 2017; Kibaru, 2018). Due to the various aspects of a faculty member's job, narrowing down the amount of time spent on tasks, or instruction, can vary from faculty member to faculty member, from institution to institution, as well as include factors such as contract requirements, or faculty expectations for the position (i.e. research, curriculum development) (Wilborn et al., 2013; Inegbedion, 2017).

In 2002, Hinrich-sen and colleagues conducted a study using 67 faculty members from five different universities to assess faculty workload. Findings concluded that the average workload for faculty was approximately 54.5 hours per week, including academic, research and service related tasks. In 2010, Tight reported similar results, with faculty working an average of 48-55 hours per week, with increased workloads attributed to administrative tasks. Bentley and Kyvik (2011) assessed 13 countries, with an average of 48.4 hours per week reported (15.7 on research, 19.6 on teaching, 3.2 on service related tasks, 2.9 for other, and 7 hours on administrative). Apaydin (2012) conducted a study in Turkey during 2006-2007 and 2007-2008 academic years, using a sample of 67 faculty members (all academic levels) from six universities to assess time spent on faculty activities using "The Academic Workload Scale of Faculty Members". Apaydin's findings included that faculty members were spending approximately 49-52 hours per week on faculty related tasks. More than 75% of their time was spent on instruction, which included preparation for classes. Approximately 25% was spent on research related tasks such as, peer review, serving as editors for academic journals, personal research for publication, as well as administrative and department related activities (i.e. checking emails, returning calls, serving as mentors). In another study conducted by Kyvik (2013) approximately 43 hours were spent on faculty workloads (10.6 hours on administrative, 16.5 on research and 16.1 on academics). While there appears to be a consistent amount of time spent during the week on job related tasks, there is also a substantial portion of the week spent on additional job responsibilities that are not directly related to course instruction.

McInnis (2000) conducted a study examining faculty workloads to assess shifts in time, the impact of change to academic workloads, commitment, and obstacles that hinder teaching. The sample of 1554 faculty from 15 Australian universities included faculty who taught and conducted research. Findings concluded working hours averaging between 47.7-49.2 hours per week, however, 40% were found to have worked more than 50 hours per week. McInnis (2000) reported that most of the sample spent just under 50% on direct contact, which is a decline of 4.3% of this time spent on direct instruction of students over a five-year span. There was a clear aura of dissatisfaction with factors that interfered with direct teaching, such as teaching outside of expertise, research commitments, lack of access to technology and applications, number of students and student ability level. These factors were assumed to contribute to the increase in time away from direct instruction. Maintaining control over quality with increased expectations prompted suggestions for change.

Inegbedion, (2017) reported similar findings, using a descriptive survey, indicating teaching outside of expertise (content), and technical literacy were linked to faculty efficiency. Inegbedion, (2017) suggests the volume of tasks assigned to a faculty member can determine the level of efficiency and overall effectiveness in completion of tasks. Inegbedion, (2017) investigated 370 full-time faculty complaints related to workload and efficiency with staff in National Open University of Nigeria. The study aimed to explore effectiveness and efficiency as it related to faculty workload and assigned tasks, such as research, service, teaching and scholarship. Several different workload models were examined from seven different international universities. The models designated policy related expectations, outlining responsibilities and duties related to the faculty position. Findings concluded that the models were not comprehensive; many were missing additional responsibilities, as well as specific details (i.e. class size or ratio) that were not outlined as faculty expectations. For this reason, Inegbedion, (2017) used this list as a guide to develop variables to measure workload. Completion of the survey and additional observations concluded that support of faculty with high workload demand had better academic outcomes. Out of the responses, 45.5% of time was spent on teaching, 25.8% on scholarship, and 28.8% on community or university service. Inegbedion's findings align with Kenny (2016), who found that faculty were deterred and had less scholarly publications due to academic workload. Inegbedion, (2017) pointed out the negative aspect of this research, with association between faculty academic promotion and scholarly tasks. Many universities require scholarly research and publication in order to promote to a higher rank or level of tenure (i.e. assistant or associate professor). When universities do not designate time specific to workload, it can make

promotion unattainable for faculty who have little time to conduct research due to the imbalance of other duties (including administrative tasks). This was confirmed by the 28.8% that reported the little amount of time they had left over from other teaching and administrative duties, and 48% reporting lack of engagement in scholarship. There appears to be a reoccurring theme in the literature where lack of faculty support is associated with quality, and successful teaching delivery in conjunction to workload (Shelton, 2011; Daniel & Uvalic-Trumbic, 2013; Baran & Correia, 2014; Martin & Parker, 2014; Martin, Polly, Jokiaho & May, 2017). According to Inegbedion (2017) faculty support has been linked to efficiency and overall effectiveness of teaching and academic outcomes, however, further research on management of academic workload was suggested.

Knowing that time is a factor, it would appear that for faculty to fit everything into a typical work day, efficiency and organization must play a role. Trying to assess time spent for each faculty at each university and fitting this time spent into a model as suggested by Inegbedion (2017) seems unreasonable, if not impossible due to nuances from each university setting and task demands placed on faculty members. Instead, finding ways to be effective, while maintaining quality, seems to be attainable and suggested by current research (Kibaru 2018). While it can be challenging to integrate measures for efficiency in teaching, there are methods, techniques, tools and strategies that can be implemented, as a beginning step to reassess efficiency of teaching, as well as effectiveness of academic outcomes (Kibaru, 2018). To help offset instructor time spent on tasks like grading and student assessment, some general solutions have been explored in the literature: 1) Faculty Support 2) Automation 3) Increase in Analytics and 4) Web 2.0 Tools. While the preceding list is not comprehensive, the themes are applicable for the purpose of this study. However, increasing faculty support can mean many things. One way to support faculty, is by adding teacher or instructional assistants to the classroom to assist teachers with tasks such as grading attendance, tests, quizzes, participation and discussions. In addition, the use of automated systems and methods are time saving features. Quizzes and tests can be used as summative and formative assessments in classrooms. Analytics within the classroom environment that are accessible to faculty and teaching assistants can not only be used proactively (formative), to identify 'at risk' students, it can save time overall by removing the tedious auditing process of knowing exactly how each student is performing and what they might need support or help with (Gikandi, Morrow, & Davis, 2011). The utilization of analytics automation, Web 2.0 tools, and Instructional Assistants (IAs) or Teaching Assistants (TAs) not only support creative methods and techniques that engage student learning, they can save faculty time, allowing time to be designated elsewhere (i.e. scholarly research).

