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Conceptualization of Faculty Work Motivation: Overcoming the Impasse

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CONCEPTUALIZATION OF FACULTY WORK MOTIVATION: OVERCOMING THE
IMPASSE

by

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ABSTRACT

CONCEPTUALIZATION OF FACULTY WORK MOTIVATION: OVERCOMING THE IMPASSE

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Old Dominion University, 2019
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The work motivation literature is at an impasse. At the same time, changing economic and social conditions necessitate an ongoing transformation for how organizations motivate their workforce. Although changes in the nature of work have captured the attention of researchers, calls for more research to further develop work motivation theory have largely gone unnoticed. The scarcity of new theoretical research contributes to a lack of contextual understanding in work motivation. As such, organizational leaders continue to develop interventions based on the findings of potentially outdated work motivation theories. This may lead to diminished work motivation, productivity, and commitment, particularly for highly skilled and educated labor forces such as university faculty. Along the same lines, the faculty work motivation literature is also at an impasse. To provide perspective and promote a holistic understanding of the changing workforce, possible reasons for the impasse along with potential ways to encourage advancement are discussed.

This study provides a discussion of the methodological process through which the work motivation literature can be synthesized. Although existing review approaches are useful for describing how work motivation research has progressed over time in order to identify current research trends, they are less useful for providing a picture of how researchers could arrive at the level of insight needed to develop new theoretical perspectives. Hence, one aim of the present

work is to introduce a new approach that can optimally synthesize existing theories and provide clear directions for how to develop new theoretical perspectives.

Building upon the strengths of existing review approaches, a new approach, labeled the 3D method, for synthesizing research is proposed. The 3D method is then demonstrated on the work motivation literature and subsequently applied to the faculty work motivation literature, a field that has received limited attention and as a result is also at an impasse. Indeed, insights from the 3D method approach revealed that a more coherent understanding of faculty work motivation can be achieved by leveraging the work environment, cognition, and affect.

Based on the application of the 3D method to the faculty work motivation literature, a new model of faculty work motivation is proposed and tested on a sample of university professors working at U.S. doctoral granting institutions. Long-term negative affect (emotional exhaustion) was shown to explain the relationship between perceptions of the work environment, faculty job satisfaction, commitment and intent to leave academia. Specifically, faculty who received support from their department, had autonomy in structuring their daily tasks, viewed their job as important, completed their tasks from the beginning to the end, experienced less skill and task variety, and were in good health experienced less emotional exhaustion. In turn, perceptions of autonomy, task variety, and organizational support were found to have direct and indirect effects on faculty job satisfaction via emotional exhaustion. Overall, findings revealed that university faculty responded to certain work environment features and work events by experiencing emotional exhaustion, which then led to diminished job satisfaction and commitment, and intent to stay. The implications for theoretical research, institutional policy, and practice are discussed.

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INTRODUCTION

Work motivation is one of the most dominant and frequently studied topics in human resource management, organizational behavior, and industrial-organizational psychology (Kanfer, Frese, & Johnson, 2017; Miner, 2003; Pinder, 2008; Steers & Porter, 1991). To date, the work motivation literature suggest that work motivation is a dynamic process that unfolds over time (Kanfer et al., 2017; Latham, 2007; Mitchell & Daniels, 2003; Pinder, 2008). This process has important implications for a variety of labor forces, including highly skilled and educated labor forces such as university faculty. Within the current literature, some argue that work motivation theory has reached maturity; i.e., the existing body of research sufficiently explains work motivation (Kanfer et al., 2017). However, it might be argued that work motivation theory has reached an impasse (Steers, Mowday, & Shapiro, 2004). In either case, over the past two decades, there has been a decline in the number of journal publications with theoretical developments in work motivation (Kanfer et al., 2017; Steers et al., 2004). Thus, little research has focused on developing new theoretical perspectives capable of guiding organizations on better ways of motivating their workforce (Steers et al., 2004).

The scarcity of new theoretical research suggests that the current literature may not provide a holistic understanding of the needs of highly skilled and educated labor force, such as university faculty. Indeed, economic and technological changes occurring in work have created the need for a holistic understanding of how to meet the needs of the changing workforce. For instance, although the US labor market has grown stronger and unemployment rates have fallen below 4% (U.S. Department of Labor, 2019), many employees are more likely to consistently change organizations rather than remain at one for 20 years or more (Society for Human Resource Management [SHRM], 2016). In the new economy, technology has become an

important aspect of the work processes (Holland & Bardoel, 2016). In fact, technology has standardized global telework and increased the global labor competition to a point that a “twenty-four-seven” availability is expected. As such, highly skilled labor forces such as university faculty are more likely to consider changing their careers (Klarner, 2016; Malesic, 2016; Parker, Van den Broeck, & Holman, 2017). Collectively, the changes have put pressure on organizations to design better ways of motivating their workforce (SHRM, 2016). Organizations that fail to maintain high levels of work motivation face significant loss in productivity and cost the United States economy an estimated \$7 trillion (Gallup, 2017). However, the changing nature of work suggests that existing work motivation theories need to adapt accordingly (Cronbach, 1975) because existing theoretical models will not be able to guide organizations in this new era of work (Steers et al., 2004).

Unfortunately, a similar situation is occurring with university faculty. Faculty are leaving universities. A recent national faculty survey showed that approximately 40% of university faculty report feeling unable to balance performance expectations for teaching, research, and service (The Collaborative on Academic Careers in Higher Education, 2016; 2017). Many faculty describe their workplace as emotionally depleting, highly commercialized, and mentally draining (Frye, 2018; Klarner, 2016; Malesic, 2016). For example, failure to provide adequate teaching and research support cost the University of Wisconsin a 40% increase in turnover and an estimated \$24 million on retention interventions (Brown, 2016). In addition, the topic of work motivation for faculty may also be at an impasse.

The main topic of this study is work motivation in university faculty. However, the discussion begins with work motivation theory in general and the reasons why it needs to be

adapted/ expanded. Parallels are then drawn between work motivation in general and work motivation in university faculty to address the issue in academia.

Purpose of the Study

The current work motivation literature does not provide a holistic understanding of the changing workforce. Calls for more research on further developing work motivation theory (e.g., Steers et al., 2004) have gone unnoticed. As such, organizational leaders continue to use the findings of potentially outdated theories. This can have a negative impact, such as diminished productivity and commitment, on highly skilled and educated labor forces. Moreover, the scarcity of theoretical research contributes to the impasse in work motivation theory. In the following sections, the possible reasons for the impasse in work motivation theory along with potential ways to encourage new advancements are discussed. Moreover, understanding the possible reasons for the impasse opens the door for researchers to make progress in the field of work motivation in university faculty.

Four major themes are presented. First, a brief description of the current state of work motivation is presented along with the two key contributors to its impasses: 1) fragmentation of knowledge and 2) the difficulty organizing the fragmented literature. Second, to get an understanding of how work motivation theory has been developed, an overview of the existing methods for reviewing the literature is provided. Specifically, it is argued that limitation in the existing review methods could have played a crucial role in the impasse of work motivation theory. Third, a new method of synthesis called three-dimensional method (3D method) is presented as an alternative. Finally, the 3D method is applied to the current work motivation literature for university faculty, and as a result a new conceptual model of work motivation for university faculty is proposed and tested.

Current State of Work Motivation Theory and Research

The literature on work motivation has made fair progress (Kanfer et al., 2017). Over the past century, the term “work motivation” has shifted from capturing several theoretical ideas to an umbrella term that encompasses theoretical models. For instance, early theoretical ideas considered the importance of cognitive influences such as internal needs (e.g., Maslow Hierarchy of Needs; Maslow, 1943) or environmental influences (e.g., Behaviorism; Skinner, 1938). In contrast, contemporary models evolved from early ideas to consider the dynamic interplay between various cognitive and environmental influences (e.g., Goal-Setting Theory; Locke & Latham, 1990). As such, contemporary models attempt to explain how various influences interrelate to determine work behavior.

Although a substantial amount of research has focused on applying existing theories to fit changes in the work environment, there has been little research on developing new theoretical ideas (Steers et al., 2004). For example, over the past two decades, theoretical publications have declined as compared to empirical publications (Kanfer et al., 2017; Steers et al., 2004). This observation might suggest that organizations have solved the challenge of maintaining high levels of work motivation or that researchers have simply lost interest in the topic. However, this is not the case. The technological and economic changes occurring in work have created the need for a more holistic understanding of the changing workforce. Extending existing theories to fit the changes in the work environment may provide some clarity into how to meet the needs of the changing workforce but this approach does not guarantee a holistic understanding. In other words, the current literature does not provide a holistic understanding of how to meet the needs of the changing workforce. In fact, the conclusion that “we lack new models capable of guiding

managerial behavior in this new era of work” (Steers et al., 2004, p. 384) suggests that the literature on work motivation has reached an impasse rather than maturity.

There are at least two noticeable contributors to the impasse in the development of work motivation: “fragmentation of knowledge” and difficulty organizing the fragmented knowledge. A clear understanding of the two contributors could help researchers derive actionable insights for how to develop new theoretical perspectives and a more comprehensive understanding of the changing workforce.

First, “fragmentation of knowledge” is a contributor to the impasse and is described as the increasing disconnect between related fields of research due to publications with relatively trivial knowledge (Blackburn & Lawrence, 1995). This has a detrimental impact on the usefulness, transparency, and credibility of the scholarly knowledge (Aguinis, Ramani, & Alabduljader, 2018; Davis, 2015; George, 2014; Grand et al., 2018). Even so, “fragmentation of knowledge” could be the result of two situations: competition to publish and construct mixology. First, Blackburn and Lawrence (1995) found that academic journals accept less than 10 percent of the articles that were published 25 years ago. In addition, census data shows that the number of faculty employed in institutions of higher education have more than doubled from 1980 to 2011 (222% increase, National Center for Education Statistics, 2014). Over the same period, the number of post-doctorate associates (or fellows) has tripled (340% increase, National Center for Science and Engineering Statistics, 2017). As such, the competition to publish has dramatically increased while top rated journals continue to have high rejection rates.

Second, within the work motivation literature, research shows that new theoretical ideas are often developed by combining elements of old ideas, a practice defined as construct mixology (Newman, Harrison, Carpenter, & Rariden, 2016). For example, Newman’s analysis

of the most influential contributions to the extant work motivation literature found that the common theme of work engagement is just a reconfiguration of old ideas. This finding illustrates, that as the pressure to publish has intensified, the practice of building new ideas as simple reconfiguration of old ideas may have flourished. The implication of this practice is a proliferation of research with relatively trivial knowledge and limited guidance for practitioners (Rupp, Shapiro, Folger, Skarlicki, & Shao, 2017). In short, the explosion of publications with relatively trivial knowledge may have resulted from the increased competition to publish, easy access to large databases, and user friendly software that simplify data analysis.

The second contributor to the impasse is the difficulty reviewing and organizing the enormous fragmented literature on work motivation (Porter, 2008). A variety of research methods textbooks offer guidance on what a literature review should address such as including a discussion of strengths and weaknesses of the extant literature, definitions of key terms, major trends, and potential limitations (Dellinger & Leech, 2007; Fink, 2009; Garrard, 2009; Hart, 2005; Leech, Dellinger, Brannagan, & Tanaka, 2010; Machi & McEvoy, 2009; Ridley, 2008). Some editorials have offered general strategies for overcoming common pitfalls when preparing a literature review (Cropanzano, 2009). Yet, little emphasis has been placed on the methodological process through which the literature can be synthesized. The lack of methodological transparency in the process of synthesizing the work motivation literature could affect the credibility and trustworthiness of research by precluding researchers from reaching similar conclusions as described by others – what Aguinis and colleagues (2018) call “inferential reproducibility.” Moreover, the lack of clarity on how to synthesize the enormous literature could impede researchers from arriving at the level of insight required to develop a new

theoretical perspective. To build a more comprehensive understanding of how work motivation theory has developed, existing approaches for reviewing the literature are discussed.

Existing Methods for Reviewing the Literature

Theory development follows a cyclical process through which scientific progress depends on an ongoing insight that scientists bring to their data (Pinder, 2008). As part of the process, researchers synthesize information to propose or refine theories, develop hypotheses from these theories, and evaluate their implications. Synthesis is therefore a critical first step in scientific progress because this process allows researchers to develop their theoretical ideas. However, a literature review is necessary before synthesis can occur.

Within the field of work motivation, there are three dominant approaches to a literature review: 1) chronological, 2) selective, and 3) categorical. Even though these approaches are clearly helpful for providing an overview of extant theory and research, they do not offer guidelines for synthesis of the distinct theoretical perspectives. In fact, the lack of clear guidelines for synthesis may preclude researchers from making a substantial theoretical contribution because they are not equipped to build a rich theoretical coherence that underscores diverse perspectives in the literature. In the following sections, each of these approaches are briefly described and contrasted.

First, the *chronological* approach is one of the most established approaches to a literature review because it helps build theoretical arguments by describing the evolution of work motivation theories. An example of this approach is Pinder's (2008) book on work motivation. Viewed by researchers, lecturers, and students as essential for anyone interested in understanding work motivation, this book provides the most comprehensive description of the evolution of work motivation theory and research to date. However, beyond tracing the historical

development of work motivation theories, Pinder (2008) provides little direction on how to develop new theoretical perspectives. This is not to suggest that all chronological approaches in any content area have this limitation, but it does appear to be the case for work motivation theory. In addition, the comprehensive nature of this approach typically exceeds commonly recommended page limits for journals (e.g., 30 pages or less) making it unsuitable for an integrative research review publication. Notably, Pinder's (2008) publication occupies approximately 550 pages. As such, the chronological approach does not offer guidelines for how to synthesize distinct theoretical perspectives and meet the recommended publication page limits.

Second, the *selective approach* is a more concise review approach. The selective approach allows researchers to focus on a pre-defined set of theories, which in turn allows them to organize the information more efficiently and meet the recommended publication page limits. This approach is frequently used to adapt and extend existing theories. Yet, the lack of guidance on how information is selected for the purpose of synthesis can lead to the development of very different and inconsistent theoretical ideas, resulting in a potential proliferation of theoretical models with relatively trivial knowledge.

One example of the lack of guidance on which theoretical ideas should be considered as relevant and selected is the research on goal-setting motivational process. Within this topic area, researchers have inadvertently developed closely related but different theoretical models due to their use of the selective approach. On the one hand, Locke and colleagues (Locke, 1997; Locke & Latham, 2004) selected needs, expectancy theory, and attribution theory to propose a model in which aspects of the individual activate three distinct goal processes (direction, effort, and persistence). On the other hand, based on a broader selection of theoretical perspectives (e.g., affect-based and justice theories), Mitchell and Daniels (2003) proposed a model in which

aspects of the individual as well as the environment impact three similar but distinct goal processes: direction, choice, and intensity. This is a clear example of construct redundancy as both models include goal direction and persistence, which could also entail intensity. Although some researchers may argue that a broader selection of theoretical perspectives is always better, it is important to note that this practice can potentially lead to a new configuration of old content, which in turn creates construct proliferation and redundancy.

Third, the *categorical approach* allows researchers to provide a concise and critical analysis of the literature by organizing theories in pre-established categories. An example of the categorical approach is the 3C model of work motivation (Kanfer, 2009; Kanfer, Chen, & Pritchard, 2008). The 3C model allows researchers to organize work motivation into three pre-established overlapping categories: content, context, and change. The content category organizes research findings that pertain to individual influences, and the context category organizes research findings that pertain to environmental influences. In contrast, the change category organizes work motivation research findings based on how content and context influence intra-individually change over time.

In terms of synthesis guidance, there is a limited discussion on how the three categories were identified and how they can be used to develop new theoretical perspectives. One theoretical assumption of the 3C method is that an individual's cognitions and perceptions of the environment influence work motivated behavior through goal choice motivational processes. However, assuming that nearly all contemporary theories of work motivation reflect goal choice processes limits the scope of the 3C method. That is, the 3C method does not take into consideration a large number of work motivation theories that do not reflect goal choice. As a result, the 3C method offers limited guidance for theoretical advancement.

Overall, the three review approaches together provide a summary of what is known about work motivation. On the one hand, the chronological approach provides a summary of how work motivation has evolved over time. On the other hand, the selective and categorical approaches provide a more condensed summary of extant work motivation theories, but lack the chronological nature of the chronological approach. In addition, the latter two approaches are usually based on a handful of work motivation theories. In terms of summarization, each review approach provides a different perspective with different implications. Hence, each approach is important to the evolution of the field. However, none of them provide clear directions on synthesizing the literature to develop new theoretical perspectives. It may be argued that readers are free to synthesize the literature as they see fit and that it is up to them to develop new theoretical ideas based on the review. However, synthesizing the enormous fragmented literature on work motivation is difficult (Porter, 2008), which often impedes researchers from developing new theoretical ideas.

As previously mentioned, synthesis sets the stage for new theory development. As part of this process, researchers need an organizing framework that can help them integrate the literature (Onwuegbuzie, Leech, & Collins, 2012). Although empirical research can also lead to theory building, researchers still need an approach for synthesis that can help them exemplify their theoretical ideas (Barney, 2018). Hence, one aim of the present work is to introduce an alternative approach that can review, optimally synthesize existing theories, and provide directions for how to develop new theoretical perspectives.

A Dimensional Method for Synthesizing Literature

The proposed approach, called the three-dimensional method (3D Method), allows researchers to review and extend existing theory or create new theories by simultaneously

emphasizing and integrating shared aspects of existing theories. In the method, each theory is aligned along a dimension so it can serve as a “map” that can allow researchers to evaluate various theories in a specific context and identify areas for future research, advancements, and practice.

Here, the 3D method is used to organize work motivation theories in the following three dimensions: environment, cognition, and affect. The theoretical justification for the selection of the three dimensions is based on two arguments. First, work motivation is commonly defined in the organizational literature as psychological mechanisms and processes that connect the individual and the work environment (Kanfer, 1990; Kanfer et al., 2008; Pinder, 2008). As such, most work motivation theories assume that work motivated behavior is a function of the environment and/or an individual. Second, the dimension selection is aligned with thirty years of evidence indicating that individual characteristics are comprised of cognitions and affect (Pinder, 2008). Some examples of cognitions are needs, values, beliefs, attitudes, and intentions. Examples of affect are emotions, moods, and physical/emotional reactions to a situation (i.e., affective reactions).

A key feature of the 3D method is its simplicity in graphically presenting the information. This is done through a cube in which each axis represents a concept of interest. For each axis, the distance from the origin indicates the number of aspects that are emphasized in the corresponding concept. For example, a theory with no cognitive aspect(s) is placed at the origin of the cognition axis. Conversely, as a theory has more cognitive aspect(s), it is placed further from the origin. When there are at least three axes, each axis become a dimension and each pair of axes is a plane. The dimensional nature of the cube helps to identify theories that can accommodate multiple concepts. For example, a theory that emphasizes both cognitive and

environmental aspects is placed somewhere in the cognition-environment plane. The location of where in the cognition-environment plane the theory is placed depends on how much of the two aspects it has or emphasizes.

Figure 1 presents a graphical depiction of the cognition-environment plane. Theories that only focus on cognitive aspects are clearly seen on the cognition axis. In this respect, early theories of work motivation that consider few cognitive aspects are placed closer towards the origin on the cognition dimension. One example is Maslow's Hierarchy of Needs theory, which states that individuals act to fulfil one of five hierarchically ordered basic needs provoked by internal cognitive processes. Hence, Maslow's Hierarchy of Needs theory (Maslow, 1943) is located near the origin of only the cognition dimension. By contrast, McClelland's theory (McClelland, 1961) expands the concept of needs to argue that individuals possess several needs, including achievement, power and affiliation that could motivate behavior simultaneously when activated. As such, McClelland's Theory proposes more cognitive diversity and variety between individuals and hence is located further from the origin on the cognition dimension (see Appendix A).

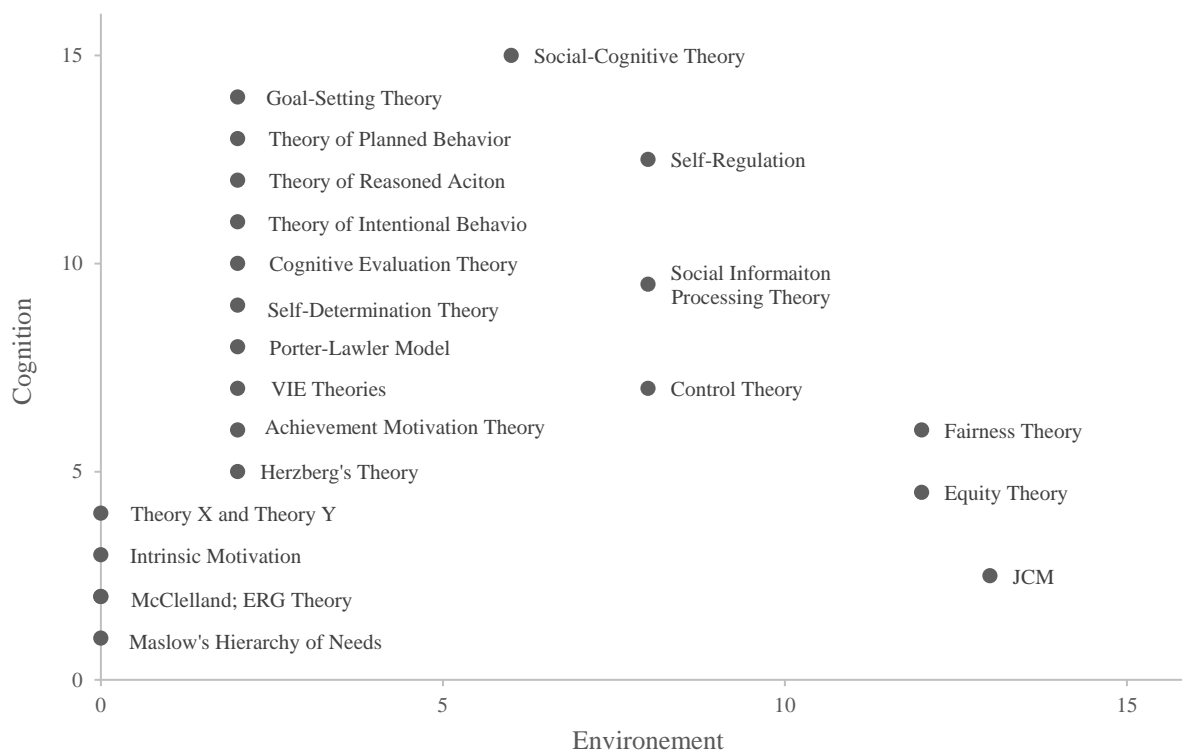


Figure 1. Theoretical Frameworks Emphasizing Cognition and Environment Aspects

The 3D method clearly shows how two or more theories interact. In Figure 1, the cognition-environment plane is first presented. For instance, Vroom's valence-instrumentality-expectancy (VIE; Vroom, 1964) theory proposes that work motivated behavior depends on the belief that effort leads to the intended performance, and that the available outcomes are desirable. Although the theory is based mostly on beliefs (cognitive aspects) as a determinant of work motivated behavior, it also acknowledges the availability of outcomes in the environment (environmental aspects). As such, the VIE theory is placed on the cognition-environment plane with a stronger emphasis on cognition. Similarly, the Theory of Planned Behavior (Ajzen, 1991; Ajzen & Madden, 1986) also assumes that work motivated behavior is a function of

cognition and the environment. However, this theory states that there are more cognitive aspects than beliefs. Therefore, this theory is also placed on the cognition-environment plane but even further from the origin on the cognition dimension. In comparison, the Job Characteristics Model (JCM; Hackman & Oldham, 1980) is placed further from the origin of the environment dimension in the lower right cognition-environment plane because it postulates that a variety of environmental aspects generate cognitive experiences, which in turn trigger work motivated behavior. Some of the environmental aspects are job autonomy, task identity, task significance, feedback from the job and the extent to which the job requires skill variety.

Figure 2 presents a graphical depiction of the cognition-affect plane. In this figure, theories that emphasize cognition and/or affect are located. For example, the Optimum Arousal Approach (Hebb, 1955) has few cognitive aspects and some affective aspects because it postulates that individuals who experience less arousal than preferred would be motivated to behave in a way that will increase their physiological arousal. In other words, the theoretical emphasis is placed on emotional arousal (affect) and a small set of cognitive aspects because the approach acknowledges the importance of values as an underlying mechanism.

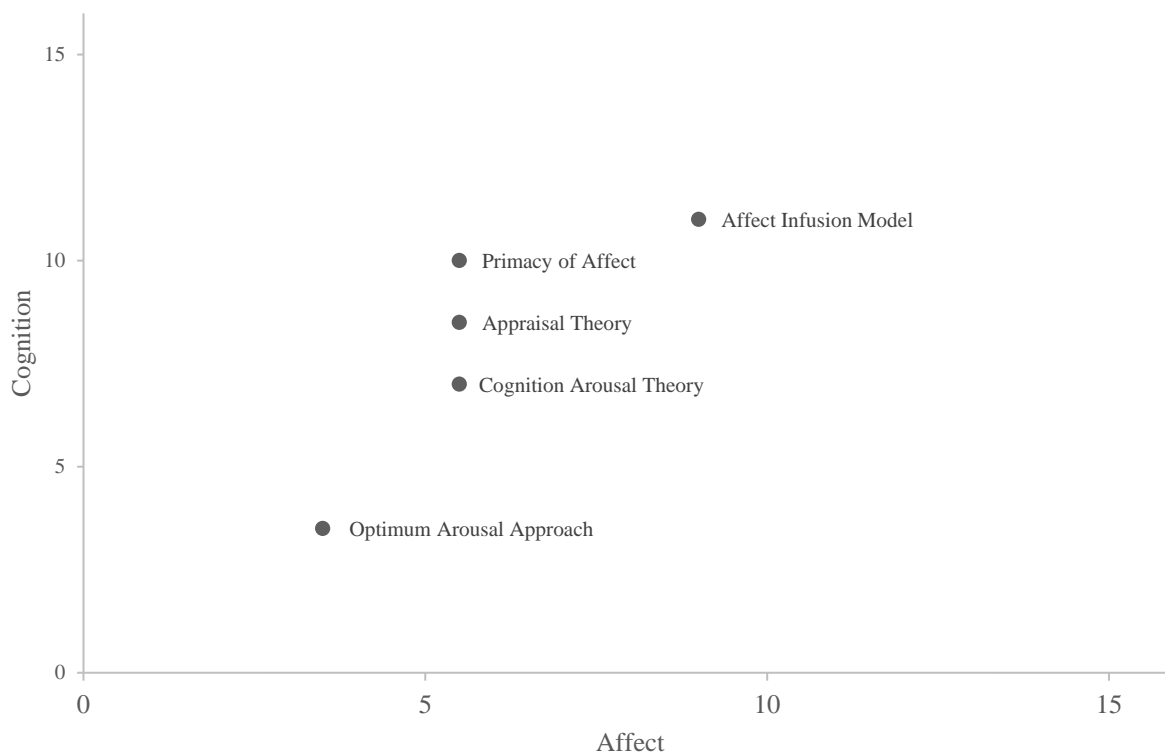
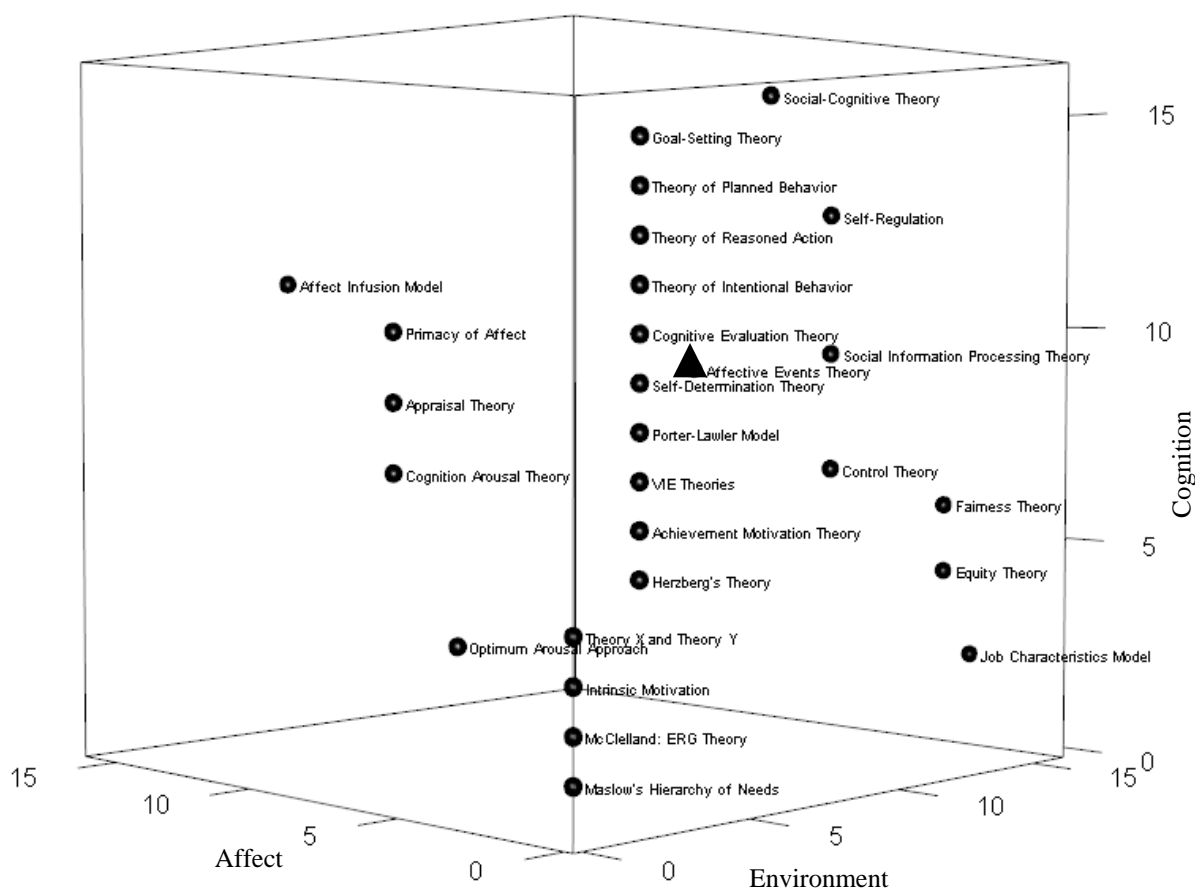


Figure 2. Theoretical Frameworks Emphasizing Cognition and Affect Aspects

Figure 3 presents a full graphical depiction of the 3D method for work motivation¹. The figure displays how the environment, cognition, and affect interact to impact work motivation. All of the work motivation theories are clearly depicted in their corresponding planes. In this respect, Affect Events Theory (AET; Weiss & Cropanzano, 1996) is located within the cube as it is the only one that emphasizes work motivated behavior as a function of the environment, cognition, and affect (see Appendix A).

¹ Although there are some recent publications that outline some of the existing work motivation theories (Diefendorff & Seaton, 2015), here Pinder's (2008) work was used as a foundation for this illustration because it provides the latest and most comprehensive list of influential work motivation theories. A brief definition of the displayed theories and their categorization with respect to each dimension is provided in the appendix (see Appendix A).



- ▲ Located within the cube
- Located on the cognition-environment or cognition-affect plane

Figure 3. Three-Dimensional Method for Synthesizing Work Motivation Theories

The 3D Method vs. Existing Methods for Reviewing the Work Motivation Literature

In order to arrive at the level of insight required to develop new theoretical perspectives, it is essential to consider an alternative approach that can provide guidance on how to generate new theoretical directions and make the synthesis process more systematic. In the following, the

advantage of the 3D method for synthesizing and encouraging new theoretical directions is compared with the three existing literature review approaches.

First, Pinder's (2008) *chronological approach* provides an in-depth recommendation of how to define positive and negative affect (i.e., anger, guilt, shame, happiness) and more general affective experiences. Second, using the *selective approach*, Latham & Pinder (2005) compare some published work on positive and negative affect (dispositional influences) and affective work experiences (Affective Events Theory) to conclude that the role of affect is theoretically understudied. In terms of theoretical directions, they suggest that affect may answer some questions about job attitudes and behaviors that are unanswered by the traditional cognition driven studies. Third, using the *categorical approach*, Kanfer and colleagues (Kanfer, 2009; Kanfer et al., 2008) conclude that brief affective responses to work events may result in no immediate observable change in work motivation. However, over time these responses may accumulate to alter work motivation and long-term patterns of performance. In other words, more theorizing is needed to see what role affective states play in facilitating the effectiveness of motivation techniques. In sum, each of the above recommendations, proposals, or conclusions offer insights into the current understanding of affect but little to no directions on how new theoretical directions could be developed or achieved.

By contrast, the 3D method visually shows that there are many aspects of affect, and that there is limited theoretical understanding of the relationship between affect, cognition, and the environment (see Figure 3). For example, 3D method illustrates that there are only a handful of theories that emphasize affect and cognition and are therefore located in the affect-cognition plane. Further, the 3D method shows that there are no theories that emphasize affect and the environment and only one theory that incorporates all three dimensions: Affective Events Theory

(AET). Although AET examines how affect, cognition, and environment influence work motivated behavior, the conditions under which this theory is valid are still not well established. As such, more research is needed to test whether initial findings can be generalized to highly skilled and educated labor forces such as university faculty. Such research could make a substantial contribution to the literature on how affect aspects like emotions, feelings, and moods interact with various aspects of cognition and environment because the landscape of work is changing due to the new economy.

Comparing the different literature review approaches, some readers might conclude that the 3D method is just a repackaging of the 3C approach as both consider three components of work motivation. Despite the similarity in name, each method is based on contrasting assumptions. On the one hand, the 3C method organizes work motivation research by individual and environmental aspects along with intra-individual change. On the other, the 3D method organizes the large body of often-fragmented work motivation research by theoretical dimensions. More importantly, the 3D method visually synthesizes theories by emphasizing and integrating their shared aspects and offers ways to encourage new theoretical advances.

Practical implications. In terms of practical implications, the 3D method provides useful recommendations for HR professionals and managers. It is valuable to understand work motivation theories to successfully apply them. Although HR professionals and managers recognize that employees are the key to creating long-term business value they often struggle to design effective intervention strategies because they fail to understand how various factors interrelate to contribute to an engaged workforce. The 3D method suggests that to be effective, organizational interventions targeted at understanding employee engagement (i.e. work motivation), must address employee environment, cognition, and affect. For example, instead of

measuring job satisfaction or career satisfaction, work engagement surveys could ask employees what they think about their work context (i.e., the environment), their job (i.e., cognitions), and how they feel at work (i.e., affect).

Limitations. The 3D method is useful for visualizing how different aspects of a theory interact with one another, but adding more dimensions can increase the visual complexity. In the context of work motivation, it is possible that the definition of work motivation may change and an additional dimension may need to be considered. In this situation, it is possible to expand the 3D method by including an additional dimension. However, with five or more dimensions, the method may lose its visual simplicity.

Conclusion. The discussion thus far places emphasis on work motivation theory development. The review highlights that in order to resolve the impasse in work motivation theory, it is essential to consider a systematic approach to synthesis that encourages researchers to move toward theory building. It has been argued that a dimensional approach to synthesis could provide guidance on how to make the process more systematic. The dimensional approach, labeled the 3D method, is based on the definition of work motivation. Hence, it systematically organizes the existing literature along the dimensions of environment, cognition, and affect. At the present state, it would be overly simple to suggest that the 3D method can provide a complete solution to the impasse in work motivation theory. However, use of the method does provide insight into some areas in need of future theory development. For example, there is little research that explores the relationship between affect, cognition, and the environment.

Another important strength of the 3D method is that it is not limited to work motivation as it can be applied to different contexts. The 3D method can be used to advance scientific

research in any field and inspire the generation of new theoretical ideas to advance that field. In sum, the 3D method can be effectively used to guide theory development, future empirical research, and practice. In the following sections, the 3D method is applied in the context of faculty work motivation, a field that has received little attention and may also be at an impasse.

REVIEW OF THE LITERATURE

The growth of emotionally and mentally demanding jobs such as communications, health, information technology, and education among others, suggests that extending existing work motivation theories is necessary. The new work environment requires new or extended work motivation theories to provide clarity into how to meet the needs of the changing workforce. Recent industry benchmark reports highlighting shifts in the nature of work as well as the demographic composition of the workforce put enormous pressure on organizations to provide diverse opportunities for thriving at work (SHRM, 2016). Hence, maintaining high levels of work motivation may be viewed as one of the most pressing human capital challenges (SHRM, 2015).

Recent economic (and technological) changes may have changed the nature of work in some industry sectors (e.g., service and education; Kanfer, 2009; Lechuga & Lechuga, 2012). For example, as one of the world's most dominant and enduring social organizations (Blackburn & Lawrence, 1995), higher education institutions face enormous financial and social demands. Higher education institutions are expected to meet the needs of a more diverse student body, secure external funding, and increase community outreach, while simultaneously reducing the organizational budget by 12%, if not more (Morris, 2009). One way higher education institutions manage those demands is by changing what institutions expect from faculty (Gappa, Austin, & Trice, 2007). Traditionally, faculty were expected to engage in teaching, research, and

service activities, but now they are expected to do more of each while simultaneously performing well in all three (Ballantine, 1995). The change in work expectations has been described as the “three-ring circus of academia” (Toews & Yazedjian, 2007, p. 1). In addition to these three expectations, university faculty are also increasingly expected to secure external funding as a means to counterbalance the consistent decrease of state and federal funding to the university (Austin, 2002; Mallard & Atkins, 2004; Milem, Berger, & Dey, 2000). Given that faculty are now expected to fulfill a plethora of roles with limited resources, it is crucial to understand their work motivation (Barkhuizen, Rothmann, & van de Vijver, 2013).

In response to the changing nature of faculty work, research in higher education has attempted to provide some perspectives on faculty work motivation. Some scholars have focused on identifying different individual, institutional, and socio-demographic factors of work-related behavior (Blackburn & Lawrence, 1995). Others, such as Gappa et al. (2007) and Horowitz (2006) have discussed policy changes in academic institutions and how those policies influence the faculty work environment. As such, previous investigations of the changes in faculty work have shown that the ideal concept of faculty as individuals with secure tenure-track employment who are compensated well for doing what they like best has faded away (Anderson, 2002; Baldwin & Chronister, 2001; Blackburn & Lawrence, 1995; Conley, Lesley, & Zimble, 2004; Ehrenberg & Zhang, 2005). Yet, the majority of these studies have not provided a comprehensive theory-driven examination of faculty work motivation. As such, a comprehensive synthesis of the faculty work motivation literature is important for research and practice. Such efforts can open up a fruitful area of research by highlighting theoretical gaps and provide directions that can help facilitate the design of holistic programs aimed at revitalizing faculty work motivation.

The Present Review

The review has three main components: method content, the 3D method, and integration. Method content refers to the methods used to conduct research. First, the review considers the following method content in work motivation theory: 1) criterion domains, 2) research designs, 3) measurement methods, and 4) types of data sources (Austin & Villanova, 1992). This is further informed by a content analysis over the past decades. Second, gaps are identified in the theoretical approaches used in faculty work motivation by synthesizing the corresponding literature through the lens of the 3D method. Finally, insights gained from the 3D method will be integrated to propose a new model for faculty work motivation. This review is different from traditional reviews in that emphasis is placed on literature gaps and trends, and not on exhaustively summarizing and discussing findings from each included article.

Criterion domains. Past research has used a breadth of criteria to study faculty work. However, based on historical measures of work outcomes in the work motivation literature (Pinder, 2008), the following four criterion domains were selected: 1) job performance, 2) job satisfaction, 3) commitment, and 4) turnover. In the following, each criterion is briefly presented in terms of how it has been defined in the literature and how it will be used in the review. For the interested reader, a full list of the criteria selected in this study and their definitions is provided in the appendix (see Appendix B).

Job performance. Within the work motivation literature, *job performance* is viewed as being comprised of two work outcomes: task and contextual performance (Borman & Motowidlo, 1993). Task performance refers to an employee's proficiency in performing formally assigned activities. For faculty in higher education, these activities include teaching, research, and service (Lawrence, Ott, & Bell, 2012). Teaching has been typically defined as

activities such as teaching courses. Research has been defined as activities such as library research and research publications, exchange of new information with colleagues, laboratory and fieldwork, convention attendance, symposia, workshops and special events (Lechuga & Lechuga, 2012). In comparison, service has been defined as activities such as service to one's discipline (i.e., manuscript reviews and association work), institutional service (i.e., committee work and institutional governance involvement; Neumann & Terosky, 2007), and community service. Here, these definitions will be maintained with respect to task performance.

Contextual performance (also called extra-role behaviors) consists of work activities that are not formally recognized as part of one's job but contribute to the organizational, social, and psychological context of the job (Borman & Motowidlo, 1993). Much research contends that contextual performance is comprised of two types of behaviors: organizational citizenship behavior (OCB) and counterproductive work behaviors (CWB). On the one hand, OCB includes activities that positively contribute to organizational effectiveness, such as helping, courtesy, and civic virtue. On the other hand, CWB includes activities that hinder the organization (Organ, 1997), such as employee theft, poor attendance, tardiness, sabotage, sexual harassment, and verbal/ physical abuse (Sackett & DeVore, 2001).

Although the concept of contextual performance has a long history in the work motivation literature, definitions of this construct vary in the higher education literature. This is particularly the case with regard to OCB. For example, some higher education researchers (Burgan, 1998; Shils, 1997; Thompson, Constantinau, & Fallis, 2005; Tight, 2002) view OCB as encompassing six activities: 1) educating students, 2) engaging in scholarship, 3) participating in institutional service and governance, 4) mentoring new colleagues, 5) providing leadership on and off campus, and 6) advancing the good and welfare of the campus. Others, such as

Lawrence et al. (2012) focus predominantly on institutional service activities, such as governance, as an important element of OCB's. In contrast, Neumann and Terosky (2007) define institutional service as a component of service task performance. Rather than focusing on a narrow set of activities, OCB is defined here as a broad set of activities focused on promoting an effective functioning of the university not considered as teaching, research, or service activities.

Job satisfaction. *Job satisfaction* is frequently studied in the work motivation literature (Pinder, 2008; Rafferty & Griffin, 2009). It has been commonly described as an emotional reaction to the job (Cranny, Smith, & Stone, 1992; Locke, 1969; Spector, 1997) and widely studied as an overall work attitude. Some authors have advocated for the measurement of specific aspects of job satisfaction (facet-level measures) because certain aspects of work may be more satisfying than others (Rosser, 2005). However, organizational research into the measurement of job satisfaction has shown that an overall composite measure is better suited for research focused on capturing the relationship between different constructs. For example, meta-analytic evidence shows that overall job satisfaction is a stronger predictor of job performance than job satisfaction facets such as pay satisfaction (Judge, Thoreson, Bono, & Patton, 2001). In light of this evidence, faculty job satisfaction here is defined as an overall emotional reaction to the job.

Commitment. *Commitment* has a long history in the organizational behavior literature (Lee, Carswell, & Allen, 2000; Mathieu & Zajac, 1990; Meyer & Allen, 1991; Morrow, 1983; 1993). Meta-analytic findings have shown that commitment is important because of its direct relationship to job performance and indirect effect on turnover intentions (Lee et al., 2000). Hence, understanding faculty commitment can shed light on how changes in faculty work

motivation may impact the relationship between various work outcomes. For example, changes in faculty work motivation may impact research productivity, commitment to the university, or intentions to leave. Consistent with definitions used in the work motivation literature (Morrow, 1983; 1993), commitment here is defined as an overall adherence to

- 1) work itself; i.e., work ethic commitment
- 2) one's career; i.e., occupational commitment
- 3) one's job; i.e., job commitment and
- 4) one's organization; i.e., organizational commitment.

Turnover. Faculty *turnover* has been a topic of interest to many higher education researchers and administrators due to the high financial cost associated with hiring new faculty. There is consistent evidence from numerous studies that faculty turnover is associated with significant monetary losses to the institution (Xu, 2008), disruption of research and teaching programs, discontinuity in student mentoring, and increased demands on other faculty due to diverted time to hiring and onboarding new faculty (Ehrenberg, Kasper, & Rees, 1990; Rosser, 2004). In an effort to address the antecedents of faculty turnover, some educational researchers have developed conceptual models of faculty work motivation based on organizational models of turnover (e.g., Daly & Dee, 2006; Johnsrud & Rosser, 2002; Rosser, 2004). Because of the difficulty in obtaining turnover data, many researchers use turnover intentions (e.g., intent to leave) as a proxy because it is viewed as an immediate precursor to actual turnover (e.g., Hom, Caranikas-Walker, Prussia, & Griffeth, 1992; Mobley, 1977; Mobley, Griffith, Hand, & Meglino, 1979; Steers & Mowday, 1981). In an attempt to consolidate the extant literature, turnover here is defined as actual turnover (Hom & Griffeth, 1995) and intent to stay (Smart, 1990).

In summary, faculty work has been studied from several perspectives (i.e., criterion domains). Although research has shown that economic and social demands adversely influence faculty, there have been relatively few attempts to study faculty work within the context of motivation. Therefore, it is critical to understand what aspects influence faculty work, including performance, job satisfaction, commitment, and turnover. An equally important consideration in reviewing the literature is considering how information was gathered (collected).

Research designs. There are three types of research designs for studying human behavior, each with different implications for scientific progress (Rosnow & Rosenthal, 2013). First, descriptive designs provide some basic information about phenomenon in a small population (e.g., case studies). As such, results are usually limited to providing descriptive conclusions. Second, relational designs are used to study the relationship between variables or conditions and consist of cross-sectional and longitudinal designs. Cross-sectional designs assess behaviors through snapshots in time, whereas longitudinal designs assess behaviors as they change over time. Third, experimental designs are most appropriate for providing causality information about the relationship between variables or conditions because of the emphasis placed on controlling extraneous variables. Here, the three types of research designs will serve as a guide for the review.

Measurement methods. The review will also be organized by the method used to measure the variables of interest. There are typically four measurement methods used in behavioral/social research: observations, interviews, questionnaires, and surveys. Distinguishing between the measurement methods is important because each method involves asking slightly different questions about the construct of interest (Beins, 2013). Although each measurement method provides useful information, each method will provide a slightly different picture of the

topic of interest (e.g., faculty work motivation). Observation methods are commonly used for quantifying behaviors whereas interviews are used for exploring behavior in a qualitative manner. For instance, the number of students a faculty member interacts with can be recorded through observations. On the other hand, interviews can be used to capture information pertaining to student's experiences of support during student-faculty interactions. Unfortunately, the terms questionnaire and survey are typically used interchangeably in behavioral/social research. For the purpose of this review, these will be designated as follows: questionnaires for measuring specific psychological constructs such as self-efficacy, and surveys (e.g., census survey) for collecting demographic-type information.

Types of data sources. The understanding of faculty work motivation may also be impacted by different perspectives. In this respect, two types of data sources (or perspectives) may be used to assess work motivation: same- and different-sources. Same-source type of data are typically comprised of self-report. In comparison, different-source data comes from sources different than the source being measured. For example, faculty job satisfaction data could be obtained from peer/spouse, supervisor, and subordinates instead of from faculty. Here, research will be evaluated based on the extent to which studies rely on same-source or different-sources of data.

Literature Search

Identification of relevant research studies occurred in three stages. The first stage consisted of identifying peer-reviewed articles published in journals ranked as highly respected outlets for higher education research by the Association for Institutional Research (2014) and the Association for the Study of Higher Education (2014). The included journals were *Research in Higher Education*, *New Directions for Institutional Research*, *Journal of Higher Education*, and

Innovative Higher Education. Additionally, highly respected outlets for organizational research, including *the Academy of Management Journal*, *Journal of Organizational Behavior*, and *The Journal of Applied Psychology* were considered. Title, abstract, tables, and figures of every article published in every issue of the selected journals from its first publication to July 2018 were searched using the following keywords: “university professor”, “college teachers”, “college professor”, and “university teacher.” This search yielded 1951 reviews, empirical papers, and editorials that refer to using university faculty as a target population.

The second stage was concerned with aligning the inclusion criteria with faculty work in relation to the environment, cognition, or affect. To be included, the research had to:

- 1) contain at least one criterion domain (job satisfaction, job performance, commitment, or turnover) and
- 2) link faculty environment, cognition, or affect to faculty work.

