Lach, P. A., Russell, L. M., & Morgan, R. K., (2022). Power Users and the CTL: What we learned about filtered informal learning in the time of COVID. *Journal on Centers for Teaching and Learning, 14*, 106-133.

Power Users and the CTL: What We Learned about Filtered Informal Learning in the Time of COVID

Patrick A. Lach, Lisa M. Russell, & Robin K. Morgan

One common way faculty learn how to teach is through interactions with colleagues. However, this practice can result in the sharing of ineffective ideas or teaching strategies. This study introduces the term "filtered informal learning," which refers to the informal sharing of best practices filtered through an authoritative source such as a campus Center for Teaching and Learning (CTL). This study examines how "power users"—faculty who are familiar with, implement, and share best practices learned through formal CTL events—facilitated filtered informal learning during the emergency transition to online learning (ETOL) that accompanied the COVID-19 pandemic in March of 2020. While this study takes place in a very unusual setting (in the midst of a pandemic), it offers a glimpse into how faculty and CTL staff may prepare for future challenges. CTL staff who worked with power users were significantly more likely to report an increase in workload relative to CTL staff who did not work with power users. However, CTL staff who worked with power users were significantly more likely to indicate that they were able to offer the same quality of service after the ETOL as they did before the ETOL. Open-ended interview questions given after the initial survey show that while power users are familiar with instructional technology, they are relatively less familiar with best practices and campus and federal guidelines for online learning. Regular meetings between CTL staff and power users can help familiarize power users with best practices and campus/federal guidelines.

Introduction

Workers in virtually all disciplines learn their jobs three ways: through experience, interactions with colleagues, and formal training opportunities. Formal training opportunities can occur via workshops or independent reading of books and journal articles from authoritative sources. Although the actual percentage of learning occurring in these three areas is disputed in the workplace literature (Clardy, 2018), Johnson et al. (2018) argue most workplace learning is through experience. In academia, this learning includes prior experience as an instructor, observations as a student, and independent reading about college teaching. Oleson and Hora (2014) find prior experience as an instructor is the biggest factor that influences faculty teaching. Likewise, Knight et al. (2006) found part-time tutors indicated "simply doing the job of teaching in higher education" was rated as the most common method of learning how to teach.

Another common way workers learn their jobs, however, is through interacting with their colleagues (Billett, 2004; Boud & Middleton, 2003), a way that applies in the higher education arena as well (McDermott & Archibald, 2010; Rienties & Kinchin, 2014; Roxå & Mårtensson, 2009; Steinert et al., 2006; Van Waes et al., 2015). For instance, Rienties and Kinchin (2014) report faculty discuss teaching 128 times per year with colleagues. Roxå and Mårtensson (2009) find the number of "conversational colleagues" varies by discipline from 5.4 colleagues (engineering) to 8.4 colleagues (social sciences).

Learning through experience and learning through interactions with colleagues are typically referred to jointly as "informal learning" (Clardy, 2018). This type of learning differs from formal learning (such as classes and workshops) because it is typically spontaneous and unplanned. Informal learning is so common in academia partly because there is often little formal learning related to teaching in doctoral programs. Instead, most doctoral programs focus on training students to perform research, which is ironic considering that most faculty positions in higher education focus on teaching (Brownell & Tanner, 2012). One potential factor that can complicate formal learning related to teaching is the passage of time between the formal learning activity (e.g., workshop) and application of the skill in the classroom (Johnson et al., 2018). Furthermore, not every Center for Teaching and Learning (CTL) has the resources to engage all faculty. Typically, the only opportunity for formal learning occurs with mandatory new faculty orientation and training. After initial training, faculty rarely

attend additional formal learning events offered by their CTLs (Sweet et al., 2017).

Research universities—where most professors attend graduate school—have cultures where teaching professors are viewed as lower status. Brownell and Tanner (2012) argue faculty members sometimes identify as "research professors" and worry that attending formal training events would lead to being labeled as "teaching professors," diminishing their standing. Another reason faculty may be hesitant to attend formal learning events offered through CTLs is due to their perception of their own teaching as "effective" or "excellent" (Roxå & Mårtensson, 2009). There seems little reason to attend a CTL event if faculty members already perceive themselves as excellent teachers. Alternatively, attending a CTL event may lead a faculty member to realize they rely on ineffective teaching strategies. This realization may be especially vexing for faculty members who have relied on the same teaching methods for multiple decades (Brownell & Tanner, 2012).

While faculty hesitancy to attend formal CTL events is indeed troublesome, informal learning does not always serve as an adequate substitute. Although informal learning represents an inexpensive form of training (McDermott & Archibald, 2010), one major pitfall is that faculty may observe or share strategies and ideas not supported by empirical research (Clardy, 2018; Roxå & Mårtensson, 2009; Johnson et al., 2018). When it comes to mentoring, a faculty member's success becomes a matter of being lucky enough to find a mentor who will share effective rather than ineffective or even harmful strategies and ideas (Johnson et al., 2018). Even if a faculty member is lucky enough to be surrounded by colleagues knowledgeable of best practices, their growth and development is still left to chance because it is dependent upon being in an environment that encourages mentorship and sharing ideas (Clarke & Hollingsworth, 2002).

