

**Beyond pragmatism: Internal and external impacts of hiring Professors of Teaching at
research-intensive universities**

Research Article

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Abstract

Teaching focused positions have grown in popularity in higher education and provide novel opportunities to transform undergraduate science, technology, engineering, and mathematics (STEM) education. The University of California (UC) system employs a unique teaching-focused faculty position, the Lecturer with Potential Security of Employment (L(P)SOE), who we refer to as Professors of Teaching. The Professor of Teaching position is a tenure-track position with primary expectations in teaching with additional scholarly activity and service responsibilities. We present findings from interviews with administrative faculty in STEM departments at three UC campuses to identify reasons for hiring Professors of Teaching, their impacts, and potential barriers to success. Through Durkheim's division of labour and Wenger's community of practice frameworks, we explore the role of Professors of Teaching within STEM departments. Overall, this study highlights the value of teaching-focused faculty in research-intensive universities and argues for departments to reconsider the value of education for teaching-focused faculty to maximize their potential as agents of change.

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Improving science, technology, engineering and mathematics (STEM) higher education is a global concern (Kennedy & Odell, 2014; Marginson et al., 2013). The United States (U.S.) in particular has seen a number of calls to improve university STEM instruction (Olson and Riordan, 2012; President’s Council of Advisors on Science and Technology [PCAST], 2010). U.S. universities face some contextualized issues, including a lack of representation of underrepresented minority students in STEM (Olson and Riordan, 2012; PCAST, 2010) and overcrowding in STEM classrooms despite recent decreases in postsecondary enrollment overall (U.S. Department of Education, 2020). These issues also have a global impact, with enrollment of international students in U.S. universities greatly increased over the past decade (Bastrikin, 2018; Granovsky & Wilson, 2019).

Teaching-focused faculty can potentially address these issues of instructional quality (Mitten & Ross, 2018). An example is the Lecturer with Potential Security of Employment (L(P)SOE) position in the University of California (UC) system. The L(P)SOE is a tenure-track teaching faculty position defined in the UC Academic Personnel Manual (2020) as one whose “primary responsibility is teaching, and teaching-related tasks and secondary responsibility is professional and/or scholarly achievement and activity.” The Professor of Teaching faculty line comprises 5-10 percent of tenure-track faculty at the study campuses. The L(P)SOE position has three ranks that parallel the U.S. research-focused faculty position, which we define as a position evaluated primarily on the success of their research program. The ranks for L(P)SOE consist of pre-tenure – the Lecturer with Potential Security of Employment (analogous to U.S. Assistant Professor); tenured– the Lecturer with Security of Employment (Associate Professor); and the Senior Lecturer (Professor). In this work, we will refer to individuals in the L(P)SOE study population across all three ranks as *Professors of Teaching* as this is the title that L(P)SOEs prefer to be called and is the official working title at the study campuses. Tenure for these Professors of Teaching is awarded based on quality of teaching, scholarly activities, and university service. These are the same components that are evaluated for research-focused faculty to earn tenure. In the case of Professors of Teaching though, there is an increased weight placed on the value of teaching excellence. From prior work, Professors of Teaching expect to spend on average 65.5% of their time teaching, 18.6% engaged in scholarly activity, and 15.9% performing acts of service (Authors et al., 2020).

This study intends to better understand this teaching-focused faculty position in the context of research-intensive universities, including reasons for hiring Professors of Teaching, their impact, and departmental contexts for their success. These themes are examined through the perspective of deans, department chairs, vice-chairs, and hiring committee chairs, to whom we refer collectively as *administrators*.

Literature Review

To better understand the impacts and challenges Professors of Teaching experience, we examine literature about instructional practices, other teaching-focused faculty positions, and relevant theoretical frameworks.

Instruction in research-intensive universities

Active-learning instructional practices are effective in increasing student learning outcomes, particularly for traditionally underrepresented students (Freeman et al., 2014).

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However, structural barriers prevent these practices from being implemented broadly, particularly at research-intensive universities (Anderson et al., 2011; Brownell & Tanner, 2012). First, prioritisation of research often leads departments to make pragmatic decisions that may contribute to less effective teaching. These decisions are driven by the lack of influence teaching excellence has on tenure (Cadez, Dimovski, & Groff, 2017). Milem, Berger, and Dey (2000) identified that over a 20-year period, the time faculty are expected to spend on research is increasing, making their other responsibilities less prioritised. Additionally, faculties' perception that the quality of one's research supersedes the quality of one's teaching in securing tenure has remained constant (Tagg, 2012). Second, organizational barriers, including increasing enrollments in STEM disciplines and limitations of the traditional large lecture classroom (Falkenheim & Hale, 2015) create logistical issues that hinder implementation of evidence-based teaching practices. Third, even if faculty did attempt to improve their instructional practices, the means to evaluate this improvement are lacking. The reliance on student evaluations is problematic due to their focus on characteristics that may be independent of instructional quality (Shevlin et al., 2013) and are known to be negatively biased against faculty of color and women (MacLean & Poole, 2010; Merritt, 2008). These factors have contributed to a system where research-focused faculty are disincentivised to improve the quality of instruction and where a division has been created between individuals who focus on teaching and others on research (Geschwind & Broström, 2014).

Teaching-focused faculty positions

A variety of faculty positions exist in higher education that focus on teaching. Limited research has identified benefits of these positions in research-intensive universities. One common position is the adjunct faculty, defined as an instructor whose only responsibility is to teach and who has little job security (Sagan & Miller, 2017). In 2015, the American Association of University Professors (2017) found that adjuncts comprised 70 percent of instructors on all U.S. higher education campuses. Adjuncts are often provided lower salary, fewer professional development opportunities, and less guidance from their departments (Baron-Nixon, 2007). Despite these challenges, students learn more from adjuncts than research-focused faculty (Figlio, 2015).

Science Faculty with Education Specialties (SFES) are defined as teaching-focused faculty members across STEM departments who focus in education or engage in education research and are viewed as pedagogical resources in their departments (Bush et al., 2013). Those at research-intensive universities were less likely to have a tenured position and would spend most of their time teaching; those in masters-granting universities were more likely to have science education training and participate in research activities (Bush et al., 2013). SFES self-reported having significant impacts on improving undergraduate education, influencing their colleagues' instructional practices, modifying curriculum, and supporting teaching assistants (Bush et al., 2016). Despite claiming to be satisfied with their jobs, almost 40 percent were considering finding work elsewhere (Bush et al., 2011).

Teaching Focused Faculty (TFF) in Canada consists of both tenure-track and non-tenure-track faculty positions (Rawn & Fox, 2017). While TFF reported being satisfied and valued, the TFF population varied widely by university and department and lacked standardized job expectations. This discrepancy led many TFF to report a lack of clarity in their role. Integration of TFF into their departments was critical for improving their sense of value for their contributions to the educational missions of their universities.

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The focus of this work is on Professors of Teaching found throughout the UC system (Author et al., 2020). Previous work found that these individuals are primarily trained in their respective STEM discipline with a small minority with formal education degrees. The majority acquired educational experience through teaching or professional development opportunities. Expectations of time spent on teaching, scholarly activities, and service are aligned across Professors of Teaching ranks with a majority of their time to be spent on teaching. However, there were some differences between pre-tenured Professors of Teaching and tenured Professors of Teaching, including an increased expectation of time spent on scholarly activities for Professors of Teaching and an increased likelihood for Professors of Teaching not to have received start-up funds (Author et al., 2020).

Theoretical Frameworks

Organizational theorists have considered how higher education structures contribute to the culture, identity, and hierarchy of the institution (Bergquist, 1992; Manning, 2017). Universities run similarly to other types of organizations and contain a bureaucratic and hierarchical structure featuring a leader and other members who have their own roles and functions (Page, 1951). Academic departments fulfil their own purposes, goals, and operate as mini organizations with their own bureaucratic systems and contribute to departments being seen as legitimate. Two frameworks are relevant to the presence of teaching-focused faculty at research-intensive universities—Durkheim’s division of labour and Wenger’s community of practice.

Durkheim’s Division of Labour

Durkheim (Durkheim, 1893; Haveman & Wetts, 2018) asserts that individuals in modern society are interdependent to one another, resulting in a variety of roles with differing responsibilities. Organizations become dependent on these individuals and the roles (Haveman & Wetts, 2018). Division of labour is applicable to academic departments, as teaching-focused faculty are a specialised position. While research-focused faculty are also expected to contribute to the teaching mission, teaching-focused faculty may be playing a more nuanced role in shaping this educational mission due to their differing responsibilities.

Organizations have values and norms that become so ingrained within the work culture, that they are taken for granted (Haveman & Wetts, 2018; Peters et al., 1982). The organization’s values are agreed upon by stakeholders and shape the rules that govern the organization. The concept of organizational rules and values can apply to the academic culture regarding teaching at research-intensive universities. With teaching often being viewed as less of a priority relative to research, this may shape the relative standing of teaching-focused faculty and their influence on pedagogical change (Verburgh et al., 2007).

Wenger’s Community of Practice

Unlike Durkheim’s theory that individuals play a specific role with little communication amongst one another, Wenger (2010) argues that the success of an organization depends on its ability to become a social learning system where individuals form an interconnected community and learn from one another. To create an organization that is adaptable, a community of practice that encompasses meaning, practice, community, and identity must be ingrained into the organizational culture (Wenger, 1998). All four components require a culture open-minded to

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others' thoughts and backgrounds while fostering a willingness to learn and adapt the organizational structure as needed.

These communities of practice create natural boundaries, which in faculty settings can be seen as a department insulating itself from others, due to shared experiences unique to that department. For example, a molecular biology department and a mechanical engineering department may have very little to discuss due to differing cultures, responsibilities, and values. However, Wenger (2010) argues boundaries are good because they are able to create communities with shared experiences. Crossing boundaries can help one incorporate the knowledge and values of another department, facilitating its evolution (Burt, 2004).

In our work, Professors of Teaching may potentially be serving as departmental brokers. While possessing a deep understanding of the department's culture, their primary role and expertise is in teaching, potentially resulting in the introduction of evidence-based instructional practices with the potential to transform the department. The vast majority of Professors of Teaching have STEM backgrounds and are in STEM departments (Author et al., 2020) and thus understand the culture of their departments and disciplines; yet they are expected to focus on teaching. Professors of Teaching may be more likely than their research-focused faculty peers to cross boundaries for education-related matters. As Professors of Teaching are minorities in their departments, they may be forced to identify colleagues in other departments to form communities, becoming 'brokers' of knowledge in the process. Thus, departments may be able to leverage Professors of Teaching as change agents and bridges to other departments and better teaching practices.

Research Questions

In this work, we aim to address the following research questions:

1. What are the reasons administrators in this research-intensive university system hired Professors of Teaching?
2. What is the impact of Professors of Teaching at this research-intensive university system?
3. What organizational barriers may be hindering the impact of Professors of Teaching?

Methods

Setting and context of the study

UC is a large public university system with 10 research-intensive campuses (Carnegie Classification of Institutions of Higher Education, 2019) enrolling over 280,000 undergraduates, of which 26 percent are underrepresented minorities, 41 percent first-generation university students, and 37 percent low income (University of California, 2018). We interviewed administrators from three campuses with the largest number of STEM Professors of Teaching.

Participants and data collection procedures

Participants were 25 STEM administrators including deans, department chairs, and hiring committee chairs. These individuals were selected due to their role in overseeing, mentoring, or hiring Professors of Teaching. A group of 37 individuals were identified, and 30 responded with interest to be interviewed. Interviews were conducted with 25 respondents based on availability. Seven interviewees identified as female and 18 as male. Disciplines included 14 in Biological Sciences, seven in Physical Sciences, and four in Engineering, which mirrors the distribution of

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Professors of Teaching on the study campuses. Seven participants were from campus 1 and nine participants each from campuses 2 and 3.

Interviews were conducted in-person and audio recorded. The audio recordings were transcribed verbatim by a third-party service and then cleaned by the research team. The transcripts were then loaded into NVivo (QSR International) for analysis. Data collection was approved by the University's Institutional Review Board.

Codebook development and coding procedures

To develop the codebook, we used a deductive-inductive thematic analysis approach (Fereday & Muir-Cochrane, 2006), with a combination of a priori codes based on literature and ones that emerged in our data. Three researchers independently read and coded three interviews, identifying if the a priori codes were appropriate and suggested new codes. The researchers met to develop the initial codebook. Next, the initial codebook was used to code the three interviews a second time to generate a revision of the codebook. We finalized the codebook by considering how the codes would be used to answer our research questions and confirmed that the elements of the literature were included. The final codebook is in Table 1.

Table 1. Final Codebook for Interview Data

Code	Sub code	Description
Comparisons to Professor Series	Positive	Positive comparison made that paint LSOE faculty as being equal to the research tenure track professors.
	Negative	Negative comparisons made that paint LSOE faculty as being unequal to the research tenure track professors.
Teaching Culture		When the participant refers to teaching from the department or university perspective.
Ease the Burden		Reduction in the load of teaching and service for traditional research faculty at the department/university level who would otherwise be held responsible without LSOEs.
Impact	Internal Impact	Influences others on campus that may include sharing teaching practices or research results with colleagues on campus.
	External Impact	Influences others off campus by sharing teaching practices or research results, for example through conference presentations or by obtaining external grant funding.
Integration	Positive	Teaching faculty being integrated on campus or in the department.

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	Negative	Teaching faculty not being integrated on campus or in the department.
Intended Expectations	Future	Roles of teaching faculty in the future and any future teaching faculty hiring considerations.
	Historical	Historical roles of teaching faculty and any historical hiring considerations, including financial considerations.
LPSOE Name Implications		Impacts or associations with the name of the LSOE series.
Promotion Expectations	Research	Relationship between promotion and research being conducted by teaching faculty.
	Teaching	Relationship between promotion and teaching being conducted by teaching faculty.
	Service	Relationship between promotion and service being performed by teaching faculty.
	Unclear/Unfair	Promotion expectations being either unclear or unfair for the teaching faculty series.
Support	External Support	Grant or other financial funding not being provided by the home institution.
	Internal Support (non- start-up)	Grant or other financial funding being providing by the home institution.
	Internal Start-up Support	Any financial support given at the beginning of a teaching faculty's employment.
	Mentorship and Prof. Dev. Support	Non-financial support being provided that takes the form of professional guidance and development.
Unexpected Contributions		Unexpected benefits produced by the teaching faculty.
Value		Complimentary comments said about the teaching faculty.

Coding procedures

Once our codebook was finalized, we assigned two researchers to independently code each interview. Cohen's Kappa values averaged to be 0.60 and ranged from 0.40 to 0.78, which

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is considered a satisfactory level of agreement (Landis & Koch, 1977). The research team met to resolve any disagreements. The prevalence of each code can be found in Table 2. In our write-up of the results, we indicate which codes represent each finding by including the codes in parentheses.

Table 2. Code frequency in the interview data

Code	Number of Interviews with Code Mentioned
1: Comparison to Professor Series- Negative	14
2: Comparison to Professor Series- neutral and positive	24
3: Culture-teaching culture	24
4: Ease the burden	24
5: Impact-external impact (attending conferences)	22
6: Impact-internal impact (guide others to improve)	24
7: Integration negative	24
8: Integration positive	23
9: Intended future	23
10: Intended historical	24
11: LPSOE name implications	24
12: Promotion-percentages	16
13: Promotion-research	24
14: Promotion-service	18
15: Promotion-teaching	25
16: Promotion-Unfair and Unclear	25
17: Support-External support	3
18: Support-Internal non-start up support	14
19: Support-internal start up support	15
20: Support-lack of financial support	6
21: Support-Mentorship support	22
22: Support-professional development opportunities	14
23: Support-research assistance non-financial	9
24: Unexpected Contributions	13
25: Value	25

Results

Research Question 1: What are the reasons administrators at this research-intensive university system hired Professors of Teaching?

One of the main reasons identified by administrators was to ease the departmental teaching responsibilities with a smaller financial investment compared to hiring a research faculty. Nearly every participant commented on this phenomenon. For example:

[W]e get more teaching done with people that also don't occupy much space...and that is a real concern within biological sciences, because if you bring in research faculty, it's not just the classes they teach. It's not even the setup [cost], which can be enormously expensive. But it's also that they occupy several thousand square feet of laboratory space.

Since Professors of Teaching are expected to have higher teaching responsibilities, they can cover more classes (ease the burden) in a more economical fashion relative to research-focused faculty (comparisons to research faculty).

Most administrators identified that Professors of Teaching brought consistency to the department's teaching mission (internal impact). Rather than relying on adjuncts, administrators favored the idea of having 'people [who] would have long term commitments, as opposed to quarter to quarter commitments and could serve as long term resources.' Administrators also viewed Professors of Teaching as working to improve their colleagues' teaching practices (internal impact).

Administrators noted that Professors of Teaching had the potential to contribute to teaching-related service within the department (ease the burden). One administrator said that they hired Professors of Teaching to 'address specialised teaching needs that our research-focused faculty are not well suited to.' Examples of these needs included accreditation, revising laboratory courses, improving student outcomes in large courses, creating new assessment tools, designing capstone courses, and improving laboratory safety (internal impact). However, one administrator identified a potential issue with the mentality that Professors of Teaching contribute to so many service areas:

I think the challenge is... once [research-focused] faculty realised the skill set that they have, it's easy to say, "Oh, the [Professors of Teaching] can do that." Whenever anything related to education or outreach comes up, "Oh, well, the Professors of Teaching] can work on that," and without really realising all that that person is doing.

This excerpt highlights that the benefits (value) Professors of Teaching can provide to a department potentially results in them being taken for granted or overworked in this specialized role.

Research Question 2. What is the impact of Professors of Teaching at this research-intensive university system?

All administrators noted Professors of Teaching were considered to be superior teachers (value). For example:

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Whenever any [students]...say, “Who should I take for [this chemistry class]?” I always tell them to take one of the [Professors of Teaching]. Because they’re always just better. They are just better, and they’re more organized, they do this for a living.

The statement highlights the faith administrators have that Professors of Teaching are providing superior instruction relative to their research faculty colleagues.

Administrators pointed out that Professors of Teaching were also serving the role of a professional development expert (internal impact), including one who noted:

[V]ery few faculty, myself included [go] to the teaching and learning center... But, I go up to the [Professor of Teaching] next door all the time. Because they are right there and I think, “oh, I want to do this, how am I going to do that?” And then, I have a peer or colleague to talk to. I don’t go over to that center, in the same way, I don’t go to the transgenic mouse facility either.

Building off of the first quote in this section, this statement highlights the contributions Professors of Teaching have in their departments. Often, their pedagogical expertise is seen as a more relevant resource than the teaching centers on campus due to their discipline-specific training. The positive impact on teaching practices was not only felt by departmental faculty, but also by graduate students, who Professors of Teaching were working with ‘to be users of evidence-based teaching practices’ as well.

Multiple administrators were surprised by the value Professors of Teaching made beyond their departments (external impact). One administrator described intentionally hiring Professors of Teaching for their familiarity with the education research literature but was still surprised by the extent which they could contribute as researchers (unexpected contribution). Another administrator commented on an external grant awarded to a Professor of Teaching:

I think this grant itself was like completely unexpected, it was a million-dollar grant. You know, I had applied for this and never managed to get it, and she comes in, she just changes things and writes the same thing... But, in a different way.

Professors of Teaching were also contributing to education research fields (external impact). One administrator explained:

They’re contributing enormously to pedagogy research, that’s both published in discipline journals, in education journals. They’re out giving talks. Not just at the universities, but at conferences, and so that’s the contribution to not just use of evidence-based practices, but actually putting in place new evidence-based practices based on their scholarly activity.

These excerpts highlight the variety of levels at which Professors of Teaching scholarly activities impacted the department’s education mission and their contributions to pedagogical research that extends beyond their departments.

Research Question 3: What organizational barriers may be hindering the impact of Professors of Teaching?

A number of issues were identified that potentially limit Professors of Teaching impact. These include items that administrators recognised as problems, but also those that we gleaned from the data which may not have been perceived as issues from the administrator perspective.

A major challenge mentioned by all administrators was a lack of clarity in regard to tenure requirements (promotion expectations-unclear/unfair). The bulk of the confusion centered on the uncertainty for how one evaluates successful teaching (promotion expectations-teaching). One administrator noted:

They're expected to be excellent teachers. And we're still figuring out what that means to be an excellent teacher. How we base it. Is it based on student evaluations? Probably initially, yes. But in the long run, I hope that we have better metrics for their evaluation as being excellent teachers.

The need for more meaningful evaluation systems is key as universities often rely solely on student evaluations that are biased and may not reflect teaching quality. Another administrator highlighted the nonempirical manner teaching is often evaluated when he admitted: 'I haven't reviewed all of their teaching records or done a review of their teaching, but I'm assuming it's all excellent.'

In addition to the lack of clarity in evaluating teaching excellence, all but one administrator mentioned the uncertainty for how to measure Professors of Teaching research quality (promotion expectations-research). One administrator stated:

Research-focused faculty, we know exactly what we have to be doing with our research programs and trying to get those to thrive...For [Professors of Teaching], I think that the pedagogical research component is amorphous and not clear.

All administrators also recognized this lack of equity in the evaluation process (promotion expectations-unclear/unfair), pointing out that the Committee on Academic Personnel 'doesn't have a single [Professor of Teaching]'. One administrator pointed out: 'I don't think that research faculty are very good judges of teaching faculty.' Both comments illustrate that those evaluating Professors of Teaching may not be the most appropriate for that role.

One issue that arose in the data was the misalignment between the positive impacts highlighted by our findings in research question 2 and administrator comments regarding future hiring of Professors of Teaching (intended future). While acknowledging that Professors of Teaching contributed in multiple ways, many administrators reverted to the mentality that the main impetus to hire Professors of Teaching in the future would be to ease the departmental teaching burden (ease the burden). One administrator responded to the question of whether the department would hire additional Professors of Teaching in the future as follows: 'I would say no at the moment, because I think we're meeting our teaching expectations.'

Similarly, a number of administrators were concerned that hiring additional Professors of Teaching would negatively impact the perception of their department (intended future). One noted:

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From the perspective of raising the profile of the department and the ranking of the department, there are some who perceive that these kinds of hires don't necessarily contribute to ... the research profile of the department. And our visibility, you know a particular department is visible for doing research that is known nationwide and worldwide, but with people completely engaged with teaching, you know their contributions are not so visible outside the campus.

Another administrator said a small contingent of their faculty 'don't want [our university] to look like a [teaching-focused university]' with a third stating, 'You know, we are a research university, so we don't want [Professors of Teaching] to dominate our staff.' It is worth noting that in the departments represented by the administrators interviewed, Professors of Teaching make up no more than 10% of the total Professors of Teaching. However, there is still a concern that these faculty could be perceived as taking over the department.

Another organizational issue that was commonly noted by administrators was the lack of integration of Professors of Teaching within their departments (negative integration). Many administrators commented that at times Professors of Teaching were exposed to unwelcoming environments. One administrator explained:

The [Professors of Teaching] have a strong community of their own, which is great, but it's definitely a challenge for them to integrate into the rest of the academic culture of the department for many reasons. One is that they're not doing basic biology research, which is a lot of the focal point for interactions for most of our faculty. Also, their offices are kind of clustered in the teaching laboratory. So ... they're not in the same building as most of their colleagues.

This lack of integration was also evident as most administrators discussed how Professors of Teaching did not have a formal mentor within the department (support-mentor). One administrator stated:

The [Professor of Teaching] doesn't have anyone to speak for her. She doesn't have a group. And that, that's gotta be a little scary.'

In many cases, administrators instead described how Professors of Teaching have grown to support and seek informal guidance from one another.

While we have referred to these tenure-track teaching faculty as Professors of Teaching, the formal title is Lecturer with (Potential) Security of Employment (LPSOE) and is a problem discussed by almost all administrators. One administrator noted 'It's a little bit like the scarlet letter...' which frames the negative perception of these tenure-track teaching faculty within the department (negative integration). This perception of tenure-track teaching faculty as being second-class citizens possibly extends beyond the UC system due to confusion caused by the title. One administrator noted that 'no one outside the University of California has any idea what is an L(P)SOE. And I think it does hurt them professionally.' Other administrators noted that this could impact tenure-track teaching faculty' success when applying for external funding or that it could decrease the weight given to letters of recommendation that they authored. Confusion caused by the title also was cited as an internal issue, for example, university officials not

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realizing that tenure-track teaching faculty were entitled to similar benefits as their research-focused faculty peers, including housing stipends and sabbatical.

Discussion

The administrator interview data provide an initial understanding of the impacts of Professors of Teaching and their anticipated and actual roles within departments. These data allow for researchers and teachers alike to better understand how teaching-focused faculty can contribute to departments and the barriers that need to be addressed using organizational theory frameworks.

The division of labour framework (Durkheim, 1893) highlights that a successful organization consists of a variety of players that each have their own specialised role. While it is true that research-focused faculty value and contribute to the education mission, it is clear from the administrators' perspectives that Professors of Teaching bring novel viewpoints and expertise, thus distinguishing their role from the research-focused faculty. Due to the differing job expectations, Professors of Teaching handle a larger teaching load with fewer departmental resources. This, in combination with their teaching abilities and education research expertise, were perceived as clear benefits of hiring Professors of Teaching and highlighted the specialised role they play as pedagogy experts. Even in cases where the research faculty were engaged in education-related efforts, Professors of Teaching brought in additional value, for example, the anecdote regarding the external education-focused grant submission which was previously unsuccessful until the Professor of Teaching's contribution. The view that Professors of Teaching play a specialised education role within the department can result in the expectation that they take responsibility for any tasks perceived to be related to teaching, potentially resulting in unsustainable workloads. For example, administrators cited that their Professors of Teaching were frequently given tasks such as leading curriculum accreditation efforts or undergraduate laboratory safety procedures, which one could argue are very peripherally related to educational improvement.

Wenger's community of practice framework (Wenger, 2010) also relates to the study context. In this theory, individuals in the organization are interconnected and leverage these interactions to shape the organization's identity and practices. From the administrator perspective, Professors of Teaching are clearly contributing to the teaching mission of the department and their departmental colleagues are open to learning from them, a finding also reported by Bush et al. (2016) in regard to SFES. Administrators observed Professors of Teaching served as "brokers", by bringing novel expertise and evidence-based teaching methods to the department. They also fulfil this broker role by crossing boundaries to interact with Professors of Teaching outside of the department, which can infuse additional pedagogical knowledge or perspective to their own department. The concern though is that the more specialized roles that Professors of Teaching can play may actually separate research and teaching-focused faculty into two different communities of practice—one research-focused community of practice with research-focused faculty and one teaching-focused community of practice that only occasionally overlaps with the research community of practice. Unfortunately, two communities of practices will not be as effective as a unified community, resulting in decreased opportunities to improve undergraduate education in the department.

Administrators additionally identified barriers to Professors of Teaching's success, particularly issues that highlighted their incomplete integration with their research-focused departmental colleagues. While discouraging, the lack of successful integration of Professors of

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Teaching into their departments should not be surprising, as it aligns with the common perception at research-intensive universities that teaching is less prestigious than research (Fairweather, 2008). A hallmark of the division of labour framework is that rules and values can be so ingrained within an organization that they are often taken for granted (Haveman & Wetts, 2018; Peters et al., 1982), as one can argue is the case for the education mission of a department in a research-intensive university. According to this theory, if a department is unwilling to place an equal value on teaching and research, then it would not be expected for individuals focused on teaching to be equally valued. This idea is corroborated by a recent study of SFES, where researchers highlighted a common perception that science education research did not carry the same weight as disciplinary science research (Bush et al., 2020). In the community of practice framework, members of the community must be willing to communicate and learn from each other in order to create a more successful organization (Wenger, 2010). While administrators perceived this to be occurring, they simultaneously noted that future hiring of Professors of Teaching was unlikely as their colleagues did not ‘want [our university] to look like a [teaching-focused university]’. Until the department or university is willing to come to terms with this dichotomy, issues seen with teaching-focused faculty in research-intensive universities that include a lack of clarity regarding evaluation of these faculty (Baron-Nixon, 2007; Bush et al., 2013) and the perception of teaching-focused faculty as second class citizens (Brownell & Tanner, 2012), will remain unaddressed. In our particular study context, if teaching is not something that departments value equally to research, then Professors of Teaching will be less influential in improving undergraduate programs.

