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Sustaining Teaching Excellence: What does it take?

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Abstract: Given the increasing demands on faculty in higher education, it is imperative that we better understand how to support faculty across their careers and in all areas of faculty life. This study looks specifically at what it takes to sustain teaching excellence. An exploratory survey of 66 faculty at midwestern campuses indicates that Satisfaction with teaching as a career, Passion for teaching, and Quality of teaching require different things. Specifically, Satisfaction with teaching requires motivation. Passion for teaching needs time. Quality of teaching, on the other hand, requires motivation, support, and time. What these concepts consist of and how we might use this information to support our own and our colleagues' teaching is discussed.

Keywords: *sustainable teaching, faculty vitality*

According to a 2022 Gallup poll, higher education faculty with a 35% burnout rate are second only to K-12 teachers in burnout rates for American workers (Marken & Agrawal, June 13, 2022). Given this, it is imperative that higher education pay attention to supporting faculty to sustain their careers across time. Of particular importance, given our mission, is sustaining faculty ability to maintain high quality teaching. To that end, we first define sustainability then look at the existing literature on faculty vitality before delving into the study itself.

Sustainability

Sustainability is a term used in environmental agencies to describe the synergistic balance between the social, economic, and ecological aspects of our earth (Bell & Morse, 2000). Sustainability has also been used to describe business models, health advocacy, and economic status.

Saam (2015) extended the term to describe excellence in teaching. In an exploratory study, she searched for a model to describe what conditions teachers in higher education settings needed to maintain excellence in teaching. After researching sustainability and faculty vitality, she asserted that teachers needed support, motivation and time to sustain excellence in teaching (See Figure 1). As in the environmental sustainability model, these three components are the commodities that allow for a synergistic environment for sustained excellence.

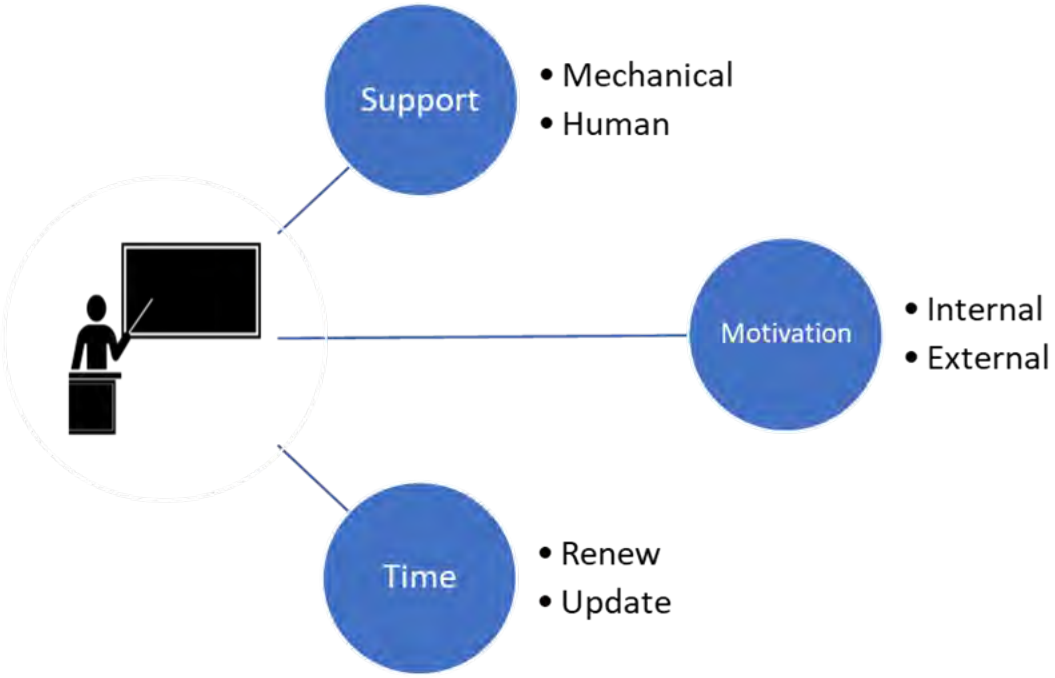


Figure 1: Three Main Factors for Sustaining Excellence in Teaching (Clipart retrieved from http://openclipart.org/detail/185205/teaching-male-by-ousia-185205)

Teachers can find support through mechanical and human aspects. Mechanical support could be a new technology or grant funding. Human support might come in the form of a supervisor giving accolades for one's idea or permission to drive an innovation. Teachers find this support by seeking out their own opportunities or through mechanical and/or human resources in their discipline, departments, or campuses.

Teachers realize motivation either internally, through one's own excitement or externally, through feedback or incentives. Their internal motivation (pride in one's work, value in innovation, and hunger for student success) sustains their level of capacity for teaching. The external motivation (student success and personal accolades) provides a sense of value of their work.