Ideally, informal learning should occur via someone who is knowledgeable about teaching and pedagogy. We refer to such instances as "filtered informal learning" since the informal learning has been filtered through a formal learning source, such as a CTL. Filtered informal learning has a variety of advantages that address the problems of faculty hesitancy with formal learning. First, filtered informal learning allows a faculty member to take best practices of a CTL training event, process them, and customize them to the unique needs of their discipline. Marback-Ad et al. (2015) argue discipline-based application is important because a colleague in the same discipline may be able to better understand and visualize technical

material, making it easier for the colleague to provide suggestions and strategies for helping students learn technical material.

Another advantage of filtered informal learning is that faculty members may trust the source of the message more if it comes from another colleague within their discipline instead of a CTL. Roxå and Mårtensson (2009) argue privacy and trust are important when teachers talk to one another about teaching. Trust and privacy are more likely to be present when two faculty members in the same discipline speak one-on-one compared to a campus-wide CTL event where participants share information in a large group. Roxå and Mårtensson (2009) report conversations in large groups are less personal and less sincere relative to conversations between two colleagues. Similarly, Borgatti and Cross (2003) note people are more likely to seek information from another person if they know what the other person knows, value that person's advice, and can easily access the person's expertise without a high cost. Andrews et al. (2016) argue faculty members are more likely to seek advice from colleagues in their own department because they meet the conditions posited by Borgatti and Cross (2003), and Rienties and Kinchin (2014) note participants in formal professional development programs do often discuss what they learn with colleagues outside of these programs. As a way to encourage such discussions, researchers (e.g., O'Sullivan & Irby, 2011; Stes et al., 2007) advocate participants in formal faculty development programs should be given time to share what they have learned with colleagues in their own discipline. This exchange could be done via semi-formal venues such as brownbag or lunch-and-learn presentations within their own discipline or in cross-disciplinary settings. Other researchers (e.g., Calderwood & Klaf, 2014; Smith, 2019) argue one role of a CTL is to not only mentor faculty but also to support faculty in mentoring each other.

The idea that participants can take skills learned formally at CTL events and transfer them informally with their colleagues is not new. Debelius and Mooney (2020) describe using "faculty peer mentors" who served as a bridge between their university's CTL and their respective departments. Sweet et al. (2017) document a similar experience, although they use the term "faculty innovators" to describe faculty who have been vetted by CTL staff as faculty members who are well-versed in best practices of teaching. Lach et al. (2021) suggest faculty members who frequently interact and engage with their university's CTLs can help lighten the increased workload that CTLs may experience during an emergency transition to online learn-

ing (ETOL). For example, during the ETOL of 2020 caused by the coronavirus pandemic, CTL staff worked additional hours to meet increased faculty demand (Aebersold et al., 2020).

Building on the work of prior researchers (e.g., Debelius & Mooney, 2020; Lach et al. 2021; Sweet et al., 2017), this study uses the term "power users" to refer to faculty who are familiar with, implement, and share best practices learned through formal CTL events. The objective of this study is to examine how power users impacted the workload, stress, and efficacy of CTL workers during the COVID-19 pandemic. Crisis events produce significant imbalances between environmental demands and response capabilities of people or organizations. Theses imbalances differ from daily stressors in that they are generally rare, scaled, and disruptive, creating the need to alter other areas of life or occupation to contend with the situation (Russell, 2011). Any type of crisis can fundamentally disrupt organizations, departments, and individuals.

Because people generally learn how to do their jobs through experience, social interaction, and formal training, social network theory (Granovetterr, 1973) offers a lens through which we can view the dynamic interaction of academic continuous learning through others. Specifically, we are interested in how power users take what they learn from their experience with a campus CTL and disseminate their knowledge throughout their respective departments. These types of individuals are highly trained by the CTLs. Social Network Theory allows the examination of key players around which organizational relationships are centralized for sharing resources and driving outcomes (Burt, 1992; Granovetterr, 1973). Thus, according to social network theory, power users serve as innovators and strong change agents. They are not only advocates for change but also often strong advocates opposed to change. Such individuals are the most likely to influence colleagues' views about best practices in teaching.

Hypotheses

Given the supporting evidence above, we proposed the following hypotheses:

H1: Power users decreased the workload of CTL staff during the ETOL.
H2: Compared to CTL staff who did not work with power users, CTL staff who worked with power users reported providing the same quality of service during the ETOL as they did before the ETOL.

H3: Compared to CTL staff who did not work with power users, CTL staff who worked with power users reported lower levels of job-related stress during the ETOL.

Methods

Thirty-nine CTL staff from a large, mid-western public university with multiple campuses initiated a survey distributed to all the school's CTL offices. Participants were eliminated from analysis if they did not complete the survey. As a result, 24 staff were included in the final analysis. Of those, 21 participants reported their campus, with ten from the main campus and 11 from the regional campuses. CTLs across the regional campuses were equally represented.