Implications and Conclusion

In response to the call for higher education universities to increase the quality of teaching, we argue that Professors of Teaching, a type of teaching-focused faculty, could be a potential mechanism to facilitate this improvement at research-intensive universities. Administrators highlighted that Professors of Teaching are viewed by research-focused faculty as outstanding instructors and seen as bridges to the traditional university teaching and learning centers as a teaching resource. More work is needed to foster shared departmental values regarding the importance of teaching and the integration of Professors of Teaching within the department. Future research efforts will collect empirical data on instructional practices to determine whether interactions with Professors of Teaching impact how one teaches and student academic outcome data to identify the impact of Professor of Teaching instruction. The data presented in this work lay the foundation for our understanding of teaching-focused faculty at research-intensive universities and can serve to guide individuals planning to hire similar faculty at their own universities.

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Table 1. Final Codebook for Interview Data

Code	Sub code	Description
Comparisons to Professor Series	Positive	Positive comparison made that paint LSOE faculty as being equal to the research tenure track professors.
	Negative	Negative comparisons made that paint LSOE faculty as being unequal to the research tenure track professors.
Teaching Culture		When the participant refers to teaching from the department or university perspective.
Ease the Burden		Reduction in the load of teaching and service for traditional research faculty at the department/university level who would otherwise be held responsible without LSOEs.
Impact	Internal Impact	Influences others on campus that may include sharing teaching practices or research results with colleagues on campus.
	External Impact	Influences others off campus by sharing teaching practices or research results, for example through conference presentations or by obtaining external grant funding.

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Integration	Positive	Teaching faculty being integrated on campus or in the department.
	Negative	Teaching faculty not being integrated on campus or in the department.
Intended Expectations	Future	Roles of teaching faculty in the future and any future teaching faculty hiring considerations.
	Historical	Historical roles of teaching faculty and any historical hiring considerations, including financial considerations.
LPSOE Name Implications		Impacts or associations with the name of the LSOE series.
Promotion Expectations	Research	Relationship between promotion and research being conducted by teaching faculty.
	Teaching	Relationship between promotion and teaching being conducted by teaching faculty.
	Service	Relationship between promotion and service being performed by teaching faculty.
	Unclear/Unfair	Promotion expectations being either unclear or unfair for the teaching faculty series.
Support	External Support	Grant or other financial funding not being provided by the home institution.
	Internal Support (non- start-up)	Grant or other financial funding being providing by the home institution.
	Internal Start-up Support	Any financial support given at the beginning of a teaching faculty's employment.
	Mentorship and Prof. Dev. Support	Non-financial support being provided that takes the form of professional guidance and development.
Unexpected Contributions		Unexpected benefits produced by the teaching faculty.
Value		Complimentary comments said about the teaching faculty.

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Table 2. Code frequency in the interview data

Code	Number of Interviews with Code Mentioned
1: Comparison to Professor Series- Negative	14
2: Comparison to Professor Series- neutral and positive	24
3: Culture-teaching culture	24
4: Ease the burden	24
5: Impact-external impact (attending conferences)	22
6: Impact-internal impact (guide others to improve)	24
7: Integration negative	24
8: Integration positive	23
9: Intended future	23
10: Intended historical	24
11: LPSOE name implications	24
12: Promotion-percentages	16
13: Promotion-research	24
14: Promotion-service	18
15: Promotion-teaching	25
16: Promotion-Unfair and Unclear	25
17: Support-External support	3
18: Support-Internal non-start up support	14
19: Support-internal start up support	15
20: Support-lack of financial support	6
21: Support-Mentorship support	22
22: Support-professional development opportunities	14
23: Support-research assistance non-financial	9
24: Unexpected Contributions	13
25: Value	25

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