Time is an extremely important component. For instance, teachers need time to update their content knowledge or craft through professional development. Teachers find this time essential to bring learning to the forefront again. Using time to update, teachers become a student and hone their learning skills. However, time to renew is also essential. Teachers need to retreat from the work and rest their brain through hobbies, vacations, and family. Putting the work aside and focusing on something else provides space for the brain to grow in ways that build capacity for learning.

While Saam (2015) posits a very strong conceptual argument, her model had yet to be explored empirically; a gap we set out to remedy. For purposes of this study, we defined sustainable teaching excellence as quality in teaching (preparation, behavior in the classroom/online, and offering feedback to students), passion/excitement about teaching, and satisfaction with teaching as a career. Producing quality teaching is, of course, important to faculty but also to students and institutions. But being a high-quality teacher is not just about knowing content and/or knowing pedagogical methods. It is about caring enough about teaching to put in the extra time and effort to produce quality teaching. It is also being passionate about the content and/or the act of teaching so that students are engaged as well (the old adage: if you aren't excited about what you teach, how can you expect your students to be?). Sustaining high quality teaching across time or through difficult times requires passion for the

job. Likewise, satisfaction with/commitment to teaching as a profession is necessary to maintain that level of teaching across years. Thus, all three are required for sustainable excellent teaching.

Based on Saam's conceptual model, if faculty produce high quality teaching, are passionate about their work, and satisfied with their accomplishments, they are less likely to be plagued with uncertainties or experience burnout. However, what we do not know is what it takes to sustain quality, passion, and satisfaction. How do we, as faculty, maintain motivation, make time, and garner support throughout our careers? We can look to the faculty vitality research for some enlightenment.

Faculty vitality

Faculty Vitality is a measure of how likely faculty are to remain and prosper in their career. Most faculty vitality studies involve mid-career, senior faculty members (Bland & Bergquist, 1997; Huston et al., 2007; West, 2012). For instance, West (2012) found "…Somewhere during mid-career some faculty begin to experience doubts about their effectiveness and can become plagued with uncertainties about their career choice" (p. 60). Other authors define this mid-career burnout as when faculty are disassociated, have a sense of not belonging, begin to feel stuck, or are unmotivated. Fortunately, the literature also offers some notions of what can help sustain faculty vitality.

Bland and Bergquist (1997) describe aspects to sustain a vital faculty life as revolving around socialization. Faculty seem to thrive in a faculty career when they find and utilize mentors and develop a network of engaging colleagues. Faculty thrive in a community with a positive morale where they have the autonomy to be innovative and take pride in their commitment to excellence through their work habits and professional development. Huston at al. (2007) add other similar aspects including fostering collegiality, sense of community, clear common vision with colleagues, and participation in campus affairs.

Peterson (2004) investigated faculty vitality within a community college and found that the more faculty were committed to the university mission including such sustaining programs and acts as co-teaching, service-learning, peer review, professional development, and mentoring, the more connected and passionate they were about teaching. "The vital faculty state that participation in the aforementioned programs affords an occasion to stretch and grow intellectually, spiritually, and academically while continually seeking new ways to teach and learn" (p. 155).

Akerlind (2007) explored faculty vitality, specifically pertaining to teaching, asserting that faculty vitality is closely aligned to teaching comfort, knowledge, and skills. They concluded that "in order to achieve greater comfort and confidence as a teacher" (p. 33) one can "become more familiar with what to teach, how to teach, skillful and effective strategies, and effectiveness in facilitating student learning." (p. 27). Thus, the faculty vitality literature indicates that faculty need to: feel they belong to a community, continue to grow intellectually, and be committed to their work and their campus. As you will see below, this is what our exploratory, open-ended research indicates as well.

We, of course, recognize that sustaining teaching occurs within an ecological environment including other faculty efforts, colleagues, campus climate, research efforts etc. As teaching is a primary role for most faculty, our study focuses on that aspect of faculty life.

The concept of sustainability is key to understanding how characteristics synergistically contribute to each other to enhance excellence in teaching. As sustainability has evolved in nature, humans, systems, and ecology conduct a synergistic dance to keep moving forward, maintaining life and vitality. We, too, want teaching in higher education to maintain life and vitality. Therefore, we look at how motivation, time, and support conduct a synergistic dance to support teachers' passion, quality, and satisfaction in their teaching. Specifically, our exploratory research question is: ***How are motivation, time, and support related to teaching quality, passion for teaching and satisfaction with our work as teachers?***

Methods

Given the only way to access levels of feeling supported, motivated or in juxtaposition, overwhelmed, is to ask, we decided upon a survey approach for our research design. From an earlier study (Saam & Dixson, 2020) gathering open-ended comments from attendees at a Midwest teaching conference, we had a rich database of what teachers felt helped them to sustain their teaching and learning. We used these items as well as the literature to create scales measuring teaching time (seven items), teaching support (11 items) and teaching motivation (14 items). Teaching time includes time as Petersen (2004) indicates to update content and innovate pedagogy but also time to renew (Saam, 2015). Support (Saam, 2015) includes both mechanical (funding, technology) and human (collegiality as emphasized in the vitality literature). Motivation, again from Saam's (2015) model, includes both internal (did something fun, met a challenge) and external (appreciation from others) forms of motivation.