Limited demographics were collected. Of the 18 participants who reported their gender, 27.8% self-identified as male and 72.2% self-identified as female. This pattern mirrored the CTL gender patterns at our university at the time of this survey. Twenty faculty answered the question regarding teaching, with eight faculty CTL staff members indicating they also teach courses. Of those who teach, responses to questions about teaching modality were also proportionally represented. Twenty-five percent of the participants indicated they typically teach both face-to-face and online, 62.5% indicated they typically only teach face-to-face, and 12.5% indicated they typically only teach online. For CTL staff with teaching experience, 25% of the participants in our study had five years of teaching experience or fewer, 50% had between six and 10 years of experience, 12.5% of participants had between 11 and 20 years of experience, and 12.5% had more than 20 years of teaching experience.

Materials

A researcher-created survey included questions in three main categories. First, a limited number of demographic questions such as gender and teaching experience were included. Second, questions were included about perceived stress, preparation for the ETOL, and assisting faculty with the transition to online teaching. The third category of questions related to the use of power users, those faculty who are familiar with, implement, and share best practices learned through formal CTL events.

Procedure

The university Institutional Review Board reviewed and approved this study. In May of 2020, the survey was distributed to all campus CTLs throughout the university system via campus email. This email included a link to the Qualtrics survey.

Measures & Data Analysis

The authors created measures for this study. Most items required Likert-style responses. Single-item measures were validated using inter-rater reliability (IRR). Three raters (N = 3) agreed that variables accurately reflected the respective constructs. Any disparities were resolved by modifying the items until 100% consensus was achieved. Thus, items in the survey instrument were found to be reliable (IRR – 100%, N = 3).

Stress

A single item measure was used to assess stress among CTL staff. Participants rated the statement "The emergency transition to online learning made my job more stressful than usual" on a five-point Likert scale. An additional item was used to identify specific stressors faced by CTL staff during the transition to online learning. Participants selected a variety of specific aspects when given the prompt "What were the most stressful aspects of the transition to 100% online teaching? Select all that apply." The list of specific aspects is included in the Appendix.

Workload

A single item was used to measure the self-perceived workload of CTL staff. Participants rated the statement "After the emergency transition to online learning was announced, my workload increased" on a five-point Likert scale.

Power Users

Use of power users was measured with three items. First, participants identified either using or not using power users. This identification was

achieved by asking participants (CTL participants) to answer "yes" or "no" to the question "During this emergency transition online, did 'power users' of teaching technology help their respective colleges/departments with basic online teaching tools?" Second, participants who indicated the existence of power users rated the statement "During this emergency transition online, it was helpful to have 'power users' of teaching technology help their respective colleges/departments with basic online teaching tools" on a five-point Likert scale ranging from "strongly agree" to "strongly disagree." Third, all participants rated the statement "In future emergencies, it would be helpful to have 'power users' of teaching technology designated to help their respective colleges/departments with basic online teaching tools" on the same five-point Likert scale.

Teaching Experience

A self-reported measure was used to assess online teaching experience among CTL staff. Participants rated the statement "I typically teach…" by selecting one from among the following: face-to-face only, both face-to-face and online, hybrid only, both face-to-face and hybrid, online & hybrid, online only. Participants were also asked the number of courses taught each semester and the length of time they had been teaching.

Gender

A self-reported measure was used to assess the gender of CTL staff. Participants answered the question "To which gender identify do you most identify?" by selecting one from among the following: female, male, transgender male, transgender female, gender variant/non-conforming, not listed, prefer not to answer.

Results

Hypothesis 1: Power users decreased the workload of CTL staff during the ETOL. Hypothesis 1 is not supported. The workload of CTL staff who worked with power users ($M = 4.2$, $SD = 1.0$) was significantly higher than staff who did not utilize power users ($M = 3.0$, $SD = 1.6$), $t(22) = -2.24$, $p = .035$. Thus, the use of power users significantly increased the workload of CTL staff, not reducing it as hypothesized.

Hypothesis 2: Compared to CTL staff who did not work with power users, CTL staff who worked with power users reported providing the same quality of service during the ETOL as they did before the ETOL. During the transition to online learning, CTL staff who worked with power users were more likely to indicate they were able to offer the same quality of service ($M = 4.0$, $SD = 0.8$) relative to CTL staff who did not work with power users ($M = 2.4$, $SD = 0.5$). This difference was significant, $t(22) = 4.11$, $p = .001$, consistent with Hypothesis 2.

Hypothesis 3: Compared to CTL staff who did not work with power users, CTL staff who worked with power users reported lower levels of job-related stress during the ETOL. Hypothesis 3 is not supported. The stress level of CTL staff who worked with power users ($M = 4.1$, $SD = 1.1$) was similar to those who did not ($M = 3.6$, $SD = 1.7$). This difference was not significant, $t(22) = 0.72$, $p = .477$.

Post-Hoc Analysis

Given the result of one hypothesis was significant, but in the direction opposite of what was predicted, follow-up interviews were conducted with eight CTL staff to provide more insight: four at the main campus and four at various regional campuses. These follow-up interview questions help augment the initial survey results, which should be viewed as tentative and inconclusive based on the small sample and the unusual setting (the midst of a pandemic) in which the data were collected. These interviews were conducted more than two years after the ETOL when many faculty had returned to face-to-face teaching. All eight reported they worked with power users during the COVID-19 pandemic, suggesting power users are a ubiquitous resource in higher education that can improve the reach of a CTL. When asked if they had worked with power users, one staff member stated, "Oh yes. We have one who is a powerhouse. She seeks out, finds out, learns it, and shares it—making a difference with other faculty." This response illustrates the presence of filtered informal learning.