Automated Systems & Analytics

In larger online courses, some research has explored the use of computer automated grading. However, problems can arise in using automated systems in the classroom. For example, assignments that are limited to primarily numerical formatting (such as multiple choice quizzes) may not fully encompass the needed assessment of student learning in the classroom (Walkow & Reilly, 2014). Robotic or automated grading, additionally does not always align with instructor scoring of artifacts (assignments). However, Schaffer, Young, Ligon, and Chapman, (2017) developed a software tool claiming to support faculty workload by saving time. The tool includes formative assessment based on course content that tracks student's performance and offers analytics with data analysis for each individual student. In order to support faculty efficiency in workload, the tool assists with automation of feedback (individualized) and offers specific guidance based on the student's performance. This feedback can then be customized into an action plan to assist students and offer resources that are immediate. In-turn, this may result in higher retention of students, satisfaction by both faculty and students, effectiveness of the learning environment focused on pedagogical techniques and methods, and efficiency of faculty workload.

Web 2.0 Tools

Tools have been developed to aid faculty in maintaining quality without stripping away positive outcomes. Applications, such as Web 2.0 tools, have been implemented in the university setting to provide support. For example, when faculty members integrate videos in their classrooms as a resource, the time faculty spent creating the resource is an investment, as the video can be used as a repeated resource for students, such as videos reviewing assignment content (Laster-Loftus & Cooper, 2019). This can save faculty time on covering the same information for each class. Ljubojevic, Vaskovic, Stankovic and Vaskovic (2014) found that instructors who use such tools have increased lecture organization, which then improves teaching efficiency and student learning. Collaborative tools, such as wikis, have the added value of improving instructor efficiency particularly because they allow students to lead and develop their own understanding of information, allowing the faculty to serve in a guidance role, while students drive their own learning processes (Demski, 2009). In addition, instructors report that they feel they are more efficient when using Web 2.0 tools (Shihab, 2008). Taking advantage of platforms that allow greater diversity in how feedback is delivered may also increase instructor efficiency, as well as student value in feedback on classwork (Morel & Ennis-Cole, 2016). Furthermore, classroom management overall can be enhanced to benefit instructor efficiency, as some Web 2.0 tools offer updates on student progress or easier ways to reach students for reminders (Bell, 2009). For example, digital technologies can be used for the sole purpose of communicating more efficiently with students (i.e. Remind App). Tools such as the Remind App (a school communication tool) not only allow faculty to send push notifications to one or all students; reminders can be scheduled ahead of time for tasks and deadlines, which can save faculty time on phone calls, emails and answering questions that may surface on class materials and assignments. All of this can support students, especially when they are not engaged in class, or submitting their work (Remind, n.d.) (Basko & McCabe, 2018). Web 2.0 tools can provide a foundation for more effective and efficient communication with students, by providing an environment for student-driven questions and discussion (Light, 2012).

Instructional Assistants

The use of Instructional Assistants (IAs) may provide higher quality grading as well as consistency when used to supplement instructor assessment. Instructional Assistants or Teaching Assistants (TAs) can provide an untapped resource when utilized in online instruction modalities (Sudicky, 2013). The use of IAs/TAs has been shown to improve instructor efficiency, as well student retention and student experiences. By providing assistance with grading of smaller assignments, numeric based assessments, or class participation, this can free up time for faculty members to focus their attention on other tasks, as well as spend quality one-on-one time with students (Vaughan, 2007). In addition, IAs/TAs can submit early alert tickets to counselors based on analytic data, saving faculty time. This time can then be allocated to other tasks, as well as direct instruction.

Elison-Bowers, Sand, Barlow, and Wing (2011) propose, in addition to effective communication, tailored teaching techniques, and professional practice, the use of IAs is one of the four most important guidelines for managing larger student loads online. Teaching efficacy is greatly supported when IA's are present in a number of ways (Nikolic, 2015). When IAs are used to provide voluntary student support in the classroom, such as in the form of supplementary learning laboratory sessions, there is an increase in classroom productivity and teaching overall (Nikolic, 2015). Rather than seek help immediately, the presence of such learning laboratories provided by IAs increased the likelihood of student initiative in finding information they need before asking for help, providing the potential for instructors to spend more time on instruction than time directing students to the resources provided. In an online setting, this might mean that the IA monitors the forum where questions are asked by students. Nikolic (2015) found that students were much more likely to have already reviewed resources provided by their instructor with the presence of supportive IAs. Furthermore, instructors who wish to incorporate synchronous elements into their online instruction, such as live video conferencing or meetings, are able to transfer some of the asynchronous classroom management tasks to IAs successfully. Doing so, can free-up time for instructors to spend on other tasks (Karal, Cebi, & Turgut, 2010). Beyond the support for instructor efficiency, the presence of IAs poses additional benefit to student success.