However, knowing faculty levels of time, motivation and support is not helpful without seeing how these affect outcomes related to teaching. The faculty vitality literature defines vitality in terms of commitment (Bland & Bergquist, 1997; Peterson, 2004) and passion for teaching (Peterson, 2004). We also added perceived quality of teaching to reflect the emphasis in the literature (Akerlind, 2007) on teaching effectiveness as part of vitality. Therefore, we created scales for teaching behaviors indicating quality (14 items); passion for teaching (22 items); and satisfaction with teaching efforts (two items). Sample items for these scales included indicating how often participants utilized:

- *Time*: Took consistent time to reflect - think about, write down, consider new ideas on their teaching; Took considerable time (i.e., ½ days, full days, several days) for rest and rejuvenation.
- *Support*: Interacted with their teaching center; Solicited peer feedback about their teaching.
- *Motivation:* Did something in the classroom they thought was really fun; Had a peer communicate appreciation for their teaching.
- *Teaching quality:* Had been innovative in their teaching; Built in student-teacher interaction.
- *Passion for teaching*: Felt energized by their teaching; Felt teaching was fulfilling.
- *Satisfaction with their teaching*: Done a good job of making effective, purpose driven decisions during this crisis.

As we prepared to launch the survey, the COVID pandemic[1] hit. For most faculty this time period included shifting their face to face classes to entirely online with virtual, synchronous meetings; learning how to use WebEx, Zoom, or Teams for class meetings, committee meetings, office hours and everything else work related; moving their entire work/office life to their homes; having their spouses, children, pets and other family members at home with them during this process; and figuring out how and whether to do things like buy groceries, shop for necessities, and, generally live their daily lives. There was no "normal" during this time frame. So, we shifted our survey to ask about sustaining teaching ***during a crisis*** and removed items that were not currently relevant (i.e., travel to conferences) then administered it to two groups. While our focus remained on teaching sustainability, in general, we adapted to the changed context of that teaching.

[1] The global COVID pandemic hit in Spring, 2020 shutting down or moving online most businesses and schools. Universities began to resume limited (with social distancing and masking) face to face interactions in Fall, 2020 with many classes still online or hybrid at that point.

Participants

After receiving IRB approval, we recruited participants via an email to the listservs of two faculty groups. The first group was a community of faculty dedicated to improving teaching at a mid-western regional campus. This is a voluntary group who run events to help improve teaching, build community among teachers, and, generally, celebrate teaching on the campus. The second was a group of teachers recognized for excellent teaching and teaching leadership activities at the system level of a large, multi-campus, midwestern university. Faculty must be nominated and pass a rigorous selection process to join this group. Note: there are 10 overlapping members between these groups so it's possible a few teachers took the survey twice.

The volunteer campus teaching group consisted of five males and 10 females. All fifteen were in full-time positions with 11 having positions that are primarily teaching and four having other responsibilities along with teaching. Four are relatively new to teaching (0-5 years) with one at 6-10 years; two at 11-15 years, three at 16-20 years and one 21-25 years. Nine of these teachers have won teaching awards.

The system-wide excellence in teaching group consisted of 15 males and 36 females. Forty-nine were in full-time positions, with 28 having positions that are primarily teaching and 21 having other responsibilities along with teaching. One is relatively new to teaching (0-5 years) with six at 6-10 years; eight at 11-15 years, twelve at 16-20 years and four with 21-25 years. Forty-eight of these teachers have won teaching awards.

Reliability and validity of scales

Cronbach alphas run on each scale indicated some items to be removed to raise reliabilities. Table A1 in Appendix A indicates the reliability alpha of each revised scale along with the number of original items and the number of retained items. Cronbach alphas for the revised scales were robust across the board ranging from .73 to .95 indicating all scales reached acceptable reliability.

As an initial measure of validity, we correlated the scales with global items (except satisfaction given it was a two-item scale that included a global item). Correlations were significant at the .05 level and provided support that the scales are measuring what they are intended to measure (Table A2 in Appendix A lists all correlations with global items).

Results

RQ: How are motivation, time, and support related to teaching quality, passion for teaching and satisfaction with our work as teachers?

While, as would be expected, the three outcome variables are highly intertwined (Table 1 below indicates significant correlations for all three outcome variables with each other), they are also distinct and, as such, may be differentially related to time, support and motivation. In fact, that was the case for this data set.

Table 1. Outcome Variables Correlations.