CTL staff were asked, "Did power users help share the information they learned with colleagues? If yes, how did you know about the interactions power users had with their colleagues?" All eight indicated power users shared information. Based on responses, power users coordinated with CTL staff to ensure the information they were sharing with colleagues was accurate. Other times, staff learned of the sharing through department

chairs and deans. One staff member noted, "Many of our power users called our office for advice. They were being asked to help with colleagues in their department and wanted to be sure information they were providing was accurate.… Heard from department chairs and deans that this was occurring across campus." Another staff member shared, "Deans of the respective schools reported back to us about the sharing they had seen."

According to CTL staff, the most common type of information shared by power users related to technological teaching tools. As noted by one staff member, "I think 90-95% of the sharing between faculty related to technology, specifically Zoom and Kaltura with occasional other tools and Canvas. Many faculty were unfamiliar with using Zoom as a teaching tool, and there were many faculty helping one another with breakout rooms and polling. Even simple things like logging in to Zoom before joining a Zoom meeting was new for many of the faculty."

When asked if power users shared best practices, nearly all CTL staff disagreed noting faculty share what works best for them but not necessarily data-driven best practices. This sentiment was best summed up with the following response, "If by 'best practices' you mean what each power user liked best then yes. The problem is that power users shared what worked for them, not necessarily what research suggests is most effective. This is always true though, not just during the pandemic. Faculty will read or hear about some teaching strategy and start sharing it. Many times, it's a fun strategy but hasn't been demonstrated to be effective for student learning." Given the rapid pace of technology and the relatively slow pace of academic literature, it is possible that faculty members begin to experiment with technology in the classroom before the efficacy of such technology is documented in the literature. Additionally, the term "best practices" may have a different meaning for faculty members and CTL staff.

CTL training provides a space for reciprocal exchange between power users and the CTL. It is not only a place for faculty to learn from the CTL, but it should also be viewed as a place where CTLs can learn more about what drives power users. For instance, how do faculty members determine and define best practices? Why do power users adopt some best practices and not others? We leave these questions for future research.

CTL staff indicated that power users, in addition to lacking best practices, did not incorporate the nuances of policy guidelines for online teaching. As suggested by one staff member, this lack of adherence to policy guidelines could have been due to the sudden nature of the ETOL, "Most reported that they felt just getting classes online was all most faculty could

handle.…" This sentiment was echoed by another staff member who stated, "… faculty were just focused on getting students the content."

CTL staff indicated that they spent between 25% to 50% of their time working with power users. In some ways, power users reduced workload. One staff member reported, "In part, they [power users] were able to take on some of the calls we would normally have received. They work more closely with faculty, so [they] have the ability to be more proactive—[they] answer questions before the faculty member even knows they have the question." However, power users often increased workload as noted by one staff member, "Power users asked more questions. If you've ever heard the saying a little bit of knowledge is a dangerous thing then you have a power user in a nutshell. Power users know just enough to be a big problem at times. With a non-power user, I could simply tell them what needed to be done…" Staff indicated power users used a disproportionate amount of their time, but this could be interpreted positively as it demonstrates the close relationship that developed between staff and power users. Although Aebersold et al. (2020) show CTLs can be marginalized in a time of crisis, these responses indicate the central role CTLs can play.

Although some CTL staff experienced an increase in workload, they did not perceive that it impacted the quality of service provided to faculty. One staff member remarked, "Our faculty reported that our services during this time were high quality." Another stated, "…I think our processes allowed us to maintain the quality of our services. Our administration here on campus was very pleased."

These interviews also provided insight regarding power users since the ETOL. When asked, "Do you still have interactions with power users? Do they continue to share information learned in CTL events with their colleagues?" six of the eight CTL staff members reported continuing interaction with power users. One participant stated, "Yes, a lot of [power users] are frequent flyers. Constantly asking questions or adding people to their classes to share materials." However, two staff members noted that the sharing had decreased. One of them reported, "Some yes but many more have simply disappeared. I'm not sure if they are still sharing or have stopped."

Given the potential benefits of working with power users, CTL staff were asked, "Do you think there would be value in formally recognizing them [power users], with a title such as Teaching and Learning Fellows?" The responses were mixed. The four staff members from the main campus reported they currently formally recognize power users. Two other staff

members noted their campus tried it in the past but abandoned the practice. One of the staff members from the main campus, where power users were already being formally recognized, stated, "… it might be good to have more designated fellows who work with the CTL. It would be of benefit if they shared more about best practices and federal/campus guidelines, particularly accessibility." This comment reinforces feedback received earlier in the interviews about power users not adequately addressing best practices and campus guidelines when sharing information.