Fricker (2013) found compelling evidence for the use of IAs, concluding that when IAs are used in online courses, student retention and course completion far exceed the data for average online courses where assistants are not utilized. Sax (2002) concluded, in addition to the benefits to instructor efficiency, sometimes IAs are better utilized in roles that do not directly involve student assessment. For example, IAs can serve as role models in the classroom by helping facilitate meaningful discussions, as well as increase the degree of activity and student-instructor interaction (Vaughan, 2007). Within the online setting, this might include IAs engaging in discussion starters for the week on topic material. With the additional instructor, more students will inevitably receive personal attention and interaction during their online course. Ideally, the perception of instructor presence would increase. This additional support and attention does not go unnoticed by students. Students describe their experiences as more positive when TAs/IAs are present in the online classroom (Nikolic, 2015). According to Nikolic (2015) when TAs/IAs provide supplementary learning laboratory sessions for students online, not only do students take initiative to participate in these sessions, those who do participate find great benefit from a learning standpoint in comparison to courses which do not include TAs/IAs. Students are more likely to state they are socially comfortable in the course, as well as rate TAs/IAs as a helpful part of their experience (Sax, 2002). In addition, Sax (2002) found that the presence of a TA/IA in a single course diminished the failure rate by as much as 50%.

As faculty workload continues to increase as a result of educational shifts towards technology, professional development, and presentations, attention to instructional efficiency is even more pressing (Haggerty, 2015). Faculty often have multiple roles outside of direct student interaction that that require substantial time within their workday (Espasa & Meneses, 2010; Botha, 2015; Inegbedion, 2017; Kibaru, 2018). Most faculty meet these demands by working in excess of a 40-hour work week, although the general consensus among faculty and institutions is that their role should fit within a typical 40-hour work week (Hinrich-sen et al., 2002; Karakutuk et al, 2003; Meyer, 1998; Tight, 2010). When faculty feel supported by their administration, they tend to not only be more effective teachers, they are also more efficient in their instruction. This suggests that attention should be given to how institutions can better support faculty efficiency (Inegbedion, 2017). There are specific resources and methods that can be utilized to support faculty efficiency, however, these must be supported by the institutions for faculty use in order for efficiency to be attainable (Kibaru, 2018). This might include the support for cost and training.

Methods

Materials

An online survey was administered to both full-time and adjunct faculty who instruct online courses. The survey included five demographic questions, one multiple-choice question, five open-ended essay questions, and nine rating questions (each containing 5 to 15 individual items requiring independent rating). Each question was aimed at assessing components of online instruction and learning. To avoid participant fatigue from a lengthy survey, it was divided in half between two separate forms (Form A and Form B). Both Form A and Form B included the demographic questions listed in Table 1. The data analyzed in this study is part of a secondary analysis to data provided by Hammond, Coplan, and Mandernach

(2018).

Table 1: Faculty Survey Demographic Questions

Question	*Response Options*
How would you describe your primary teaching role?	Adjunct Online Instructor; Fulltime Online Faculty; Traditional Campus Adjunct Instructor; Fulltime Campus Faculty; Dissertation Faculty; Other
With regard to your primary teaching role, in which discipline area do you primarily teach?	Business; Education; Fine Arts; Humanities & Social Sciences; Nursing & Health Care; Science, Engineering & Technology; Theology; Graduate Studies
In which of the following modalities do you currently (within the last year) teach? Select all that apply.	Campus; Online; Dual Enrollment
How many years have you taught face-to-face at the college level?	Open answer
How many years have you taught online at the college level?	Open answer

Form A and Form B included different questions aimed at assessing instructional efficiency. Table 2 illustrates sample questions from each form. Participants responded to rating survey items using a 5-point Likert scale (1 = no value; 2 = minor value; 3 = some value; 4 = significant value; 5 = extreme value; and 6 = not applicable).

Table 2: Survey Questions Targeting Instructional Efficiency

Faculty Questions	*Response Options*
(Form A) Rate the value each of the following has on the EFFICIENCY in which you can complete instructional tasks:	• Integration of feedback banks to automate repetitive feedback • Ability to "push" communication or information to students outside the online classroom • Automated means of notifying you (without logging into the online classroom) when a student posts a question or comment • Synchronous chat • Synchronous videoconference • Synchronous whiteboard or screen sharing • Other (with open-ended response option)
(Form B) Imagine that you were provided with a detailed Instructor Resource Manual for each course that you teach. Rate the value that each of the following resources would have on your teaching:	• Links to module-specific videos • Links to module- or topic-specific websites • Module outlines • Module summaries • Text-based lectures for each module • Module announcements • Answer keys to all assignments • General assignment feedback • Stock discussion prompts relevant to each discussion • Feedback banks with specific feedback comments relevant to each assignment • Feedback banks for each discussion question • Feedback banks for discussion participation • Information regarding 3rd party contracts • Other (with open-ended response option)
(Form A) If you could streamline your online teaching, where would you invest the time you saved?	Open-ended response

Procedure

Prior to requesting faculty participation in the study, IRB approval and institutional site authorization were obtained. At the start of data collection, the university Academic Affairs office distributed emails to all faculty as a part of a larger effectiveness initiative at the university. The email contained information regarding the scope and purpose of the study for faculty to review. To access the online survey, faculty were provided with an embedded link directly within the email. The survey was sent via an online survey tool to maintain faculty anonymity and no personal identification or IP addresses were recorded. The survey was active and open for 30-days, however no additional follow-up requesting participation in the study was provided. Participants had the option to skip portions of the survey, navigate questions out of order, as well as edit their responses at any time during the survey completion. Participant responses were only finalized once the "submit" button was selected by faculty at the close of their session. Faculty were also provided contact information after they concluded their survey in the event any concerns, questions, or comments surfaced.