	Satisfaction w/Teaching	Passion for Teaching
Passion for Teaching	.29 $\alpha = .05$	XXXXXXXXX
Quality of Teaching	.36 $\alpha = .01$	.61 $\alpha = .01$

After confirming that all groups met the assumptions for running regression analyses regarding normality, homoscedasticity, and multicollinearity (see Appendix B for test results and plots), we ran regression models with Quality of Teaching (n = 65, M = 52.69*; SD* = 10.06), Passion for Teaching (n = 65, M = 82.46*; SD* = 14.82), and Satisfaction with Teaching (n = 65, M = 18.43*; SD* = 2.28), as three separate dependent variables and Time (n = 65, M = 23.63*; SD* = 7.66), Support (n = 65, M = 29.09*; SD* = 7.05), and Motivation (n = 65, M = 16.62*; SD* = 4.47) as independent variables. The results indicated there are, indeed, differences in what is needed to sustain Teaching Quality, Passion and Satisfaction.

For Quality of Teaching, all three independent variables had significant contributions to the model (F(3,31) = 23.06; p = .0001) and, together, accounted for 53% (Adjusted R^2) of the variance in reported Quality of Teaching (See Table 2 for ANOVA and Coefficients for model of Quality of Teaching). The coefficients table indicates significant t-values for all three independent variables.

Table 2. ANOVA and Coefficients for Motivation, Time, Support as Model for Quality of Teaching.

ANOVA: Dependent Variable - Teaching Quality					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3444.19	3	1148.06	23.06	.0001*
Residual	3037.66	61	49.80		
Total	6481.85	64			

*Predictors: (Constant), Motivation, Time, Support

Coefficients: Dependent Variable Teaching Quality					
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
(Constant)	20.74	4.05		5.12	.0001
Motivation	.73	.28	.33	2.63	.011
Time	.39	.14	.30	2.84	.006
Support	.36	.16	.25	2.23	.029

For Passion for Teaching, time was the only significant contributor (F(1,63) = 16.52; p = .0001) accounting for 20% (Adjusted R^2) of the variance (See Table 3 for ANOVA. and Coefficients table). The Coefficients table indicates a significant t-value only for Time as a contributor to Passion for teaching).

Table 3. ANOVA and Coefficients for Motivation, Time, Support as Model for Passion for Teaching.

ANOVA: Dependent Variable – Passion for Teaching					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	2921.08	1	2921.08	16.52	.0001
Residual	11143.07	63	176.87		
Total	14064.15	64			

Coefficients: Dependent Variable Passion for Teaching					
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
(Constant)	61.61	5.39		11.43	.0001
Time	.882	.22	.46	4.06	.0001

For Satisfaction with Teaching, motivation was the only significant contributor ($F(1,63) = 17.61$; $p = .0001$) accounting for 21% (Adjusted R^2) of the variance (See Table 4 for ANOVA and Coefficients). The Coefficients Table indicates the significant t-value only for motivation contributing to satisfaction with teaching as a career.

Table 4. ANOVA and Coefficients for Motivation, Time, Support as Model for Satisfaction with Teaching.

ANOVA: Dependent Variable – Satisfaction with Teaching					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	72.96	1	72.96	17.61	.0001
Residual	206.97	63	4.14		
Total	333.94	64			

Coefficients: Dependent Variable Satisfaction with Teaching					
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
(Constant)	14.47	.98		14.79	.0001
Motivation	.24	.06	.47	4.20	.0001

Due to these findings we ran some post-hoc tests to see, from a very practical and exploratory standpoint, whether particular behaviors indicated by the significant scales were more strongly related to reports of Quality of Teaching, Passion for Teaching, and/or Satisfaction with their teaching than other behaviors. Based on this limited sample, we found that *time to reflect/update content and/or pedagogy* and *time to renew with hobbies or friends/family* were strongly related to sustaining our Passion for Teaching. *Trying something new/fun* and *having others' appreciation* was indicated to boost Satisfaction with teaching. All the above behaviors plus *learning about teaching* helps build Quality of Teaching.

Discussion

This study contributes to the faculty vitality research but specifically focuses on the teaching aspect of a faculty career. As we noticed from the faculty vitality research, to sustain vitality for faculty throughout their career, faculty need components such as mentoring, networking, community, collegiality, and an impactful participation in campus life. Similar aspects contribute to sustaining excellence in teaching. We investigated a faculty members' passion for teaching, quality of teaching, and satisfaction with teaching as a function of the aspects of the Saam (2015) sustainability of teaching excellence model: teacher motivation, teacher time, and teacher support. We found clear support for that model in sustaining teaching across a career.

Bland and Bergquist (1997) and Huston et al. (2007) described aspects of sustaining faculty vitality such as socializing and networking, collegiality and common vision, and autonomy and mentoring. We investigated how faculty use time, through socializing and networking for example, motivation through collegiality and having a common vision, and support through autonomy and mentoring to enhance their passion, quality and satisfaction with teaching.

Our findings indicate that time, motivation, and support are highly intertwined yet serve distinct purposes in enhancing passion, quality, and satisfaction with teaching. As Figure 2 indicates, for Quality Teaching, time, motivation, and support are all significant contributors. For Passion, time was the significant contributor, and, for Satisfaction, motivation was the significant contributor.