CTL staff were asked if it would be helpful for power users to "… attend some training with CTL staff to be a bridge between CTLs and faculty to aid in a future crisis." Three staff members worried that staff may not be comfortable having faculty present for their training. One staff member reported, "I'm not sure I would want faculty attending our trainings. There needs to be time for staff to discuss problems [they might be having] with faculty [so] having faculty there would make this uncomfortable for me personally." Three staff members highlighted that logistical difficulties could make joint training difficult. Two staff members indicated meeting once per semester would be ideal. One staff member stated, "Maybe a joint training for CTL and power users once a semester? That might work. So much of training for our office occurs on a daily, informal basis that no faculty—even a power use—could be present all the time."

Discussion

Interestingly, although there is significance for the t-test performed for Hypothesis 1, the significance is in the opposite direction. CTL staff who worked with power users reported an increase in workload rather than a decrease. One possible interpretation of this finding is that power users may have asked CTL staff more detailed and nuanced questions due to their familiarity with various software. These detailed questions may have required CTL staff to conduct in-depth searches. In addition, the one-on-one time CTL staff spend with power users increases workload. In contrast, faculty who lacked familiarity with online teaching tools may have been more likely to simply listen to the input and suggestions of CTL staff, asking fewer questions and using less of the staff member's time. This conjecture was confirmed by post-hoc interviews where CTL staff reported that power users often asked more detailed, in-depth questions, while non-power users were more likely to accept the suggestions of the CTL staff member.

Another potential explanation is that as a result of power users being tapped by other university sources to assist in the ETOL, power users sought additional CTL consultation to ensure the accuracy and completeness of information being shared across campuses. For example, members of a university-wide teaching organization with online teaching experience were asked to assist faculty with the system-wide transition by sharing resources and information they had learned from their respective CTLs. This type of work by power users is consistent with Debelius and Mooney's (2020) "faculty peer mentors" and Sweet et al.'s (2017) "faculty innovators" serving as a bridge between the CTLs and the faculty system-wide during the COVID-19 pandemic. It could be, as proposed by Lach et al. (2021), power users would have otherwise lightened the workload CTLs would have experienced during the ETOL if the power users had been confident and fully trained and/or informed prior to the transition. Again, this postulation was confirmed by post-hoc interviews. CTL staff who worked with power users indicated that while power users were good at sharing the basics of how to use technological tools necessary for online learning, power users lacked knowledge regarding best practices and policy guidelines for online teaching. CTL staff often had to educate power users on best practice and campus and federal policies during the ETOL. Thus, it appears that the filtered informal learning provided by power users needs additional filtration through the reinforcement of best practices and online policy guidelines.

Although CTL staff who worked with power users were more likely to report an increase in workload, they were also more likely to report that they offered the same quality of service as they did before the ETOL, consistent with Hypothesis 2. While power users may have increased the workload of CTL staff, they may also have helped CTL staff by sharing what they have learned with colleagues. During times of crisis, colleague-to-colleague sharing requires the type of privacy and trust noted by Roxå and Mårtensson (2009). This privacy and trust develop when colleagues share challenges and solutions related to teaching either among themselves or in small group settings, compared to large group events. Thus, CTL staff who worked with power users may have been able to offer the same quality of service due to power users sharing their expertise with colleagues in their respective departments. The post-hoc interviews, however, did not support this notion. Although power users generally increased workload with more detailed questions, CTL staff reported that

the quality of service remained high. This perception is supported by findings in the post-hoc interviews. One CTL staff member reported receiving positive feedback from the administration on campus. It is worth noting that all of the post-hoc interviewees reported working with power users, so the interviews were not able to provide insight on the quality of service provided by CTL staff who did not work with power users. We leave this issue to future research.

Hypothesis 3 was not supported as there was no difference in the work-related stress levels of CTL staff who worked with power users relative to those who did not. One possible explanation of this finding is that the sudden nature of the ETOL was stressful for all CTL staff, regardless of whether they worked with power users or not. This finding is consistent with Lach et al. (2022) who found that the ETOL was stressful for all faculty members regardless of their rank or typical teaching modality. Indeed, CTL staff reported working additional hours to meet increased faculty demand during the ETOL (Aebersold et al., 2020). Increased work hours alone are stressful, but in the middle of a global pandemic, they are even more so.

Limitations

The results of this study should be viewed as tentative based on the small sample and the unusual setting in which the data were collected. Even though CTL departments from across a large university system located in the midwestern United States. were sampled, staff sizes of these CTLs were relatively small, which is typical. In fact, the current sample represents more than half of the CTL staff across the university system. Moreover, there is only one CTL per campus resulting in a limited convenience sample.

Data in this study are self-reported and collected through a single questionnaire in a cross-sectional research design. Such self-reported responses from common sources (both predictor and criterion variables) can introduce artifactual bias (Podsakoff & Organ, 1986, Podsakoff et al., 2003) known as common method variance (CMV). CMV can lead to common method bias (Campbell & Fiske, 1959; Fiske, 1982; Podsakoff et al., 2003) resulting in either Type I or Type II errors (Bagozzi & Yi, 1990; Doty & Glick, 1998; Podsakoff et al., 2003; Podsakoff & Organ 1986).

Self-reported data can also lead to additional limitations. One limitation is social desirability bias, a problem where participants provide answers

to research questions that will be viewed favorably to or by others (Edwards, 1953, 1957). Social desirability bias occurs when participants over-report more desirable or "good" behavior or under-report less desirable or "bad" behavior in research studies. In some workplace cultures, people take a sense of pride in being busy and overworked. In such situations, being busy can be seen as a "badge of honor" (Richards, 2019). Given that academia is one such culture where being busy is seen as a desirable behavior, participants may have overstated their actual levels of stress and workload due to social desirability bias.