Participants

All faculty participating in the study were online instructors, who teach coursework with standardized curriculum. All courses included weekly and time-limited asynchronous sections organized over the course of 8 weeks. Each topic (week) included a written lecture with embedded multimedia supplements as applicable, discussion questions and larger written assignments. During an active term, faculty are responsible only for instructing each course, as curriculum is standardized and independent of course facilitation.

Form A. Respondents to Form A, included 227 faculty currently teaching online; 4 responses were eliminated as the individuals were online doctoral mentors and did not teach typical, asynchronous online courses. The resultant 223 faculty responses were included in the analysis; 30 (13.5%) are fulltime faculty and 193 (86.5%) are adjunct. Faculty reported an average of 6.77 (*SD*=4.54) years of experience teaching online (Table 3).

Form B. Two hundred faculty teaching online responded to Form B; 5 responses were eliminated as the faculty mentored online doctoral students rather than teaching a typical online course. Analysis of the remaining 195 faculty indicated that 20 (10.3%) are fulltime and 175 (89.7%) are adjunct. Faculty reported an average of 6.98 (*SD*=4.58) years of online teaching experience (Table 3).

Table 3: Faculty Demographics by Survey Form

	Form A		*Form B*	
N	223		195	
Fulltime	30	13.5%	20	10.3%
Adjunct	193	86.5%	175	89.7%
Online Teaching Experience	6.77 (*SD*=4.54)		6.98 (*SD*=4.58)	
Campus Teaching Experience	6.98 (*SD*=8.16)		8.19 (*SD*=8.30)	
Academic Discipline				
Business	52	23.3%	42	21.5%
Education	39	17.5%	40	20.5%
Fine Arts	1	.4%	1	.5%
Humanities & Social Sciences	43	19.3%	43	22.1%
Nursing & Health Care	41	18.4%	46	23.6%
Science, Engineering & Technology	4	1.8%	1	.5%
Theology	29	13.0%	16	8.2%
Graduate Studies	14	6.2%	6	3.1%

Faculty Overall. Combining the participants from Form A and Form B complete faculty survey responses, which include 418 respondents that currently teach online. While 50 respondents (12.0%) are fulltime faculty, the majority (368; 88.0%) of respondents classify themselves as adjunct faculty. Faculty reported a wide range of online teaching experience (0 to 27 years) with a mean of 6.87 years (*SD*=4.56). In addition to their online teaching experience, respondents also indicated extensive campus-based teaching experience with a mean of 7.54 years (*SD*=8.24). Faculty represent a range of academic disciplines: 22.5% business; 18.9% education; .5% fine arts; 20.6% humanities and social sciences; 20.8% nursing and health care; 1.2% science, engineering and technology; 10.8% theology; and 4.5% graduate studies. No information was collected on faculty age, gender, or ethnicity.

Results

A one-way ANOVA was conducted to examine differences between full-time and adjunct faculty perceptions of the impact of various pedagogical tools on the efficiency of teaching in the online classroom. Results indicated that adjunct faculty rated automatic notification when a student posts a question or comment in the online classroom significantly more valuable (i.e., greater impact on teaching efficiency) than did full-time faculty. There were no significant differences as a function of faculty role on any other pedagogical tools. Table 4 provides complete ANOVA results with significant differences highlighted.

Table 4: Significant Differences of Faculty Perception of Pedagogical Tools on Instructional Efficiency by Faculty Role

Pedagogical Tool	*Df*	*F*	*p*
Integration of feedback banks to automate repetitive feedback	1, 217	1.219	.271
Ability to "push" communication or information to students outside the online classroom	1, 219	.951	.330
Automated means of notifying you (without logging into the online classroom) when a student posts a question or comment	1, 219	25.725	.000*
Synchronous chat	1, 219	1.562	.213
Synchronous videoconference	1, 217	.987	.332
Synchronous whiteboard or screensharing	1, 219	.402	.527

*adjunct faculty rated the impact significantly higher

An examination of the mean ratings of pedagogical tools by faculty role indicates that both full-time and adjunct faculty agree that integration of feedback banks to automate repetitive feedback ($\bar{x}$=3.91, SD=1.18) are valuable for increasing teaching efficiency. In addition, both faculty groups believe the ability to push communication or information to students outside the online classroom would improve the efficiency of teaching ($\bar{x}$=3.74, SD=1.23). Faculty were also consistent in their views that synchronous tools (e.g., chat, videoconference, whiteboards) had less impact on instructional efficiency than integrated feedback banks or push communication strategies. Table 5 provides the means and standard deviations for perceived efficiency impact of all pedagogical tools as a function of faculty role. It is important to note that faculty believed all the pedagogical tools has at least some value in increasing the efficiency of their online teaching.

Table 5: Mean Ratings for Perceived Efficiency Impact of Pedagogical Tools by Faculty Role

Pedagogical Tool	Fulltime		Adjunct		Overall	
	M	*SD*	*M*	*SD*	*M*	*SD*
Automated means of notifying you (without logging into the online classroom) when a student posts a question or comment	2.93	1.46	4.07	1.09	3.92	1.21
Integration of feedback banks to automate repetitive feedback	4.13	1.11	3.88	1.19	3.91	1.18
Ability to "push" communication or information to students outside the online classroom	3.53	1.66	3.77	1.16	3.74	1.23
Synchronous chat	3.2	1.47	3.51	1.22	3.47	1.26
Synchronous videoconference	3.13	1.41	3.39	1.28	3.35	1.3
Synchronous whiteboard or screen sharing	3.13	1.5	3.3	1.3	3.28	1.32

An analysis of the open-ended "other" response option also highlighted the potential value of integrated tools to edit grammar allowing the instructor to focus on content and inclusion of project management tools (such as Slack; www.slack.com). While one faculty indicated that the value of synchronous tools may be intensified in courses that students perceive as difficult (i.e. match, statistics, research, etc.), several faculty cautioned that despite efficiency benefits for the instructor, reliance on synchronous interaction may not fit the needs/schedules of students taking online courses.