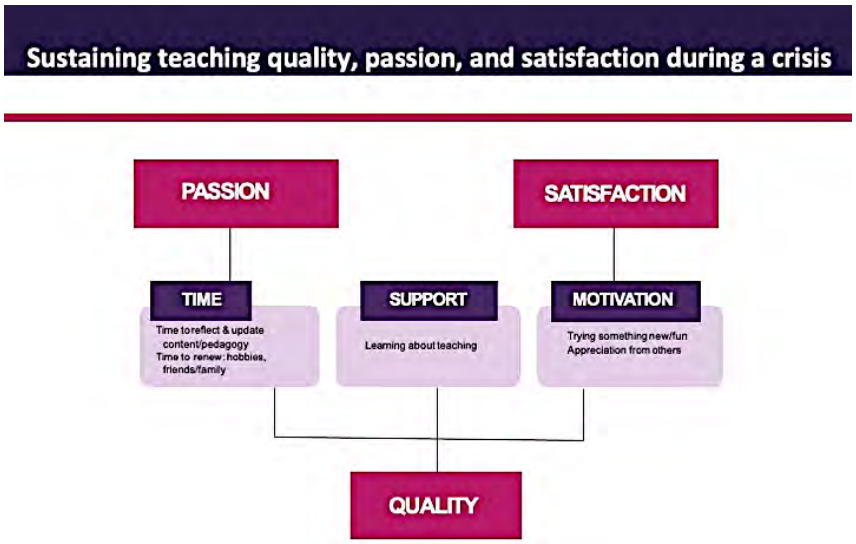


Figure 2. Visual representation of models and post-hoc finding.

The results indicate to enhance the passion for your teaching, you could concentrate on how your time is spent. Time for reflection is important: reflecting on new ideas in content knowledge, pedagogical knowledge, and student learning. Time is also essential for renewal: enjoying family and friends, or a hobby, but, specifically, NOT working. To enhance the satisfaction with teaching, we need to focus on motivation. We found teachers to be intrinsically motivated when they tried something new in teaching and/or found something they did in the classroom to be particularly fun. Teachers also found motivation extrinsically with accolades from students, peers, and administrators. Using time wisely and finding motivation are both necessary for Quality of teaching to be enhanced, but faculty also need support. We need to have the tools, supplies, and training to be successful but also peer and administrative support. For instance, a community of practice involving mentoring on teaching, feedback regarding teaching, and learning about teaching through avenues such as faculty learning communities and centers for teaching and learning consultations and programming could provide such support.

All components of the model are interrelated. Without time and motivation, a faculty member is unlikely to seek support. But, that support (e.g., new teaching approaches) could provide motivation by being fun or meeting a current challenge. Sustaining excellent teaching is like exercise. Beginning an exercise routine is difficult mentally and physically. The more you exercise, the more energy and desire you have to exercise. Sustaining teaching, whether you begin with support, time, or motivation, can create the same type of positive cycle.

The intertwining of aspects of the sustainability model fits within Peterson's (2004) finding that community and commitment were related to being passionate about teaching. Support opportunities to "stretch" (p. 155) teaching skills led to more vital faculty. Other research (Akerlind, 2007; Bland & Bergquist, 1997) also focused on collegiality, development, and meeting challenges akin to the connections between support (human and mechanical, respectively) as well as motivation. What is missing from the faculty vitality research is a strong third leg of the teaching vitality stool: TIME.

Why is time not acknowledged? Maybe because we cannot increase the amount we have to work with? Because there is general acknowledgement that there is never enough time? Or have we forgotten (as the Slow Professor professes) that professors need time to think (Berg & Seeber, 2016)? Probably some combination of the above as well as a general academic cultural belief that if you are not "too busy," you are not working hard enough. Whatever the plethora of causes, our findings indicate this is not a resource we can ignore. Individual faculty, departments, colleges, and institutions need to assure that faculty have time to think, to prepare, to learn, to teach and to renew. Many of these activities cannot be done in short breaks but need dedicated hours and/or days to accomplish.

We began this paper by mentioning that some mid-career faculty feel uncertain and doubt their effectiveness (West, 2012). In the midst of a crisis, we observed that many faculty members were uncertain and doubting their effectiveness, specifically regarding teaching. We proposed that to sustain excellence in teaching (be it over a career or during a crisis), one needs to utilize aspects of time, motivation, and support (Saam, 2015). However, when faculty feel overwhelmed, how do they find the time, motivation, and support to break out of this cycle of uncertainty and doubt? Let's recall the concept of sustainability, the synergistic dance between time, motivation, and support that enhances teaching. Synergy involves an interaction between components, no one component being more important than another, no one component being an answer to uncertainty or doubt.

However, trying to tackle all aspects of sustainability at once is, likely, not a sustainable action. Therefore, we recommend individuals focus on one aspect at a time, one step at a time toward enhancing quality, passion, and/or satisfaction. Begin with one aspect you can control. Can you take a vacation to renew your mind? Attend a conference to find something new in teaching? Seek out a mentor to gain some feedback?

Departments, colleges, and campuses should also consider how to better support sustainable teaching. Most provide teaching support in terms of technology and teaching centers (mechanical support). They may also provide motivation via awards, merit raises, and promotions (external motivation). Could more be done to build community (human support) or help faculty re-discover the fun or overcome a challenge in teaching (internal motivation)? How do departments and institutions ensure faculty really have the time for both teaching preparation and renewal? Having administrators and faculty actively seek ways to free up faculty time would likely also be motivating since that interaction would acknowledge the value of faculty time.

Limitations

Limitations for the study are standard for this type of exploratory work. We used a sample of faculty who we knew to be dedicated to teaching on both the regional campus and the system campuses. We did so for two reasons: 1) we wanted to begin the survey building process with a purposive sample of faculty dedicated to teaching and 2) we know these groups to be serious in their commitment to teaching and, thus, more likely to find ways to teach effectively even during a crisis. Starting with these groups gave us a sample of faculty more likely to look for ways to stay committed to teaching quality, passion, and satisfaction even under very difficult circumstances. As an exploratory study, we needed to find out from this purposive sample what could still work. While we certainly did not plan

for a worldwide crisis, it did allow a unique opportunity to see what dedicated teachers do to maintain their teaching under very difficult circumstances.

This crisis, of course, created an opportunity as well as a limitation. We now understand what matters to dedicated faculty under dire circumstances but not what matters to a variety of faculty under normal circumstances.

It is important to interpret our results keeping these contexts in mind. For instance, faculty who join/are allowed to join these groups are committed to teaching so their scores on quality and satisfaction scales may be higher as a group than the "average" faculty member. Thus, while this sample was an excellent exploration of the model and the scales, a more diverse sample is needed who are surveyed during a more "normal" time to have more confidence in the generalizability of the findings.

The survey itself still needs work. This was the first test of the scales. While we saw very encouraging results and consideration of how the survey might be used for research as well as for practical applications at the individual, department, or campus levels, it is not yet ready for that type of use. Despite strong reliability and initial validity results, it needs to be further refined. The satisfaction scale needs more depth and, in general, items removed due to the pandemic should be restored.

Implications for future research

The limitations listed above are, of course, the first implications for future research. The survey should be revised again (to add back in such things as conference travel) and then tested with a larger, more diverse group of university faculty. Such a study should consider other ways to measure validity as well as options for faculty to add things they do to maintain quality of, satisfaction with, and passion for their teaching. That would be the next step in the evolution of this scale.

A second step, then, would be to share it with Teaching Center Directors for their feedback about the scale and its uses. They could initially answer two primary questions regarding use: Could faculty use this to "diagnose" missing pieces of support, time or motivation and then ask/look for those pieces to help sustain their teaching? Could this be helpful at the department, college, or campus level for teaching center directors, faculty developers, and/or academic leadership?

Of course, having information at the unit level allows for departments, colleges, and institutions to consider how best to support sustainable teaching. What is missing for their faculty? Is it a time factor calling for consideration of re-structuring the work and/or service loads? Or might it be a community factor that might be strengthened by faculty learning communities that could directly support teaching with pedagogy discussion as well as indirectly through creating the community faculty need to thrive? Perhaps most importantly is the subtle shift from supporting teaching primarily via skills/knowledge development (mechanical support) and awards/raises (extrinsic motivation) to supporting sustainable teaching via collegiality (human), challenges and fun (intrinsic motivation) and time (for preparation, learning, and renewal).

Conclusion

Finding that there may be specific things (different for each individual but drawn from a similar pool) that faculty need or at least can try to sustain excellent teaching helps us better understand how faculty as individuals and campuses as organizations can contribute to the teaching component of faculty vitality. Creating climates that appreciate and value teaching, allow our faculty to learn and try new things with their teaching, and, perhaps most importantly for many of us, encourage our faculty to take time to renew by NOT working, is a worthwhile and productive process. As higher education

continues to change and adapt to the new "normal" such visions will become more important to sustaining our primary enterprise of putting quality teachers in our classrooms.

Appendix

Appendix 1 Scale Reliability and Validity Statistics.

Table A1.1 Cronbach Alpha Reliability Coefficients for scales.

Scale	**Reliability**	**Number of original items**	**Number of retained items**
Teaching time	.86	7	7
Teaching support	.74	11	9
Teaching motivation	.73	14	5
Quality of teaching	.91	14	14
Passion for teaching	.95	22	22
Satisfaction with teaching	.88	2	2

Table A1.2 Correlation coefficients for scales with global items.

Global Item	Scale	Correlation coefficient	Significance level
I have enough time to teach well	Teaching time	.27	.028
I have optimal support to teach well	Teaching support	.42	.001
I am strongly motivated to teach well	Teaching motivation	.33	.007
In the past six months, I have maintained high quality teaching.	Quality of teaching	.34	.01
I love teaching!	Passion for teaching	.46	.0001

Appendix 2: Regression Assumption Checks.

Table A2.1. Multicollinearity Diagnostic Tests.

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Support	Time	motivation
1	1	3.893	1.000	.00	.00	.00	.00
	2	.053	8.574	.16	.08	.85	.00
	3	.034	10.767	.72	.10	.07	.34
	4	.021	13.743	.12	.82	.07	.66

a. Dependent Variable: Tchg_Qual

Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Support	Time	motivation
1	1	3.893	1.000	.00	.00	.00	.00
	2	.053	8.574	.16	.08	.85	.00
	3	.034	10.767	.72	.10	.07	.34
	4	.021	13.743	.12	.82	.07	.66

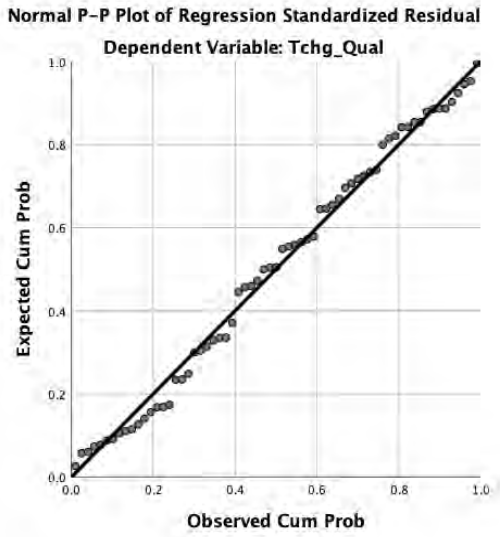
a. Dependent Variable: Tchg_Emo

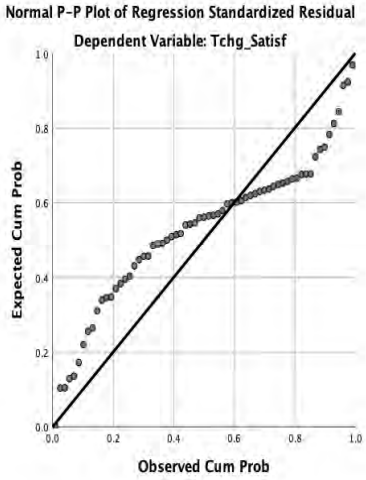
Collinearity Diagnostics[a]

Model	Dimension	Eigenvalue	Condition Index	Variance Proportions (Constant)	Support	Time	motivation
1	1	3.893	1.000	.00	.00	.00	.00
	2	.053	8.574	.16	.08	.85	.00
	3	.034	10.767	.72	.10	.07	.34
	4	.021	13.743	.12	.82	.07	.66

a. Dependent Variable: Tchg_Satisf

Figure A2.2: Normality Plots.





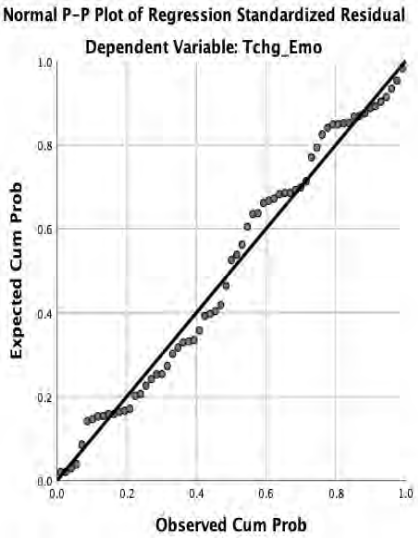
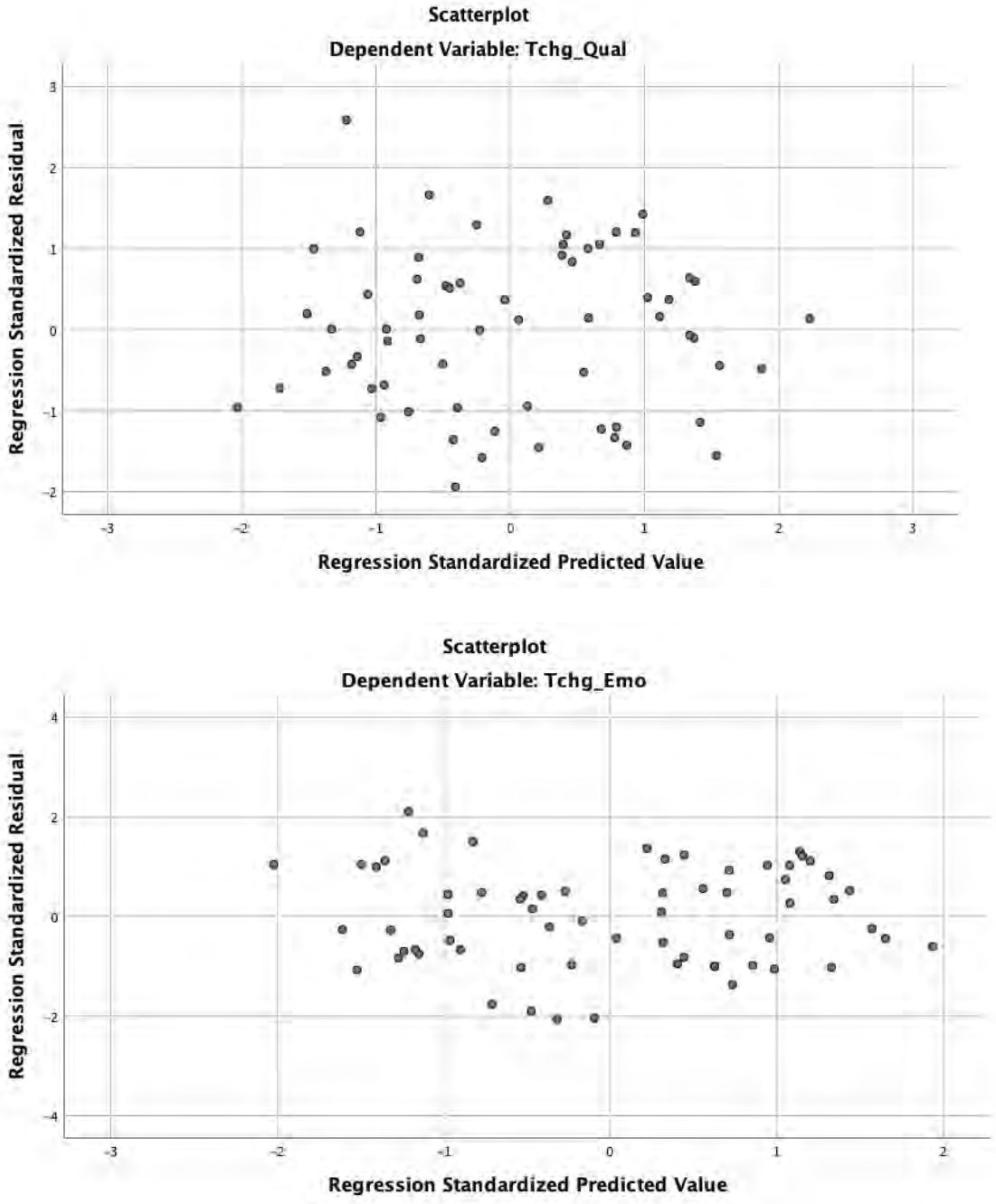
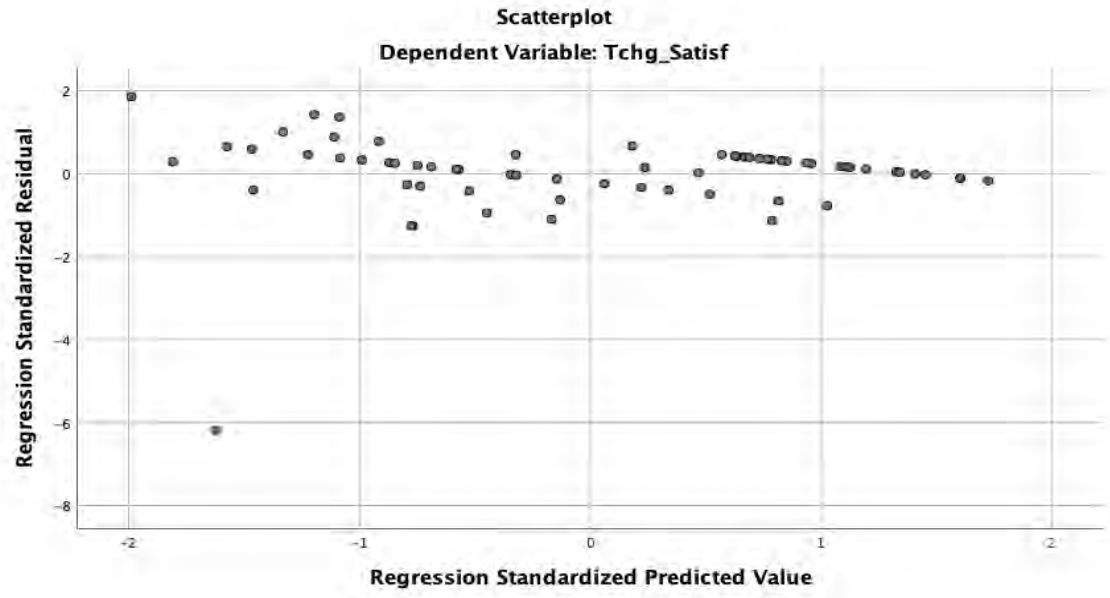


Figure A2.3: Homoscedasticity.





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