One major limitation of the post-hoc interviews is the passage of time. The post-hoc interviews were conducted more than two years after the ETOL that accompanied the COVID-19 pandemic. It is possible that the passage of time influenced the post-hoc interview responses, as people's memories may have become less clear and they may have forgotten details over time.

Conclusion

Consistent with social network theory (Granovetterr, 1973), academics continuously learn how to improve their job performance through experience, formal training, and interaction with others. We introduced the phrase "filtered informal learning," which refers to the dynamic interaction of academics sharing formally learned (through CTLs) ideas and best practices outside of the formal learning source. Filtered informal learning mitigates the disadvantage of traditional informal learning where ineffective ideas are sometimes shared.

The filtered informal learning process begins with trusted colleagues attending a formal CTL learning event. Those informed learners then bring that knowledge back to their respective departments and share with their colleagues in an intimate and trusted environment. Our study supports the contention that "power users" worked with CTLs and provided filtered informal learning for faculty within their respective schools, departments, and campuses during the COVID-19 pandemic. CTL staff who worked with power users were more likely to report their workload increased after the ETOL was announced relative to CTL staff who did not work with power users. In addition, CTL staff who worked with power users were more likely to report they provided the same quality of service after the ETOL relative to CTL staff who did not work with power users.

While the initial analysis found filtered informal learning occurred during the pandemic with power users sharing what they learned from CTL

events with other faculty, post-hoc analysis indicates information power users shared was not as filtered as initially believed. Post-hoc interviews showed power users often shared "what worked best for them" and not necessarily information consistent with best practices or guidelines for online teaching.

One potential best practice going forward would be for CTLs to formally recognize power users and have these faculty members attend a special CTL training event each semester. Training could allow power users to discuss some of the innovative ways they are using new teaching techniques or online tools and give CTL staff an opportunity to highlight areas where power users' actions may not align with best practices or guidelines for online teaching. It could also provide an opportunity for CTL staff to learn more about why faculty apply some of the practices promoted by a CTL but not others. In addition, in situations where a power user gives a presentation to faculty members about a new teaching tool or technique, it may be beneficial for the power user to review the presentation with a CTL staff member in advance to provide additional filtration to the informal learning.

Regular meetings between CTL staff and power users can prepare campuses and CTLs for future crises. As the effects of the pandemic wane, many campuses are facing financial crises. The training CTL staff gain on the job is very valuable outside of academia. If CTL staff members choose to pursue other opportunities in light of a campus-wide pay cut or benefit reduction, CTLs may find themselves in need of power users who could temporarily fill such voids. Furthermore, budgetary crises typically mean additional authorization is needed to fill vacant positions, which may increase the amount of time a CTL is short-staffed. Power users who work closely with CTLs so they are also well-versed in best-practices and campus guidelines could help ease the burden of overworked or short-staffed CTLs during a future crisis.

This study introduces the term "filtered informal learning" as a method of workplace learning. Future research could investigate the theoretical underpinnings of this method not just for CTLs but other organizations as well. In addition, future research should evaluate how filtered informal learning, social interaction, trust, and formal CTL training interact to provide additional support for both CTLs and academic departments. This information will be particularly valuable in times of emergency or crisis. The inclusion of objective data, such as performance data (e.g., response time of CTL staff) may provide additional insight and conclusions beyond

this paper. Other objective data might include engagement statistics and total number of daily contacts with faculty made by CTL staff. Subjective data may include faculty satisfaction statistics collected from surveys following up on faculty contacts and numbers of complaints and/or commendations for CTL staff. Moreover, understanding the process by which power users can supplement CTL training offers additional, less formal avenues for faculty learning that could help universities engage in continuous improvement in the scholarship of teaching and learning.

References

Aebersold, A., Hooper, A., Berg, J. J., Denaro, K., Mann, D., Ortquist-Ahrens, L., Sato, B., & Verma, M. (2020). Investigating the transition to remote teaching during COVID-19: Recommendations for campus leaders and centers for teaching and learning. *Journal on Centers for Teaching and Learning, 12*, 4-25.

Andrews, T. C., Conaway, E. P., Zhao, J., & Dolan, E. L. (2016). Colleagues as change agents: How department networks and opinion leaders influence teaching at a single research university. *CBE—Life Sciences Education, 15*(2), 1-17.

Bagozzi, R. P., & Yi, Y. (1990). Assessing method variance in multitrait-multimethod matrices: The case of self-reported affect and perceptions at work. *Journal of Applied Psychology, 75*(5), 547-560.

Billett, S. (2004). Co-participation at work: Learning through work and throughout working lives. *Studies in the Education of Adults, 36*(2), 190-205.

Borgatti, S. P., & Cross, R. (2003). A relational view of information seeking and learning in social networks. *Management Science, 49*(4), 432-445.

Boud, D., & Middleton, H. (2003). Learning from others at work: Communities of practice and informal learning. *Journal of Workplace Learning, 15*(5), 194-202.