Articles that did not meet these criteria were excluded. For example, articles that exclusively focused on demographic variables associated with faculty work, such as age, tenure, gender, race, salary, etc. were excluded. Articles that focused on evaluating the quality of teaching strategies, the effect of teaching on student learning, or the validity of teacher evaluation surveys were also excluded because these articles are concerned with teaching quality and evaluation. Further, articles about nursing faculty were excluded because the nursing profession is mostly based on a practitioner, service-oriented model rather than an academic research model (Jungnickel & Creswell, 1994). Stage two reduced the 1951 articles to 39 peer-reviewed journal articles.

Stage three involved reviewing the introduction sections of the 39 remaining articles to find cited articles that met the inclusion criteria. This process yielded 5 additional peer-reviewed

journal articles, for a total of 44 publications that met the inclusion criteria. As previously stated, emphasis of the review is placed on trends and literature gaps, and not on comprehensive summarization of each article. To enhance the quality and credibility of the review, the literature was systematically analyzed through content analysis.

Content Analysis

Content analysis was chosen to analyze and further organize the relevant literature because it combines qualitative and quantitative research methodologies to identify patterns and themes (Carley, 1993; Morris, 1994). For this review, there were two main advantages for using content analysis. First, content analysis allows for the use of deductive logic to determine the usefulness of the 3D method to synthesize how research has conceptualized faculty work motivation. Second, content analysis allows an assessment of the underlying themes (Patton, 2015; Weber, 1990). The research indicators for the content analysis are criterion domains, research designs, measurement methods, data sources, and theoretical emphasis.

As part of the analysis, categories were developed based on theoretical premises used in the 3D method and the research indicators above (see Appendix C). Through this process, the frequency of each category was counted. For instance, if a research study used a questionnaire to study faculty work motivation, then the category “questionnaire” would be assigned a frequency of one. If a study used a theory that incorporated both environmental and cognitive influences, then the categories “environment” and “cognition” would each be assigned a frequency of one. As such, the analysis reflects category frequency and not article frequency. In addition, an “Atheoretical” subcategory was created to account for research articles that did not reference a specific theory in their literature review. All content analysis data were analyzed with NVivo Server 10, a software package that organizes and analyzes qualitative data.

To help with the accumulation of faculty work motivation research over time, results are organized into three timeframes:

- 1) when faculty work motivation was introduced between 1987 and 1999
- 2) when faculty work motivation was established between 2000 and 2009
- 3) contemporary faculty work motivation research between 2010 and 2018

In addition to illustrating the evolution of the field, a discussion of how research interests have waxed, and in some cases, waned over time is included. For interested readers, results are also summarized in the form of tables in the appendix (see Appendix D).

Figure 4 displays a summary of the criterion domains (i.e., job performance, job satisfaction, commitment, and turnover) used to study faculty work motivation. As shown, research interest in the various criterion domains changed over time. In terms of job performance, there were substantial changes over time. However, within the domain of job performance, a close examination reveals that over the past 30 years, task performance received disproportionately more research attention than contextual performance (see Appendix D, Table 2).

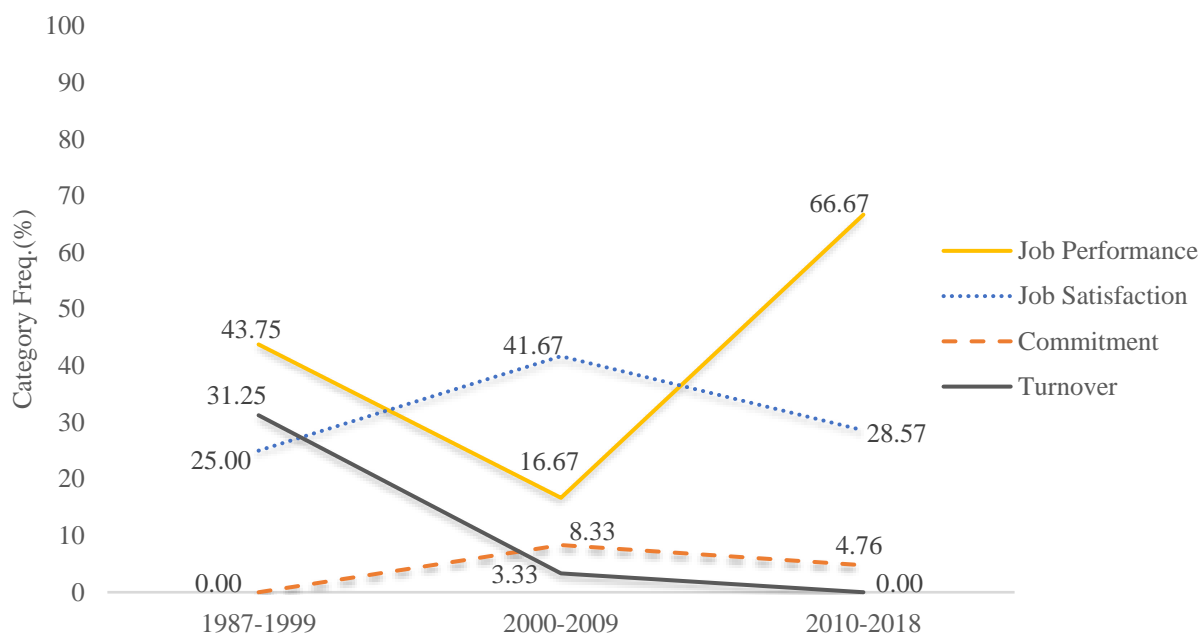


Figure 4. Criterion Domains in Faculty Work Motivation

In contrast to the low, relatively stable, interest in commitment, which has slowly started to increase, interest in job satisfaction changed over time. For example, during the period when faculty work motivation was introduced (1987 to 1999) there was little research interest in job satisfaction (category frequency of 25%). Although, research on job satisfaction almost doubled during the period when faculty work motivation was established (2000 to 2009; category frequency of 41.67%), contemporary research (2010 to 2018) places little emphasis on job satisfaction (category frequency of 28.57%). Finally, Figure 4 also shows that research interest in turnover has shifted over time. Although there was moderate interest in turnover when faculty work motivation was introduced (category frequency of 31.25%), at present turnover is the least studied criterion domain (2010-2018; category frequency of 0%).

Figures 5-8 present a summary of faculty work motivation for the other features of the content analysis. Cumulative results reveal that over the past 30 years, researchers have assessed faculty work motivation primarily with

- 1) cross-sectional relational research designs (see Figure 5),
- 2) survey methods (see Figure 6), and
- 3) self-reported data (see Figure 7) with target population unspecified (see Figure 8).

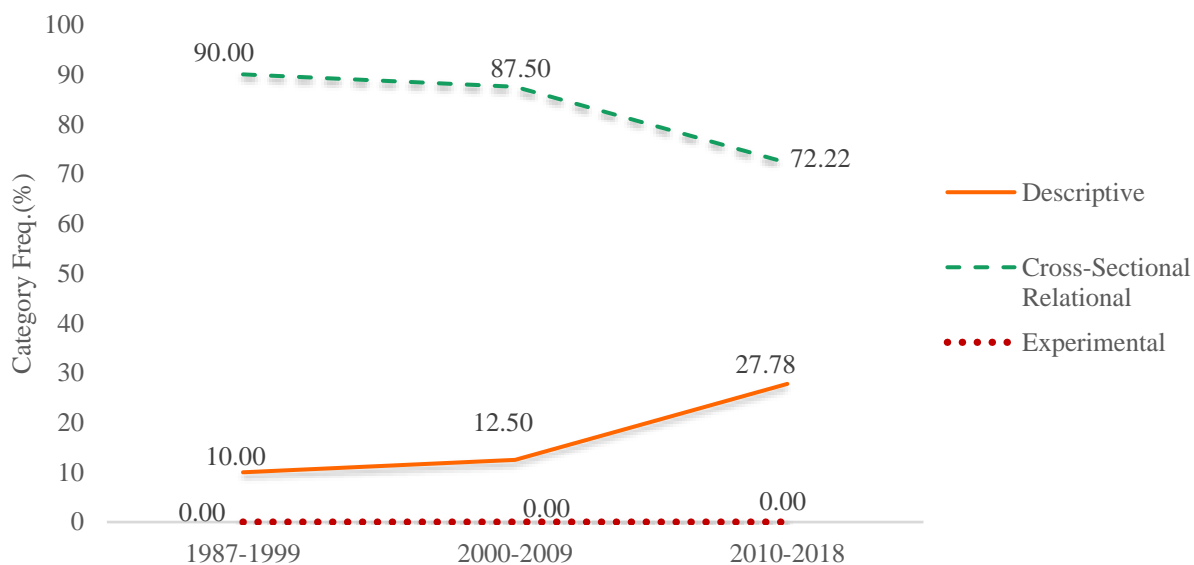


Figure 5. Research Designs Used to Study Faculty Work Motivation

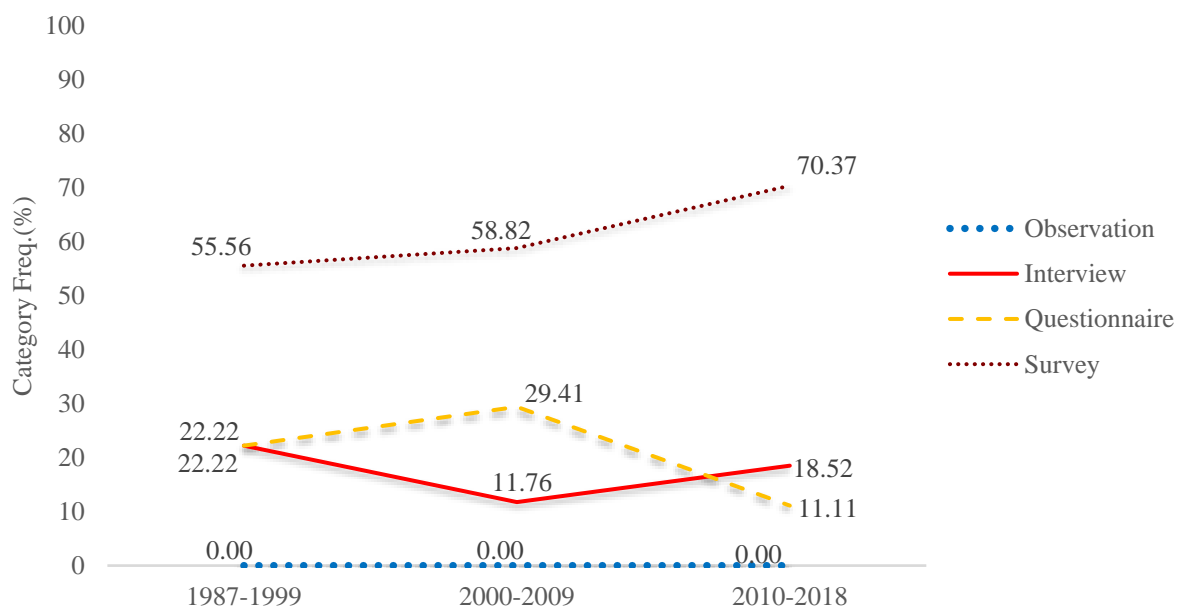


Figure 6. Measurement Methods Used to Study Faculty Work Motivation

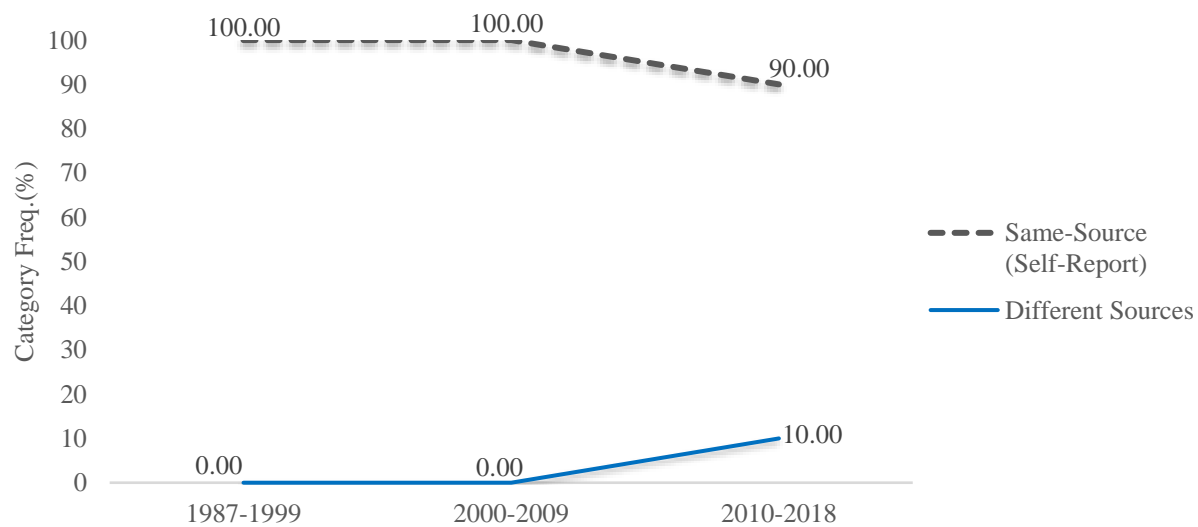


Figure 7. Types of Data Sources Used to Study Faculty Work Motivation

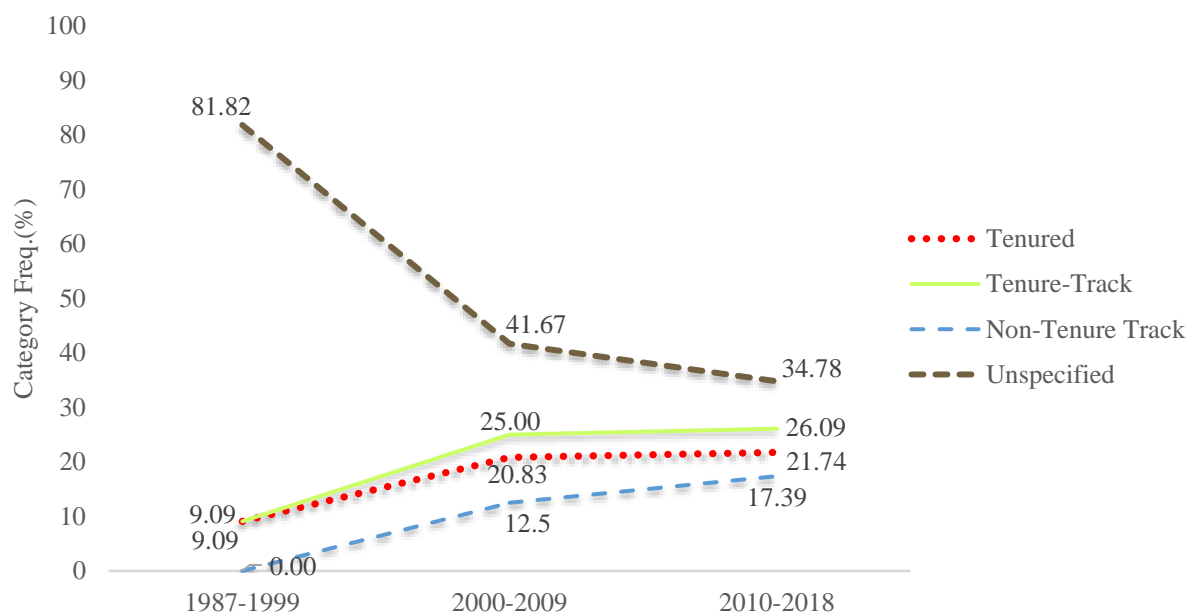


Figure 8. Faculty Appointments

Considering the widespread use of surveys with focus on unspecified population of faculty, a supplemental analysis was performed to identify the origin of each survey method. The findings show that most survey research was based on information gathered from nine national surveys:

- 1) National Survey of American Professorate (NSOPF; 1984; 1989; 1993; 1999) conducted by the Carnegie Foundation for the advancement of teaching,
- 2) Faculty at Work (1987-1988), a national survey conducted by the National Center for Research to Improve Teaching and Learning (NCRIPTA),
- 3) The University of Bergen as a Body of Higher Education (1987),
- 4) the Census Faculty Survey (1996),

- 5) the faculty survey by the University of California, LA Higher Education Research Institute (HERI; 2001; 2005; 2007-2008; 2010-2011),
- 6) the Survey of Academic Researchers (2004-2005),
- 7) the faculty survey from Center for Survey Research (2011) based on membership lists of the Academy of Criminal Justice Science (ACJS) and the American Society of Criminology (ASC),
- 8) the Faculty Survey of Student Engagement & National Survey of Student Engagement (FSSE/NSSE; 2007-2011), and
- 9) National Science Foundation Survey of Academic Researchers (SAR; 2005).

Figure 9 displays a summary of the theories used to assess faculty work motivation.

Looking at the 1987-1999 timeframe, findings indicate that early faculty work motivation research was predominantly influenced by cognitive approaches (category frequency of 52.94%). Examples of cognitive approaches were Herzberg's Motivator-Hygiene Theory, the Social-Information Processing Theory and the Social Cognitive Theory. Examples of approaches that emphasized the environment were the Social-Information Processing Theory and the Person-Environment-Fit Model (category frequency of 29.41%). In contrast, affect-based theories were not mentioned in any of the identified articles in the 1987-1999 timeframe. Finally, there were a number of research publications that did not reference any specific theory in their literature review section (atheoretical category frequency of 17.65%).

The 2000-2009 timeframe illustrates that faculty work motivation research was predominantly influenced by cognitive approaches (category frequency of 52.94%). Examples of cognitive approaches were Herzberg's Motivator-Hygiene Theory and Vroom's VIE theory. An example of an environmental approach was Fairness Theory. However, there were no

affect-based theories (category frequency of 0%). During this timeframe, atheoretical faculty work motivation research occurred almost as often as that influenced by cognitive approaches (category frequency of 41.18%).

Similarly, the 2010-2018 timeframe illustrates that faculty work motivation research was predominantly influenced by cognitive approaches (category frequency of 55%). Some examples of cognitive approaches were Maslow's Hierarchy of Needs Theory, Herzberg's Motivator-Hygiene Theory, Vroom's VIE theory, and the Self-Determination Theory. Theories with environmental approaches included variations of Equity and Fairness Theory (category frequency of 10%). Again, there were no affect-based theories this timeframe (category frequency of 0%). Finally, a large portion of the research was atheoretical (category frequency of 35%).

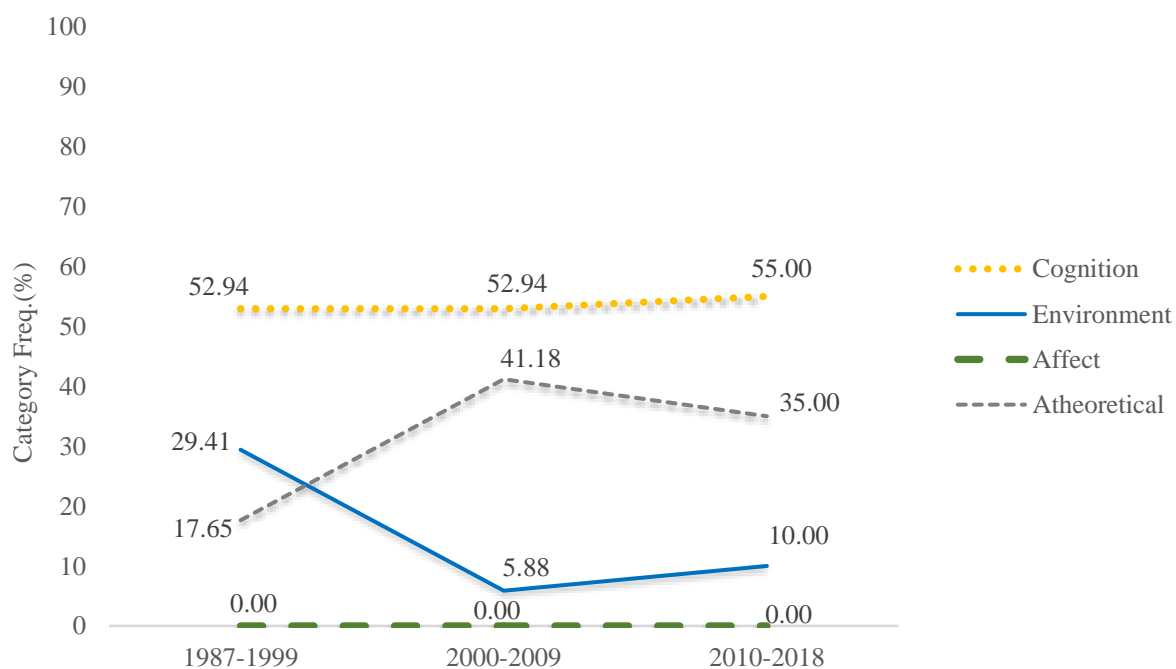


Figure 9. Theoretical Approaches Used to Study Faculty Work Motivation

Figure 10 is the 3D illustration of the theories of faculty work over the past 30 years. Overall, the results highlight that faculty work motivation research is dominated by cognitive and environmental approaches. Put simply, approximately half of the literature was largely influenced by cognitive approaches. A quarter of the research was largely environmentally influenced, and the remaining quarter was influenced by cognitive and environmental approaches together. Moreover, none of the research was influenced by affect or any combination of affect with cognition or the environment. Surprisingly, results also reveal that a large portion of the research lacks a theoretical basis (atheoretical).

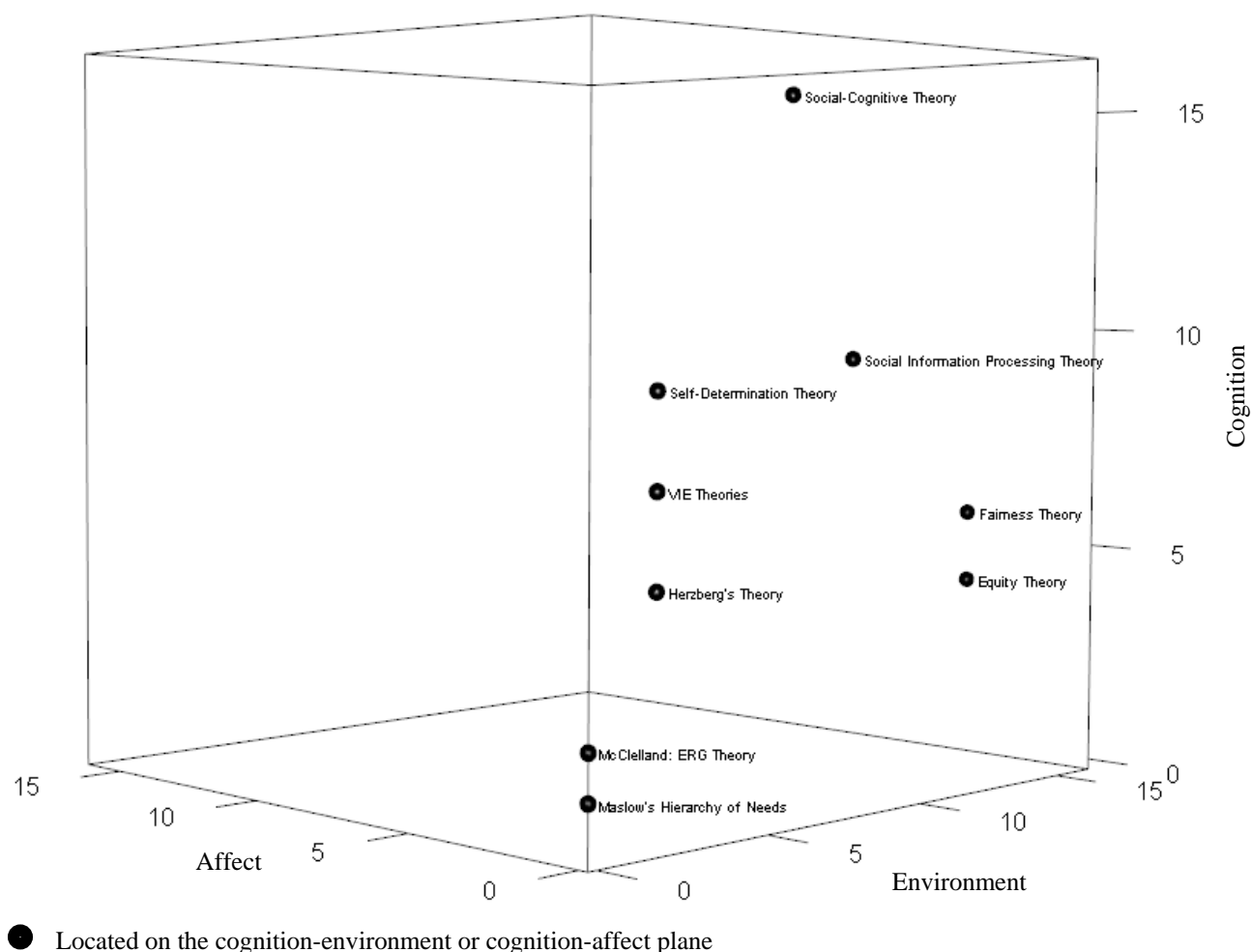


Figure 10. Theoretical Focus of Faculty Work Motivation Research

Discussion

A review was conducted on faculty work. The review included criterion domains, research design, measurement methods, data sources, and theoretical emphasis. Despite previous calls for better understanding of faculty work (Dooris, 2002; Johnsrud & Rosser, 2002) and a great deal of research describing the various ways university faculty contribute to the success of academic institutions, only 44 out of the 1951 faculty-centered research publications (i.e., 2% of the published research) focused on understanding faculty work motivation. In the following subsections, faculty work motivation implications pertaining to the research indicators and theoretical approaches are discussed.