Recognizing that instructional supplements may foster the efficiency and impact of teaching time, faculty were asked about the perceived value of various resources that could be provided via an Instructor Manual. A one-way ANOVA of faculty perceptions of the potential value that various Instructor Manual resources could have on online teaching found no significant differences between the views of fulltime and adjunct faculty; Table 6 provides complete ANOVA results.

Table 6: ANOVA Results of Faculty Perception of the Value of Instructional Manual Resources

Instructional Manual Resource	*Df*	*F*	*p*
Links to module-specific videos	1, 188	1.57	.211
Links to module- or topic-specific websites	1, 193	.608	.437
Module outlines	1, 192	3.50	.063
Module summaries	1, 192	1.30	.256
Text-based lectures for each module	1, 193	2.67	.104
Module announcements	1, 193	.73	.394
Answer keys to all assignments	1, 193	2.57	.111
General assignment feedback	1, 193	.022	.962
Stock discussion prompts relevant to each discussion	1, 191	1.14	.286
Feedback banks with specific feedback comments relevant to each assignment	1, 192	2.89	.091
Feedback banks for each discussion question	1, 193	3.72	.055
Feedback banks for discussion participation	1, 191	2.25	.136
Information regarding 3rd party contracts	1, 191	1.52	.218

Reviewing the mean scores of online faculty's perceived value of Instructor Manual resources, all but one of the potential resources showed mean value ratings above 3.0 (the mid-point of the rating scale indicating "some value"). The only resource that faculty didn't feel provided value to their teaching was information regarding third party contracts ($\bar{x}$=2.32,

SD=1.64). Faculty indicated that links to module-specific videos, links to module- or topic-specific websites, module outlines, module summaries, and answer keys to all assignments were rated as having the most value for online teaching. Faculty rated the value of stock discussion posts and feedback lower than module- and topic-based resources. Table 7 provides the means and standard deviations for perceived value of all Instructor Manual resources by faculty role.

Table 7: Mean Ratings for Perceived Value of Instructor Manual Resources by Faculty Role

Instructor Manual Resource	*Fulltime*		*Adjunct*		*Overall*	
	Mean	SD	Mean	SD	Mean	SD
Links to module-specific videos	4.45	0.89	4.15	1.04	4.18	1.02
Module summaries	4.4	0.88	4.15	0.94	4.18	0.93
Module outlines	4.55	0.69	4.12	1	4.16	0.98
Links to module- or topic-specific websites	4.3	1.03	4.12	0.97	4.14	0.977
Answer keys to all assignments	4.55	0.69	4.08	1.29	4.13	1.25
Module announcements	4.2	1.36	3.98	1.04	4.01	1.08
Feedback banks with specific feedback comments relevant to each assignment	4.42	0.84	3.94	1.19	3.99	1.17
Text-based lectures for each module	4.35	0.88	3.94	1.09	3.98	1.07
General assignment feedback	3.95	1.05	3.94	1.16	3.94	1.14
Feedback banks for discussion participation	4.3	0.98	3.88	1.21	3.92	1.19
Feedback banks for each discussion question	4.4	0.82	3.86	1.23	3.91	1.2
Stock discussion prompts relevant to each discussion	4.1	1.02	3.8	1.19	3.83	1.17
Information regarding 3rd party contracts	2.75	1.89	2.27	1.61	2.32	1.64

Table 7: Mean Ratings for Perceived Value of Instructor Manual Resources by Faculty Role

Highlighted in the open-ended responses to the "other" response option, faculty repeatedly mentioned that the value of any given resource depends upon the quality of the instructional resources provided. Equally important, respondents noted that experienced faculty have likely built their own banks of content, feedback and materials for their classrooms; thus, the value of an instructor manual may be greater for new faculty or for faculty new to teaching a specific course. Faculty indicated that any/all instructional supplements may be helpful to have as a resource, but that the specific utility would vary widely from instructor to instructor.

A content analysis of the open-response question, "If you could streamline your online teaching, where would you invest the time you save?" revealed nine themes (17.06% of the responses were deemed irrelevant to the current question; the responses coded irrelevant are not reflected in the identified themes). Table 8 overviews each theme and its prevalence in the faculty comments.

Table 8: Themes for Faculty Time

Theme	*Description*	*Prevalence*
Student interaction	Emphasis on spending more time interacting with students in discussion threads, email, and videoconference	25.29%
Enhance teaching	Focus on preparing instructional materials and delving into disciplinary research/readings to enhance content knowledge	24.12%
Feedback	Emphasis on time to create more detailed, high-quality feedback in response to student assignments	14.71%
Non-academic interests	Focus on work-life balance, spending more time on non-work-related interests	11.76%
Technology	Desire for more time to learn new instructional technologies	10.00%
Research	Invest additional time conducting disciplinary research	5.88%
Faculty development	Emphasis on increased participation and engagement with faculty development opportunities to enhance their teaching	5.29%
Teach more classes	Desire to teach additional courses and increase the overall workload	1.76%
Service	Highlighted more time investment in professional service obligations and committee work	0.59%

Two dominant themes, student interaction and enhance teaching, account for approximately half of the open-ended responses. Within the student interaction theme, faculty highlighted that they would like to have more time to invest in student interaction. While interacting in the discussion threads was the most commonly mentioned area, faculty also expressed a desire to spend more time engaging in email exchanges, videoconferences and synchronous chat. As expressed by one faculty, "I would spend more time assisting students with the information in the classroom to prepare them for the degree/role. I would invest more time helping the students succeed in the program." This sentiment was echoed by another faculty who stated, "It would be lovely to reach out to the students who sit in the shadows and find ways to help them become more engaged." With a focus on enhancing teaching, faculty emphasized a desire for more time to create instructional supplements as well as staying current with disciplinary content. One faculty member explained, "I would do more readings to strengthen my grasp of the subject matter I am dealing with which will, in turn, pay dividends in the classroom via my ability to teach my students." Another faculty member expressed the desire to help foster increased learning via content development, "I would invest time in creating more practical, applied resources that students can use to master the objectives of the course." Relevant to their role as a teacher, many faculty also indicated that they would like to spend more time providing high-quality student feedback and learning about new instructional technologies.

Discussion

Investigations into faculty efficiency have the potential to benefit not only the faculty, but more importantly the students and institutions in which they serve. Faculty currently seem to be spending a disproportionate amount of time on grading and feedback (in some cases, over half their time), with very little time spent on one-on-one communication with students and content development (Mandernach & Holbeck, 2016). Facilitating discussion threads in the online classroom also consistently account for a larger portion of faculty time, in addition to one-to-one communication and curriculum development (Mandernach, Hudson & Wise, 2013). While providing feedback and facilitating discussions are both pivotal elements of online instruction, the disproportionate time spent in these two areas leaves little time for other tasks that faculty may want or need to spend their time on (i.e. research). Fortunately, providing feedback on student assignments is one particular area that research has shown can be completed more efficiently. Faculty can still provide meaningful quality feedback in less time, through the use of multimedia, pre-written feedback, proper time management techniques, and through adopting a more holistic approach with student feedback (Mandernach, 2013; Mandernach, 2014). The strategic balance of quality and efficiency of instruction appears to be an area of continued attention within the community of online faculty (Frazer, Henline Sullivan, Weatherspoon & Hussey, 2017).

Faculty are calling for increased efficiency so they can more proportionately spread their time across their roles as instructors, content experts, researchers, mentors and professionals of the university to which they belong. Research, presentation, peer review and publication are areas of opportunity for faculty that also benefit the university. The nature of online instruction leads to a geographically diverse faculty body, resulting in rich opportunities for research, but with time constraints (Donnelli-Sallee, Dailey-Hebert & Mandernach, 2012). Without institutional support, faculty run into barriers against time and resources that are required to participate in scholarly activities (Sallee & Norris, 2014). While faculty wish to research, publish, peer review and present as subject matter experts in their fields, they are met with time-related challenges. Even though faculty may use some of their freed up time for research and professional development, efficiency would ultimately benefit their students. For example, many instructors would like to incorporate more one-on-one communication with students through the use of synchronous elements, however they find time and scheduling a major barrier to its success and implementation (Huang & Hsiao, 2012). Mandernach and Holbeck (2016) found that while development of additional resources and course content promote student success, this accounts for about 10% of faculty time. With improved efficiency, faculty would have an opportunity to spend more time in these areas, thus directly benefiting their students.

Comparison of Perceptions

As evidenced in Table 1, faculty perceive value in automated methods and technology that support efficiency in online teaching. Both full-time and adjunct faculty closely agree on the value of push notifications or communication to students (Full-time *M*=3.53, Adjunct *M*=3.77), synchronous chat (Full-time *M*=3.20, Adjunct *M*=3.51), synchronous video conferencing (Full-time *M*=3.13, Adjunct *M*=3.39), and synchronous whiteboard or screen sharing (Full-time *M*=3.13, Adjunct *M*=3.3) however, the groups differ on their perceived value of automated methods of notification that students have posted a question or comment (Full-time *M*=2.93, Adjunct *M*=4.07), and integration of automated feedback banks

(Full-time *M*=4.13, Adjunct *M*=3.88). The disparity for the value on automated notifications may be due to full-time faculty's presence in their classrooms (Monday-Friday or full-time) versus part-time adjunct faculty who are teaching a class as a contract (i.e. 10-20 hours per week). When full-time instructors are in their classes every day, there is less concern that a question or comment will be missed or go unanswered for any length of time. Full-time faculty have job expectations that require them to be more attentive to their students on a daily basis. In contrast, adjunct instructors accept contracts to teach a course, where faculty expectations might be comparable to full-time instructors based on level and quality of engagement, but the time spent per day should logically be about half that of a full-time instructor. Furthermore, as full-time instructors, a myriad of tasks fill their day, such as teaching, research, curriculum design, and service to the university. The benefit to a full-time instructor appears reasonable, when the instructor stands to gain time for additional roles and administrative tasks outside of the immediate scope of their teaching role. While still of value to adjunct instructors, it was less of a priority.

Implications

Knowing the value instructors place on automation and technology within online modalities, having tools and applications that create opportunity for efficiency of workflow can be a game changer. Tools and applications currently in use by some faculty prove to be beneficial and support efficiency in daily tasks. For example, a software application created for commonly used comments in papers (i.e. Good job!) acts as a clipboard for instructor comments (Clark, 2001). Another application (Typeitin) can be customized for each assignment or task a student submits that requires comments or feedback and this interfaces well with Microsoft word. The clipboard remembers the instructor's comment and with the click of a button, the comment is inserted into the document as feedback. A feedback bank is created through the creation of multiple buttons which are given descriptive names and customized by the instructor for each assignment. A wonderful benefit to faculty, includes repeated comments are now automated and thus do not have to be typed every time a student's assignments requires the same comment as the previous student. While the process of inserting these comments can seem tedious, the time it saves on each assignment can free up the instructor's time to be spent on other tasks. While feedback can be beneficial to students' outcomes, it can also serve as an untapped resource when automated for the same errors in students' papers (Van der Hulst, Van Boxel, & Meeder, 2015).

There can be practical and pedagogical benefits to feedback tools (Van der Hulst et al., 2015). Some of these benefits include storage of feedback, easier construction of comments that are frequently used, and easier management of assignments. Peermark, previously known as GradeMark is a tool developed by the well-known software company Turnitin©, used for similarity checking on papers that help identify plagiarism. The feedback studio purports to help instructors with feedback, similarity checks, and online grading. The grading tool is accessible directly from the student's submission within the software. The software will check the submission (artifact) for similarity, while offering the options for comments, inline comments, QuickMark, rubric scoring, voice and summary comments. The software provides a one-stop-shop for quick and efficient grading. Van der Hulst et al. (2015) found that GradeMark saved instructors time. Overall, digital management offers logistical benefits to instructors, which can save time and support an efficient workload. The endless possibilities these tools can offer from organization of feedback, to storage of common comments used on assignments, are not only beneficial to the instructor, but the student as well. Students report preference for embedded rubric comments/feedback electronically, which reference the exact error and ultimately increase student outcomes (Van der Hulst et al., 2015)

Integration of technology, software and digital applications has a limitation for those that are not computer savvy or literate in technology. In order for universities to support their faculty with this integration, possible training, workshops and manuals would have to be provided. Time would have to be set aside by faculty members to learn new ways to manage their classrooms using these tools, which to some extent can negate the "free" time they seek for additional tasks. However, the benefits can be two-fold where the long-term investment made, may initially take time from the faculty and money from the university, but the return on the investment is happier and more efficient faculty, who engage in more research and service to the university, while effectively teaching their classes and staying up to date with technology. This benefits the student in the end. Workshops and webinars can be recorded for training purposes. In addition, tips and manuals with best practices can be shared among faculty in order to have cost benefit in the long term.

References

Apaydin, C. (2002). The workload of faculty members: The example of educational faculties in Turkey. *College Student Journal 46*(1), 203-213.

Baran, E. & Correia, A. P. (2014). A professional development framework for online teaching. Techtrends, 58, 96-102. doi:10.1007/s11528-014-0791-0.

Basko, L., & McCabe, C. (2018). Keeping your sanity while keeping your students: How teacher engagement can increase student persistence when teaching students during their first college course. *Journal of Instructional Research*, *7*, 119–123.

Bell, A. (2009). *Exploring Web 2.0: Second generation interactive tools – blogs, podcast, wikis, networking, virtual worlds, and more*. Georgetown, TX: Katy Crossing Press.

Blaxter, L., Hughes, C., & Tight, M. (1998). Writing on academic careers. *Studies in Higher Education*, *23*(3), 281–95.

Botha, P. (2015). Allocation of academic workloads in the faculty of human and social sciences at a South African university. *Africa Education Review*, *12*(3), 398-414. doi:10.1080/18146627.2015.1110902

Clark, J. (2001) Innovations in useful Web tools. *Behavioral & Social Sciences Librarian, 19*(2), 77-80, doi: 10.1300/J103v19n02_06

Daniel, J. & Uvalic´-Trumbic´, S. (2013). A guide to quality in online learning. Retrieved from https://www.academicpartnerships.com/Resource/documents/A-Guide-to-Quality-in-Online-Learning.pdf

Demski, J. (2009). Free at last. *T.H.E. Journal, 36*(6), 39-44.

D'Hoest, F., & Lewis, T. E. (2015). Exhausting the fatigue university: In search of a bio politics of research. *Ethics and Education*, *10*(1), 49-60.

Donnelli-Sallee, E., Dailey-Hebert, A. & Mandernach, B.J. (2012). Professional development for geographically-dispersed faculty: Emerging trends, organizational challenges and considerations for the future. To Improve the Academy: Resources for Faculty, *Instructional and Organizational Development, 31*, 3-20.

Elison-Bowers, P., Sand, J., Barlow, M. R., & Wing, T. J. (2011). Strategies for managing large online classes. *International Journal of Learning*, *18*(2), 57–66.

Espasa, A., & Meneses, J. (2010). Analysing feedback processes in an online teaching and learning environment: An exploratory study. *Higher Education, 59*(3), 277-292. Retrieved from https://www.researchgate.net/profile/Julio_Meneses/publication/226711331_Analysing_feedback_processes_in_an_online_teaching_and_learning_environment_An_exploratory_study/links/feedback-processes-in-an-online-teaching-and-learning-environment-An-exploratory-study.pdf

Frazer, C., Henline Sullivan, D., Weatherspoon, D. & Hussey, L. (2017). Faculty perceptions of online teaching effectiveness and indicators of quality. *Nursing Research and Practice, 2017*(1). Retrieved from https://www.hindawi.com/journals/nrp/2017/9374189/

Fricker, D. (2013). The 24/7 always available always on graduate/teaching assistant: A case study of nearly perfect retention and completion in an online course. *Review of Higher Education & Self-Learning*, *6*(21), 144–152.

Gikandi, J. W., Morrow, D., Davis, N. E. (2011). Online formative assessment in higher education: A review of literature. *Computers & Education, 57* (2011) 2333-2351

Haggerty, C. E. (2015). Supporting academic workloads in online learning. *Distance Education, 36(*2), 196–209. http://dx.doi.org/10.1080/01587919.2015.1055057

Hammond, H. G., Coplan, M. J., Mandernach, B.J. (2018). Administrative considerations impacting the quality of online teaching. *Online Journal of Distance Learning Administration*, 21(4).

Hinrichsen, Bonnie, B., Jackson, Janet E., Johnson, Celia E., Templeton, Rosalyn A., Flannigan, Peggy N., Lawrence, Betty J., Modianos, Doan T., & Skaggs, Jobie L. (2002, April). A study of faculty workload as a means of improving the student learning environment. *Annual Meeting of the American Educational Research Association*, New Orleans, LA.

Huang, X. "Silvie," & Hsiao, E.-L. (2012). Synchronous and asynchronous communication in an online environment: faculty experiences and perceptions. *Quarterly Review of Distance Education*, (1), 15.

Inegbedion, J. O. (2017, July). Academic workload planning for open and distance learning (ODL) universities: The experience of national Open University of Nigeria (NOUN). *Open Praxis, 9*(3), 313–333 (ISSN 2304-070X)

Karakutuk, K., Tunc, B., Ozdem, G., Bulbul, T. (2008). Egitim Fakultelerinin Ögretim Ele-mam Profili. [The Profile of Academic Staff of Educational Faculties]. The Publish of Educational Sciences Faculties in Ankara University, No: 205. Ankara.

Karal, H., Çebi, A., & Turgut, Y. E. (2010). Live authority in the classroom in video conference-based synchronous distance education: The teaching assistant. *Turkish Online Journal of Distance Education (TOJDE)*, *11*(3), 50.

Kausar, R. (2010). Perceived Stress, Academic Workloads and Use of Coping Strategies by University Students. *Journal of Behavioural Sciences, 20,* 31–45.

Kenny, J. (2016). Academic work and performativity. *Higher Education 74*(5). 897. Retrieved from Gale Academic OneFile Database: Accession Number edsgcl.508461944

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.

Laster-Loftus, A., & Cooper, L.J. (July, 2019). The role of Instructional videos in psychology students' course success. *The Journal of Educators Online, 16*(2).

Light, D. (2012). Principals for Web 2.0 Success. *Learning & Leading with Technology*, *39*(8), 18–20.

Ljubojevic, M., Vaskovic, V., Stankovic, S., & Vaskovic, J. (2014). Using supplementary video in multimedia instruction as a teaching tool to increase efficiency of learning and quality of experience. *International Review of Research in Open & Distance Learning, 15*(3), 275.

Mandernach, B. J. (2013). Quality feedback in less time. *Online Classroom, 13* (6), 1, 7.

Mandernach, B. J. (2014). Efficient and effective feedback in the online classroom. A Magna Publications White Paper (Ed. J. Garrett). Madison, WI: Magna Publications, Inc.

Mandernach, B.J. & Holbeck R. (2016). Teaching online: Where do faculty spend their time? *Online Journal of Distance Learning Administration, 14*(4).

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).

Martin, F. & Parker, M.A. (2014). Use of synchronous virtual classrooms: Why, who and how? *MERLOT Journal of Online Learning and Teaching, 10*(2), 192-210.

McInnis, C. 2000. Changing academic work roles: The everyday realities challenging quality in teaching. *Quality in Higher Education 6*(2): 143–152.

Meyer, K. A. (1998). Faculty workload studies: Perspectives, needs, and future directions. *ASHE- ERIC Higher Education Reports, 26*(1), 1-101.

Morel, G. M., Ennis-Cole, D. (2016). Evaluating student and instructor use of video feedback in an online learning environment. *IEEE 16th International Conference on Advanced Learning Technologies*. Retrieved from https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7757049&tag=1

Nikolic, S. (2015). Understanding how students use and appreciate online resources in the teaching laboratory. *International Journal of Online Engineering*, *11*(4), 8–13. https://doi-org.lopes.idm.oclc.org/.doi: 10.3991/ijoe.v11i4.4562.

Sallee, E., & Norris, V. R. (2014). Expectations, motivations, and barriers to professional development: Perspectives from adjunct instructors teaching online. *Journal of Faculty Development, 28*, 67-82.

Sax, B. (2002). Brief report: new roles for tutors in an online classroom. *Journal of College Reading and Learning*, (1), 62.

Schaffer, H. E., Young, K.R., Ligon, E. W., & Chapman, D.D. (2017, February). Automating individualized formative feedback in large classes based on a directed concept graph. *Frontiers in Psychology*. https://doi.org/10.3389/fpsyg.2017.00260

Seaberg, J. R. (1998). Faculty reports of workload: Results of a national survey. *Journal of Social Work Education, 34* (winter), 1.

Shelton, K., (2011). A review of paradigms for evaluating the quality of online education programs. *Online Journal of Distance learning Administration, 4*(1).

Shihab, M.M. (2008). Web 2.0 tools improve teaching and collaboration in English language classes. San Antonio, TX: National Educational Computing Conference. Retrieved from ProQuest database. (UMI No. 3344829)

Sudicky, P. (2013). Students as e-teacher assistants: Promoting innovation and effectivity of e-learning solutions among the faculty. Proceedings of INTED2013 Conference. Valencia Spain. ISBN: 978-84-616-2661-8

Tight, M. (2000). Reporting on academic work and life: A year of The Times Higher Education Supplement. In Tight, M. (Ed). *Academic work and life*: What it is to be an academic, and how this is changing. *International Perspectives on Higher Education Research, 1,* 371-406. Emerald Group Publishing Limited.

Tight, M. (2010). Are academic workloads increasing? The post-war survey evidence in the UK. *Higher Education Quarterly, 6*, 200-215.

Vaughan, N. (2007). Perspectives on blended learning in higher education. *International Journal on E-Learning*, *6*(1), 81–94. Education Research Complete (23316596)

Walkow, J. C., & Reilly, E. (2014). Are we ready for robots to grade? *Chronicle of Higher Education*. B41–B42.

Weidert, J. M., Wendorf, A. R., Gurung, R. A. R., & Filz, T. (2012). A survey of graduate and undergraduate teaching assistants. *College Teaching*, (3), 95.

Wilborn, T. W., Timpe, E. M., Wu-Pong, S., Manolakis, M. L., Karboski, J. A., Clark, D. R., & Altiere, R. J. (2013). Factors influencing faculty perceptions of teaching workload. *Currents in Pharmacy Teaching & Learning, 5*(1), 9-13. doi:10.1016/j.cp