Brownell, S. E., & Tanner, K. D. (2012). Barriers to faculty pedagogical change: Lack of training, time, incentives, and… tensions with professional identity?. *CBE—Life Sciences Education, 11*(4), 339-346.

Burt, R. (1992). *Structural Holes*. Harvard University Press.

Calderwood, P. E., & Klaf, S. (2014). Facilitating mentoring across three models of faculty work: Mentoring within a community of practice for faculty development. *Journal on Centers for Teaching and Learning, 6*, 59-91.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56*, 81-105.

Clardy, A. (2018). 70-20-10 and the dominance of informal learning: A fact in search of evidence. *Human Resource Development Review, 17*(2), 153-178.

Clarke, D., & Hollingsworth, H. (2002). Elaborating a model of teacher professional growth. *Teaching and Teacher Education, 18*(8), 947-967.

Debelius, M., & Mooney, S. (2020). Innovation in a time of crisis. *Journal on Centers for Teaching and Learning, 12,* 46-67.

Doty, D. H., & Glick, W. H. (1998). Common method bias: Does common method variance really bias results? *Organizational Research Methods, 1,* 374-406.

Edwards, A. (1957). *The social desirability variable in personality assessment and research*. The Dryden Press.

Edwards, A. (1953). The relationship between the judged desirability of a trait and the probability that the trait will be endorsed. *Journal of Applied Psychology*, *37*(2): 90–93. doi:10.1037/h0058073

Fiske, D. W. (1982). Convergent-discriminant validation in measurements and research strategies. In D. Brinberg & L. Kidder (Eds.), *New Directions for methodology of social and behavioral science: Forms of validity in research* (No. 12, pp. 77-92). Jossey-Bass.

Granovetterr, M. S. (1973). The strength of weak ties. *American Journal of Sociology, 78,* 1360-1380.

Johnson, S. J., Blackman, D. A., & Buick, F. (2018). The 70: 20: 10 framework and the transfer of learning. *Human Resource Development Quarterly, 29*(4), 383-402.

Knight, P., Tait, J., & Yorke, M. (2006). The professional learning of teachers in higher education. *Studies in Higher Education, 31*(3), 319-339.

Lach, P. A., Russell, L. M., & Morgan, R. K. (2021). All aboard! Getting faculty mobilized for emergency online teaching. *Journal of Teaching and Learning with Technology, 10,* 142-152.

Lach, P. A., Russell, L. M., & Morgan, R. K. (2022). *Faculty stress and self-efficacy during an emergency transition to online learning: Moving beyond the pandemic*. Working Paper, Indiana University Southeast.

Marbach-Ad, G., Katz, P., & Thompson, K. V. (2015). The value of a disciplinary teaching certificate program for chemistry and biology graduate students. *Journal on Centers for Teaching and Learning*, *7*, 22-50.

McDermott, R., & Archibald, D. (2010). Harnessing your staff's informal networks. *Harvard Business Review, 88*(3), 82-89.

McGrath, J. E. (1970). *Social and psychological factors in stress.* Holt, Rinehart & Winston.

Oleson, A., & Hora, M. T. (2014). Teaching the way they were taught? Revisiting the sources of teaching knowledge and the role of prior experience in shaping faculty teaching practices. *Higher Education, 68*(1), 29-45.

O'Sullivan, P. S., & Irby, D. M. (2011). Reframing research on faculty development. *Academic Medicine, 86*(4), 421-428.

Podsakoff, P. M., MacKenzie, S. B., Lee, J-Y, & Podsakoff, N. P. (2003). Common method bias in behavioral research: A critical view of the literature and recommended remedies. *Journal of Applied Psychology, 88I*, 879-903.

Podsakoff, P. A., & Organ, D. W. (1986). Self-reports in organizational research: Problems and prospects. *Journal of Management, 12*, 531-544.

Richards, C. (2019, February 19). Busy is not a badge of honor. Try doing nothing a while. *The New York Times*. https://www.nytimes.com/2019/02/19/your-money/sketch-guy-knowledge-workers-need-rest.html

Rienties, B., & Kinchin, I. (2014). Understanding (in)formal learning in an academic development programme: A social network perspective. *Teaching and Teacher Education, 39*, 123-135.

Roxå, T., & Mårtensson, K. (2009). Significant conversations and significant networks–exploring the backstage of the teaching arena. *Studies in Higher Education, 34*(5), 547-559.

Russell, L. M. (2011). *High risk occupations: Employee stress and behavior under crisis.* [Doctoral dissertation, University of North Texas]. ProQuest Dissertations Publishing Publication No. 3506989.

Smith, G. A. (2019). Framing faculty development as workplace learning. *Journal on Centers for Teaching and Learning, 11,* 3-23.

Steinert, Y., Mann, K., Centeno, A., Dolmans, D., Spencer, J., Gelula, M., & Prideaux, D. (2006). A systematic review of faculty development initiatives designed to improve teaching effectiveness in medical education: BEME Guide No. 8. *Medical Teacher, 28*(6), 497-526.

Stes, A., Clement, M., & Van Petegem, P. (2007). The effectiveness of a faculty training programme: Long-term and institutional impact. *International Journal for Academic Development, 12*(2), 99-109.