Research implications. There is evidence that research interest in the *criterion domains* has shifted considerably (see Figure 4). For example, turnover was viewed as an important criterion domain in the years between 1987 -1999, but gradually decreased to 0% since then. In contrast, research on job performance decreased in the years between 2000 -2009, and then was the highest of all the criterion domains in the years between 2010-2018. One explanation for this considerable research shift could be in response to changes in the nature of faculty work. Consider a more detailed progression over time for job performance (e.g., faculty teaching, research, service, & OCB; see Appendix D, Table 2). Job performance appears as the most frequent and varied criterion. It is the most frequent due to interest in faculty research performance. This finding is not surprising because faculty are traditionally evaluated based on their research performance, which is particularly true at research universities. However, it is varied because interest increased for faculty service and OCB.

Given the enormous financial and social demands faced by academic institutions (Ballantine, 1995; Fox, 1992; Mallard & Atkins, 2004; Milem et al., 2000), faculty are now

expected to teach more classes and hold more administrative duties in addition to meeting increased research demands. As a result, contemporary research (i.e., in the years between 2010 and 2018), has also focused on examining the effects of cognition and environment on faculty job satisfaction and organizational citizenship behaviors. Although turnover is associated with enormous financial cost (Xu, 2009), academic institutions have not placed great emphasis on turnover when evaluating faculty work, which in turn has resulted in less research interest in this criterion domain.

Moving forward, the review offers three potential ways research could enrich the understanding of faculty job performance. First, faculty work motivation research could benefit from examining all three aspects of faculty work: teaching, research, and service. As previously stated, faculty are expected to perform well in all three of these areas. These expectations necessitate research that identifies their antecedents and how they relate to each other. For instance, it may be fruitful to identify specific environmental, cognitive, and affective influences that facilitate an optimal balance of teaching, research, and service.

Second, understanding faculty commitment is important because it could provide information on how turnover is related to work motivation. For instance, research indicates that less commitment to the university is associated with less intent to stay (Daly & Dee, 2006; Lee & Mowday, 1987). If turnover intentions are an immediate precursor to actual turnover, then research examining the impact of environmental, cognitive, and affective influences on faculty commitment could provide new perspectives on ways to decrease turnover. In such cases, identifying the antecedents of faculty turnover can help decrease the associated disruption of research and teaching programs, and the resources associated with search committees and national recruitment activities.

Third, understanding contextual performance (a work outcome of job performance; see Appendix D, Table 2) through extra-role behaviors is critical as it can have an impact on cohesiveness, teamwork, and morale (Motowidlo, 2003). For example, it may be fruitful to identify the specific reasons why faculty engage in extra-role behaviors because understanding the antecedents of faculty extra-role behaviors may provide insight into the mechanisms behind a variety of work outcomes. Such research could uncover why and how faculty involve undergraduate students in their research programs, promote positive affect in peers and students, defuse hostilities and conflict, or encourage trust among colleagues and students. These insights could then be used to promote high-quality interpersonal interactions within departments, peer collaborations, research, and teaching morale.

As a whole, understanding the mechanisms behind the breath of criteria on which faculty work motivation is assessed could increase the educational development of students and better accomplish the goals of the university. For example, faculty who encourage trust and positive affect can promote undergraduate peer collaborations, and consequently help in developing academic and work skills. Common sense dictates that such students have a higher chance of being successful in being a professional and/or completing graduate school. Indeed, higher education could benefit from faculty who engage in extra-role behaviors in that it could provide for a more positive work environment.

In terms of *research designs*, findings revealed that cross-sectional research designs were the predominant approach used to study faculty work motivation. This means that faculty work motivation research is based on information obtained from one point in time. Although this information is useful for the purposes of identifying some of the factors associated with the various faculty work outcomes, it does not provide information about how these factors change

over time. A longitudinal research design would be more appropriate for studying change over time. However, this is a topic for discussion for a later time.

In terms of *measurement methods*, findings reveal that survey methods appear as the predominant way to obtain information about faculty work motivation. Specifically, much of what is known about faculty work is based on eight large-scale national surveys. Data collected from national surveys provide information about demographic, social and economic characteristics, as well as faculty perceptions of their job. However, the use of national large-scale surveys does have at least one noticeable consequence for research findings. Large-scale surveys are usually developed by a group of experts and/or university administrators who rarely disclose information about how the survey was developed. As such, researchers are likely forced to adapt their hypotheses to fit the survey questions of these pre-established national surveys. This can result in research based on awkwardly framed post-hoc hypotheses or research that is simply atheoretical. This does not mean that there is no detection of effects (i.e., relationships), but rather that there is no explanation (i.e., no theory) for those effects. Therefore, it is possible that the reliance on data from national surveys could have contributed to the lack of theoretical work in faculty work motivation (see Figures 9 and 10).

One way to approach this issue is to conduct research with a priori hypotheses that are not adapted to fit the questions in large-scale surveys. This may require using surveys and/or questionnaires designed to collect the information required to test the a priori hypotheses. Nevertheless, this approach does not replace large-scale national surveys as they can be fruitful for making projections about faculty demographics or university social and economic conditions. However, making projections and identifying conditions without explanation is not theory development. To make real progress in the field, it is necessary to also invest in theory

development that explains how and when faculty work motivation contributes to the prosperity of the academic institution.

In terms of *types of data sources*, findings show that research is mostly based on data from faculty (self-reported data). However, more recent research has begun to consider different-source data. For example, Maher, Timmerman, Feldon and Strickland (2013) used students and faculty perspectives to study factors associated with authorships. Similarly, Webber, Larid and BreckaLorenz (2013) used student and faculty perspectives to assess faculty member engagement in undergraduate research. Although incorporating student perspectives is a step in the right direction, more research is needed to consider other sources, such as peer and supervisor (i.e., department chair, dean, or provost) perspectives. Research that incorporates multiple perspectives could help examine the relative importance of self-versus student, peer, or supervisor perspectives for different sets of outcomes. For example, it may be that peer perspectives are relevant for studying the balance of performance expectations for teaching, research, and service whereas dean perspectives are important for studying commitment to the university.

Theoretical implications. The application of the 3D method reveals that the predominant theories used to study faculty work motivation emphasize a narrow set of cognitive and environmental aspects (see Figure 10). Examples of some of those theories are:

- 1) basic sets of needs and values that motivate individuals; i.e., Maslow's Hierarchy of Needs, ERG, and Herzberg's Motivator-Hygiene Theory
- 2) the fit between individual and environmental characteristics; i.e., Control Theory and its subtypes

- 3) the use of social information, such as past behavior and social interactions; i.e., Social-Information Processing Approach
- 4) self-efficacy beliefs; i.e., Social Cognitive Theory
- 5) expectancy beliefs; i.e., Vroom's VIE Theory
- 6) individual self-interest and justice; i.e., any subtype of Equity and Fairness Theory
- 7) perception of autonomy; i.e., Self-Determination Theory.

More importantly, affective influences were not assessed and much of the research was atheoretical (see Figure 9).

Based on these findings, two immediate gaps were identified. First, more theory is needed to help explain (or describe) current and future relationships in faculty work motivation. If these relationships can be explained, then effective interventions can be developed. For example, theory driven research can help explain the antecedents and consequences of the increased pressure on university faculty. There is some evidence that an imbalance between job demands and outcomes is associated with health related complications for blue-collar workers, such as increased risk for coronary heart disease (Bosma, Peter, Siegrist, & Marmot, 1998; Siegrist, Peter, Junge, Cremer, & Seidel, 1990). However, there are few theory-driven studies that consider faculty health in the context of work motivation. Subsequently, effective organizational interventions cannot be developed.

The second gap in the literature is the limited understanding of how cognition, environment, and affect aspects impact faculty work motivated behavior. The 3D method shows the focus on cognitive aspects, and some environmental aspects, in determining faculty work motivation. To address this gap, the 3D method findings suggest that the current literature could be expanded by including affective work experience (Affective Events Theory). In essence,

results from the 3D method suggest that a more coherent understanding of faculty work motivation can be achieved by leveraging theories along the dimensions of the environment, cognition, and affect.

Concluding remarks. This review illustrates the applicability of the 3D method in addition to a content analysis in the context of faculty work motivation. Review findings reveal that choices about the criterion domains, research designs, measurement perspectives, types of data sources, and theories emphasized have shaped how faculty work motivation has been conceptualized and assessed in the literature. Next, based on the insights gained from the 3D method, a model of faculty work motivation highlighting the role of affect is proposed.

University Faculty Work Motivation: The Environment, Cognition, and Affect

Work motivation is the most fundamental building block for accelerating employee performance (Steers et al., 2004), and therefore a strategic priority for virtually every chief executive officer (CEO) around the world. In fact, a recent study of CEOs at billion dollar companies found that motivation to work across different corporate groups is cited as one of the most critical competitive advantages for business success (Zemmel, Cuddihy, & Carey, 2018). Because of its long, rich, and diverse history, work motivation has been a topic of considerable discussion and controversy (Kanfer et al., 2017; Pinder, 2008). A recent review of the work motivation literature has attempted to highlight the major themes and advances over the past century (Kanfer et al., 2017). Despite the enormous body of research on work motivation, the substantive findings produced by these efforts have led to an impasse that has impeded research in areas such as work motivation in university faculty.

Faculty work motivation plays an integral part in the ability of faculty to engage in academic research across multiple disciplines, facilitate diversity-related conversations, and

actively contribute to the development of a healthy campus climate (Higher Education Research Institute, 2017). Therefore, the contribution of faculty to the prosperity of the academic institution is widely recognized. However, faculty are abruptly leaving universities resulting in substantial financial loss. A recent national faculty survey showed that approximately 40% of university faculty report feeling unable to balance performance expectations for teaching, research, and service (The Collaborative on Academic Careers in Higher Education, 2016; 2017). Many university faculty describe their workplace as emotionally depleting, highly commercialized, and mentally draining (Frye, 2018; Klarner, 2016; Malesic, 2016). Overall, the changes in faculty work have increased pressure on faculty to perform, and some faculty are unable to manage those expectations to the point that they consider changing their careers altogether. Institutions of higher education that fail to recognize the pressures connected with the changes in faculty work face a significant loss. For example, after experiencing a 40% increase in turnover due to failure to provide adequate teaching and research support, the University of Wisconsin spent an estimated \$24 million on retention interventions (Brown, 2016). Despite the centrality of faculty work motivation for the prosperity of academic institutions, within the higher education literature, this topic remains largely overlooked and not well understood.

Theoretical explanations of faculty work motivation. Insights gained from the application of the 3D method (Figure 10) revealed two important research gaps in the literature on faculty work motivation: 1) limited research and 2) no consideration of affect. Both of these gaps highlight the importance of having a comprehensive understanding of the forces that impact faculty work. In the sections that follow, proposed contributors to faculty work motivation are introduced.

First, unlike the substantial body of research on various social, economic, and technological changes at institutions of higher education, research on faculty work motivation is limited. To the extent that it exists, research has mostly considered how isolated aspects of the environment and cognition shape faculty job performance and satisfaction. Unlike other areas of work motivation, it is easy to look at faculty work motivation research and conclude that it remains stagnant. Even so, higher education researchers and university administrators continue to use atheoretical models and census surveys that lack a strong and coherent theoretical base. As a result, relatively few theories have been put forth to explain faculty work motivation (see Figure 10).

Of those that have been put forth, only cognitive and environmental aspects have been considered, and in some cases in isolation from one another. Some of the theoretical models that rely mostly on cognitive aspects are Maslow Hierarchy of Needs and Existence, Relatedness, and Growth (ERG) Theory. An example that considers the environment and cognition is Social-Cognitive-Theory, which looks at the relative impact of procedural and distributive justice (aspects of the environment) on faculty job satisfaction, organizational commitment, and intent to leave (Ambrose & Cropanzano, 2003). Controlling for the impact of procedural justice, distributive justice was proposed to exert its predictive value only when self-efficacy (an aspect of cognition) was heightened. In this respect, self-efficacy is formed when faculty experience compensation and tenure status changes. Although Ambrose and Cropanzano introduced self-efficacy as the mechanism that explains the relationship between justice perceptions and work outcomes, they did not measure it directly in their study. This leaves questions about the relationship between aspects of cognition (i.e., self-efficacy) and aspects of the environment (i.e. justice perceptions) unanswered. Regardless of whether this lack of understanding is a more

critical issue in the field of faculty work motivation, or one that already exists in the broader work motivation literature, it seems that the current focus in the literature is to understand the nature of the relationship between cognitive and environmental influences.

The second gap in faculty work motivation is that the potential contribution of affect must be determined. Given the enormous cost of negative affect, research in this area is certainly overdue. For example, prior research has shown that negative affect may lead to a wide range of physical and mental health-related problems over time (Menaghan, 1991; Vinokur, Pierce, & Buck, 1999), potentially resulting in major public health concerns (Melamed, Shirom, Toker, Berliner, & Shapira, 2006; Melamed, Shirom, Toker, & Shapira, 2006; Schaufeli & Enzmann, 1998). Within the field of faculty work motivation, there have been several calls for more attention to how negative affect relates to work outcomes (Frye, 2018; Klarner, 2016; Malesic, 2016), yet these calls have largely gone unheeded.

Taken together, the review revealed that there has been a surge of books, reflections, reports, and research articles on university faculty over the past two decades. However, most of this literature is focused on understanding how economic and social changes influence faculty work (Blackburn & Lawrence, 1995; Ehrenberg & Zhang, 2005; Gappa et al., 2007; Horowitz, 2006). Other areas of research focus on understanding how environmental changes impact the demographics of contingent faculty (Garcia, McNaughtan, & Nehls, 2018).

The purpose of this study is understanding the key contributors to faculty work motivation through theoretical integration emphasizing theory and research insights. Specifically, drawing from Affective Events Theory (AET; Weiss & Cropanzano, 1996), past research is extended by unraveling the relationship between aspects of the environment, cognition, and affect in faculty work motivation. The aim is to demonstrate that perceptions of

the work environment trigger affective experiences, thereby influencing faculty job satisfaction, commitment, and intent to leave. In this respect, neither the environment nor cognition are enough to explain faculty work motivation; instead motivational processes are comprised of the cumulative effect of aspects of the environment, cognition, and affect.

According to the literature review here, AET is the only theoretical perspective that incorporates affect in addition to cognition and environment to create a comprehensive understanding of work motivation (Barsade, Brief, & Spataro, 2003). The theory specifies affect as a multidimensional construct and proposes that affect interacts with aspects of the environment and cognition to influence critical work motivation outcomes. Specifically, Weiss and Cropanzano (1996) posit that when work generates positive affective experiences, an employee experiences positive work attitudes, such as job satisfaction, and engages in affect driven behaviors, such as organizational commitment or organizational citizenship. According to AET, work attitudes explain the underlying mechanism of how affect, and affect driven behaviors influence more reasoned, long-term behaviors, described as judgement driven behaviors. In terms of perceptions of the work environment, Weiss and Cropanzano suggest that features of the work environment influence work attitudes directly and indirectly through work events and affective experiences. Figure 11 depicts the relationships among the major constructs in AET.

AET has attracted attention in a variety of disciplines. Currently, the term AET appears in nearly one million citations in Google Scholar. AET has been adapted across a variety of contexts. For example, the model has been successfully applied in the context of e-commerce (Luo & Chea, 2018), work-family enrichment (Carlson, Kacmar, Zivnuska, Ferguson, & Whitten, 2011), addiction recovery (Beasley & Jason, 2015), stress and health (Bono, Glomb,

Shen, Kim, & Koch, 2013), transformational leadership (Ge, Tian, & Fu, 2012), workplace deviance (Judge, Scott, & Ilies, 2006), the hotel industry (Lam & Chen, 2012), and call centers (Wegge, van Dick, Fisher, West, & Dawson, 2006).

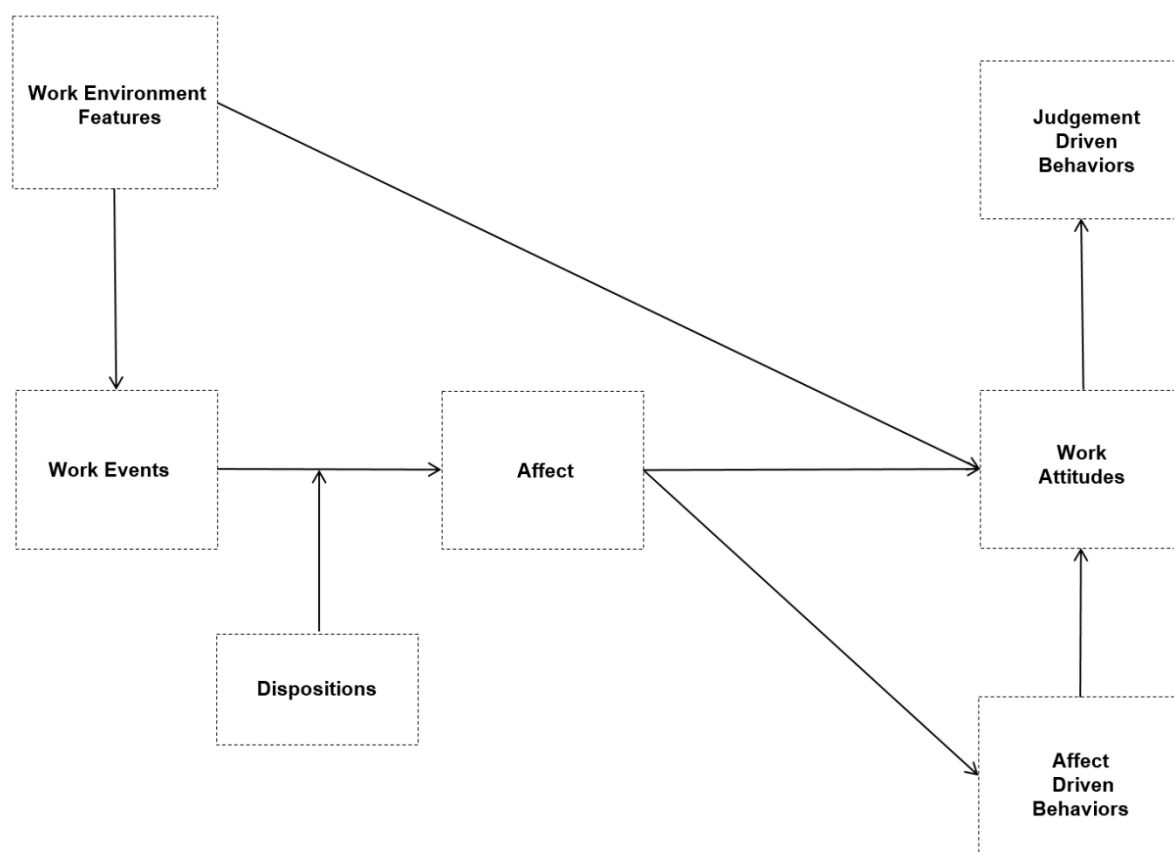


Figure 11. Affective Events Theory

Current state of conceptualizing affect via AET. In the sections that follow, a critical analysis of how affect has been examined through the lens of AET is provided. The focus here is on how affect has been conceptually defined, operationalized, and analyzed, as opposed to

tracing the history of the AET literature. Thus, rather than a comprehensive review of all AET research, the focus is on empirical studies aimed at replicating the AET model in Figure 11.

A manual search process was used to identify articles focused on replicating the AET model. In doing so, all articles that cited the original AET publication ($n = 3872$) were examined. As part of this process, title, abstract, and in some instances, the full text were examined to identify empirical research focused on close replications of AET. Overall, a total of 15 replication articles were identified (see Appendix E). In reviewing these AET articles, there appears to be at least two major themes.

First, there are many similar and overlapping constructs used to operationalize affective experiences. Some AET investigations use definitions from the emotion theory literature to define affect. In this regard, affect is often defined as consisting of multiple emotion components, which are loosely structured and activated by an emotional event (Frijda, 2008). In terms of impact, some of these emotion components are assumed to mutually constrain each other, whereas others are more central (Mauss & Robinson, 2009; Scherer, 2005). Taking this view, many researchers have examined a wide range of constructs including emotions, moods, emotional reactions, and other overall affective experiences (see Appendix E). Some studies have defined the emotion components narrowly (e.g., negative emotions), whereas others have defined them more broadly (e.g., negative emotional reactions).

The second theme is that replication studies have focused on testing short episodic forms of affect. Episodic forms of affect tend to be studied with experience sampling methodology (i.e., daily diaries) in short time spans that range from immediately to a few weeks (Carlson et al., 2011; Diefendorff, Richard, & Yang, 2008; Fischer, 2002; Judge et al., 2006; Mignonac & Herrback, 2004; Ohly & Schmitt, 2015; Rodell & Judge, 2009; Wegge et al., 2006; Weiss,

Nicholas, & Daus, 1999). An example of short episodic forms of affect is experiencing daily changes in affect such as “This morning I was in a terrible mood” (Weiss, 2002). However, affect can occur due to circumstances and/or result from the accumulation of many circumstances over the span of years. For example, faculty considering a permanent departure from academia report negative affect that is abnormally intense and long (Malesic, 2016). One form of long-term negative affect is emotional exhaustion, which is not likely to occur due to episodic circumstances but rather through an accumulation of circumstances. Because of the prolonged time and intensity of negative affect experiences reported by faculty, emotional exhaustion has particular relevance to understanding faculty work motivation. Thus, one goal of this study is to examine the long-term impact of negative affect (e.g., emotional exhaustion), in the context of faculty work motivation.

Emotional exhaustion as a critical affective experience for university faculty.

Interest in the role of negative affect as a determining factor of faculty work motivation has gained popularity in recent years (Klarner, 2016; Malesic, 2016). Indeed, there has been a growth of empirical research focused on examining various job demands and resources associated with faculty burnout, an aspect of negative affect (Sabagh, Hall & Saroyan, 2018). Although the results have been informative, there is little integration of the complex interplay between aspects of the faculty work environment, cognition, an affect. The application of the 3D method indicated that most research has been atheoretical, or has explored a narrow set of cognition and/or environment aspects.

According to empirical investigations, approximately 20% of faculty experience high levels of job burnout (Lackritz, 2004). Job burnout is a long-term process that gradually develops as a result of prolonged exposure to stressors at work (Schwarzer & Grennglass, 1999),

and has been characterized by a state of physical, cognitive, emotional, and interpersonal exhaustion (Schaufeli & Enzmann, 1998; Shirom, 2003). Ultimately, identifying the specific factors associated with faculty burnout and understanding the extent to which they impact work engagement may facilitate the development of burnout prevention and intervention programs, and advance research. Over the years, many conceptualizations of job burnout have been introduced (e.g., Maslach, Schaufeli, & Leiter, 2001; Pines & Aronson, 1988; Schaufeli & Peeters, 2000; Shirom, 2003). However, the literature has shown that the concept of emotional exhaustion, defined as a depletion of emotional resources at work, is the key component of burnout (Blix, Cruise, Mitchell, & Blix, 1994; Maslach et al., 2001; Qiao & Schaufeli, 2001).

A new model of faculty work motivation. The literature on faculty work has progressed over the years with limited theoretical rational and no consideration of affect. As such, the faculty work motivation literature may have reached a similar impasse as the general work motivation literature. For example, some of the research on faculty work motivation is based on outdated organizational theories that do not fully capture the complex nature of faculty work motivation (Hagedorn, 2000; Lawrence et al., 2012; Ryan, Healy, & Sullivan, 2012). Other studies (Daly & Dee, 2006; Johnsrud & Rosser, 2002; Rosser, 2004) are based solely on empirically guided turnover models developed by Price and Mueller (1981), Steers and Mowday (1981), or Smart (1990). Several studies are rooted in cognitive or environmental approaches to work motivation, but fail to consider affect components (Bozeman & Gaughan, 2011; Daly & Dee, 2006; Johnsrud & Rosser, 2002; Mamiseishvili & Rosser, 2011; Morrison, Rudd, Picciano, & Nerad, 2011; Rosser, 2004; 2005; Xu, 2008; Zhou & Volkwein, 2004). Collectively, these studies have created a literature that does not fully delineate the nature and set of constructs associated with faculty work motivation. Grounded in AET, the proposed model extends higher

education research by addressing the need to incorporate affect in addition to environmental and cognitive influences for understanding faculty work motivation.

The work environment as an antecedent of negative affect and cognition. One of the challenges associated with understanding faculty work is the increasingly complex work environment. Decades of research demonstrate that there are many features of the work environment that have important individual and organizational implications (Humphrey, Nahrgang, & Morgeson, 2007; Parker et al., 2017). For example, research has shown that the following are “core” features of the work environment that are related to a host of affective and behavioral outcomes (Hackman & Oldham, 1980; Morgeson & Humphrey, 2006):

- 1) *task identity*; the degree to which a job requires the completion of an identifiable and whole piece of work,
- 2) *task significance*; the degree to which the job has substantial impact,
- 3) *task variety*; the degree to which a job requires a variety of different activities,
- 4) *skill variety*; the degree to which a job requires a variety of skills and talents,
- 5) *autonomy*; the degree to which the job provides substantial freedom, independence, and discretion, and
- 6) *feedback*; the degree to which the job provides clear and direct information about performance effectiveness.

Research has further shown that the extent to which a job provides opportunities for support, particularly organizational support, is also an important feature of the work environment (Colquitt, Colon, Wesson, Porter, & Ng, 2001; Colquitt et al., 2013; Humphrey et al., 2007). For example, the extent to which a job provides opportunities for getting assistance and advice from others in the organization is likely to impact positive mood (Watson, 2000) and thus motivation

because good interpersonal relationships are a fundamental aspect of motivation (Baumeister & Leary, 1995).

Meta-analytic reviews demonstrate that some work environment features have received stronger empirical support for predicting affective experiences than others. For example, Humphrey and colleagues (2007) found that four job design features (i.e., task identity, task significance, skill variety, and autonomy) and support from others are negatively related to negative affective experiences, such as emotional exhaustion. Consistent with AET, the magnitude of these relationships is stronger with job satisfaction and weaker with distal outcomes, such as intent to leave (Grant, & Parker, 2009; Humphrey et al., 2007). In the context of faculty work motivation, researchers have found similar results, showing that job design features and organizational support improve faculty job satisfaction. That is, some of the most important factors associated with faculty job satisfaction are autonomy, the work itself, administrative support, and social support (e.g., positive administrative relationships, and collegiate respect; Bozeman & Gaughan, 2011; Daly & Dee, 2006; Hagedorn, 2000; Johnsrud & Rosser, 2002). Taken together, the empirical evidence points to direct and indirect ways in which different work environment features shape faculty work motivation.

A limitation of the AET model is that it does not explain why past empirical research demonstrates a relative importance of different aspects of the work environment for affective experiences. An alternative theoretical approach that could provide insight into how to bridge this gap is the Conservation of Resources (COR) model (Hobfoll, 1989). COR is a model that encompasses several stress theories and considers both environmental and cognitive processes. In this respect, COR has been used as a principal explanatory mechanism for understanding feelings of being burned out (Grandey & Cropanzano, 1999; Janssen, Schaufeli, & Houkes,

1999; Shirom, 1989; 2003; Westman & Eden, 1997; Wright & Cropanzano, 1988). A central notion of COR is that humans strive to protect and enhance the self through the acquisition and maintenance of resources, including objective resources (financial assets, adequate financial credit, etc.), work conditions (tenure, seniority, etc.), personal characteristics (general health, autonomy, etc.), and energies (time, knowledge, etc.; Hobfoll, 1989). According to COR, a prolonged depletion of resources increases feelings of emotional exhaustion. In comparison, when resources are provided or built, individuals are less likely to experience emotional exhaustion. This means, when faculty have more resources, they may be less likely to experience emotional exhaustion. Taking these considerations into account, the following hypotheses are proposed:

Hypothesis 1 (H1): Faculty who report working in an enriching work environment (i.e., more job design and organizational support) will report less emotional exhaustion.

Hypothesis 1a: Faculty who report more job design features (i.e., more autonomy, feedback, task identity, task significance, task variety, and skill variety), will report less emotional exhaustion.

Hypothesis 1b: Faculty who report more organizational support will report less emotional exhaustion.

Hypothesis 2 (H2): Faculty who report working in an enriching work environment (i.e., more job design and organizational support) will report more job satisfaction.

Hypothesis 2a: Faculty who report more job design (i.e., more autonomy, feedback, task identity, task significance, task variety, and skill variety), will report more job satisfaction.

Hypothesis 2b: Faculty who report more organizational support will report more job satisfaction.

According to AET, work events initiate affective experiences, and the presence of certain features of the work environment can make these work events more likely. That is, faculty respond emotionally to events that happen to them in work settings and certain events may have greater impact on experiencing emotional exhaustion. For example, Ohly and Schmitt (2015) found that communication openness with colleagues was the most critical work event affecting feelings at rest (i.e., the opposite of feeling exhausted). Similarly, opportunities for open communication have been found to decrease feelings of social isolation and alienation from work (Lindholm, 2003; Tierney & Bensimon, 1996). Taken together, these findings suggest that faculty who work in an environment that has motivational and social features are likely to engage in open communication, thereby experiencing less emotional exhaustion. Indeed, effectively balancing teaching demands with a plethora of administrative tasks and pressures to publish requires constant communication with students, colleagues, deans, and university administrators.

Another work event of importance to emotional exhaustion is general health. Understanding health is particularly important because of the financial cost associated with rising health insurance premiums and illness-related productivity losses (Bono et al., 2013). Unfortunately, general health has received limited research attention in the literature, and AET does not give any guidance on how to account for an individual's health. This limitation has resulted in health being assessed as a work event or a work outcome. For example, in a recent study, Ohly and Schmitt (2015) examined health as an important component of a comprehensive work event taxonomy and found it to be the best predictor of exhaustion.

In contrast to AET, COR provides a firm theoretical viewpoint for how to account for general health. Specifically, COR suggests that feeling healthy decreases emotional exhaustion

because health could aid the acquisition of other valuable resources. For example, faculty who do not feel healthy may prefer working from home, or avoid attending university events, inadvertently limiting their opportunities for open communication or social interactions that could provide additional support. Over time, faculty who experience less positive work events (e.g., chronic health issues and limited opportunities for open communication) are less equipped to meet the increased performance expectations and will likely experience emotional exhaustion. The argument presented above suggests the following hypotheses:

Hypothesis 3 (H3): Faculty who report more positive work events will report less emotional exhaustion.

Hypothesis 3a: Faculty who report more communication openness will report less emotional exhaustion.

Hypothesis 3b: Faculty who report feeling healthy will report less emotional exhaustion.

The notion of resources as features of the environment is consistent with propositions of AET (Bono et al., 2013). The difference between AET and COR is that AET specifies work environment features as determinants of work events, whereas COR proposes that work environment features and work events are just different types of resources, whereby having one critical resource is typically related with other(s). Although there are different features of the environment, one of the most established features of the work environment is organizational support (Colquitt et al., 2001; Colquitt et al., 2013; Daly & Dee, 2006; Humphrey et al., 2007). Along this line, Ohly and Schmitt (2015) found that communication openness with colleagues, a form of support, represented the most important work event associated with feelings at rest (i.e., the opposite of burnout). Therefore, it seems like there are two distinct, yet related forms of support. One is organizational support functioning as a work environment feature. The other is

communication openness functioning as a work event. Considering these distinctions, the following hypotheses are proposed:

Hypothesis 4 (H4): Faculty work environment features will be associated with work events.

Hypothesis 4a: Job design features correlate negatively with general health complaints.

Hypothesis 4b: Job design features correlate positively with communication openness.

Hypothesis 4c: Organizational support correlates negatively with general health complaints.

Hypothesis 4d: Organizational support correlates positively with communication openness.

Consequences of negative affect. Experiencing emotional exhaustion (negative affect) effects both the faculty and the academic institution (e.g., increased turnover rates). For example, past research revealed that emotional exhaustion (the main component of burnout) is correlated with health problems, intent to leave, reduced research productivity, and decreased job satisfaction (Blix et al., 1994). Yet, the correlational nature of this research provides little theory driven support. Whereas meta-analytic research has shown that emotional exhaustion predicts decreased job satisfaction, reduced commitment, and increased intent to leave (Alarcon, 2011), higher education research has failed to consistently demonstrate the expected effect for commitment (e.g., Barkhuizen et al., 2013). The lack of consistency suggests that the relationship between emotional exhaustion and faculty work outcomes may be more complex. To arrive at a better understanding of the consequences of faculty' emotional exhaustion, more research is needed to closely examine the effect of emotional exhaustion on faculty commitment, while holding other factors (i.e., job satisfaction and intent to leave) constant.

According to AET, faculty commitment may function as a mediating variable that explains the link between emotional exhaustion and intent to leave. In fact, a considerable amount of higher education research has concentrated on the topic of faculty commitment in

order to explain intent to leave academia (Daly & Dee, 2006; Lawrence et al., 2012). Often defined as an individual's bond or link to the academic institution, faculty commitment entails continuance, normative, and affective components (Meyer, Allen, & Smith, 1993). Although the three forms of commitment have different antecedents and consequences (Bergman, 2006), little research has been devoted to empirically distinguish between them in the context of faculty work motivation.

Drawing from AET, the current study extends past research by enhancing the understanding of how faculty form the decision to leave academia. According to AET, judgement driven behaviors, such as intent to leave, are a result of affect by way of work attitudes and affect driven behaviors, such as commitment. In other words, intent to leave academia requires a thoughtful decision, largely driven by dissatisfaction and reduced commitment. Taking these considerations into account, the following hypotheses are proposed:

Hypothesis 5 (H5): Emotional exhaustion will impact commitment.

Hypothesis 6 (H6): Emotional exhaustion will impact job satisfaction.

Hypothesis 7 (H7): Commitment will impact job satisfaction.

Hypothesis 8 (H8): Job satisfaction will impact intent to leave academia.

Hypothesized Model

Based on the discussion and hypotheses above, the faculty work motivation model in Figure 12 is proposed. The model integrates ideas from AET and COR to understand the cumulative effect of the environment, cognition, and affect. In general, the model specifies that affect acts as a mediator between the environment and cognition. Specifically, the proposed model posits that emotional exhaustion (negative affect) is a mediator between the set of variables for work environment and work events (environment) and the set of variables for job

satisfaction and affective commitment (cognition). In this respect, when faculty experience emotional exhaustion as a result of the environment, they will report lower commitment with the university and lower satisfaction with their job which, in turn, will impact their intent to leave academia.

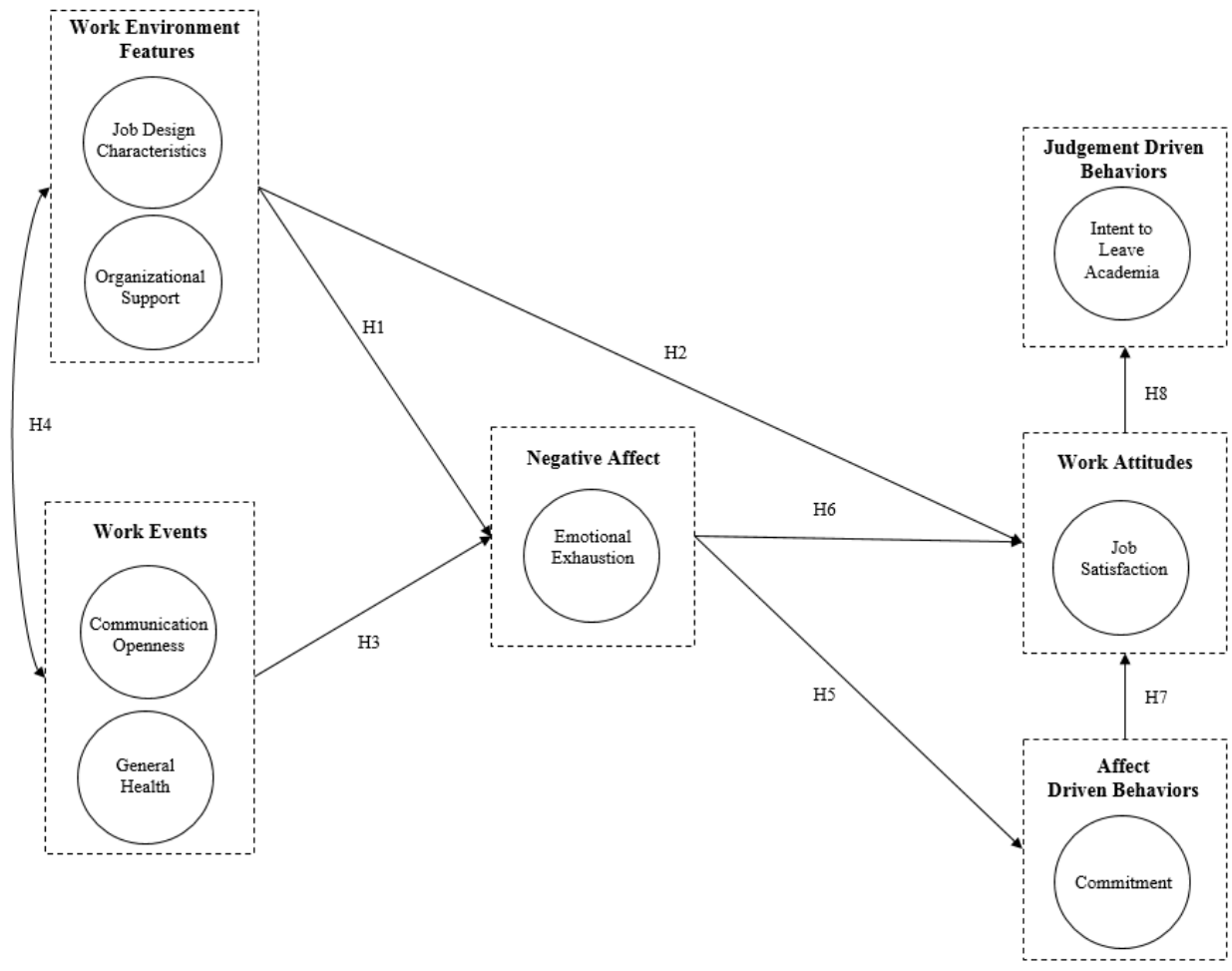


Figure 12. Hypothesized Faculty Work Motivation Model

METHOD

Participants

Study participants were faculty employed at research universities, who are primarily expected to engage in scholarly activities. To increase representativeness of the sample, thereby increasing external validity, a completely randomized sampling method was chosen.

Universities were randomly selected from a list of 42 US doctoral granting research universities as defined by the 2010 Carnegie Classifications (i.e., Doctoral Research Universities, High Research Activity Universities, and Very High Research Activity Universities). The Carnegie Classification for institutions of higher education includes all accredited, degree-granting colleges and universities in the United States as represented in the National Center for Education Statistics IPEDS system. Next, faculty within those universities were randomly selected to participate.

The demographics for the study are provided in Tables 1 and 2. Participants in the study were predominantly White/Caucasian ($n = 1206$). There were slightly more males (55%, $n = 757$) than females (45%, $n = 625$). Approximately two thirds of the responses were from Assistant ($n = 353$), Associate ($n = 367$) and Full Professors ($n = 412$).

Procedure

Participating faculty were recruited via email. The email indicated that the purpose of the study was to examine the job satisfaction of faculty and that it took approximately 20-25 minutes to complete the online questionnaire (survey). The survey was created using Qualtrics Survey Software. Participants were notified that only currently employed faculty (excluding

Table 1

Demographics by Gender and Race/Ethnicity

	Race/Ethnicity						Total
	Black/ African- American	Asian / Pacific Islander	White/ Caucasia n	Latino/ Hispanic	Native America n	Other	
Male	22	32	665	18	3	17	757
Female	20	25	541	17	1	21	625
Total	42	57	1206	35	4	38	1382

Table 2

Demographics by Department and Position

	Position							Total
	Assist.	Assoc.	Full	Dist./ Eminent	Emeritus	Lecturer	Other / Adjunct	
Humanities/ Arts & Letters	58	81	87	21	3	43	32	325
Business	14	23	24	9	0	8	11	89
Education	30	39	36	2	2	9	9	127
Engineering	34	30	33	4	0	5	4	110
Health Sciences	66	36	51	4	0	3	11	171
Social Sciences	62	58	69	8	3	11	15	226
Life Sciences	19	20	29	5	1	9	7	90
Sciences	43	41	45	9	4	13	10	165
Other	27	39	38	6	3	7	16	136
Total	353	367	412	68	16	108	115	1439

graduate students or staff) should fill out the survey. The initial invitation was followed by two reminders to complete the survey at their earliest convenience. To maintain the anonymity of the participants no personal information was collected. No incentives were offered or provided. All aspects of the study were conducted in accordance with the American Psychological Association code of ethics and it was approved by the institutional review board.

Power Analysis

A power analysis was conducted on the proposed model in Figure 12 to determine the number of participants needed to obtain an exact-fitting model. The power analysis was conducted using the R statistical package 2.12.1 (R Development Core Team, 2008). A sample size of 200 is required to determine an exact model fit with a root mean square error of approximation (RMSEA) for the full model set to .00, RMSEA for the alternative model set to .03, power of .95, alpha of .05, and degrees of freedom of 1482 (MacCallum, Browne, & Sugawara, 1996).

Environment Measures

Job design features. All measures were taken from the Work Design Questionnaire (WDQ) developed by Morgeson and Humphrey (2006). Job design features were comprised of six measures: autonomy (3 items), task identity (4 items), task significance (4 items), task and skill variety (each 4 items), and feedback (3 items). Items were measured with a Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Sample items are “The job allows me to decide on my own how to go about doing my work” (autonomy); “The results of my work are likely to significantly affect the lives of other people” (task significance); “The job allows me to complete work I start” (task identity); “The job itself provides me with information about my performance” (feedback); “The job involves a great deal of task variety” (task variety); and “The

job requires me to use a number of complex or high-level skills” (skill variety). The WDQ has been validated with 540 incumbents holding 243 distinct jobs and demonstrated excellent reliability and convergent and discriminant validity (Morgeson & Humphrey, 2006). The validation study revealed a coefficient (Cronbach’s) alpha of .85, .88, .87, .95, .86, and .86 for autonomy, task identity, significance, task variety, skill variety, and feedback, respectively.

Organizational support. Organizational support was measured using the 17-item Perceived Organizational Support scale developed by Eisenberger, Huntington, Hutchison, and Sowa (POS; 1986). Previous research has provided consistent evidence for the validity and reliability of this measure (e.g., Rhoades & Eisenberger, 2002). Participants indicated the degree to which they agreed or disagreed with statements such as “Help is available from the organization when I have a problem” on a Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree). Eisenberger et al. (1986) reported a coefficient alpha of .97 for the scale.

Communication openness. Communication openness was measured with a 5-item scale originally developed by Roberts and O’Reilly (1974) but later adapted for faculty research by Daly and Dee (2006). Participants were asked to use a Likert-style scale ranging from 1 (strongly disagree) to 5 (strongly agree) to respond to items such as “It is easy to ask advice from any co-worker in this university”. Daly and Dee (2006) reported a coefficient alpha of .84 for the scale.

General health. Perceptions of general health were measured with a single-item rating of health taken from the 36-item short-form health survey (SF-36; Ware & Sherbourne, 1992). Participants were asked to rate “Would you say your health in general is...” on a Likert-style scale ranging from 1 (excellent) to 5 (poor). Single item-instruments allow overall assessment of general health patterns and have been successfully used in related constructs such as physical

activity (e.g., Toker & Biron, 2012). The SF-36 is one of the most widely used health status questionnaires worldwide and has a coefficient alpha of .81 (Ware, Gandek, & IQOLA Project Group, 1994; Ware & Sherbourne, 1992; Ware, Snow, Kosinski, & Gandek, 1993).

Negative Affect Measures

Emotional exhaustion. A modified version of the Emotional Exhaustion (EE) subscale of the Maslach Burnout Inventory (MBI) was used (Koeske & Koeske, 1989). The MBI is the most widely used measure of burnout (for a review, see Maslach et al., 2001). The original scale consisted of a 7-point scale and measured frequency of emotional occurrences from “never” to “daily.” Kalliath, O'Driscoll, Gillespie, and Bluedorn (2000) examined the factor structure of the MBI and found EE to be the most robust subscale. The modified EE used in this study contained nine items. Participants indicated the degree to which they agreed or disagreed with statements such as “I feel emotionally drained from my work” on a Likert-type scale ranging from 1 (very strongly disagree) to 7 (very strongly agree). Kalliath and colleagues reported coefficient alphas of .90, .84, and .84 for the nine-item EE scale for a sample of nurses, laboratory technicians, and managers, respectively.

Cognition Measures

Commitment. Faculty commitment toward their institutions was measured using a 7-item scale developed by Price and Mueller (1986) and later adapted by Daly and Dee (2006). Participants indicated the degree to which they agreed or disagreed with statements such as “I speak highly of this university to my friends” on a Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree). Daly and Dee reported a coefficient alpha of .89 for the adapted scale.

Job satisfaction. Overall job satisfaction was measured using the 18-item Job In General scale (JIG; Ironson, Smith, Brannick, Gibson, & Paul, 1989). Participants were asked to respond to items with evaluative words or short phrases (e.g., pleasant, waste of time). Participants were able to answer in one of three ways: “yes” if it describes their work, “no” if it does not describe their work, or “?” if they cannot decide. Item scoring was based on established scoring procedures (Hanisch, 1992; Smith et al., 1969). The JIG predicts several job-related outcomes more strongly than specific facets of the Job Descriptive Index (Smith, Kendall, & Hulin, 1969), a commonly used measure of job satisfaction. In addition, the authors of the JIG have shown that the scale has a coefficient alpha of .91 and strongly correlates with other global job satisfaction measures ($r = .67-.80$).

Intent to leave academia. Intent to leave was measured using a 5-item scale developed by Barnes, Agago, and Coombs (1998). Participants indicated the degree to which they agreed or disagreed with statements such as “Consider a permanent departure from academia” on a Likert-type scale ranging from 1 (very unlikely) to 5 (very likely). Barnes et al. reported a coefficient alpha of .82 for the scale.

RESULTS

Structural equation modeling (SEM) was used to test the model in Figure 12 and all confirmatory factor analyses (CFA). SEM is a statistical tool that can capture the hypothesized model in its entirety and estimate all parameters simultaneously. In addition, SEM offers a variety of estimation methods, such as full information maximum likelihood (ML) and bootstrapping, to help with missing data, outliers, and violations of normality. As such, all models were estimated through full information ML to handle missing data issues with 1,000 bootstrap samples. In addition, all statistical tests were conducted with $\alpha = .05$ and

corresponding statistical significance is indicated with *. Model fit was assessed using the following criteria: comparative fit index (CFI) and Tucker-Lewis Index (TLI) $\geq .95$, root mean square error of approximation (RMSEA) $\leq .06$, and standardized root mean square residual (SRMR) $\leq .08$ (Hu & Bentler, 1999; Schreiber, Nora, Stage, Barlow, & King, 2006). In addition to performing well in the presence of non-normality, the TLI and the CFI may be less affected by sample size and model complexities (Kline, 1998). Data were checked for the presence of outliers because extreme values can affect the overall model fit statistics. Any cases that fell more than 1.5 times the interquartile range above the third quartile or below the first quartile were removed.

Confirmatory Factor Analysis and Reliability

A CFA was conducted on the factor structure of each of the latent variables. In the interest of parsimony, redundant items and/or items that contributed little information were removed from all CFAs. Overall, the CFA fit indices for the job design features, organizational support, communication openness, commitment, and intent to leave showed an acceptable fit for the scales. For example, CFI indices ranged from .91 to .99, TLI indices ranged from .91 to .98, REMSA indices ranged from .04 to .15, SRMR indices ranged from .01 to .05, and item factor loadings were above .40. Coefficient (Cronbach's) alpha was used to assess the reliability of the measures. In addition, normal theory bootstrap confidence intervals (CIs) were estimated for all coefficient alphas using 1,000 bootstrap samples (Padilla, Divers, & Newton, 2012). The correlations and descriptive statistics for the variables of interest are presented in Table 3.

Job design features. A 6-factor CFA for the 18-item Job Designs Questionnaire indicated acceptable fit, with $\chi^2(194, N = 1309) = 1210.92, p_{bs} < .001, CFI = .96, TLI = .95,$

SRMR = .05, and RMSA [90% CI] = .06 [.06, .07]. Standardized loadings ranged from .63 to .96.

Estimated coefficient alphas were as follows: .93, 95% CI [.92, .94] for autonomy; .90, 95% CI [.89, .91] for task identity; .88, 95% CI [.87, .89] for task significance; .94, 95% CI [.93, .95] for task variety; .92, 95% CI [.92, .93] for skill variety; and .88, 95% CI [.87, .90] for feedback.

Organizational support. A one-factor CFA for the 17-item organization support scale indicated acceptable fit, with $\chi^2(119, N = 1359) = 1732.81, p_{bs} < .001, CFI = .92, TLI = .91,$ SRMR = .03, and RMSA [90% CI] = .10 [.10, .10]. Standardized loadings ranged from .75 to .88. Estimated coefficient alpha was .97, 95% CI [.96, .97].

Communication openness. A one-factor CFA for the 5-item communication openness scale indicated acceptable fit, with $\chi^2(5, N = 1419) = 123.27, p_{bs} < .001, CFI = .97, TLI = .93,$ SRMR = .03, and RMSA [90% CI] = .13 [.11, .15]. Standardized loadings ranged from .65 to .82. Estimated coefficient alpha was .87, 95% CI [.86, .89].

Emotional exhaustion. A one-factor CFA for the 9-item MBI EE showed unacceptable fit, with $\chi^2(27, N = 1391) = 1138.03, p_{bs} < .001, CFI = .88, TLI = .83, SRMR = .07,$ and RMSA [90% CI] = .17 [.16, .18]. Estimated coefficient alpha for the initial MBI EE was .92, 95% CI [.91, .93]. A single redundant item was removed. The fit indices for the 8-item MBI EE showed substantial improvement, with $\chi^2(20, N = 1403) = 148.99, p_{bs} < .001, CFI = .98, TLI = .98, SRMR = .02,$ and RMSA [90% CI] = .07 [.06, .08]. Standardized loadings ranged from .52 to .88. Estimated coefficient alpha after the deleted item was .92, 95% CI [.92, .93]. In this instance, the removed item “Working directly with people puts too much stress on me“ was redundant with the retained item “Working with people all day is really a strain for me.”

Commitment. A one-factor CFA for the 7-item commitment scale indicated acceptable fit, with $\chi^2(14, N = 1395) = 289.50, p_{bs} < .001, CFI = .95, TLI = .93, SRMR = .04,$ and RMSA [90% CI] = .12 [.11, .13]. Standardized loadings ranged from .63 to .88. Estimated coefficient alpha was .90, 95% CI [.89, .91].

Job satisfaction. A one-factor CFA for the 18-item JIG showed unacceptable fit, with $\chi^2(135, N = 1347) = 3059.60, p_{bs} < .001, CFI = .76, TLI = .73, SRMR = .09,$ and RMSA [90% CI] = .13 [.12, .13]. Estimated coefficient alpha for the initial JIG was .91, 95% CI [.90, .92]. Thus, the structural validity of job satisfaction was re-evaluated by sequentially dropping redundant items and/or items that have a factor loading below .40. As a result, eight items were removed. The CFA fit indices without the 8 items was $\chi^2(35, N = 1364) = 749.09, p_{bs} < .001, CFI = .91, TLI = .88, SRMR = .05,$ and RMSA [90% CI] = .12 [.12, .13]. Standardized loadings ranged from .63 to .82. Estimated coefficient alpha after the deleted items was .91, 95% CI [.90, .92]. An example of an item that was removed had “ideal” as the evaluative word. The equivalent item that was retained had “excellent” as the evaluative work. Appendix O has the list of removed items.

Intent to leave academia. A one-factor CFA for the 5-item intent to leave academia scale indicated acceptable fit, with $\chi^2(5, N = 1407) = 33.52, p_{bs} < .001, CFI = .99, TLI = .98,$ and SRMR = .01, RMSA [90% CI] = .06 [.04, .09], and SRMR = .01. Standardized loadings ranged from .62 to .89. Estimated coefficient alpha was .87, 95% CI [.86, .88].

Final Structural Model

The model in Figure 12 hypothesizes that the work environment triggers emotional exhaustion, thereby influencing faculty job satisfaction, commitment, and intent to leave. Fit

indices for the hypothesized model were reasonable: $\chi^2(2654, N = 1101) = 8410.53, p_{bs} < .001$, CFI = .91, TLI = .91, SRMR = .08, RMSEA [90% CI] = .04 [.04, .05].

In SEM, it is common for complex models to not adequately fit the data (Kline, 1998; Loehlin, 2004). Thus, the model was modified by removing or adding paths to create the best fitting model that is supported by theory. Here, paths that greatly reduced the chi-square value (i.e. modification index greater than 100) were added. A modification index of greater than 100 provides a substantial drop in model fit chi-square for fixing or freeing parameters. The decision to add parameter estimations was guided by theoretical claims of Weiss (1997) that there may be additional linkages not portrayed in the initial publication of AET. In the interest of parsimony, non-significant correlation parameter estimates were constrained to zero, whereas non-significant structural path loadings were removed and the model was re-estimated.

The fit indices for the re-estimated model showed substantial improvement:

$\chi^2(2646, N = 1101) = 6803.70, p_{bs} < .001$, CFI = .94, TLI = .93, SRMR = .05,

RMSEA [90% CI] = .04 [.04, .04]. The final fitted model is presented in Figure 13. Here, standardized estimates for each pathway are followed by confidence intervals based on 1000 bootstraps. Each standardized estimate represents the amount of change in the outcome as a function of a single standard deviation unit change in the predictor variable, holding all other variables constant. As such, standardized estimates also indicate relative strength of associations across variables that are measured on different scales.

Hypothesis 1 stated that when faculty report more job design resources (1a) and more organizational support (1b), they may be less likely to experience emotional exhaustion. This hypothesis was partially supported. Although an examination of the structural equation model results demonstrated decreased emotional exhaustion for faculty who reported more autonomy

($b = -.20^*$), task identity ($b = -.22^*$), task significance ($b = -.12^*$), and organizational support ($b = -.25^*$), emotional exhaustion increased for faculty who reported more task variety ($b = .11^*$) and skill variety ($b = .08^*$). The standardized parameter estimate for the direct effect of feedback on emotional exhaustion was not significant in the initial model ($b = -.01$). Hence, the path was removed in the final fitted model.

Hypothesis 2 stated that when faculty report more job design resources (2a) and more organizational support (2b), they may be more likely to report job satisfaction. This hypothesis was partially supported. Standardized parameter estimates for autonomy and organizational support were significant and positive ($b = .19^*$ and $b = .18^*$). In comparison, the standardized parameter estimate for task variety was significant and negative ($b = -.06^*$). The expected paths for task identity ($b = -.02$), task significance ($b = .00$), skill variety ($b = -.02$), and feedback ($b = .03$) were not significant in the initial model and were removed in the final fitted model.

Hypothesis 3 stated that faculty who report more communication openness (3a) and general health (3b) will report less emotional exhaustion. This hypothesis was supported. Standardized parameter estimates indicate that more communication openness predicted less emotional exhaustion ($b = -.15^*$), and more general health concerns predicted more emotional exhaustion ($b = .19^*$).

Overall, results indicate that faculty who reported more autonomy, task identity, task significance, organizational support, communication openness and general health experienced less emotional exhaustion. In comparison, faculty who reported more task variety and skill variety experienced more emotional exhaustion. In total, those predictors explained about 52% of the variance in emotional exhaustion.

To understand the link between features of the work environment and work events, Hypothesis 4 predicted that faculty work environment features will be associated with work events. It was hypothesized that general health will be negatively associated with job design features (4a) and organizational support (4c), whereas communication openness will be positively associated with job design features (4b) and organizational support (4d). Here, correlation coefficients were estimated to assess Hypothesis 4. Results show that the estimated correlations for all job design features, organizational support, general health, and communication openness were significant except for skill variety. As a result, the correlation coefficients were set to zero and the model was re-estimated (see Table 3).

For example, general health correlated negatively with autonomy ($r = -.17$, $cov = -.12$, 95% CI [-.17, -.07]), task identity ($r = -.18$, $cov = -.14$, 95% CI [-.20, -.09]), task significance ($r = -.12$, $cov = -.08$, 95% CI [-.12, -.03]), task variety ($r = -.10$, $cov = -.07$, 95% CI [-.10, -.03]), feedback ($r = -.14$, $cov = -.10$, 95% CI [-.15, -.05]), and organizational support ($r = -.18$, $cov = -.25$, 95% CI [-.35, -.17]). Communication openness correlated positively with autonomy ($r = .39$, $cov = .25$, 95% CI [.20, .30]), task identity ($r = .35$, $cov = .30$, 95% CI [.21, .31]), task significance ($r = .27$, $cov = .16$, 95% CI [.11, .21]), task variety ($r = .14$, $cov = .09$, 95% CI [.05, .13]), feedback ($r = .40$, $cov = .27$, 95% CI [.22, .33]), and organizational support ($r = .70$, $cov = .92$, 95% CI [.82, .17]). Based on these results, Hypotheses 4a and 4b are partially supported, whereas Hypotheses 4c and 4d are fully supported.

Last, to gain a holistic understanding of the connection between negative affect, work attitudes and behaviors, the hypothesized model (see Figure 12) proposed a relationship between emotional exhaustion (negative affect), job satisfaction (work attitude), commitment (affect driven behavior), and intent to leave academia (judgement driven behavior). Specifically, the

model hypothesized that emotional exhaustion will impact commitment (Hypothesis 5) and job satisfaction (Hypothesis 6). Commitment is then expected to impact job satisfaction (Hypothesis 7), which, in turn is expected to impact intent to leave academia (Hypothesis 8). Examination of estimated parameters in the model revealed all to be statistically significant, thereby supporting the hypotheses.

Consistent with Hypothesis 5, commitment was predicted by emotional exhaustion ($b = -.20^*$). Modification indexes further indicated direct effects of organizational support and communication openness on commitment. The standardized parameter estimates were $b = .37^*$ and $b = .30^*$, respectively. Together, emotional exhaustion, organizational support, and communication openness explained 56% of the variance in commitment.

Similarly, Hypotheses 6 and 7 were also supported. Standardized parameter estimates indicate that more emotional exhaustion predicts less job satisfaction ($b = -.29^*$), and more commitment predicted more job satisfaction ($b = .25^*$). In terms of proportion of variance explained, results show that emotional exhaustion, autonomy, task variety, organizational support, and commitment together explained 51% of the variance in job satisfaction.

Finally, Hypothesis 8 was supported. Standardized parameter estimates indicate that more job satisfaction predicts less intent to leave academia ($b = -.29^*$). Based on modification indexes, a direct path from emotional exhaustion to intent to leave academia was estimated ($b = .41^*$); i.e., more emotional exhaustion predicted more intent to leave academia. Emotional exhaustion and job satisfaction explained 29% of the variance in intent to leave academia.

Table 3
Correlations with Descriptive Statistics for the Variables of Interest

	1	2	3	4	5	6	7	8	9	10	11	12	13
1.AUTO	(.93)												
2. TI	.34*	(.90)											
3. TS	.23*	.27*	(.88)										
4. TV	.32*	.00	.25*	(.94)									
5. SV	.16*	.00	.25*	.50*	(.92)								
6. FBCK	.29*	.41*	.34*	.13*	.11*	(.88)							
7. OS	.43*	.36*	.27*	.16*	.00	.45*	(.97)						
8.COM	.39*	.35*	.27*	.14*	.00	.40*	.70*	(.87)					
9.HEALTH	-.17*	-.18*	-.12*	-.10*	.00	-.14*	-.18*	-.17*	-				
10. EE	-.45*	-.50*	-.30*	-.02	.07	-.36*	-.56*	-.55*	.33*	(.92)			
11. CMT	.36*	.34*	.24*	.10*	-.01	.36*	.69*	.66*	-.18*	-.56*	(.90)		
12. JIG	.46*	.36*	.22*	.06	-.03	.32*	.58*	.51*	-.20*	-.61*	.60*	(.91)	
13. INT	-.27*	-.27*	-.17*	-.02	.04	-.21*	-.34*	-.31*	.17*	.52*	-.34*	-.44*	(.87)
N	1441	1443	1443	1441	1430	1431	1436	1434	1439	1444	1431	1440	1430
Mean	4.36	3.06	3.67	4.29	4.48	3.73	4.33	3.26	2.24	3.32	3.46	2.61	2.10
SD	.77	1.08	.71	.74	.54	.68	1.38	.86	.99	1.29	.86	.71	1.01

Note. Coefficient alphas on the diagonal. AUTO = Autonomy; TI = Task Identity; TS = Task Significance; TV = Task Variety; SV = Skill Variety; FBCK = Feedback; OS = Organizational Support; COM = Communication Openness; HEALTH= General Health (Complains); EE = Emotional Exhaustion; CMT = Commitment; JIG = Job Satisfaction; INT = Intent to Leave Academia; SD = Standard Deviation; * indicates statistical significance based on $\alpha = .05$

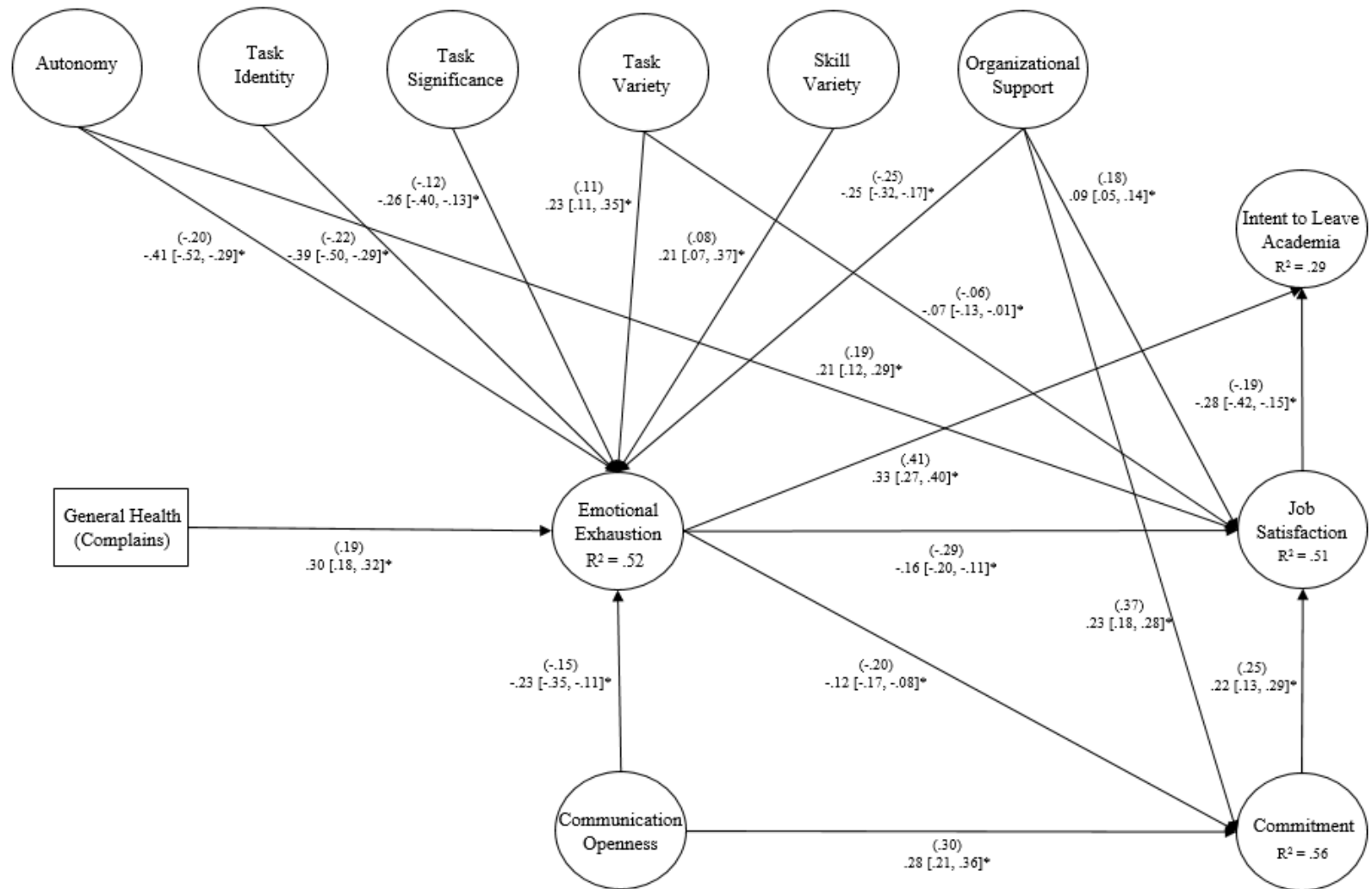


Figure 13. Final Faculty Work Motivation Model.

Note. Standardized estimates are in parentheses followed by unstandardized estimates and bias-corrected CIs in brackets. All estimates based on 1,000 bootstrap samples. Model $\chi^2(2646, N = 1101) = 6803.70, p_{bs} < .001, CFI = .94, TLI = .93, SRMR = .05, RMSEA = .04$; * indicates statistical significance based on 95% ($\alpha = .05$).

DISCUSSION

The changing nature of work and the economy have put pressure on organizations to improve turnover by designing better ways to motivate their workforce. An increased number of internal and external pressures on higher education have triggered changes in faculty work, and prompted some faculty to consider leaving their universities. A main reason for this may be that approximately 40% of university faculty report trouble balancing teaching, research, and service (The Collaborative on Academic Careers in Higher Education, 2016; 2017). The situation is expensive as it cost the University of Wisconsin a 40% increase in turnover and an estimated \$24 million on retention interventions (Brown, 2016). In the meantime, current faculty work motivation research offers few solutions as it is scattered and at an impasse.

Although a great deal of higher education research on faculty work has been conducted, most of the research has lacked a theoretical basis. This has had a narrowing effect on the understanding of faculty work motivation. This study was devoted to the understanding of the numerous constructs on which faculty work motivation is conceptualized and assessed. Based on insights gained from synthesizing the literature, a new conceptual model of work motivation was proposed and empirically tested on a sample of university faculty working at U.S. doctoral granting institutions. According to the new model, university faculty responded to certain work environment features and work events by experiencing emotional exhaustion, which then led to diminished job satisfaction and commitment, and intent to stay. As expected, results supported the basic premise of the model. The following subsections will discuss the main findings and how they contribute to the literature on faculty work motivation. In addition, theoretical implications and additional directions for future research and policy are presented.

Effects of Work Environment Features and Work Events

Consistent with AET and COR, findings support the notion that faculty work in an increasingly complex work environment. Faculty who received support from their department, had autonomy in structuring their daily tasks, viewed their job as important, completed their tasks from the beginning to the end, experienced less skill and task variety, and were in good health experienced less emotional exhaustion. Results regarding the direction of the hypothesized effects were not entirely as expected because an enriching work environment was not necessarily perceived as entailing more job design features. That is, faculty who reported the presence of certain job design characteristics (task variety and skill variety) reported more emotional exhaustion. This finding suggests that faculty who were asked to do too much or perform tasks that required a diverse skill set, reported feeling exhausted.

Another important result is the finding that the presence of work events is associated with the exposure to certain work environment features. For example, faculty who had autonomy in structuring their daily tasks, viewed their job as important, completed their tasks from the beginning to the end, experienced less task variety, and viewed their job as providing feedback on their performance felt supported and understood by others. Hypotheses pertaining to the effects of the work environment features (H1, H2, and H4) were partially supported because not all features of the work environment seemed to play an important role. As pointed out by previous meta-analytic research (Humphrey et al., 2007; Grant & Parker, 2009) certain aspects of the faculty work environment may be more likely to trigger affective experiences and coexist with work events, such as communication openness and health. As such, this study contributes to the literature by suggesting that work environment features may be better explained by COR.

According to COR, when confronted with increased expectations, individuals leverage available resources from the environment. In other words, when faculty experience negative affect they employed social resources (organizational support or communication openness) and call on other resources available to them (e.g., autonomy). At the same time, when they were challenged with increased expectations (e.g., skill variety), they may not have had an opportunity to acquire relevant social resources. At this stage, communication openness appeared as unrelated to skill variety. For example, faculty who are having a hard time balancing teaching, research, and service may experience burnout because they may simply not have time or opportunity to establish relevant institutional relationships.

Furthermore, this study illustrates that the relationship between work environment features, work events, and negative affect is more complex than previously understood. Contrary to previous research showing that faculty are likely to experience negative affect when there is an increase in job demand without any corresponding increase in job resources (Barkhuizen et al., 2013), this study shows that the first piece to understand is work environment features. Specifically, faculty who use several complex or high-level skills (skill variety) experience more task variety, autonomy, and job importance (task significance), which in turn are associated with feeling supported and understood by others (organizational support). In other words, the relationship is not just due to simple direct effects. Given the complex nature of faculty work, these findings suggest that faculty who use several complex or high-level skills to work on projects that have a large impact in the broader scheme of things will experience ownership and decision autonomy on how to do the work. So, as projects increase in complexity (i.e., increased task and skill variety demands alongside diminished autonomy, task identity and significance)

faculty are more vulnerable to emotional exhaustion if they must gain or acquire other resources (organizational support, communication openness, and health).

Negative Affect as a Key Explanatory Mechanism

This study contributes to the literature on negative affect by demonstrating that prolonged time and intensity of negative affect experiences, such as emotional exhaustion, is an important contributor to faculty job satisfaction, commitment, and intent to leave. In line with AET, this study shows that emotional exhaustion explains the relationship between features of the work environment, job satisfaction, and commitment. Whereas past educational research has shown that perceptions of autonomy have a direct influence on job satisfaction and commitment (Daly & Dee, 2007), this study showed that autonomy, task variety, and organizational support can have direct and indirect effects on faculty job satisfaction via emotional exhaustion.

Furthermore, this study makes an important contribution to the literature by considering the role of affect in addition to cognitive and environmental influences. Although not initially hypothesized, this study demonstrates that while holding emotional exhaustion (affective aspect) constant, organizational support and communication openness (environmental aspects) have a direct effect on commitment (cognitive aspect). This finding is in line with previous research suggesting that support and open social exchanges are key determinants of faculty commitment (Lawrence et al., 2012). The standardized direct effect of organizational support on commitment is about two times that of emotional exhaustion suggesting that organizational support has a greater influence than initially hypothesized by AET. Hence, this study contributes to the literature by showing that a complex interplay of social support in the form of communication openness, organizational support, and emotional exhaustion results in commitment.

Given that faculty are expected to fulfill a plethora of roles with limited resources (Barkhuizen et al., 2013), it is not unusual to experience emotional exhaustion, especially when resources are scarce. To mitigate the effects of emotional exhaustion, faculty employ available resources from the environment. While there have been calls for policy revisions on the triad of faculty work expectations (i.e., teaching, research, and service; Mamiseishvali & Rosser, 2011), faculty work motivation has remained largely overlooked and not well understood. From a scholarly standpoint, this is the only research effort that has examined the cumulative effects of faculty environment, cognition, and affect. This study extends higher education research and suggests that one way higher education institutions could promote a thriving work environment is to design institutional policies that enable departmental support in the form of teaching and research resources, opportunities for social interactions with colleagues, and setting clear expectations about how faculty could prioritize their work with respect to teaching, research, and service.

Theoretical Implications and Future Research

This study contributes to the literature on faculty work motivation in several important ways. First, this study offers a more comprehensive understanding of the forces that impact faculty work motivation. Because past research has fallen short in developing and testing theories that could explain faculty work motivation or has focused on cognitive and environmental factors in isolation, the nature of the relationship between faculty negative affect, cognitions, and work environment remains unclear. Drawing from AET and COR, the current study provides a more comprehensive understanding of the relationship between different features of the work environment (e.g., autonomy, task identity, task significance, task variety, skill verity, organizational support), work events (e.g., communication openness and general

health), and negative affect. Specifically, this study showed that different aspects of the work environment and work events contribute to faculty work motivation in distinct ways. For example, aspects of the work environment and work events are likely to influence emotional exhaustion. Although feedback is not likely to contribute to emotional exhaustion, having more feedback is associated with other features of the work environment, supporting COR's assumption that having one resource could aid the acquisition of other resources. This research could be further enhanced to yield even more insightful studies by developing a conceptual framework that explains the relative importance of different work environment features and work events for negative affect. For example, recent advances in text analytics may enable researchers to easily apply qualitative methodologies, such as focus groups and content analysis techniques, to qualitative data to examine the implications of different work events (Duriau, Reger, & Pfarrer, 2007).

Second, this study also contributes to the literature on health and well-being. Consistent with previous research supporting the importance of exercise and mental health (Byrne & Byrne, 1993; Gauvin & Spense, 1996; Salmon, 2001; Stubbs et al., 2017), study findings indicate that a decrease of faculty overall health predicts long-term negative affect while holding features of the work environment and other work events constant. Although some researchers may question the validity of these findings due to method bias concerns (see discussion on limitations), behavioral genetics research provides support for the casual effect of health on affect. For example, Stubbe, de Moor, Boomsma and de Geus (2007) found a casual effect of exercise participation (an indicator of health) on long-term affect, while holding genetic and environmental influences constant.

Third, this study offers a critical step toward a holistic understanding of faculty work motivation. An important strength of this study is the large nationally representative sample of professors as defined by the Carnegie Classifications (2010). In contrast to previous research based on secondary data analyses from faculty surveys by The Higher Education Research Institute (Ryan, Healy & Sullivan, 2012) or a small sample of randomly selected universities (Daly & Dee, 2006), the representativeness of this sample provides confidence in the findings. Building on these insights, future research could adopt longitudinal research designs that examine how the interplay between aspects of cognition, environment, and affect unfolds over time. Although different types of experience sampling methodology could be used to develop theoretical ideas that pertain to short episodic forms of affect (Gabriel et al., 2018), the development of theoretical ideas that pertain to long-term forms of affect (e.g., emotional exhaustion) may be more fruitful. Perhaps to make real progress, future research needs to focus on developing new theoretical ideas that link short episodic forms of affect to long-term forms of affect and other work motivation constructs.

Taken together, research on faculty work motivation is still in its infancy. Despite the wealth of research on work motivation, some research questions remain unanswered for faculty work motivation. For example, some questions that should be addressed are: What forms of short-term episodic affect relate to long-term affect? Within which timeframe would short-term episodic affect lead to long-term affect? What cognitive and environmental factors may explain fluctuations of affect constructs?

Higher Education Policy Recommendations

Results of the current research may have implications for both institutional leaders and faculty. In view of the strong support for features of the work environment and work events

affecting long-term negative affect, commitment and intent to leave, institutional leaders could consider investing in well-being resources. Some of these enhancements could include meditation rooms, faculty-only exercise gyms, diversity of reasonably-priced healthy food options, and/or adoption of health-care programs that provide incentives for meeting certain fitness goals. Because enriching one resource may provide opportunities for enrichment of other resources, this means that faculty who have the opportunity to attend faculty-only exercise gyms on a regular basis, may also experience greater opportunities for communication with colleagues from the university. Over time, faculty would experience less emotional exhaustion and greater commitment to the university.

The finding that faculty work motivation research is still in its infancy suggests that universities may benefit from frequent review of their existing engagement policies in order to benchmark for best practices. For example, human resources programs and training could be designed or redesigned with the goal of reducing emotional exhaustion and in the long term, intent to leave academia. In the context of training, new faculty could be provided with more institutional support, in the form of formalized peer-mentoring and new hire orientation programs promoting a greater understanding of the campus community and ways to contribute to a healthy-campus climate. In terms of communication openness, clear expectations of valid performance reviews for teaching, research, and service should be laid out.

Unfortunately, there is evidence that communication openness is not part of performance reviews for faculty teaching and research. For example, Stroebe (2016) points out that teaching evaluations encourage bad teaching. This is clearly the opposite of what valid teaching evaluations should encourage. Doing a simple web search reveals a plethora of websites and social media discussions providing suggestions for improving teaching evaluations such as

baking cookies or brownies for students, giving students your cell number, giving an easy assignment right before the evaluations, letting students retake exams like it is the DMV, et cetera. In terms of research performance, the primary reliance on recent citations and journal impact factors when making decisions about tenure and promotion has led to research that pursues trendy and mainstream lines of inquiry instead of pursuing original research ideas (Hoffman, 2007; McKiernan, Schimanski, Muñoz, Matthias, Niles, & Alperin, 2019). To put this in context, consider two theories that were not trendy or mainstream for the time that they were developed: Baye's Theorem and the Theory of Relativity. If the research of the developers of these two theories was evaluated in the current way, there is a good chance they would not have pursued these ideas and subsequently Baye's Theorem and the Theory of Relativity would not exist today.

Faculty work is complex, and it is acknowledged that faculty performance reviews are equally difficult and complex. However, the current methods of evaluating faculty work do not appear to be valid for evaluating teaching and research. In fact, not only do current teaching evaluations appear to not evaluate teaching, but they may actually encourage the opposite or irrelevant behavior. In addition, current research evaluations may be detrimental to a faculty member's career and to the corresponding discipline. Even so, the use of the current evaluation methods is an indication of a lack of communication openness.

One challenge institutional leaders may face in implementing new policies is the belief that such policies are expensive with no clear impact on faculty productivity. For institutional leaders who may be hesitant to consider a policy change, this study shows that limited resources combined with increased expectations influence faculty affect, and in the long-term their intent to leave the university. For those seeking guidance in how to implement new policies, this study

suggests that feedback from various sources (e.g., students, faculty, and deans) could be captured and strategically used to allocate resources to colleges or departments in most need. It is acknowledged that running a university is expensive, but it makes little sense that faculty turnover is a part of that expense. Policies aimed at reducing turnover may, ultimately, involve as much financial cost as turnover. However, if effective, these policies would reduce the time and information costs associated with turnover and improve the health and productivity of faculty overall. Taken together, these recommendations offer several approaches or practices for fostering a thriving campus climate.

Limitations

Like any study, the present study has some limitations. According to Weiss and Cropanzano (1996) some features of the work environment have an indirect effect on emotional experiences via work events. Although the present study found support for communication openness and general health as types of affective work events, Ashton-James and Ashkanasy (2005) suggest that events external to the organization that have an influence on organizational, social, political, legal, and economic functioning could also have a direct effect on individual's emotional experiences. Thus, future research could also consider both internal and external work events when examining faculty affective experiences.

In terms of measurement methods, the study relied only on questionnaires and as such could have been impacted by method bias. Method bias is a term used to describe research findings that are negatively impacted because measures of the variables (or constructs) of interest are all collected in the same manner (Podsakoff, MacKenzie, & Podsakoff, 2012). For example, collecting emotional exhaustion and organizational support data through self-reported questionnaires could result in method bias if the data collection interferes with or impacts the

consistency and/or accuracy of how emotional exhaustion and organizational support are measured. This in turn could have a negative impact on results that involve emotional exhaustion and organizational support. Again, it should be noted that method bias is only a concern if it has a negative impact on results. In light of the large representative sample and randomized sampling method, which supports the validity of the conclusions, it is reasonable to assume that sharing these findings with the scientific community will encourage the start of an active dialogue and an exchange of ideas for best practices.

CONCLUSION

By providing some perspectives for the decline in work motivation theory development, this study highlights that in order to resolve the impasse in work motivation theory, it is essential to consider a systematic approach to synthesis that encourages researchers to move toward theory building. Therefore, a new review approach was proposed, the 3D method. Rooted in the definition of work motivation and robust empirical findings, the 3D method proposed three dimensions (i.e., cognition, environment, and affect) to synthesize the existing body of work motivation theories. At the present state of knowledge, it would be overly simple to suggest that the 3D method can provide a complete solution to the impasse in work motivation theory. However, use of the method does provide insight into some areas in need of future theory development. For example, there is little research that explores the relationship between affect, cognition, and the environment.

This study highlights that the work motivation literature has reached an impasse, and subsequently the faculty work motivation literature is also at an impasse. As a result, theories from the impasses fall short in helping to understand the current state of faculty work motivation. Although higher education research has demonstrated the centrality of faculty work to the

prosperity of academic institutions, the topic of faculty work motivation remains largely overlooked or misunderstood. Using the 3D method, this study addresses this issue in two steps, initially by providing a thorough review and synthesis of the faculty work motivation literature and subsequently through a theory-driven examination of faculty cognitions, perceptions of the work environment, and affect. Findings reveal that choices about theoretical concepts, criterion domains, measurement perspectives, methodological approaches, and types of data will shape the future of work motivation research. A more holistic understanding of the faculty workforce, in turn, will allow university administrators to create programs for long-term growth and prosperity of their academic institutions. Insights from this study can be used to advance scientific research on faculty work motivation and inspire the generation of new ideas that can be applied in guiding motivation in the new work era.

Finally, future research and practice recommendations emphasize that there is a clear need for more research on the cumulative and interacting effects of cognition, environment, and affect. For example, future research could enable the accumulation of knowledge by designing methodologically sophisticated studies that consider aspects of time, differences in conceptualization and measurement of affect, and invest in theory development. In conclusion, this study highlights that a greater understanding of faculty work motivation would ensure the prosperity of academic institutions and society as a whole. Unfortunately, previous research has paid little attention to the cumulative effect of aspects of cognition, environment, and affect, particularly as related to the work motivation of university faculty. The current study addressed this limitation by reviewing extant research and building a rich coherence in the field. The study indicates that higher education institutions would benefit from designing policies that foster a work environment that promotes mental and physical well-being.

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APPENDIX A

DESCRIPTION OF WORK MOTIVATION THEORIES INCLUDED IN THE THREE-DIMENSIONAL METHODOLOGY

Theoretical Framework	Brief Description
Maslow's Hierarchy of Needs (Maslow, 1943; 1954)	<p><i>Major Premise:</i> Cognitive Influences</p> <p><i>Minor Premise:</i> N/A</p> <p><i>Theoretical emphasis:</i> Needs</p> <p><i>Key Assumptions:</i> Maslow's Hierarchy of Needs is based on the notion that individuals hold a basic set of needs that influence work motivated behavior. According to this theory, needs are arranged in a sort of hierarchy of potency, which ranges from physiological, safety, belongingness, esteem to self-actualization needs. Once a lower level need is satisfied (i.e. physiological needs) an individual's work motivated behavior becomes driven by a higher-level need (i.e. safety needs).</p>
McClelland's Human Motivation Theory (McClelland, 1961)	<p><i>Major Premise:</i> Cognitive Influences</p> <p><i>Minor Premise:</i> N/A</p> <p><i>Theoretical emphasis:</i> Needs</p> <p><i>Key Assumptions:</i> McClelland's work builds upon Maslow's Hierarchy of Needs to suggest that individuals hold a basic set of needs that influence work motivated behavior. However, McClelland argues that work motivated behavior is influenced by the extent which each of the three basic needs (achievement, affiliation, and power) are satisfied (i.e., a hierarchy of needs is not assumed).</p>
Existence, Relatedness, and Growth Model (ERG; Alderfer, 1969; 1972)	<p><i>Major Premise:</i> Cognitive Influences</p> <p><i>Minor Premise:</i> N/A</p> <p><i>Theoretical emphasis:</i> Needs</p> <p><i>Key Assumptions:</i> Similarly to Maslow's Hierarchy of Needs, ERG suggests that individuals hold a basic set of needs that influence work motivated behavior. However, Alderfer argues that work motivated behavior is influenced by the extent which the three basic needs (existence, relatedness, and growth) are satisfied (i.e., a hierarchy of needs is not assumed).</p>

Appendix A (continued).

Intrinsic Motivation (Deci & Ryan, 1985)	<p><i>Major Premise:</i> Cognitive Influences</p> <p><i>Minor Premise:</i> N/A</p> <p><i>Theoretical emphasis:</i> Needs</p> <p><i>Key Assumptions:</i> Deci and Ryan introduce an additional set of needs and expand the concept of work motivation. In particular, they argue that work motivated behavior could be performed for its own sake because intrinsic needs, such as competence and self-determination, keep people involved in work motivated behavior. For instance, an individual who engages in in work related behaviors to feel competent and self-determining is intrinsically motivated.</p>
Theory X and Theory Y (McGregor, 1960)	<p><i>Major Premise:</i> Cognitive Influences</p> <p><i>Minor Premise:</i> N/A</p> <p><i>Theoretical emphasis:</i> Values</p> <p><i>Key Assumptions:</i> The main idea of these two theories is that individuals hold a basic set of assumptions that influence work motivated behavior. For instance, Theory X posits that managers believe that people are passive, lack ambition, dislike responsibility by nature. Thus, managers develop control strategies that can coerce employees to work. In contrast, Theory Y posits that managers believe that people have ambition and assume responsibility by nature. As a result, managers develop strategies that can help employees develop themselves.</p>
Herzberg's Motivator-Hygiene Theory (Herzberg, Mausner, & Snyderman, 1959; Herzberg, 1966)	<p><i>Major Premise:</i> Cognitive Influences</p> <p><i>Minor Premise:</i> Environmental Influences</p> <p><i>Theoretical emphasis:</i> Needs & Values</p> <p><i>Key Assumptions:</i> Herzberg's Motivator-Hygiene Theory recognizes the existence of two basic set of factors that motivate individuals at work. These the two factors (motivator and hygiene factors) consist of various degrees of needs and different elements of work experiences. According to Herzberg, motivators, such as need for achievement, or the perception of advancement opportunities, lead to job satisfaction, whereas hygiene factors, such as job security or salary perceptions, lead to job dissatisfaction.</p>

Appendix A (continued).

Achievement Motivation Theory
(Atkinson, 1958; 1964)

Major Premise: Cognitive Influences

Minor Premise: Environmental Influences

Theoretical emphasis: Needs, Values & Beliefs

Key Assumptions: This theory introduces the concept of achievement motivation, and implies the existence of needs and expectancy beliefs as determinants of motivations. In particular, it assumes that work motivated behavior is a product of three factors: need for achievement, the probability that one will be successful at the task, and the incentive value of success. For instance, a high level of achievement motivation to complete a given task would be expected when an individual has a high level of need for achievement, perceives the task as fairly challenging, and believes that accomplishing the task will result in feelings of accomplishment.

Valence-Instrumentality-
Expectancy Theory (VIE Theory:
Vroom, 1964)

Major Premise: Cognitive Influences

Minor Premise: Environmental Influences

Theoretical emphasis: Values & Beliefs

Key Assumptions: Vroom's Theory recognizes the existence of expectancy beliefs as determinants of motivations. In particular, it assumes that work motivated behavior is a product of three factors: preference for certain outcomes, the probability that performing the task will lead to attaining an outcome, and the expectation that one can attain the desired outcome. For instance, a high level of motivation to complete a given task would be expected when an individual believes that the behavior will lead to outcomes such as promotion opportunities, the achieved outcomes will be rewarded, and the individual values those rewards.

Appendix A (continued).

<p>Valence-Instrumentality-Expectancy Theory (VIE Theory; House, 1971; House & Mitchell, 1974)</p>	<p><i>Major Premise:</i> Cognitive Influences <i>Minor Premise:</i> Environmental Influences <i>Theoretical emphasis:</i> Values & Beliefs <i>Key Assumptions:</i> The model proposes a complex mathematical formula that accounts for the existence of intrinsic and extrinsic motivation. In particular, the theory suggest that perceived probabilities for various work outcomes are multiplied in the person's mind and the resulted product are compared. In general, this approach it states that work motivation depends on the extent to which an individual believes that accomplishing the task will result in feelings of accomplishment and person's expected value from achieving various extrinsic outcomes (i.e., pay or promotion opportunities).</p>
<p>Porter-Lawler Model (Porter & Lawler, 1968)</p>	<p><i>Major Premise:</i> Cognitive Influences <i>Minor Premise:</i> Environmental Influences <i>Theoretical emphasis:</i> Values, Beliefs & Attitudes <i>Key Assumptions:</i> Porter and Lawler build upon previous expectancy models to explore a complex interaction between expectancy beliefs, employee attitudes, as well as the outcomes of intrinsic and extrinsic motivation.</p>
<p>Self-Determination Theory (Ryan, Connell, & Deci, 1985)</p>	<p><i>Major Premise:</i> Cognitive Influences <i>Minor Premise:</i> Environmental Influences <i>Theoretical emphasis:</i> Needs, Values & Attitudes <i>Key Assumptions:</i> This theory builds on the notion of Intrinsic Motivation to suggest that work motivated behaviors can be characterized in terms of the degree to which they are autonomous or controlled. As a result, this theory suggests that there are three broad categories of motivation: 1) intrinsic motivation, which reflects autonomous behavior (having the experience of choice); 2) extrinsic motivation, which reflects controlled behavior (i.e. having external pressure to act in a certain way) and 3) amotivaiton, which reflects lack of any kind of behavioral intentions.</p>

Appendix A (continued).

Cognitive Evaluation Theory (CET; Deci & Porac, 1978; Deci & Ryan, 1985)	<p><i>Major Premise:</i> Cognitive Influences</p> <p><i>Minor Premise:</i> Environmental Influences</p> <p><i>Theoretical emphasis:</i> Needs, Values & Attitudes</p> <p><i>Key Assumptions:</i> CET builds upon conceptualizations of Intrinsic Motivation and the Self-Determination Theory to suggest that the presence of different types of reward perceptions influences the extent to which an individual engages in intrinsically motivated behavior. In particular, CET posits that if feedback perceptions are present (i.e. person perceives that she/he is doing well vs. poorly on a task), intrinsic motivation will increase, and the person will be continuously involved with the task. If control perceptions are present (i.e., person is doing a task for money vs. fun), then person's intrinsic motivation to do the task will decrease, and the person will withdraw.</p>
Theory of Intentional Behavior (Ryan, 1970)	<p><i>Major Premise:</i> Cognitive Influences</p> <p><i>Minor Premise:</i> Environmental Influences</p> <p><i>Theoretical emphasis:</i> Needs, Values, Beliefs, & Intentions</p> <p><i>Key Assumptions:</i> The Theory of Intentional Behavior expands on the notion of expectancy theories to suggest that intentions are responsible for work motivated behavior. In particular, the theory proposes that needs influence behavior through their effect on past experiences, beliefs and the appropriateness of the act in a given situation.</p>
Theory of Reasoned Action (Fishbein & Ajzen, 1975)	<p><i>Major Premise:</i> Cognitive Influences</p> <p><i>Minor Premise:</i> Environmental Influences</p> <p><i>Theoretical emphasis:</i> Values, Beliefs, Attitudes & Intentions</p> <p><i>Key Assumptions:</i> According to the Theory of Reason Action, work motivated behavior is driven by individual's belief and attitudes. In particular, the authors argue that work motivated behavior depends on individual's intention to act, which in turn is influenced by social norms about the act, attitudes toward the task, values, and beliefs about the task.</p>

Appendix A (continued).

<p>Theory of Planned Behavior (Ajzen, 1991; Ajzen & Madden, 1986)</p>	<p><i>Major Premise:</i> Cognitive Influences <i>Minor Premise:</i> Environmental Influences <i>Theoretical emphasis:</i> Values, Beliefs, Attitudes & Intentions <i>Key Assumptions:</i> Ajzen and colleagues expand the Theory of Reason Action to account for perceptions of behavioral control. In particular, the authors state that individual's intention to act are driven by attitudes toward the act itself, social norms about the act, attitudes toward the task, values, and beliefs about the task.</p>
<p>Goal-setting theory (Locke & Latham, 1990)</p>	<p><i>Major Premise:</i> Cognitive Influences <i>Minor Premise:</i> Environmental Influences <i>Theoretical emphasis:</i> Needs, Values, Beliefs, Attitudes & Intentions <i>Key Assumptions:</i> Goal-setting theory builds upon expectancy theories and equity theory to suggest that both intentions and goals are determinants of work motivated behavior. In particular, the theory states that difficult and specific goal will lead to higher levels of work performance than simple and general goals under the condition that the individual accepts those goals.</p>
<p>Job Characteristics Model (Hackman & Oldham, 1980)</p>	<p><i>Major Premise:</i> Environmental Influences <i>Minor Premise:</i> Cognitive Influences <i>Theoretical emphasis:</i> Work Context & Values <i>Key Assumptions:</i> The Job Characteristics Model considers the role of how jobs are designed and the experience of critical psychological states. In particular, the model suggest that there is a particular set of core job characteristics that can be used to describe every job. These core job characteristics influence work motivated behavior through individual's experience of meaningfulness of the work, experienced responsibility for the outcomes of the work, and knowledge of the actual results of the work activates.</p>

Appendix A (continued).

Equity theory (Adams, 1963; Carell & Dittrich, 1978)	<p><i>Major Premise:</i> Environmental Influences</p> <p><i>Minor Premise:</i> Cognitive Influences</p> <p><i>Theoretical emphasis:</i> Work Context, Values & Beliefs</p> <p><i>Key Assumptions:</i> According to Equity Theory, people, develop beliefs about what constitutes an equitable return for their contributions, which in turn impact their motivation to act. In particular, work motivated behavior is influenced by the extent to which individuals compare the rations of their own perceived work outcomes (advancement opportunities) to their own perceived inputs (effort) to the corresponding rations some else's ratios (a co-worker).</p>
Fairness Theory (Folger & Cropanzano, 1998; 2001)	<p><i>Major Premise:</i> Environmental Influences</p> <p><i>Minor Premise:</i> Cognitive Influences</p> <p><i>Theoretical emphasis:</i> Work Context, Values & Beliefs</p> <p><i>Key Assumptions:</i> Fairness Theory considers the role of social injustice when forming perceptions of the work environment. In particular, the theory posits that three judgments determine the fairness of a given situation: 1) the negativity of the situation; b) individual's actions; and c) the consideration of would, could, and should have taken place. In other words, perceptions of the work environment depend on the extent to which individuals perceive a discrepancy between perceptions of the actual event and an alternative outcomes of the situation.</p>
Optimum Arousal Approach (Hebb, 1955)	<p><i>Major Premise:</i> Affective Influences</p> <p><i>Minor Premise:</i> Cognitive Influences</p> <p><i>Theoretical emphasis:</i> Physiological arousal</p> <p><i>Key Assumptions:</i> According to this approach, individuals are motivated by an optimum level of physiological arousal. In particular, an individual who experiences lower levels of arousals than he/she would prefer will be motivated to behave in a way that will increase it. For instance, if an individual perceives his/her task as boring, he/she will seek out additional tasks that are more demanding.</p>

Appendix A (continued).

Cognition Arousal Theory (Schacter & Singer, 1962)	<p><i>Major Premise:</i> Affective Influences</p> <p><i>Minor Premise:</i> Cognitive Influences</p> <p><i>Theoretical emphasis:</i> Physiological arousal, Emotions & Beliefs</p> <p><i>Key Assumptions:</i> The Cognition Arousal Theory suggests that emotional states results from the interaction of physiological arousal and individual's cognition. According to this theory, individuals experience emotions such as happiness, ear or shame when the individual is aroused by a given task (i.e. person experiences a neurological stimulation) and he/she makes the link between this arousal and the features of the task.</p>
Appraisal Theory (Lazarus, 1984; 1991)	<p><i>Major Premise:</i> Affective Influences</p> <p><i>Minor Premise:</i> Cognitive Influences</p> <p><i>Theoretical emphasis:</i> Physiological arousal, Emotions, Beliefs & Attitudes</p> <p><i>Key Assumptions:</i> Building upon Cognition Arousal Theory, Lazarus argues that the experience of emotional states necessitates an engagement in a conscious thought process (i.e. appraisal of the situation). For instance, a person would experience shame only if he/she recognizes that what he/she did was not socially appropriate.</p>
Primacy of Affect (Zajonc, 1980, 1984)	<p><i>Major Premise:</i> Affective Influences</p> <p><i>Minor Premise:</i> Cognitive Influences</p> <p><i>Theoretical emphasis:</i> Physiological arousal, Emotions, Beliefs & Attitudes</p> <p><i>Key Assumptions:</i> Building upon Cognition Arousal Theory, Zajonc states that the experience of emotional states can occur before, after, or simultaneously with cognitions. For instance, a person could experience shame with or without having inappropriate thoughts.</p>

Appendix A (continued).

Affect Infusion Model (Forgas, 1995)	<p><i>Major Premise:</i> Affective Influences</p> <p><i>Minor Premise:</i> Cognitive Influences</p> <p><i>Theoretical emphasis:</i> Emotions, Moods, Values & Attitudes</p> <p><i>Key Assumptions:</i> According to the Affect Infusion Model, affective experiences influence what people think (the content of their cognitions), and how people think (the cognitive activity). In particular, the model suggests that affective states influence person's judgment based on the extent to which this individual performs a task that requires active generation of new information. For instance, fear influences person's judgment based on the extent to which this individual performs a cognitively demanding task.</p>
Control Theory (Wiener, 1948; Klein, 1989)	<p><i>Major Premise:</i> Cognitive & Environmental Influences</p> <p><i>Minor Premise:</i> N/A</p> <p><i>Theoretical emphasis:</i> Needs, Values & Beliefs</p> <p><i>Key Assumptions:</i> Control Theory considers the role of self-regulation, in particular the effect of negative feedback loops on goal achievement. For instance, this theory states that an individual is in a constant state of engaging in comparisons between his achieved and desired stated. If there is a discrepancy, then the individual act to restore the balance.</p>
Social Information Processing Approach (Salancik & Pfeiffer, 1977; 1978)	<p><i>Major Premise:</i> Cognitive & Environmental Influences</p> <p><i>Minor Premise:</i> N/A</p> <p><i>Theoretical emphasis:</i> Values, Beliefs & Attitudes</p> <p><i>Key Assumptions:</i> This approach was developed to contrast the theoretical assumptions of need-based and expectancy based models to work motivation. In particular, this approach considers the role of socials cues in forming attitudes about work events. For instance, this approach states that individuals use social information, for instance what others think, to develop attitudes about the work environment.</p>

Appendix A (continued).

Self-regulation (Kanfer, 1970)	<p><i>Major Premise:</i> Cognitive & Environmental Influences</p> <p><i>Minor Premise:</i> N/A</p> <p><i>Theoretical emphasis:</i> Needs, Values, Beliefs, Attitudes & Intentions</p> <p><i>Key Assumptions:</i> According to the Self-regulation approach, work motivation originated within the individual. In particular, self-regulation is viewed as a process that involves planning goals, striving to meet those goals, revising them once achieved (or not), and paying attention to feedback.</p>
Social-cognitive theory (Bandura, 1986)	<p><i>Major Premise:</i> Cognitive & Environmental Influences</p> <p><i>Minor Premise:</i> N/A</p> <p><i>Theoretical emphasis:</i> Needs, Values, Beliefs, Attitudes & Intentions</p> <p><i>Key Assumptions:</i> Social cognitive theory places a central emphasis on human agency and environmental cues. In particular, this theory assumes a triadic reciprocal causation between individual's cognitions, behavior and environmental conditions. For instance, this theory states that individuals have some control over their actions, but at the same time, their environment sets limitations on their opportunities to act in a certain way.</p>
Affective Events Theory (Weiss & Cropanzano, 1996)	<p><i>Major Premise:</i> Affective, Cognitive, & Environmental Influences</p> <p><i>Minor Premise:</i> N/A</p> <p><i>Theoretical emphasis:</i> Emotions, Moods, Needs, Values, Attitudes & Work Context</p> <p><i>Key Assumptions:</i> According to the Affective Events Theory, work attitudes are determined by affective reactions, work experiences, and individual's trait dispositions.</p>

Note. **Needs** = A force provoked by internal processes in the brain region that compels a person to search for, or avoid certain things in order to reduce the force (Murray, 1938). *Example:* An individual might have a need for safety; **Values** = An enduring belief that a specific mode of conduct is personally and socially preferable to alternative modes (Rokeach, 1969). Objects, qualities, standards, or conditions that satisfy, or are perceived to satisfy needs (Kilman, 1981). *Example:* Being ambitious; **Beliefs** = A subjective probability judgment about the relationship between the object of the belief and some attribute (Fishbein & Ajzen, 1975). *Example:* A person might hold the belief that a supervisor is favoring another employee; **Attitudes** = A psychological tendency that implies an evaluation of the beliefs people hold about objects (Eagly & Chaiken, 1993). They could contain cognitive components, affective components and/or behavioral intentions (Olson & Zanna, 1993). *Example:* An employee may dislike his/her job, which is often referred as job satisfaction.

APPENDIX B

DESCRIPTION OF FACULTY WORK OUTCOMES

Criterion Domain	Sub-Category	Definition
1. Job Performance	A. Task Performance	Employee's proficiency in performing formally assigned activities (Borman & Motowidlo, 1993)
	Teaching	Quality of teaching courses (Lechuga & Lechuga, 2012)
	Research	Reading journals, attendance of conventions, symposia, workshops and special events, exchange of new information with colleagues, laboratory and fieldwork, library research and research publications are categorized as examples of research performance (Lechuga & Lechuga, 2012)
	Service	Service to one's discipline (i.e., manuscript reviews and association work), community service (outreach and public service), and institutional service (committee work and institutional governance involvement; Neumann & Terosky, 2007)
	B. Contextual Performance	Work activities that are not formally recognized as part of one's job but contribute to the organizational, social, and psychological context in which formally prescribed job behaviors occur (Borman & Motowidlo, 1993)
	OCB	Work activities that are not formally considered as teaching courses, engaging in institutional service activities, and research productivity
	CWB	Theft, poor attendance, tardiness, sabotage, sexual harassment, verbal and physical abuse (Sackett & DeVore, 2001)
2. Job Satisfaction		An emotional reaction to the job (Cranny et al., 1992; Locke, 1969; Spector, 1997).
3. Commitment		Adherence to work itself (work ethic commitment), one's career (occupational commitment), one's job (job commitment) and one's organization (organizational commitment (Murrow (1983, 1993)
4. Turnover		Actual turnover behavior (Hom & Griffeth, 1995) and intent to quit or stay (Smart, 1990).

Note. OCB = organizational citizenship behavior; CWB = counterproductive work behavior;

APPENDIX C

CODING SCHEME FOR CONCEPTUALIZING AND ASSESSING FACULTY WORK

MOTIVATION

Research Indicator	Coding Scheme
Criterion Domains	Task Performance (Teaching, Research, Service) Contextual Performance (OCBs, CWBs) Job Satisfaction Commitment Turnover
Research design	Descriptive Relational (Cross-sectional, Longitudinal) Experimental (Cross-sectional, Longitudinal)
Measurement methods	Survey Questionnaire Observations Interview
Types of data sources	Same-source (Self-report) Different-sources (i.e., Peer/Spousal, Supervisor, Subordinate).
Theoretical focus	Affect Cognition Environment

APPENDIX D

RESULTS IN TABLES

Table 1

Theoretical Approaches Used to Study Faculty Work Motivation

Theoretical Categorization	1987-1999		2000-2009		2010-2018		1987-2018	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Cognition	9	52.94	9	52.94	11	55.00	23	53.70
Environment	5	29.41	1	5.88	2	10.00	5	14.81
Affect	0	0.00	0	0.00	0	0.00	0	0.00
Atheoretical	3	17.65	7	41.18	7	35.00	14	31.48

Table 2

Criterion Domains in the Faculty Work Motivation Literature

Criterion Domain	1987-1999		2000-2009		2010-2018		1987-2018	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
1. Job Performance	7	43.75	4	16.67	14	66.67	25	40.98
A. Task Performance	7	100.00	4	100.00	9	64.29	20	80.00
Teaching	1	14.29	2	50.00	2	22.22	5	25.00
Research	4	57.14	2	50.00	4	44.44	10	50.00
Service	2	28.57	0	0.00	3	33.33	5	25.00
B. Contextual Performance	0	0.00	0	0.00	5	35.71	5	20.00
OCB	0	0.00	0	0.00	5	100.00	5	100.00
CWB	0	0.00	0	0.00	0	0.00	0	0.00
2. Job Satisfaction	4	25.00	10	41.67	6	28.57	20	32.79
3. Commitment	0	0.00	2	8.33	1	4.76	3	4.92
4. Turnover	5	31.25	8	33.33	0	0.00	13	21.31

Table 3

Research Designs Used to Study Faculty Work Motivation

Research Design	1987-1999		2000-2009		2010-2018		1987-2018	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Descriptive	1	10.00	2	12.50	5	27.78	8	18.18
Relational	9	90.00	14	87.50	13	72.22	36	81.82
Cross-Sectional	9	100.00	13	92.86	13	100.00	35	97.22
Longitudinal	0	0.00	1	0.00	0	0.00	1	2.78
Experimental	0	0.00	0	0.00	0	0.00	0	0.00

Table 4

Measurement Methods Used to Study Faculty Work Motivation

Types of Data	1987-1999		2000-2009		2010-2018		1987-2018	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Observation	0	0.00	0	0.00	0	0.00	0	0.00
Interview	2	22.22	2	11.76	5	18.52	9	16.98
Questionnaire	2	22.22	5	29.41	3	11.11	10	18.87
Survey	5	55.56	10	58.82	19	70.37	34	64.15

Table 5
Overview of the Responses to Faculty Work Motivation

Measurement Source	1987-1999		2000-2009		2010-2018		1987-2018	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Same Source (Self-Report)	10	100.00	16	100.00	18	90.00	44	95.65
Different-Sources	0	0.00	0	0.00	2	10.00	2	4.35

Table 6
Faculty Appointments by Employment Positions

Position	1987-1999		2000-2009		2010-2018		1987-2018	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Tenured	1	9.09	5	20.83	5	21.74	11	18.97
Tenure-Track	1	9.09	6	25.00	6	26.09	13	22.41
Non-Tenure Track	0	0.00	3	12.50	4	17.39	7	12.07
Unspecified	9	81.82	10	41.67	8	34.78	27	46.55

APPENDIX E

KEY METHODOLOGICAL COMPONENTS OF AET RESEARCH

Author	Theoretical Concept	Operational Definition	Research Design	Measurement Procedure	Types of data sources	Method of Analysis
Basch & Fisher (1998)	Emotions	Developed a new list of emotions based on Fisher's (1997) Job Emotion Scale (JES) and Shaver et al's (1987) list of prototypical emotion words	Cross-sectional	Respondents were asked to briefly describe a recent work event or situation that caused them to experience one of 10 emotions	Self-report	Qualitative data analysis
Beasley & Jason (2015)	P-E fit	Cable and DeRue (2002) measure of P-E fit	Cross-sectional	Respondents were asked to indicate the degree of fit in terms of values, demands, and needs	Self-report	Multilevel structural equation modeling (MSEM)
Carlson et al. (2011)	Positive mood	10 items from Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988)	Cross-sectional	Respondent were asked to indicate how they had felt at work during the past week	Self-report	SEM
Diefendorff, Richard & Yang (2008)	Negative emotions	A subset from the Job-related Affective Well-being Scale, or JAWS (Van Katwyk, Fox, Spector, & Kelloway, 2000)	Cross-sectional	Respondents were asked to indicate what they felt (in the past 30 days) just before using a particular emotion regulation strategy by choosing one or more emotions from a list of emotion adjectives	Self-report	Nonparametric statistics

Appendix E (continued).

Fisher (2002)	Affective reactions	Developed a new list of emotions based on Shaver et al's (1987) list of prototypical emotion words	Longitudinal (Experience sampling methodology (ESM))	Upon hearing an alarm, respondents reported the extent to which they were experiencing each of 16 feelings at the moment the alarm sounded	Self-report	HLM & SEM
Ge, Tian & Fu (2012)	Positive emotions	10 items from the Positive and Negative Affect Schedule (PANAS Short Form)	Cross-sectional	Respondents were asked to indicate their level of agreement with a list of positive emotions	Self-report	Regression Analysis
Judge, Scott, & Ilies (2006)	State hostility	Positive and Negative Affect Schedule—Expanded Form (PANAS-X; Watson & Clark, 1994)	Longitudinal (Interval-contingent experience-sampling methodology)	Respondents were asked to indicate to what extent they experience a list of states right now	Self-report	HLM
Lam & Chen (2012)	Negative emotions	Extracted a set of adjectives representing four dimensions of negative emotions from prior research (Daniels, 2000; Fisher, 2000), and developed a fifth dimension (hopelessness state) offered by Beck et al. (1974) and Snyder et al. (1991)	Longitudinal (Time-Lagged Design)	Respondent were asked to rate how they felt at work	Self-report	SEM path analysis

Appendix E (continued).

Matta et al. (2014)	Negative emotional reactions	Limited set from Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988)	Longitudinal (Experience sampling methodology (ESM))	Participants indicated the extent to which they felt each emotion in response to the significant work events	Self-report	Multilevel path analysis
Mignonac & Herrbach (2004)	Affective states	A set of items based on Daniel's (2000) Affective Well-Being Scale & the adjective list by Geneva Emotion Research Group (Scherer, 1988)	Cross-sectional	Respondents were asked to rate the frequency by which they had felt every emotion in the past week	Self-report	Regression Analysis
Nicholas (1993)	Mood	Mood induction procedure	Experimental			ANOVA
Ohly & Schmitt (2015)	Affective states	Items were selected from: Feldman, Barrett and Russell 1998; & the PANAS scale by Watson et al. (1988)	Longitudinal (Experience sampling methodology (ESM))	Participants rated the extent to which they had experienced these affective states during the hours just before filling out the questionnaire	Self-report	HLM
Rodell & Judge (2009)	Emotions	Three emotions were selected from the PANAS-X Scale	Longitudinal (Experience sampling methodology (ESM))	Respondents were asked to indicate to what extent they experience list of states right now	Self-report	HLM
Wegge et al. (2006)	Emotions	Job affect scale developed by Burke et al. (1989)	Cross-sectional	Respondents were asked to indicate how often they were a specific emotion during the previous week	Self-report	Multilevel linear modeling

Appendix E (continued).

Weiss, Nicholas & Daus (1999)	Mood	24-item checklist called the Current Mood Report (CMR) that was originally used by Larsen and Kasimatis (1990)	Longitudinal (Experience sampling methodology (ESM))	Respondents were asked to describe how they are "feeling right now" using a list of mood adjectives	Self-report	Regression Analysis & Spectral Analysis
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APPENDIX F

DEMOGRAPHIC INFORMATION

Question	Response options:
What best describes your job status?	(1) Distinguished Professor (2) Eminent Professor (3) Professor (4) Associate Professor (5) Assistant Professor (6) Adjunct Professor (7) Professor Emeritus (8) Lecturer (9) Other
What best described your position?	(1) Non-Tenure Track (2) Tenure Track (3) Tenured (4) Other
What is your Gender?	(1) Male (2) Female
What racial/ethnic group BEST describes you?	(1) African-American or Black (2) Asian or Pacific Islander (3) Caucasian or White (4) Latino or Hispanic (5) Native American (6) Other
What college are you in?	(1) Arts and Letters (2) Business (3) Education (4) Engineering (5) Health Sciences (6) Social Sciences (7) Life Sciences (8) Sciences (9) Other

APPENDIX G

JOB DESIGN FEATURES

Work Design Questionnaire (WDQ; Morgeson & Humphrey, 2006)

Participants use the following response scale:

- (1) Strongly Disagree
- (2) Disagree
- (3) Neutral
- (4) Agree
- (5) Strongly Agree

(Autonomy)

The job allows me to make decisions about what methods I use to complete my work.

The job gives me considerable opportunity for independence and freedom in how I do work

The job allows me to decide on my own how to go about doing my work.

(Task Variety)

The job involves a great deal of task variety.

The job involves doing a number of different things.

The job requires the performance of a wide range of tasks.

The job involves performing a variety of tasks.

(Task Significance)

The results of my work are likely to significantly affect the lives of other people.

The job itself is very significant and important in the broader scheme of things.

The job has a large impact on people outside the organization

The work performed on the job has a significant impact on people outside the organization.

(Task identity)

The job involves completing a piece of work that has an obvious beginning and end.

The job is arranged so that I can do an entire piece of work from beginning to end.

The job provides me the chance to completely finish the pieces of work I begin.

The job allows me to complete work I start.

(Feedback)

The work activities themselves provide direct and clear information about the effectiveness (e.g., quality and quantity) of my job performance.

The job itself provides feedback on my performance.

The job itself provides me with information about my performance.

(Skill Variety)

The job requires a variety of skills.

The job requires me to utilize a variety of different skills in order to complete the work

The job requires me to use a number of complex or high-level skills.

The job requires the use of a number of skills.

APPENDIX H

ORGANIZATIONAL SUPPORT

Perceived Organizational Support Scale (modified; Eisenberger et al., 1986)

Participants use the following response scale:

- (1) Strongly Disagree
- (2) Disagree
- (3) Somewhat Disagree
- (4) Neither Agree Nor Disagree
- (5) Somewhat Agree
- (6) Agree
- (7) Strongly Agree

The organization values my contribution to its well-being.

If the organization could hire someone to replace me at a lower salary it would do so.

The organization fails to appreciate any extra effort from me.

The organization strongly considers my goals and values.

The organization would ignore any complaint from me.

The organization disregards my best interests when it makes decisions that affect me.

Help is available from the organization when I have a problem.

The organization is willing to extend itself to help me perform my job to the best of my ability.

The organization really cares about my well-being.

Even if I did the best job possible, the organization would fail to notice.

The organization is willing to help me when I need a special favor.

The organization cares about my general satisfaction at work.

If given the opportunity, the organization would take advantage of me.

The organization shows very little concern for me.

The organization cares about my opinions.

The organization takes pride in my accomplishments at work.

The organization tries to make my job as interesting as possible.

APPENDIX I

COMMUNICATION OPENNESS

Communication Openness Scale (adapted; Daly & Dee, 2006)

Participants use the following response scale:

- (1) Strongly Disagree
- (2) Disagree
- (3) Neutral
- (4) Agree
- (5) Strongly Agree

It is easy to talk openly to all of my co-workers in this university.

Communication in this university is very open.

I find it enjoyable to talk to other co-workers in the university.

When people talk to each other in this university, there is a great deal of understanding.

It is easy to ask advice from any co-worker in this university.

APPENDIX J

GENERAL HEALTH

Short-Form Health Survey (SF-36; Ware & Sherbourne, 1992)

Participants use the following response scale:

- (1) Excellent
- (2) Very Good
- (3) Good
- (4) Fair
- (5) Poor
- (6) Don't know

Would you say your health in general is...

APPENDIX K

EMOTIONAL EXHAUSTION

Emotional Exhaustion Subscale (modified; Koeske & Koeske, 1989)

Participants use the following response scale:

- (1) Very Strongly Disagree
- (2) Strongly Disagree
- (3) Disagree
- (4) Neutral
- (5) Agree
- (6) Strongly Agree
- (7) Very Strongly Agree

I feel emotionally drained from my work.

I feel fatigued when I have to get up in the morning to face another day on the job.

Working with people all day is really a strain for me.

I feel "burned out" from my work.

I feel frustrated by my job.

I feel I'm working too hard on my job.

Working directly with people puts too much stress on me.

I feel like I'm at the end of my rope.

I feel used up at the end of the day.

APPENDIX L
COMMITMENT

Organizational Commitment Scale (adapted; Daly & Dee, 2006)

Participants use the following response scale:

- (1) Strongly Disagree
- (2) Disagree
- (3) Neutral
- (4) Agree
- (5) Strongly Agree

I speak highly of this university to my friends.

I am not dedicated to this university.

I am proud to tell others I am part of this university.

This university inspires the very best job performance in me.

This university is the best of all possible places to work.

I don't care about the fate of this university.

This university's values are not the same as mine.

APPENDIX M

JOB SATISFACTION

Job In General Scale (JIG; Ironson et al., 1989)

Participants indicate whether the words in the label column describe their work:

(0) No

(1) ?

(3) Yes

Pleasant

Bad

Ideal

Waste of Time

Good

Undesirable

Worthwhile

Worse than most

Acceptable

Superior

Better than most

Disagreeable

Makes me Content

Inadequate

Excellent

Rotten

Enjoyable

Poor

APPENDIX N

INTENT TO LEAVE ACADEMIA

Intent to Leave Academia Scale (Barnes et al., 1998)

Participants use the following response scale:

- (1) Very Unlikely
- (2) Unlikely
- (3) Neutral
- (4) Likely
- (5) Very Likely

Consider a permanent departure from academia.

Seek an administrative position outside academia within the next five years.

Consider another line of work.

Consider leaving the profession within five years.

Wish one had entered another profession.

APPENDIX O

LIST OF REMOVED ITEMS

Job In General Scale (JIG; Ironson et al., 1989)

Item	Status
Ideal	Removed
Waste of Time	Removed
Worthwhile	Removed
Acceptable	Removed
Superior	Removed
Better than most	Removed
Makes me Content	Removed
Excellent	Removed

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Old Dominion University, Norfolk, VA (August 2010 –present)

Ph.D. Candidate, Applied Experimental Psychology, GPA: 3.68 (*September 2013 – present*)

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University of Marburg, Marburg, Germany (September 2003 – May 2010)

M.S., Psychology, GPA: 4.0

Study Abroad Programs:

Erasmus Summer School Exchange Program, Madrid, Spain (July 2009)

Psychology of Entrepreneurship, GPA: 4.0

International Student Exchange Program (ISEP), Norfolk, VA (August 2007 – May 2008)

Graduate Exchange Student, GPA: 3.24

Peer-Reviewed Publications

Padilla, M. A., & Thompson, J. N. (in press, 2015). Burning out faculty at doctoral research universities. *Stress & Health*. doi: 10.1002/smi.2661.

Davis, D. D., Bryant, J. L., Zaharieva, J. N. (2012). Leadership relationships between center directors and university administrators in cooperative research centers: a multilevel analysis. In G. Bordman, D. Gray, & D. Rivers (Eds.), *Cooperative research centers and technical innovation: Government policies, industry strategies, and organizational dynamics*. New York: Springer Verlag.

Selected Conference Proceedings

Lopez, F. J., Thompson, J. N., Fleck, C. R., Steele, J. P., Bryant, S. E., Morgan, D. A., Chambers, R. J. (2017). *Talent management data integration: Are you really doing it?* A panel presented at the 2017 Annual Meeting of the Society for Industrial Organizational Psychology, Orlando, FL.

Thompson, J. N. & Padilla, M. A. (2016). *A three-dimensional method for analyzing work motivation theories: An early investigation*. A paper presented at the 2016 Annual Meeting of the Academy of Management, Anaheim, CA.

Padilla, M.A. & Thompson, J. N. (2016). *The influence of affective work experiences on faculty work outcomes*. A poster to be presented at the 2016 Annual Meeting of the Association for Psychological Sciences, Chicago, IL.

Arnold, P., Grant, M. R., Chappell, S. L. Nunnery, J. A., Zaharieva, J. N., Ahrenburg, B. C. (2015). *Revisioning students with disabilities in the mathematics classroom: Educators' shifting constructions through implementation of cooperative learning*. Symposium paper presented at the 2015 Annual Meeting of the American Educational Research Association, Philadelphia, PA.

Teaching Experience

Guest Lecturer (August 2014 – May 2016) / Old Dominion University, Department of Education

FOUN 813 (Advanced Program Evaluation in Education) and FOUN 612 (Applied Research in Education):
 Experimental Approaches to Program Evaluation & Quantitative Experimental Designs

Teaching Instructor (August 2010 –August 2012) / Old Dominion University, Department of Psychology

PSYC 303 (Introduction to Industrial/Organizational Psychology) and PSYC318 (Research Methods Lab)