Mental Models and Implementing New Faculty Roles

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The composition of the faculty has changed dramatically over the last forty years, from largely tenure-track (70% in 1969 to 30% in 2011) to non-tenure-track faculty (30% in 1969 to 70% in 2011) (National Center for Education Statistics, 2013). Limitations of both the contingent and tenure-track models have created a faculty system that does not meet the needs of today's students, faculty, or institutions. Recent research demonstrates that student outcomes such as GPA, persistence, and graduation are negatively impacted by the rise in contingent and part-time appointments of the faculty workforce, particularly the rise in adjunct positions (Carrell & West, 2008; Ehrenberg & Zhang, 2005; Jaeger & Eagen, 2009). Studies also indicate that tenure-track faculty are not utilizing evidence-based teaching practices, do not prioritize instruction or student support, and have no incentives to innovate their teaching (Baldwin & Wawryznski, 2011; Umbach & Wawryznski, 2005; Fairweather, 1996). These findings suggest that the current faculty models are not a strong match for an enterprise that is made of mostly teaching institutions. And today's non-traditional students need faculty who are present and available; one of the most persistent research findings about students of color and first-generation college students is that strong relationships with faculty are predictive of success (Umbach & Wawryznski, 2005; Kuh, Kinzie, Schuh, & Whitt, 2011).

As a result of current trends, a redefinition of faculty roles is necessary to overcome the problems associated with existing structures. Some recent evidence demonstrates that stakeholder groups agree on several key elements that should be included in new faculty roles, such as restoring professionalism or differentiating roles based on teaching or research (Kezar, Maxey, & Holcombe, 2015). However, this study found several gaps between what stakeholders found appealing and what they thought was feasible to implement at their institutions. While this

emerging consensus is promising, it does not address the complexities of implementation of such a massive undertaking as redesigning faculty roles.

It was this question of implementation that led us to conduct the current study. If stakeholders generally agree that there are challenges to current faculty models and that there are certain aspects that should be central to new faculty roles, why has there been so little progress on implementing new models on a broad scale? We posit that despite areas of agreement, different stakeholder groups maintain conflicting deep-seated beliefs about what the faculty role should ideally look like, as well as different interpretations of the problems with current faculty models and impediments to change. These differences are implicit; stakeholders are not even aware of how their experiences shape their views and how members of other groups may interpret things very differently. These divergent interpretations could become obstacles against further momentum on implementing changes to the faculty model. In this paper, we refer to a group's underlying views/beliefs about faculty roles as a *mental model*, defined as "deeply ingrained assumptions, generalisations, and images that shape our thinking and influence our actions" (Spicer, 1998, p. 126). We examine the mental models of various stakeholder groups around implementing new faculty models, based on an analysis of open-ended responses in a survey study. By providing more insight into how faculty and administrators think about implementing new faculty models, we can better support campuses as they navigate this complex issue.

Theoretical Framework

The main theoretical framework for this paper is the social cognition theory of change (Kezar, 2001, Kezar, 2013). Underlying this theory is a belief that change is difficult because individuals hold unconscious mental models that shape their reactions to change. Mental models

are inherently personal and subjective yet also shaped by context; people construct meaning about the world around them based on their own experiences and beliefs, as well as their social or institutional contexts (Senge, 1992, 1994; Evans & Baker, 2012). Problems can arise because mental models are tacit—people are unaware of them, and so they go unexamined. This lack of examination can lead to widening gaps between people's mental models and a changing environment (Senge, 1994; Barr, Stimpert, & Huff, 1992). Additionally, members of the same organization or groups within an organization can have different or even conflicting mental models (Carroll, Sterman, & Marcus, 1998; Schein, 1993). They may work within the same broad organization but belong to different subgroups or subcultures, which can influence different interpretations of organizational reality and also lead to conflict or difficulty with change (Morgan, 1986; Bolman & Deal, 1991).

In higher education, for example, stakeholders may have different mental models about the root causes of the problems with the changing faculty. Faculty may believe that administrators want to hire more adjuncts just to cut costs and gain more power for themselves, whereas administrators may emphasize financial constraints from shrinking state funding or the lack of flexibility in the traditional tenure model. These mental models point to very different understandings/interpretations of the nature of the problem and inherently lend themselves to different ideas for implementing solutions. While we may see some recent consensus across these groups around ideas for changing the faculty model, their conflicting mental models about challenges and potential solutions can prevent movement on implementing these ideas in any meaningful way. In this section, we review the role of mental models within the change process, as well as the ways in which the context of faculty and administrator roles can shape conflicting mental models.

Mental Models

For decades, scholars in cognitive psychology, management and organization, political science, economics, and many other disciplines have examined the ways in which humans "think about and perceive problems, questions, concepts, and physical systems" as a key mechanism for understanding learning, growth, and change (Spicer, 1998, p. 125). These ways of thinking, understanding events, and framing problems have been variously termed schema, belief systems, paradigms, cognitive frames or maps, basic assumptions, implicit models, and mental models (the term we use in this paper) (Lewis & Grimes, 1999; Bess & Dee, 2014; Spicer, 1998; Kezar, 2001; Kezar, 2013; Peterson & White, 1992; Johnson-Laird, 1983). Behind these terms is the basic idea that individuals' cognition shapes their understanding of a particular issue, concept, or event. Because cognition can vary from person to person, people may not all understand the same situation in the same way. Scholars from different disciplinary backgrounds have defined mental models in slightly different ways over the last several decades. Cognitive psychologists, for example, have focused on mental models as cognitive/mental representations of reality (Craik, 1943; Johnson-Laird, 1983). Individuals construct representations of a concept or phenomenon in their minds in order to make sense of it. The focus in this body of research has been limited to the mental constructions themselves and how they shape reasoning, logic, and cognitive change.

Context and Mental Models

What is missing from these purely cognitive perspectives is attention to the ways in which context both shapes and is shaped by mental models (Smith & Semin, 2004; Chermack, 2003; Westbrook, 2006). Mental models can differ from person to person not just because of their cognitive differences, but also because of their different experiences and external

circumstances. These mental models are influenced by individuals' social, organizational, and professional contexts (Liu & Dale, 2009). For example, childhood experiences, education, professional training, relationships, and current organizational context can all influence the mental models that individuals construct about various concepts or situations. These differing mental models, in turn, shape the ways in which individuals perceive things in their environments. Spillane, Reiser, and Reimer (2002) point out that teachers with different mental models of project-based science (termed "schemas" in their article) can perceive the same classroom in very different ways:

> "A teacher with a well-articulated schema for project-based science might observe a classroom where students are engaged in multiple animated conversations around computers or desks covered with laboratory notebooks, printouts, and resource materials, and perceive it as an engaging inquiry science experience. Another teacher might perceive it as a chaotic classroom in need of better management" (pp. 396-397).

These teachers' divergent understandings of project-based science, as well as their different experiences of teaching in their own classrooms and with training and professional development, lead them to notice different aspects of this classroom setting and ascribe different meanings to them. The fact that these teachers have conflicting mental models is not inherently problematic; it is not uncommon for people in the same organization to have distinct mental models. However, if the teachers each provided feedback to the instructor they observed, they would likely give very different judgments on the activities and the quality of teaching they witnessed. These conflicting judgements could prove problematic if used to evaluate the instructor's effectiveness. Especially since most mental models are tacit and people often are not explicitly aware of them, conflicting mental models such as the ones in this example can lead to organizational conflict (Van de Ven et al, 1999; Van de Ven & Sun, 2011).

Conflicting Mental Models in Higher Education

Those who share a common context or have similar experiences often "share reasonably convergent mental models" (Denzau & North, 1994, p. 1). In higher education, the distinctive experiences of different stakeholder groups, such as faculty or administrators, can shape varying mental models of various phenomena. If these groups' mental models differ from one another, they can create organizational conflict. There is a significant body of literature on the conflict between faculty and administrators in higher education (Schuster & Finkelstein, 2006; Bess & Dee, 2014). Scholars have attributed this conflict to a variety of causes: structural boundaries and role differences, different bases of authority (professional vs. legal), different professional identities (discipline-based vs. institution-based), and differences in information about the external environment, to name a few (Bess & Dee, 2014; Peterson & White, 1992). These posited causes are all part of the different contexts shaping the mental models of faculty and administrators. The groups' distinct mental models in turn shape different interpretations of various aspects of the higher education experience, such as faculty evaluation (Bess & Dee, 2014) and strategic planning (Swenk, 1999). No research has yet examined potential differences in mental models around implementing new faculty roles, however.

Scholars have also found different mental models within faculty based on their discipline or institutional type (Biglan, 1973; Becher, 1987; Clark, 1987; 1989; Smerek, 2010). For example, faculty in a scientific discipline such as physics have different socialization experiences, theoretical foundations, research methods, and norms for publication than faculty in a social science or applied discipline. These experiences can lead to different mental models of faculty work. Similarly, faculty at a research university have very different experiences than faculty at a liberal arts college or regional comprehensive university, and different mental models

may evolve for faculty at these different types of institutions. However, to date no studies have examined whether faculty appointment type (e.g. tenure-track vs. non-tenure-track) can lead to the creation of distinct mental models. Given the very different experiences of faculty with different appointment types, it stands to reason that they may construct distinctive mental models around a variety of issues within higher education. Additionally, very little research has been conducted on mental models of subgroups within administration—deans versus provosts, for example (Smerek, 2010). Our study fills these gaps in the literature by examining the group mental models of faculty and administrators around the implementation of new faculty roles; we further subdivide faculty and administrators into categories based on their appointment type or role. In the next section, we describe our methods in more detail.

Methodology and Data

This paper is an exploratory study of how different stakeholders think about changes to the faculty model. It examines open-ended, qualitative survey data and is part of a larger survey study of stakeholders' beliefs and opinions about new faculty models. The survey was disseminated in the spring of 2015 through several key national higher education associations and was distributed by email to a variety of stakeholder groups, including deans, provosts, tenured/tenure-track and non-tenure-track faculty, accreditors, governing board members, and state higher education executive officers (SHEEOs). We designed the selection of our sample population using Harcleroad & Eaton's (2011) empirically grounded list of higher education groups that have historically impacted issues pertaining to faculty. Because these stakeholder groups vary in size, it was appropriate to survey some stakeholders, such as faculty and administrators, in greater numbers than others We received few survey responses and even fewer open-ended comments from accreditors, board members, and SHEEOs and thus exclude them

from the analyses for this study. Our total sample size for this study was 1,503, as shown in Table 1.

Survey items were organized into eight sections: faculty pathways; contracts; unbundling of faculty roles; status in the academic community; faculty development, promotion, and evaluation; flexibility; collaboration and community engagement; and public good roles. Each section had between 3 and 8 questions. Each question put forth a potential element of a new faculty model based on both the research literature and real-world experiments, such as adding teaching-only tenured positions, revising incentive and reward structures, or promoting more community-engaged scholarship. The questions asked all respondents to indicate how attractive each proposal was and how feasible they believed it to be on a 5-point scale. At the end of each of the eight survey sections, as well as at the end of the survey, we provided respondents with space for open-ended comments to reflect on the survey items they had just seen; this yielded several thousand comments ranging in length from a few words to a few hundred words each, producing over 200 pages of text. These open-ended comments are appropriate for analyzing stakeholders' perceptions and beliefs about the changing faculty, as the format allowed respondents to express detail and context to their beliefs that they could not through closed-ended survey questions (Fink, 2003). Additionally, open-ended questions give respondents the space and opportunity to reflect on issues that are most important and salient to them (Geer, 1991). Further, the large sample size enabled us to get a broader picture of stakeholders' views across the higher education sector, making this more representative than if we had conducted a more traditional qualitative study and interviewed a few dozen faculty and administrators.

Given the exploratory nature of this study, we used an open coding scheme from grounded theory in approaching our data. We had no preconceived theoretical constructs when

we began analyzing the comments beyond stakeholders' perceptions and beliefs about changes to faculty roles. We wanted to identify inductively what was represented in the open-ended comments (Glaser & Strauss, 1967; Charmaz, 2006). In order to conduct this analysis, we separated the comments out by stakeholder group, read each stakeholder group's comments in their entirety, and looked for emergent themes or patterns. These emergent themes included items such as stakeholder perceptions of challenges to implementing new faculty models, proposed solutions, and perceptions of other stakeholder groups. We then analyzed the comments again and looked for subthemes within each category, such as specific challenges or solutions. As we read through the data multiple times, it became clear that different stakeholder groups were interpreting issues of the changing faculty in different ways. At this point, we turned to the literature on social cognitive theories of change and mental models, which proved to be a strong fit for our data.

Because these data come from a larger survey study, in which participants completed the survey anonymously, we were not able to utilize common trustworthiness strategies such as member checking. We were able to triangulate these data to some extent against the quantitative survey data we collected in the larger study, though the open-ended comments gave us a much richer picture of each group's mental models than did their quantitative responses. Additionally, the comments were reviewed and analyzed by both authors separately and then compared to enhance reliability (Miles & Huberman, 1994).

Results

An examination of the different stakeholder groups' comments reveals distinctive mental models for each group. We acknowledge that individuals within each stakeholder group have varying and unique perspectives and that mental models are not monolithic. Additionally, some

common elements were reflected in nearly all groups' mental models of implementing new faculty roles. For example, all groups believe that budgetary restrictions represent a key challenge preventing movement on implementation of new faculty models.

Despite these caveats, it is clear that different stakeholder groups perceive challenges to implementing new faculty models and potential solutions in very different ways based on their varied experiences and the contexts they inhabit (see Tables 2 and 3). Within the faculty category, we were able to distinguish some key differences by faculty appointment type; part-time and full-time non-tenure track faculty were able to see different challenges than tenured/tenure-track faculty based on their positions either outside of or within the tenure system. These differences by appointment type were also reflected in the various solutions advanced by members of these groups. Further, deans and provosts similarly demonstrated very different understandings of the challenges and potential solutions to implementing new types of faculty roles, based on their roles and positions within the organization. In this section, we describe the mental models of each subgroup in more detail. We begin each subsection with an overview of each group's mental model and then discuss the broad themes that emerged: the *challenges* that each group perceived, whether problems with current faculty models that seem particularly intransigent or barriers to change, and the *solutions* that each group advanced as potential mechanisms for implementing new faculty models.

Mental Models of Non-Tenure-Track Faculty

The mental model of non-tenure-track faculty (NTTF) demonstrates a very rich and complex understanding of challenges to implementing new models. Given their context in non-tenure-track roles, sitting just outside the institution and its traditional structures, NTTF have a greater relative distance from institutional life and perhaps a stronger sense of objectivity.

However, this distance also makes them unable to understand comprehensive solutions to implementing new faculty models.

Challenges

Non-tenure-track faculty advance the most comprehensive and complex list of challenges to implementing new faculty models. Their mental model includes such a wide-ranging set of challenges due to their experiences off the tenure-track, bearing the brunt of many problems with current models and seeing many of the obstacles that must be overcome in order to create better faculty models. NTTF also identify some challenges that other groups did not present at all: namely the overproduction of PhDs, the prioritization of growing administration and student amenities over instruction as a budgetary priority, inequities between tenured and non-tenured faculty, and resistance to new models from TTF.

First, the issue of the overproduction of PhDs, the training of faculty, and the role of doctoral institutions in the creation of new faculty models is brought up by many non-tenure-track faculty:

> "Since more people are getting PhDs than there are faculty positions available, I also think there needs to be some conversation about the degree itself, and how contingent faculty who will not be able to be promoted in the institutions where they teach in the cities where they want to live might improve their skills to be able to find a job outside of academia."

Other NTTF also mention the need to benchmark the number of applicants accepted to PhD programs against the number of openings or projected openings in the job market; they perceive this glut in the market as a major contributor to the erosion of professionalism in current faculty models, as well as a major challenge to moving forward with new models.

Like other stakeholder groups, NTTF identify budgets as a key inhibitor to implementing new faculty models. However, NTTF point out a subtle variation of this challenge not identified

by other groups: institutions do not necessarily lack financial resources, rather they prioritize administrative positions, facilities, and student amenities over spending on instructional needs and faculty positions. As this faculty member notes,

> "Administrators should redirect money away from fancy student amenities and toward office space for all faculty to meet with students and digitally-enhanced classrooms for teaching and learning. That is the purpose of higher education, not rock-climbing walls and posh dorms."

Other NTTF note specifically that money is directed towards new administrative positions or increases in administrator salaries at the expense of instructional salaries or resources. Unlike other stakeholder groups, who tend to emphasize an absolute lack of funds, NTTF are able to see that decision-making around funding priorities may be at the heart of this challenge.

Non-tenure-track faculty are also the group whose mental model includes the most complex conception of the inequities between the dual tracks within the current faculty model and the challenges that these inequities present for moving forward with new models. Inequities include structural issues such an unequal pay and benefits, lack of job security, and lack of access to important resources such as office space to meet with students. NTTF stress that all faculty must receive a living wage and that coming to terms with these inequities presents a crucial challenge that must be addressed before new faculty models can be implemented. Inequities also include social and cultural issues, such as "the total lack of respect and contempt I feel from full time, tenure-track faculty at my University and conferences," as one NTTF notes.

Further, non-tenure-track faculty point to outright resistance from TTF as a serious challenge inhibiting the implementation of new faculty models. One NTTF states that

> "Unless high-ranking faculty members challenge existing structures it will be difficult to change anything. To a great extent it is faculty who have ceded their powers and responsibilities for governance to an ever-growing administration. They have allowed the current caste system to come into being…"

Other NTTF also discuss their perception that while resistant "voices are in the minority of FTTT [full-time tenure-track] faculty, they are usually the more senior (and loudest) voices." Even small pockets of resistant tenure-track faculty pose significant challenges for moving forward with new faculty roles that are equitable.

Many non-tenure-track faculty fear that the biggest barriers to feasibility are the disingenuous decision-making of administrators and the unwillingness of tenured faculty to challenge these decisions, as noted above. They see that administrators have made decisions that have continually deprofessionalized faculty roles and that tenured faculty continue to benefit from the two-tiered system. NTTF could not perceive either group genuinely approaching new faculty models in ways that supported a more robust faculty for the future:

> "I think the system needs to be fundamentally changed but…I don't believe that Administration nor Tenured faculty have any real interest in improving the working conditions for part-time faculty but rather rely on the inequalities of the current system to both reap the rewards."

Solutions

While NTTF have a sophisticated, comprehensive mental model about challenges to new faculty models due to their experiences off the tenure track, they have few solutions for making implementation of new faculty models more feasible. The solutions they do put forth, such as offering more flexibility, tailoring faculty roles to individual needs, and restoring professionalism to faculty roles, come directly from our survey questions rather than from their own ideas or suggestions. Their experiences in a non-tenure-track role lead these faculty to construct a mental model devoid of original solutions for changing the faculty role. Their own experiences prevent them from being able to see any meaningful possibilities for a different system.

Mental Models of Tenured/Tenure-Track Faculty

Tenure-track faculty members (TTF)'s mental model of implementing new faculty models is shaped by their experiences within the tenure system, the historically predominant model for faculty. Their understanding of challenges facing implementation of new models reflects their on-the-ground experiences on the tenure track. However, TTF's mental models are also limited by their position within the tenure system, constraining their ability to see beyond their role in a comprehensive or systematic way. While they present a few solutions to facilitate implementation of new faculty models and emphasize the need for different models based on diverse institutional missions, this group does not share any comprehensive or systemic solutions. By systemic we mean solutions or models that address the full range of challenges to current faculty models and move beyond existing structures.

Challenges

Overall, the mental model of tenured/tenure-track faculty includes many challenges stemming from their experiences within the current tenure system, including the low value of teaching and rewards structures that overemphasize research, the deep entrenchment of existing structures, and governance strain from being required to take on more service work. First, TTF point out that research continues to be valued and rewarded over teaching in current constructions of faculty roles. One faculty member notes that "it would be nice for teaching to be seen as equivalent to and not less than research in terms of importance," while another states that "the day you can get grant money for teaching is the day it will be valued by my institution." Even within the relative security of a tenure-track position, these faculty feel that they cannot dedicate their time to teaching, as it will not be rewarded. This overvaluing of research and

undervaluing of teaching and resultant rewards structures present challenges to implementing new faculty models that equally value all the important aspects of a faculty role.

Additionally, tenured and tenure-track faculty emphasize the deep entrenchment of existing structures as a major challenge to new faculty models. They note that "institutional structures are simply too fossilized to alter" and that "the university is one of the most conservative social institutions and is greatly resistant to change and innovation." These faculty members are living and working within a tenure system that has not changed significantly since its introduction and thus see little reason to think these structures will change.

TTF also point to the growing strain on shared governance as a potential challenge for implementing new faculty models. As tenure-track appointments shrink and non-tenure-track positions proliferate, fewer faculty are available to participate in important governance functions:

> "There are very few tenure-track lines and these are being lost because of the increase of contingent faculty. Unions need the contingent faculty for numbers and are catering to their needs. Unfortunately, this is placing a greater burden on tenured faculty to keep an eye on shared governance and faculty voice. Contingent faculty do not have the same relationship to the institution. They do not always have the same degrees. They do not have the same investment in the institution."

TTF believe that there must be thoughtful consideration of how to alleviate this strain on shared governance. However, the above quote also demonstrates the ways in which these faculty members' position within the tenure system prevents them from seeing many of the challenges that NTTF mention. The commenter assumes that contingent faculty simply do not care to participate in shared governance or do not have the appropriate skills to participate meaningfully, while ignoring the fact that adjunct faculty may lack the time or permission to participate in governance activities and would not be compensated for their participation.

The ways in which TTF's position within the tenure system shape their understanding of challenges to new faculty models are further illuminated by the fact that they note almost none of

the challenges that NTTF discuss. For example, while many TTF point to existing hierarchies within the professoriate and across institutions as an obstacle to change, they do not express a thorough understanding of challenges related to the current status of non-tenure-track faculty members, including inequities in pay, job security, or institutional support. One faculty member illustrates this narrow focus when reflecting on a proposal for more differentiated faculty roles. This TTF expresses concerns about the "danger of creating 1st, 2st [sic], 3rd class citizens among faculty," ignoring the reality expressed by NTTF that these divisions already exist. This quote indicates disregard—either unintentional or willful—for the vast gulf in status between tenured/tenure-track and non-tenure-track faculty and reflects the mental models of tenured faculty as constrained by their position on the tenure track.

These challenges to implementing new faculty roles demonstrate the ways in which tenured and tenure-track faculty members' mental model is shaped by their position within the traditional tenure system. This position allows them to see some of the drawbacks to their current arrangements, as well as potential challenges to changing the system. However, their position also limits their ability to see challenges that go beyond their role, such as those concerning the current inequities between tenured and non-tenure-track faculty.

Solutions

Tenured and tenure-track faculty members present a few unique solutions for implementing new faculty models that are not taken directly from our survey questions (unlike NTTF). For example, they suggest incorporating accountability structures for tenured faculty, as well as increasing the scope and power of unions to protect faculty members from "limitless opportunities for abuse." However, like the challenges that TTF note, these solutions are also shaped by their experiences on the tenure-track and do not address many of the broader problems

with current faculty models, including ones that affect adjunct faculty. There are no cohesive or coherent solutions for changing the faculty within the mental model of this group. However, many TTF suggest that such systematic or cohesive solutions may be inappropriate for solving the problems with the current faculty. They indicate that different models which vary based on institutional mission would be a more feasible solution than a one-size-fits-all wholesale change to the faculty model. For example, one faculty member states that "the 'feasibility' of all these proposals depends on the mission of the higher education institution." Another notes that "Many of the potential attributes and roles of future faculty models are dependent on the type of institution – large research university versus small, non-profit undergraduate colleges. The mission of various schools affect the attributes valued." Despite this advocacy for diverse solutions based on institutional mission, tenured and tenure-track faculty do not advance specific solutions for different institutional types, indicating the limits of their experiences based on their roles and positions.

Mental Models of Provosts

Provosts have a somewhat complex understanding of challenges to implementing new faculty models, though their mental model includes far fewer challenges than the faculty groups and does not include any unique challenges not mentioned by other groups. As administrative leaders who work across the institution and are more in touch with the broader higher education system, provosts have a broader view of potential challenges with new faculty roles compared to deans (described in more detail below), whose perceptions are limited to their own school or college. However, this big picture view limits provosts' abilities to see all the on-the-ground challenges identified by faculty. Interestingly, provosts list the most solutions of any stakeholder

group; their solutions reflect systemic institutional needs and hit many levels, from structural issues such as accountability and rewards to cultural issues such as status and leadership.

Challenges

Like deans, provosts note that changing faculty models could make it difficult to attract high-quality faculty to their institutions. However, they also have a broader understanding of the ways in which the market-based system at large creates challenges to implementing new faculty roles. For example, one provost notes that while an attempt to make pay equitable for all faculty may seem "attractive on the surface, it disregards the reality of a free market system in which faculty in some disciplines are in higher demand than in others and therefore command higher salaries." Due to their positions overseeing faculty from across disciplines and schools, including professional schools which tend to have more highly-paid faculty, provosts are able to see more complexity behind calls for equitable pay for faculty.

Provosts also have a broader understanding of hierarchy in the system than other stakeholder groups, who generally focused on hierarchies within the faculty. Provosts recognize that hierarchical arrangements in current faculty models could be a barrier to erecting new models; however, they also note that hierarchies among institutions can inhibit meaningful change to faculty models. One provost states:

> "When the faculties of Harvard, Yale, Pennsylvania, Swarthmore, Amherst, Smith, and Grinnell (and all the rest of the elites) exist and operate within the above expectations [regarding alternative contract types besides just tenure and adjunct], then I will believe they represent educational concerns and not the perpetuation of an unequal class system designed to preserve the privileges of the wealthy."

This provost emphasizes the role that elite institutions can play in reshaping faculty models; as long as the most prestigious colleges and universities continue to hew to traditional models of

faculty work, other institutions across the system will feel less obligated to rethink faculty

models on their own campuses.

While provosts join other stakeholder groups in pointing to budgetary constraints as an

impediment to new faculty roles, they also indicate that mindsets among both faculty and leaders

are perhaps an even bigger barrier. Some note that faculty would be "very resistant" to

redefining their roles, while others point to potentially intransigent mindsets at the highest levels:

> "Many of these innovations require little or no extra funds to institute and operate them; they simply require a moderate attitude adjustment. Unfortunately that adjust needs to be include the holders of the funds: politicians for public institutions and owners for private institutions. It will probably take a great deal of time and effort to make substantial change happen -- but the efforts will be worth it because the benefits to individuals and society will be much greater than most people will realize."

Again, provosts' work across and beyond their institutions gives them a broad perspective on

potential challenges to new faculty models and on which stakeholders are necessary to include to

make change. While their mental model of challenges does not include the diverse array of

issues mentioned by faculty members, it is focused on different institutional levers and levels.

Solutions

As noted above, provosts have the most comprehensive and systemic list of solutions of

any stakeholder group. Their suggestions for ways to move forward with new faculty models

include solutions that address structural, political and, cultural levels. For example, one provost

notes the importance of "strengthening post-tenure review and considering incentives for faculty

who serve institutional priorities (e.g. retention efforts, honors programs)," while another

proposes new ways to account for the different types of work performed by faculty in

differentiated roles:

> "I support the idea that multi-year contract faculty should teach more, but have lower expectations of scholarly activity. Tenured/tenure track faculty should teach less and have higher expectations of scholarly activity. They should be evaluated on this

expectation. Tenured faculty would have the option to move to multi-year contract status as their scholarly productivity diminished later in their careers."

Provosts also discuss ways in which governance structures could change to better represent adjunct faculty. One individual describes governance arrangements at his/her institution as a potential model:

> "We have a shared governance agreement and adjunct faculty by design have a majority of the votes in the Faculty Senate. The system works well for us, and definitely improves faculty participation and faculty loyalty."

Additional members of this group describe the importance of engaging faculty and other stakeholders across and outside the institution as key to making change, reflecting their awareness of potential political challenges that must be addressed. They note the importance of getting buy-in from "accreditors, deans, and senior faculty," building trust with faculty so that they do not believe that administrators are out to exploit them, and ensuring strong leadership to help steer these changes. Underlying these comments (and stated explicitly by some provosts) is an awareness of the role that institutional cultures play in either hindering or enhancing change processes on campus.

Above all, provosts note that it is important to understand the complexity and nuance inherent in implementing new faculty models. Due to the "wide range of institutions and missions" in the higher education sector, there is likely no one-size-fits-all solution. Provosts at different institutional types, such as vocational schools, community colleges, and liberal arts colleges, mention variations of what new faculty models could look like based on their institutions' unique characteristics and mission. For example, a provost at a vocational school stresses the need for "instructors who are properly credentialed to teach the most up-to-date software," which is decidedly not a priority for a provost at a research institution. Provosts are

willing to entertain a diverse range of solutions and also recognize that "change must be planful and strategic, focused on serving the common good and student learning and development."

Mental Models of Deans

In addition to the common challenges of budgets and unions listed by nearly all groups, deans noted only a couple of unique challenges and offered few solutions for facilitating implementation of new faculty models. Deans' limited mental model of challenges and solutions is due to their position within the institution. Deans do not always make hiring decisions, which might inform their views of current and future faculty models; this often happens at the level of department chairs (Cross & Goldenberg, 2009). As a result, deans often lack significant exposure to NTTF and their concerns. They do not see the day-to-day challenges that faculty members face. And, unlike provosts or presidents, they are not key institutional policy-makers, so they do not see the big-picture challenges or potential solutions that these more senior leaders might. They are caught in the middle and their mental model is thus constrained by their role.

Challenges

Deans note only a few distinctive concerns and demonstrate a limited understanding of potential challenges to implementing new faculty models. The majority of the challenges that deans express have to do with limited budgets and union intransigence, concerns noted by every other stakeholder group, as well. These obstacles dominate deans' mental model in a way they do not for other stakeholders, limiting their understanding of other challenges to new faculty models. Dozens of deans describe restricted institutional budgets as preventing any potential changes to faculty models, while others emphasize that union resistance is a key obstacle to making changes to faculty contracts or working arrangements. One dean encapsulates the dominance of these two challenges perfectly:

> "The two biggest obstacles to positive change at my institution are (1) unstable budget and (2) union environment. Under these circumstances, it is nearly impossible to create incentives for behavioral change."

While deans' mental model is focused primarily on budgets and unions, they do offer a couple of unique challenges to implementing new faculty models. Several deans expressed concerns that making major changes to faculty models would limit their ability to hire talented faculty:

> "Any institution that makes a radical change in faculty appointments or faculty expectations, as an institution, will take a huge risk in its ability to recruit and retain the quality of faculty it needs."

This quote demonstrates deans' fears about their institutions' ability to compete for talent if they make changes while other institutions continue with the status quo. Deans also emphasize that faculty buy-in would be a key challenge to implementing new faculty models. One dean notes that "changing workload models would require buy-in from a large portion of the faculty, that is unlikely to happen." Others indicate their certainty that faculty governing bodies at their institutions would not support any changes to the faculty model.

Deans' mental model of challenges to implementing new faculty roles is remarkably less complex than those of faculty or provosts. Deans overwhelmingly pointed to institutional budgets and resistance from unions as key obstacles and are unable to see many additional challenges. No deans acknowledge challenges related to non-tenure track faculty, culture, mindsets, rewards structures, hierarchy, or the low value of teaching, among others. Their position within the institution limits their focus and prevents them from seeing the on-the-ground challenges that faculty are able to see, such as classroom challenges, research demands, or service obligations, as well as the broader, institution-wide challenges that leaders at more senior levels can see.

Solutions

Deans mention a few solutions that would help implement new faculty roles, but they are mostly aimed at tweaking existing arrangements rather than making wholesale changes. Several deans emphasize the importance of preserving a place for both research and teaching in all faculty roles, while others point to the appeal of increasing flexibility or differentiating models for different departments. For example, one dean suggests that different models may be needed for faculty in different disciplines:

> "I feel that the questions do not allow for much differentiation. I run a very large college, and the scientists might agree enthusiastically to something that the humanities faculty might not appreciate at all, and vice versa."

Another dean offers that "it is a bad idea to separate out teaching and research missions into tracks." However, deans do not describe these potential solutions, or any others, in depth. Like their understanding of challenges to new faculty models, deans' understanding of potential solutions is simplistic and lacks detail. Deans also do not address any of the systemic issues that provosts see or the on-the-ground realities of faculty members. Overall, the solutions that deans offer as a part of their mental model lack the complexity and big-picture view of those offered by provosts and do not address the day-to-day concerns listed by faculty across appointment type.

Discussion and Implications

Different groups in organizations have different contexts and experiences that can shape distinctive mental models, with conflicting interpretations of an issue, phenomenon, or situation (Schein, 1993). Our findings in this study align with this theoretical perspective. It is clear from our data that faculty with different appointment types and administrators in different positions have constructed distinct mental models around the idea of implementing new faculty roles, based on their different experiences and contexts.

The mental model of NTTF is influenced by their position outside the tenure system, which allows them to reflect on and identify root causes of challenges to implementing new faculty models. However, this position outside the system leaves a blind spot in their mental model, which prevents them from seeing comprehensive and meaningful solutions. The TTF mental model is shaped by their position within the traditional tenure system, allowing them to see challenges based on their own role but few solutions that extend beyond tweaking traditional tenure-track roles. Provosts' senior role leaves them blind to some of the day-to-day realities of faculty members, but able to suggest many comprehensive and systemic solutions that other groups are unable to see. Deans' position in the middle of the administrative hierarchy, without the direct experience with NTTFs of department chairs or the policy-making role of provosts, leads them to see few unique challenges or solutions. Each group's mental model is shaped by their unique contexts and limited by their own perspectives.

The practical implications of groups having different mental models are immense: social cognitive theories of change predict that these conflicting mental models could be hindering the change process (Kezar, 2001; Kezar, 2013). While recent research shows that faculty and administrators may agree on the appeal of some particular aspects of new faculty models (Kezar, Maxey, and Holcombe, 2015), their distinctive experiences and beliefs mean they are not starting from the same place of understanding the problem. They have few shared understandings of the key challenges to implementing new faculty roles and wildly different solutions to those implementation challenges. Group members are not necessarily even aware of how their mental models may differ from those of other stakeholder groups; it is likely that they have never explicitly reflected upon the ways in which their experiences may shape their perceptions of the

issue. This tacit nature of mental models makes them a particularly intransigent obstacle for those endeavoring to make institutional change (Senge, 1992).

The way to deal with conflicting mental models is to make them explicit and surface the underlying assumptions of each group, as we have done in this study (Kim, 1993). Surfacing these assumptions and confronting the differences in each group's construction of implementing new faculty models are part of an organizational learning process, in which stakeholders must add to or change their mental models in order to accommodate new information (Barr, Stimpert, & Huff, 1992; Huber, 1991; Fiol and Lyles, 1985). Making "mental models explicit is crucial to developing new shared mental models" that can incorporate elements of each group's unique experiences and create a more comprehensive picture of the situation (Kim, 1993, p. 11). Non-tenure-track faculty, tenured and tenure-track faculty, deans, and provosts are all able to contribute various pieces of the picture based on their experiences, but none of their mental models is complete or a comprehensive picture of reality—by definition they are all incomplete and limited by individual and contextual factors (Barr, Stimpert, & Huff, 1992). However, their incompleteness does not make them either incorrect or incommensurable. Each group's mental model captures a particular slice of organizational reality, shaped by the experiences of members of that group. In order to create and implement faculty models that will truly meet the needs of all faculty, institutions, and students, we need all these voices at the table. Institutional teams that want to begin these discussions should include members from each stakeholder group in the conversation.

Our findings also add to the literature on faculty/administrator conflict and mental models. While prior research has demonstrated the differences in faculty mental models by discipline or institution type (Biglan, 1973; Becher, 1987; Clark, 1987; 1989; Smerek, 2010),

ours is the first study examining differences by appointment type. As over two-thirds of instructional faculty are now off the tenure track (National Center for Education Statistics, 2013), it is crucial for researchers to better understand the ways in which their experiences shape mental models of various issues, as well as the ways in which they differ from those of tenured faculty. Further, it is important to note that administrators should not all be painted with the same broad brush. Deans and provosts have very distinctive experiences and roles, and we found that their mental models on the changing faculty reflect those differences. By lumping all administrators together, researchers miss the nuance and complexity of their mental models, as well as the ways they may differ by position.

Conclusion

It is clear from our findings that stakeholder groups within higher education have different mental models of challenges to implementing new faculty roles, as well as the best solutions for moving forward. Members of each group are able to see a different piece of the problem based on their position within the organization, but their mental models leave them blind to others' positions and perspectives. As discussions continue about how the faculty model can be changed to best meet the needs of students, faculty, and institutions, we must be mindful of these blind spots and build broad, representative teams to guide the change process. Each group needs the other in order to create a fuller, more complete picture that will pave the way for meaningful and lasting change. This is a lesson that can be translated to other areas of conflict in higher education, as well. By examining groups' mental models, we can better understand the underlying beliefs shaping their differing approaches to contentious issues. In surfacing these tacit beliefs, we can ensure that all stakeholders are able to approach difficult discussions from the same starting point and that each group's unique perspective is represented.

Table 1: Stakeholders Responses to Survey on Rethinking Faculty Models

Stakeholder Group	Number of Respondents
Faculty: Non–tenure-track	330
Faculty: Tenured/Tenure-track	904
Provosts	188
Deans	81
Total	1,503

Table 2: Detailed Look at Stakeholder Perceptions of Challenges to New Faculty Models

Tenured/ Tenure-Track Faculty	Non-Tenure-Track Faculty	Provosts	Deans
Administrative bloat	Administrative bloat	Budgets	Budgets
Budgets	Budgets—funding priorities	Hierarchy in the system	Difficulty attracting high-quality talent
Culture	Culture	Market-based system	Faculty buy-in
Existing structures too entrenched	Hierarchy in the system	Mindsets	Unions
Governance strain	Inequitable pay for adjuncts	Resistance from faculty	
Hierarchy in the system	Job security for adjuncts	Unions	
Lack of flexibility	Low value of teaching		
Low value of teaching	Market-based system		
Market-based system	Mindsets		
Mindsets	Research imperative		
Research imperative	Resistance from tenure-track faculty		
Rewards structures	Rewards structures		
Stretching faculty in too many directions	Status of non-tenure track faculty		
Unions	Stretching faculty in too many directions		
	Too many PhDs for the market		
	Unions		

Table 3: Detailed Look at Stakeholder Perceptions of Solutions for New Faculty Models

Tenured/ Tenure-Track Faculty	Non-Tenure-Track Faculty	Provosts	Deans
Mission-specific models	More flexibility	Change cultures	More flexibility
Create structures for accountability/ post-tenure review	More tailored faculty roles	Create concrete ways to account for new role or work	Solutions already happening
Unions to protect faculty	Restore professionalism	Create structures for post-tenure review	Teaching and research both necessary
		Focus on changes for newer faculty who are more open	
		Get rid of tenure/NTT dichotomy	
		Keep complexity and nuance	
		Leadership is necessary	
		Must get faculty buy-in	
		Planning and strategy	
		Revising Boyer	
		Using technology to create hybrid models	

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