Sweet, C., Carpenter, R., & Blythe, H. (2017). Reaching those faculty not easily reached: How CTLs can improve participation in faculty programming through faculty innovators and online instruction. *Journal on Centers for Teaching and Learning, 9,* 73-83.

Van Waes, S., Van den Bossche, P., Moolenaar, N. M., De Maeyer, S., & Van Petegem, P. (2015). Know-who? Linking faculty's networks to stages of instructional development. *Higher Education, 70*(5), 807-826.

Dr. Patrick A. Lach *is an assistant professor of finance at Indiana University Southeast. He teaches graduate and undergraduate courses in corporate finance, investments, international finance, and financial statement analysis. His primary research interests are financial regulation and financial education.* **Dr. Lisa M. Russell** *is an associate professor of strategic management and entrepreneurship at Indiana University Southeast. She teaches both undergraduate and graduate courses across the management discipline in online, hybrid, and in-person modalities specializing in strategic management and entrepreneurship. Her research centers on the influence of stress, coping, and leadership on organizational and individual performance and how crisis and disasters effect these relationships. She also conducts research in the scholarship of teaching and learning and diversity climate within organizations.* **Dr. Robin K. Morgan** *is a professor of psychology at Indiana University Southeast. She has taught more than 26 courses in all modalities (online, hybrid, and in-person), specializing in child, adolescent, and adult psychopathology; sleep and dreams; and child abuse and neglect. Her focus of research is on the scholarship of teaching and learning and student stalking of faculty.*

Appendix

Full Survey

Please rate each item below. When using a hand-held device, please use the dropdown indicator next to each statement to respond.

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
After the emergency transition to online learning was announced, my workload increased	○	○	○	○	○
After the emergency transition to online learning was announced, I was able to show faculty how to use different software and describe best practices with the same level of depth as before the emergency transition.	○	○	○	○	○
The emergency transition to online learning made my job more stressful than usual.	○	○	○	○	○
Due to prior planning, the staff in our office had the necessary technological tools to work remotely.	○	○	○	○	○

During this emergency transition online, did "power users" of teaching technology help their respective colleges/departments with basic online teaching tools?

- ○ Yes
- ○ No

Please rate the item below:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
During this emergency transition online, it was helpful to have "power users" of teaching technology help their respective colleges/departments with basic online teaching tools.	○	○	○	○	○

Please rate the item below:

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
In future emergencies, it would be helpful to have "power users" of teaching technology designated to help their respective colleges/departments with basic online teaching tools.	○	○	○	○	○

What were the most stressful aspects of the transition to 100% online teaching? Select all that apply:

- ☐ Insufficient time to handle workload
- ☐ Increased number of requests for help
- ☐ Extremely heavy workload during peak times
- ☐ Lack of training on specific software/tools
- ☐ Competing demands from administration and faculty
- ☐ Lack of resources
- ☐ Faculty resistance to online learning
- ☐ Faculty resistance to learning new pedagogy
- ☐ Lack of interactions with colleagues/lack of community
- ☐ Other

Please describe the other stressful aspect(s) of the transition to 100% online teaching:

What factors assisted you in dealing with the transition to all online teaching?

What suggestions do you have to reduce stress or increase effectiveness moving forward?

Do you teach courses in addition to your work as an instructional design consultant?

- ○ Yes
- ○ No

How many years have you taught college courses?

- ○ <5
- ○ 6-10
- ○ 11-15
- ○ 16-20
- ○ More than 20

How many years have you taught at your current institution?

- ○ < 5
- ○ 6-10
- ○ 11-15
- ○ 16-20
- ○ More than 20

How many courses are you teaching this semester?

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4 or more

Of the courses you are teaching this semester, how many were face-to-face at the beginning of the semester?

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4 or more

Of the courses you are teaching this semester, how many were hybrid at the beginning of the semester?

- ○ 0
- ○ 1

- ○ 2
- ○ 3
- ○ 4 or more

Of the courses you are teaching this semester, how many were online at the beginning of the semester?

- ○ 0
- ○ 1
- ○ 2
- ○ 3
- ○ 4 or more

I typically teach:

- ☐ Face-to-Face
- ☐ Hybrid
- ☐ Online

To which gender identify do you most identify?

- ○ Male
- ○ Female
- ○ Transgender male
- ○ Transgender female
- ○ Gender variant/non-conforming
- ○ Not listed
- ○ Prefer not to answer

You are:

- ○ American Indian or Alaska Native
- ○ Asian
- ○ Black or African American
- ○ Hispanic or Latino
- ○ Native Hawaiian or Other Pacific Islander
- ○ White (Not Hispanic or Latino)
- ○ Multiracial

What is your rank/position/classification?

- ○ Assistant Professor
- ○ Associate Professor
- ○ Full Professor
- ○ Full-time Instructor/Lecturer
- ○ Part-time Instructor/Adjunct
- ○ Other

In what College/School do you teach?

- ○ Arts & Letters
- ○ Business
- ○ Education
- ○ Nursing/Medicine/Dental
- ○ Natural Sciences
- ○ Social Sciences
- ○ Other

Please list the college in which you teach: