DEVELOPING A MEASURE OF NEED TO MATTER

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ABSTRACT

In higher education research, staff is an overlooked group – especially staff that support academic areas of the university, such as advising, finance, IT, athletic academics, and libraries. Though institutions could not operate without these people, those individuals may feel like they do not matter to their work peers, department, institution, or profession. Mattering is feeling like you have significant existence in the world (Elliott, Kao, & Grant, 2004; Rosenberg & McCullough, 1981). Mattering is currently measured with self-report instruments that measure the perception of mattering. Knowing if staff feel like they matter is a critical measurement. It is only relevant if it is assumed that the degree to which an individual needs to feel they matter is similar for everyone.

The purpose of this study is to develop a measure of the degree to which an individual yearns to feel that they have a significant existence to another or a larger community. Further, this study examines the psychometric properties of the newly developed instrument and its relation to outcomes such as turnover, engagement, and morale. Pragmatically, the results may help university administrators make better decisions about implementing and focusing sometimes costly interventions.

This study was conducted in multiple steps. New items were first developed based upon guiding theory and existing measures of mattering. The items were then vetted by content experts and combined into a new scale. The new instrument was assessed for reliability and validity, and results were analyzed in relation to measures of employee turnover, engagement, and morale. Participants were mid-level university staff from a mid-western state university system. This band of participants includes a wide range of positions that have similar status, interact with similar groups, and are similarly compensated. The Need to Matter Scale was also

tested psychometrically. The *need to matter* is measurable; however, each environmental system level was measured with a different scale. Though in this study the NMS did not moderate mattering and workplace outcomes as expected, there are plenty of indicators that future research might uncover more of this complex phenomenon. Implications for theory, future research, and practice are also discussed.

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DEDICATION

I dedicate this dissertation to my Leah, Ben, and Luke. May you always wonder. May you

always work hard. May you find the good, be the good, make the good. Love you – xoxoxo.

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CHAPTER ONE: INTRODUCTION

A great deal of focus of higher education research and literature is aimed at addressing the needs and productivity of the lifeblood of these institutions: faculty teaching and research, student affairs, or the recruitment, persistence, and completion of undergraduate students. Very little attention is given to academic support staff (Tierney, 1988), the "unsung professionals of the academy" (Rosser, 2000, p. 5). These mid-level staff might have a title such as, associate, assistant, manager, director, advisor, specialist, or coordinator. University staff, and especially this segment of staff, are integral personnel that allow for the other core functions of this type of organization to operate. These staff buffer the technical core (Lynn, 2005; Thompson, 1967). The mid-level professional typically has a high level of commitment to their organizations, feel that training and professional development is important, and adhere to high standards of performance because it is a necessary requirement for the success of their organizations. Yet, they do not have an outspoken voice in administrative policy decisions, and rarely have input within formal governance structures (Austin, 1984; Glenny, 1972; Johnsrud, Heck, & Rosser, 2000; Moore & Twombly, 1990; Rosser, 2000). Being overlooked is an issue that is largely due to a combination of the history of higher education and current campus cultures and climates (Birnbaum, 1988; Twombly, 1990). It is vitally important to consider this group and the work they do, both in recognition and in the study of higher education in order to better cultivate healthy, sustainable university communities.

In any type of organization, people are believed to be motivated, productive, and satisfied if they feel they are paid attention to and valued – that they feel themselves and their work are significant – that they matter (Elliott, Kao, & Grant, 2004; France, 2011; Rosenberg & McCullough, 1981; Wagner & Harter, 2006). There are scads of best practices about how to

boost these positive work-related outcomes. Most of these best practices center around strong organizational culture – practices that demonstrate and desire that employees are their authentic selves, that they feel they have a say in organizational outcomes, that their contributions are acknowledged as valuable to the mission of the organization, and that efforts are recognized (Harter, Schmidt, Agrawal, & Plowman, 2016; Herzberg, 1971; Johnsrud, Heck, & Rosser; Millet, 2013; Rosser, 2007). These practices, however, tend to neglect the individual differences of employees. They are also faulty because they are based upon the reporting of one's perception – a widely varying and oft skewed by limitation, measurement. Research in this area has led to the development of measures related to the construct of mattering, which is argued to have implications for wellbeing, motivation, and morale (Baumeister & Leary, 1995; Elliott, 2009; Hagerty, Williams, Coyne, & Early, 1996; Maslow, 1943; Rayle, 2006b).

Mattering is a construct first discussed by Rosenberg and McCullough (1981). Mattering is the perception of feeling like one is of significant existence in the world (Elliott et al., 2004; Rosenberg & McCullough, 1981). World in this instance is discussed as being split into two forms – interpersonal, to another, or societal, to the larger community. Jung and Heppner (2017) argue that mattering, a distinct relatedness construct (France, 2011), provides a lens through which to better understand individuals' work experiences. It expounds upon Maslow's 1943 theory of human motivation and the need to belong by including notions of social support and interpersonal relationships (France, 2011).

Mattering is measured in a number of ways, but most commonly and with the most detail, it is divided it into four facets – awareness, importance, reliance, and ego-extension (Elliott et al., 2004; France, 2011; Rosenberg & McCullough, 1981). *Awareness* deals with recognition or acknowledgement – "we matter because other people acknowledge our existence" (France 2011,

p. 18). *Importance* considers the care, concern, and interest others have in and for our wellbeing. *Reliance* is simply the belief that others depend or rely on us. The *ego-extension* facet is about the feeling that we matter when others are empathetic or sympathetic toward or proud of us (France, 2009).

Mattering is associated with the concept of self. Elliott (2009), Flett (2018), and France (2011) best outlined how through two main paradigms. Through the first perspective, the feedback we get from others helps us to know if we matter or do not (Elliott, 2009). The other perspective deals with self as a compilation of various identities usually, but not always, associated with the roles one plays (Elliott, 2009). Mattering gives us insight into who we are as individuals in relation to our environment and those in it.

In addition to helping better understand who we are, mattering is also often related to wellbeing. Mattering is a relatedness construct, and it is well established that having constructive relationships is positively related to wellbeing (Deaton, 2008; Harter, Schmidt, & Keyes, 2003; Rath, Harter, & Harter, 2010; Taylor & Turner, 2001). Mattering is also associated with lower levels of depressive symptoms, a common measure used to discern wellbeing (Dixon & Robinson Kurpius, 2008; Flett, 2018; Rosenberg & McCullough, 1981; Taylor & Turner, 2001). High levels of mattering are associated with high wellbeing and a healthy self-concept.

Rosenberg and McCullough (1981) described mattering as a motivator. Feeling like one matters may lead one to act with positive, socially acceptable, and desired behaviors – such as engagement, innovation, and professional development and avoids negative, or socially unacceptable, behaviors – such as acting out, loafing, absenteeism, and leaving the environment. Thus, if university staff feel like they matter they might be more apt to behave in a certain positive way (e.g., toward institutional goals). Conversely, if they perceive that they do not

matter or feel marginalized, they might be motivated to behave in certain negative ways (e.g., counter to institutional goals) (Mann & Harter, 2016; Sorenson, 2013).

Current measures of mattering are accordingly based upon one's perception of mattering. The underlying assumption that feeling like one matters is desirable and important to employees, however, has not been addressed. These current measures treat all individuals as having a high or unsatisfied need to matter, thus motivating people to fulfill that need. This dilemma is similar to one that Hackman and Oldham (1976) discovered in their study outlining Job Characteristics Theory. They found that job redesign was moderated by Growth Need Strength. If organizations choose to implement interventions to attempt to boost positive workplace outcomes to increase feelings of mattering, they are doing so haphazardly; not knowing if employees' need to matter is high enough to warrant the intervention in the first place. In an era when state appropriations are continually decreasing due to budgetary shortfalls and states having to choose to fund other demands (Barr & McClellan, 2010; Lapic & Douglas, 2016), public institutions, especially, must be more choosy about how they invest in their people.

There are plenty of contextual scales that measure mattering. Context is important to tell a more meaningful story and makes for more reliable and valid scales. More recently, there are scales measuring perceived mattering related to the university and the workplace. Though Schlossberg, Lynch, and Chickering (1989) were focusing on adult students in higher education, the idea that if institutions focus on interventions that increase one's perception of mattering there will be higher positive motivation, better retention, and loyalty for the short and long-term, seems conceivable of staff too. However, these measures of mattering also do not well discern to whom an individual is trying to matter. Institutional history and culture convey mixed messages about the importance or regard for staff of higher education institutions and their work

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(Johnsrud, Heck, & Rosser, 2000). Since academic support staff at institutions of higher

education is an overlooked population, this seems like a fitting group to give a study context.

There are no known scales, contextual or otherwise, that measure someone's *need to matter*. A few studies have outright mentioned the idea of needing to matter (Baumeister & Leary, 1995; Demir & Davidson, 2013; Elliott, 2009; Elliott et al., 2004; France & Finney, 2009; Rayle, 2006b). "…mattering to others is actually essential to our sense of self (all human beings want to matter to others) and to society (as an element of social bonding)" (Rayle, 2006b, p. 483). Though Rayle uses the word want in this quote, the context of the statement would lend the meaning to be closer to need. While it may be true that all humans want to matter to others, some may not place high importance on fulfilling that desire, either because they already perceive that they matter or because other needs have higher importance to them. Need, in this instance, is defined as not a biological state but rather a "need … [qualifies] as a need since it directs behavior toward a goal and *causes* tension when this goal is not attained" (Cohen, Stotland, & Wolfe, 1995, p. 291). Though there have been several attempts at measuring mattering and its relationship to workplace outcomes such as turnover, engagement, and morale, none of them have considered the *need to matter* as a moderating variable.

Statement of the Problem

There are several contextual measurements aimed at measuring the construct of mattering, which is argued to have implications for wellbeing, motivation, and morale. These measurements are based upon an individual's perception of mattering to other individuals and a larger community. While this is important, it contains an underlying assumption that individuals have a strong desire to matter that directly impacts their behavior.

Purpose

The purpose of this study was to develop a measure of whether perceiving one matters holds importance to individuals. Further, this study examines the psychometric properties of the newly developed instrument and its relation to work-related outcomes such as turnover, engagement, and morale.

Research Questions

The primary research questions underlying this study are as follows:

1. Can the *need to matter* be measured?

    A. How does this new instrument relate to existing measures of mattering and other related constructs?

    B. Do these relationships vary according to gender or other demographic differences?

2. What is the relationship between *need to matter* and workplace outcomes such as turnover, engagement, and morale?

    A. Do these relationships vary according to mattering satiation?

    B. Do these relationships vary according to gender or other demographic differences?

Significance of the Study

The individual difference of someone's *need to matter* is important to study because though universities can use interventions to attempt to improve morale, lessen burnout, lower turnover, increase job satisfaction, and reduce costs by trying to improve perceived mattering, it might not make a true difference depending on someone's *need to matter.* The outcomes of shaping workplace programs, practices, and policies to help staff perceive that they matter may

dramatically benefit an institution, but those efforts might be better focused elsewhere. *Need to matter* might be a moderating variable between perceptions of mattering (or the satiation of mattering) and observed outcomes, meaning what we know about mattering might be different when filtered through this variable. This study attempted to advance mattering research in this way, and also examined an often-neglected segment of higher education, mid-level academic support staff.

Definition of Terms

Before continuing, it is important to define key terms used in this study as there is wide variation in definition of these terms in literature. Significant differences will be pointed out when relevant and interesting.

Mattering – Mattering is the perception of having a significant existence to another or to a larger community (Elliott et al., 2004; Rosenberg & McCullough, 1981). So as to lesson confusion, the phrase mattering satiation may be used when referring to a measurement of mattering, when both mattering and need to matter are discussed.

Need – In this study, the term "need" is intended to mean a desire, a notion, or an urge. It is a state in which an individual finds something strongly valuable or feeling of great importance. It is not meant as a critical biological requisite, but rather a psychological need (Maslow, 1952).

Need to Matter –The degree to which an individual yearns to feel they have a significant existence to another or to a larger community.

Organization of the Remaining Chapters

Chapter One provides the background of the study, statement of the problem, purpose of the research, research questions, significance of the study, and definition of terms. Chapter Two provides a thorough review of literature related to the history of mattering, contextual mattering

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in the workplace, the various work-related outcomes, as well as measurement of mattering. Additionally, Chapter Two includes a discussion of the guiding theories that helped to frame the items to be used in this study. Chapter Three comprises a detailed explanation of the methods that are used in this research. Chapter Four includes a description of the data analysis, explores findings of the study, and answers the research questions. Lastly, Chapter Five provides a discussion of the findings and limitations of the study. Additionally, implications for theory and future research ideas are explored.

CHAPTER TWO: LITERATURE REVIEW

The English language is a peculiar thing. In the context of the discipline of physics the word matter means a physical substance, something that occupies space – literally, something that exists. The homonym of the word is a verb, meaning to be of importance or significance. Ironically, when discussing the latter, we explore feeling like one is of importance or significance – like they exist. More recently, researchers are also exploring feeling like one does not matter, like they do not exist or perhaps feel invisible. Mattering is a relatedness construct, much like belonging or social support. The importance of a person's sense of psychological needs, such as love or connection, was largely made public in Maslow's 1943 and 1952 theory of human motivation. Since that time, more study has been done to delineate a separate psychosocial construct known as mattering. Other relatedness constructs include belonging, social support, and self-esteem. "Mattering is defined as the perception that, to some degree and in any of a variety of ways, we are a significant part of the world around us" (Elliott, Kao, & Grant, 2004, p. 339). Mattering is essentially creating and fostering a relationship: knowing that you make a difference, that someone cares, or that someone is interested in you (Flett, 2018; Rosenberg & McCullough, 1981; Schlossberg, 1989).

Mattering is an important notion to continue to study. Research has shown that the feeling of mattering or not mattering is associated with ideas of the self-concept (Dixon & Robinson Kurpius, 2008; Elliott et al, 2004; France & Finney, 2009; Joeng & Turner, 2015; Marcus, 1991a; Rosenberg, 1985; Rosenberg & McCullough, 1981). "Mattering is essential to wellbeing…" (Flett, 2018, p. 3). Others have found the perception that one matters, or lack thereof, can act as a motivator for positive and negative behaviors (Elliott, 2009; Rosenberg & McCullough, 1981; Schlossberg, 1989). Positive psychology, where a good deal of mattering

research resides, emphasizes that persons who feel that they matter are more resilient and engaged (Elliott et al, 2004; Flett, 2018; France & Finney, 2009; Rosenberg & McCullough, 1981). These are all topics that are important to individuals, organizations, and communities. A continued better understanding of the construct of mattering seems all but necessary.

The selection of references for this literature review come from a variety of sources, largely out of the social sciences including sociology and psychology journals. Additionally, several contextual resources of primary research come out of counseling, adolescent academic research, and higher education areas. Through this compilation, the evolution of this construct and its measurement should be made more apparent. The conclusion of the review explores gaps in the literature and areas for further exploration.

History of Mattering

The widely regarded foundational theory for this construct is Morris Rosenberg and B. Claire McCullough's (1981) general theory of mattering, first introduced in the field of sociology. This theory positioned mattering as a component of one's individual self-concept. Rosenberg and McCullough present mattering as a subjective experience happening in two forms: interpersonal mattering and societal mattering, sometimes termed general mattering (Elliott et al, 2004; France & Finney, 2009). Interpersonal mattering simply means mattering to another individual such as a parent, friend, partner, or coworker. Societal mattering correspondingly means mattering to a group, community, or society as a whole.

In addition to the two forms, this first theory of mattering is described as having three facets: *attention*, *importance*, and *dependence* (Rosenberg & McCullough, 1981). A*ttention* deals with recognition or acknowledgement – "we matter because other people acknowledge our existence" (France 2011, p. 18). Elliott, Kao, and Grant (2004) change attention to *awareness,*

as it is more commonly accepted by mattering researchers today. A simple example of the *awareness* facet is a student being greeted by name when they walk into a classroom or when passing by an instructor in the hallway. *Importance* considers the care, concern, and interest others have in and for our wellbeing. For example, a coworker providing emotional support to another coworker would be an indicator that they find that coworker important. The supported coworker might perceive they matter because of this behavior. *Dependence* is now termed *reliance* (Elliott et al, 2004). *Reliance* is simply the belief that others need us. Thus, a parent might feel they matter to their child if the child seeks them out for their opinion, advice, or support. France and Finney (2009) refer to these two facets of importance and reliance as the "taking" and "giving" sides of a relationship. A fourth facet, though originally discussed in the 1981 work, was officially added and expounded upon by Rosenberg in 1985 called *ego-extension*. The *ego-extension* facet is about the feeling that we matter when others are empathetic or sympathetic toward or proud of us. The facet of *ego-extension* "is the idea that our actions reflect on those who we matter to most" (France 2011, p. 21). A boss taking pride in her team's accomplishments is an example of ego-extension. France and Finney (2009) empirically support this fourth component as a unique facet of mattering, distinct from importance. Most often the four facets of *awareness*, *importance*, *reliance*, and *ego-extension* are what are considered Rosenberg and McCullough's seminal components of mattering and the most commonly used and cited in mattering research presently.

In addition to the four facets most generally regarded as the facets of mattering, several others have been proposed over time. Rosenberg's 1985 research also includes a facet of *being missed*, but this is later folded into *importance* and *reliance* (France, 2011). In 1987, Morris Rosenberg and Fred Marcus presented the General Mattering Scale including six facets, the five

previously mentioned plus *interest*. Schlossberg (1989) adds a fifth facet of *appreciation*, but

some argue that appreciation is simply a form of *reliance* (Elliott et al., 2004) because it deals

with placing value on the person or their work as a resource. Gordon Flett (2018) adds an

additional facet of *individuation*, which deals with feeling noticed for one's uniqueness or true

self. "People derive a sense of worth and mattering from being treated by others as special and

distinguishable from other people" (Flett, 2018, p. 33). Flett's work is relatively new; few others

yet support this facet. In fact, given the chance, some might argue that *individuation* is not a

separate theoretically distinct facet, but really a form of the *awareness* facet (Elliott, 2009;

France, 2011). Elliott and colleagues (2004) even describe *awareness* as when, "we are

recognizable to others as individuals, distinguishable from the masses that populate our

surroundings" (p. 340). They use nearly the exact same words to describe two supposedly

different facets. As evidenced by the continual change over time, the construct of mattering is

complex.

Developing a Sense of Mattering

Elliott (2009), Flett (2018), and France (2011) best outline how mattering is related to the

concept of self. There are two main paradigms that they each touch upon (a) cognitive social

psychology and (b) structural symbolic interactionism. Through the first perspective, mattering is

developed through comparing our interactions with another relative to others' interactions with

the same other, the response we receive by interacting with others, and through self-reflection of

our behavior (Elliott, 2009). These are called social comparison, reflected appraisal, and self-

attribution (France, 2011). Essentially, the feedback we get from others helps us to know if we

matter or do not. "Mattering is perhaps the first psychological variable that should come to mind

when someone is interested in focusing on the self in relation to other people" (Flett, 2018, p.

52). Alternatively, the structural symbolic interactions paradigm deals with self as a compilation of various identities usually, but not always, associated with the roles one plays (Elliott, 2009). Mattering within the roles that one feels are most wholly them is essential. France (2011) cites Elliott et al., (2004), stating, "Feelings of mattering contribute to an individual's understanding of himself or herself and his or her place in society" (p. 22). Mattering gives us insight into who we are as individuals.

In addition to self, mattering is often discussed in relation to health. The World Health Organization (WHO) defines health as "a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity" (World Health Organization, 1948). A similar understanding of health is assumed in this discussion. Rosenberg and McCullough (1981) found mattering to be negatively related to depressive symptoms, as "a highly protective resource that can promote thriving, flourishing, and having a satisfying life" (Flett, 2018, p. 157). It is not until 2001 when Taylor and Turner are really the first to explore mattering and its relationship with depressive symptoms. They open their paper by stating that there is a well-established positive association between relationships and wellbeing. Their study adds to the literature significantly in two ways. Firstly, it helps to distinguish mattering as a unique construct. Secondly, Taylor and Turner find "higher levels of experienced mattering are associated with lower levels of depressive symptoms among both men and women" (p. 319). They also find a reduced risk of depression, even holding other variables intercept, when perceived mattering was high. An interesting addition to this study is that mattering is also found to be predictive of depression over time. They did find some differences both between mattering and depressive symptoms for women, which did not hold true for men. Dixon and Robinson Kurpius (2008) explored four predictors of depression: gender/sex, self-esteem, mattering and

stress, and found similar results. All four predictors were significant. These findings are important because high levels of mattering are associated with high wellbeing and a healthy self-concept.

Rosenberg and McCullough (1981) described mattering as a motivator. As a motivator, feeling like one matters may lead one to act with positive, socially acceptable, and desired behaviors – such as engagement, innovation, and the seeking out of development opportunities, and avoid negative, or socially unacceptable, behaviors – such as acting out, loafing, absenteeism, and leaving. Rosenberg and McCullough also addressed not mattering as a motivator for negative behaviors. Though their thoughts on this make sense more directly because their research was a study on adolescents, they proposed that persons that feel they do not matter might act out in ways that would get them noticed or they might choose to isolate themselves so as to not feel more like they do not matter (Elliott, 2009). When researchers think of mattering as a behavioral motivator, they may be inclined to research it in a more predictive sense. For example, if an intervention is applied to a subject to increase their sense of mattering, the researcher will ask if they are more likely to behave in a positive way. What is interesting is that though the motivational notion is discussed in the foundational work on mattering, almost all the research on mattering is relational in nature, more correlational.

Marginality/Anti-Mattering

The original theory of mattering mentions perceptions of not mattering, but does not outright address theoretical notions of not mattering. Schlossberg (1989) posited a way to think about mattering and not mattering in a slightly different framework. She wrote about a lack of mattering, which she termed marginality, as being on a continuum, contrasting mattering. Elliott (2009) also theoretically framed the feeling of mattering as being on a continuum, when

addressing behavioral outcomes (p. 17). Marginality is typically found when a person is in

transition. Marginality is an instance when a person feels they just do not fit, when they feel

unaccepted. Interestingly, Schlossberg's definition of marginality seems to be more the opposite

of belonging, a construct defined in an adjacent section of this review, versus the opposite of

mattering.

Gordon Flett (2018) has recently suggested that the terrifying feeling of not mattering is

not at the opposing end of a mattering continuum. Flett cites related research finding that other

constructs are not polar opposites, such as affect and negative affect, hope and hopelessness as

the impetus for researching the relationship of mattering and not mattering. He suggests the

bifurcation of mattering and not mattering. He terms the qualitatively different feeling of not

mattering as, ironic to the introduction of this review, anti-mattering. "In general, a person feels a

sense of not mattering when he or she perceives that they are insignificant and unimportant to

others" (Flett, 2018, p. 40). Initial testing of this change in theory has strong results in support of

this notion.

Measurement of Mattering

Mattering is under the nomological umbrella of other relatedness constructs; it therefore

does have some commonality with other constructs. However, it is a distinct construct because of

some unique qualities. Outlined below are some of the commonly confused constructs and how

they differ from mattering.

Belonging

Many have theorized that humans have a need to belong (Rayle, 2006b; Baumeister &

Leary, 1995; Hagerty, Williams, Coyne, & Early, 1996; Maslow, 1943). Alternative from

mattering, belonging is about acceptance and fit (Clegg, 2006; Hagerty, Lynch-Sauer, Patusky,

Bouwsema, & Collier, 1992). Though they do have some similarities and are often colloquially used interchangeably, Gregory Elliott (2009) summarizes four ways in which mattering and belonging differ. Belonging requires an emotional attachment, whereas this attachment is possible in mattering relationships, but not essential. Elliott also described each as a need, with differing ways to be met; the need to belong is fulfilled by an individual seeking out interactions and exchanges with others, whereas the need to matter is satisfied when others act toward an individual. It should be noted here that Elliott is using need to matter and mattering synonymously and need to matter is not used how it is defined for this study. Baumeister and Leary (1995) agree with Elliott that another distinction between belonging and mattering is the frequency of interactions necessary to maintain the feeling. Belonging is much more fickle, requiring more regular interactions. "Once a person establishes that they matter to others, this is a generally stable concept" (France, 2011, p. 28). Most importantly, Elliott (2009) describes a difference in behavior when attempting to satiate the two constructs. As noted already, people may behave in both socially acceptable (positive) or unacceptable (negative) ways in order to draw attention to the idea that they matter. Alternatively, people wanting to belong will always behave in a manner that is socially acceptable to the person or group to which they want to belong. Acting against the person or group would definitely cause the belonging relationship to dwindle. While the distinction between the two seems quite obvious once outlined, belonging is a related construct that is often muddled with the construct of mattering in current mattering research. Some have studied the relationship between the two, even suggesting that mattering might be a pre-cursor to belonging (Corbière & Amundson, 2007; France & Finney, 2009; Tovar, Simon, & Lee, 2009).

Social Support

Another commonly misunderstood concept is that of social support. Social support is defined much like one would guess – when others support an individual in time of need in some manner, whether materially, psychologically, emotionally, or otherwise. Mattering differs from social support in that the more general support offered in a mattering relationship develops out of a spirit of altruism, whereas some more specific social support may not (Elliott et. al, 2004; Elliott 2009). Social support may be present when someone feels they matter, but need not always be present. Likewise, someone need not perceive they matter in order to accept social support. Taylor and Turner's (2001) study provides empirical evidence that social support and mattering are distinct constructs.

Self-Esteem

Rosenberg and McCullough (1981) described mattering as related to the self-concept, which most certainly self-esteem is a portion. Self-esteem is an internal emotional and cognitive appraisal of one's personal self-worth or value. Interestingly, Morris Rosenberg (1965) is widely known for creating an index for measuring self-esteem, the RSES – Rosenberg Self-Esteem Scale. Though both self-esteem and mattering have been described as a motivator, mattering differs from self-esteem because it requires a relationship with at least another individual, whereas self-esteem does not (Elliott, 2009; Rosenberg, 1985). Feeling like one matters or does not matter can be directly attributed to one's evaluation of self (Elliott, 2009). Thus, feeling like you matter would likely cause higher levels of self-esteem. Feeling like you do not matter would lead to lower levels of self-esteem. Mattering is positively related to self-esteem (Dixon & Robinson Kurpius, 2008), but they are distinct constructs (Marshall, 2001).

Mattering Scales

When entering into this next section related to the measurement of mattering, specifically the reliability and validity of the construct, it is worth mentioning at the forefront that there is no way to measure the amount or strength of a mattering relationship. Rather, what has been discussed thus far and what is measured is the perception that one matters. The following are a chronological summary of existing mattering scales.

Rosenberg and McCullough (1981), though credited with the theoretical underpinnings of mattering, did not actually use a specific scale meant for measuring mattering. Their pivotal study actually used secondary data from three data sets, from which they made inferences. Rosenberg and McCullough were mainly focused on gaining insights into adolescent behaviors, especially better understanding behaviors that are considered antisocial or negative (Marshall, 2001).

General Mattering Scale

Marcus and Rosenberg (1987) are credited with General Mattering Scale (GMS). The scale originally included six areas of mattering: attention, importance, dependence, ego-extension, being missed, and interest. Ego-extension was removed as it was thought to only apply to famous people (Lamperski, 2018). The GMS only has five items, one item corresponding with each of the five remaining facets. Its brevity and obvious directly related items are likely what attracts mattering researchers to use it so frequently. Though used relatively extensively by mattering researchers, the scale was only ever presented at a conference and not actually published (Flett, 2018). It first appeared in 1997 in a piece written by DeForge and Barclay. DeForge and Barclay's 1997 study on homeless men reports internal reliability of α=0.85. Tovar and associates (2009) note in Marcus's master's thesis study the GMS having

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internal consistency reliabilities between α=0.73 and 0.75. Unfortunately, one downfall of the GMS is that it focuses on interpersonal mattering and neglects societal (general) mattering. This is ironic because the word general is in the title. There is also very little information about how the scale was developed, validity data, or psychometric properties (Jung, 2015a).

Mattering Scale for Adult Students in Higher Education

Nancy Schlossberg (1989) took a qualitative approach and conducted structured interviews to further define Rosenberg's commonly accepted four facets. Through the interviews, she developed a fifth facet describing behaviors or efforts. This facet was termed *appreciation*. Some have argued that this fifth facet is really an interpretation of Rosenberg's *awareness* facet and is not distinct (Elliott et al., 2004; France, 2011). From these interviews Schlossberg, Lassalle, and Golec (1990) created an instrument, the Mattering Scale for Adult Students in Higher Education (MHE). Subscales of the forty-five item MHE instrument did not follow the facet framework of Rosenberg and McCullough concerning the nature of the mattering. Instead, the five subscales were about to whom an adult student mattered. The authors report alphas between 0.77 and 0.86 for the subscales. Megan France (2011) notes the poor methods used to create this scale. When testing the MHE, Schlossberg and associates defined adult students as those who were twenty-five years or older. In modern collegiate settings, a twenty-five-year-old would be considered a non-traditional student. Even if the statistical methods on scale creation were more rigorous, this quickly limits the generalizability of this scale, even within a college/university setting. Flett (2018) points out that several of the items of the MHE hint more at belongingness than mattering, which does not aid in strengthening the construct validity of mattering.

Mattering to Others Questionnaire

Sheila Marshall (2001) has a unique take on the measurement of mattering. She defined others as a specific someone in her Mattering to Others Questionnaire (MTOQ). Marshall measured mattering to one's mother, father, and friends. This scale creation study added to the mattering literature by bringing to the forefront the idea that mattering is different and certainly not equivalent from one person or group to another. Mattering to one's best friend is far alternative to feelings of mattering to one's mother. The average age of the sample of this study was 16.93 years. The construction of the scale makes it entirely possible for it to be adapted to varying groups or persons, which may be more age appropriate for different samples. Marshall reports internal consistency reliability with very high alphas of 0.93 for mother, 0.95 for father, and 0.93 for friends. These high reliabilities are not reproduced in the 2004 study by Rayle and Myers who sampled a similarly aged group. This scale also does not address the facets of mattering.

Demir, Özen, Doğan, Bilyk, and Tyrell (2010) took a very psychological look at mattering relationships with friends and how that affects happiness. The article describes two studies to explore this mediating relationship. Study 1 specifically looked at mattering to one's best friend. It was found that mattering did mediate the relationship between friendship and happiness. Study 2 confirmed the findings from study 1 and expanded the findings to one's three closest friends. Study 2 also supports that social support and mattering are two different constructs. The authors appropriately use the MTOQ (Marshall 2001), but alter the parental items to instead measure mattering to mentors and mentees. Both sample sizes were suitably large, but may have been limited by the age of participants. Age of participants is not addressed in the sample sections, though in the discussion the authors do address the sample as emerging

adults. A major limitation of this study includes the self-report nature of the assessment of close friendships. Later the authors considered that the relationship between constructs may differ across a life-span. The MTOQ is also used in Demir and Davidson (2013) studying friendship and happiness. It is used to measure whether same-sex friends perceive they matter to their significant other. Perceived mattering to the significant other was significantly related to happiness.

Mattering Index

Next to Rosenberg, Gregory Elliott is probably the second or third most recognized figure in the discussion of mattering. Elliott, Koa, and Grant (2004) continued Rosenberg's work by developing an index to measure mattering based upon Rosenberg and McCullough's framework, using the original three facets (with slightly different names): *awareness*, *importance*, and *reliance*. Elliott and colleagues do not seem to name the somewhat lengthy 24-item index, and it is therefore referenced differently by different researchers. France and Finney (2009) refer to the index as "Mattering to Others" and Jung (2015b) titles it "Interpersonal Mattering". Regardless, the researchers' largest contribution to the literature on mattering was sound empirical evidence. They confirmed several types of validity, including content, construct, and discriminate validity. Frankly, the psychometric properties of the Mattering Index are unparalleled by other work in mattering up to this point. In their three samples, they report notable alphas of 0.904, 0.922, and 0.886 respectively for the full mattering index. The most important need for the authors was to further the literature about the self-concepts. Results of their study showed that mattering is positively related to self-esteem, social support, and the public performance factor of self-monitoring. It is alternatively negatively related to self-consciousness and alienation. Limitations of this study were that it was only conducted once, and a student sample was utilized.

France and Finney (2009) advanced the literature by exploring and testing mattering's nomological net. They, too, based their research of the construct in Rosenberg's theory of mattering. Nicely they pointedly made the distinction between mattering and other often confused constructs, such as belonging and the need for relatedness. Additionally, increased mattering is frequently correlated with increased self-concepts like self-esteem and wellbeing and reversely related with negative states like anxiety and depression. Continued support was found for the related variables. A benefit of this France and Finney study is that in it they provide a thorough evaluation of the Mattering Index, including pointing out some likely poorly worded items. Their published scale, mentioned later, is modeled after Elliott, et al.'s (2004) Mattering Index. This 2009 study compared Rosenberg's original three-facet model, the same Elliott et al. used, to the four-facet model, including ego-extension. Though the authors call for additional studies for confirmation, the four-facet model was found to be the best fit.

School Counselor Mattering Survey

Andrea Dixon Rayle (2006a) measured mattering perceptions with a more contextual scale – the School Counselor Mattering Survey (SCMS). Much like the MHE, the scale asked counselor participants to respond regarding how much they felt like they mattered to certain groups (students, administrators, parents, teachers, and the profession) in general. The most interesting component to this scale is the inclusion of "the profession" amongst the items, which is a purposeful inclusion of an attempt at societal mattering. Intentional or not, it also is a neat combination of the idea of roles and self-concept and that an individual could feel like they matter because they feel like their work is significant. Rayle writes that the scale has seven items (p. 208), but only lists six items in the text. Alphas for the subscales ranged from 0.85 to 0.93

and 0.91 for the total sample. Here again, limited information is provided on scale development or validity data.

College Mattering Inventory

Tovar, Simon, and Lee (2009) created the College Mattering Inventory (CMI). They had an incredibly large sample size (n=3,139), which was divided in two. One half of the data was used for exploratory factor analysis and the other for confirmatory factor analysis. The best fitting model consisted of twenty-nine items with six subscales. The subscales were titled: (a) General College Mattering, (b) Mattering versus Marginality, (c) Mattering to Counselors, (d) Mattering to Instructors, (e) Mattering to Students, and (f) Perception of Value. Alpha of 0.74 for the total sample was reported. This study, however, had a major limitation for generalizability in that they studied community college students and students at a large master's level school – with nothing in-between. Unlike either the General Mattering Scale or the MHE, the authors identified six new, not well-defined factors, which do not align with Rosenberg and McCullough's factors. This inventory also only focuses on interpersonal mattering.

University Mattering Scale

France and Finney (2010) created the University Mattering Scale (UMS). The UMS is an adaptation of Elliott's General Mattering Scale. Unlike the MHE and CMI, Rosenberg's original mattering theory lays the framework for the included item factors. Also differing from the General Mattering Scale, the fourth facet of ego-extension was included due to France and Finney's 2009 work. Limitations with this study included high correlations between awareness and importance and importance and ego-extension. The correlations were in the low to mid 90s, indicating that perhaps the factors were not distinct. It was questioned whether negatively

worded items may have been the cause of this, but little else was presented to explain the phenomenon.

Unified Measure of University Mattering - 15

France (2011) completed her dissertation and created the Unified Measure of University Mattering – 15. During the study of revising the University Mattering Scale, France noted and was concerned that the four factors in the model had very high correlations. Therefore, she developed and tested the UMUM-15, which measures university mattering as a single, global construct. The UMUM-15 has the strongest psychometric properties of any of the university mattering scales to date. However, in making the measurement a one-factor measurement, albeit a statistically strong measurement, details of the nuances of mattering are lost. France had done a number of studies in the process of scale creation and is well experienced; however, she admitted that one major limitation of this scale is that it needs to be tested in different samples and across time.

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Newer Work on Mattering Theory

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Though there has been a number of scales and measures to try to better understand mattering, few are super similar, and few do a good job of measuring mattering in a strong and generalizable way. Researchers struggle with taking the broad notions of mattering and making them fit their area of interest, while using similar language and descriptions. Therefore, recently, most mattering research is contextualized. Mattering has been studied in a wide range of contexts ranging from children (Flett, Su, Ma, & Guo, 2016), to mothers (Schultheiss, 2009), to military (Rohall, 2003; Rosenberg, Rohall, Segal, & Hamilton, 1999), to persons who are homeless (DeForge & Barclay, 1997; DeForge, Belcher, O'Rourke, & Lindsey, 2008). The majority of mattering has been studied in three areas – counseling (Marshall 2001; Paputsakis, 2010; Rayle

& Myers, 2004; Rosenberg & McCullough, 1981; Rosenberg, 1985), higher education (Dixon Rayle & Chung, 2007; France, 2011; France & Finney, 2010; France, Finney, & Swerdzewski, 2010; Marshall Liu, Wu, Berzonsky, & Adams, 2010; Rayle, 2006a; Rayle, 2006b; Richards, Gaudreault, Starck, & Woods, 2018; Richards, Gaudreault, & Woods, 2017; Schlossberg, 1989; Schlossberg, Lassalle, & Golec, 1990; Schlossberg, Lynch, & Chickering, 1989; Tovar, et al., 2009), and only just, the workplace/organizationally (Connolly & Myers, 2003; Fazio, 2007; Froidevaux, Hirschi, & Wang, 2016; Huynh, Xanthopoulou, & Winefield, 2013; Jung, 2015a; Lamperski, 2018; Lancee & Radl, 2012). The following is a brief overview of these contexts and how each adds to the theory on mattering in trying to cope with some of the limitations of previous research.

Counseling

As stated earlier, mattering happens within relationships. One such context in which strong relationships are developed is counseling. However, mattering literature on counseling does not define counseling well and several explore the counseling relationship within even more narrowly defined contexts. Dixon Rayle (2006b) explores mattering to others in a review of Elliott, Kao, and Grant's 2004 scale publication. Implications for mattering affecting the counseling relationship are explored, especially focused on strengthening that relationship. One would assume that the emphasis of this relationship would be on helping the client to feel like they mattered to the counselor, thus lowering stress and increasing their self-esteem and overall wellbeing. However, Rayle suggested that if counselors feel like they matter to their clients, this will bolster the altruistic nature of counselors and will increase their desire to help their clients. An interesting point here is that this idea centers on the work/profession and societal mattering

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when one would paradoxically think that a close, personal relationship, such as that between a counselor and client, would apply solely to interpersonal mattering.

Corbière and Amundson (2007) focused on interpersonal mattering specifically in counseling professions. Their contribution was that they provided supporting data regarding the Ways of Mattering Questionnaire (WMQ) created by Amundson (1993). Amundson's questionnaire was based upon the four facets of *attention, importance, dependence, and ego-extension.* The WMQ was created as a practical training tool for employment counselors and was not meant for empirical research. Limitations of the Corbière and Amundson study included that it was conducted with a group of individuals with mental illness in an employment setting to investigate the impact of a counseling relationship on a person's perception of mattering.

University Mattering

Universities are increasingly asked to provide more for students with the goal of increasing retention and graduation rates and with fewer resources. If a student feels they matter to a university, they are more likely to feel connected and behave positively toward the university community, including being more academically successful, engaged and involved in the community, and perhaps even give back. The article by Nancy Schlossberg (1989) was ahead of its time in that it tied mattering to a growing concern in academia of retention issues. As others had found, the more involved students are at higher education institutions the more likely they are to be retained and finish successfully. She posits that the feeling that one matters leads to involvement on campus. University mattering is important because a good portion of student departure can be explained by how much – or rather how little – the student felt they mattered (Schlossberg, Lynch, & Chickering, 1989).

Dixon Rayle and Chung (2007) went further in expanding on mattering being a fundamental human need. Their study of 533 students measured outcome variables of social support from both family and friends, mattering to college friends, and academic stress. Results of the study indicated that university mattering is negatively related to academic stress and that social support from college friends may help lessen academic stress. Also, interestingly, female students were found to both feel more pressure and academic stress but were better able to cope because they also felt more socially supported; they mattered more.

For the first time, France and Finney (2010) considered a specific contextual form of mattering, university mattering, as a unique, stand-alone construct. As discussed earlier, when talking about France's (2011) UMUM-15, France thought of this construct and measured it as one global construct. She noted that "university mattering is a form of societal mattering where the university is the larger social entity to which students experience a sense of mattering" (France, 2011, p. 42). France and Finney postulated that it does not necessarily matter how or to whom a student feels they matter to/at a university, but simply that they do. Focusing resources on programming and services that would increase a student's sense of mattering is a worthwhile effort.

Moschella and Banyard's (2021) very recent work expanded the university mattering measurement by evaluating shorter instruments to measure university and interpersonal mattering. The intention in doing so is pragmatic. They also importantly noted that differing dimensions of mattering are unique variables to a student's well-being and persistence. Additionally, they contributed to the body of work that proves that mattering is related, yet different from social support.

Workplace Mattering

There actually have been several mentions of mattering in the context of work or the workplace throughout the history of mattering research, but only recently has it been directly studied. Research on mattering within the context of work or the workplace differs from other studies in that much of the mattering research, even contextual research, focuses on interpersonal mattering. Whereas this context of research seems to be more focused on societal mattering or both interpersonal and societal equally.

Some of the work that inadvertently or off-handedly mentions work or mattering within "the profession" has been pointed out earlier in this review. Yet, there are several others who directly mention work or the workplace. A brief discussion of them follows. The practical application of mattering as discoursed in the work by Amundson (1993) observes counselors coping with workplace stresses and improving the work done as a counselor by reflecting on feelings of mattering in the workplace. Schieman and Taylor (2001) drew an interesting connection between work, mattering, and identity through examining the roles individuals hold. Of course, a person's work and how they view their roles within that play a part in shaping their self-concept. Schieman and Taylor found that work with different characteristics, such as autonomy, complexity, and supervision requirements increased a person's sense of mattering. In 2003, Connolly and Myers studied holistic wellness, mattering, and job satisfaction. They found that wellness and mattering significantly contributed to the variance in job satisfaction. However, they failed to recognize the often mentioned and seemingly obvious relationship mattering has to wellness. Rayle (2006a) researched the moderating relationship of interpersonal mattering to job stress and job satisfaction with a subject pool of school counselors. She found both stress and mattering accounted for the variance in job satisfaction, but mattering did not moderate between

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stress and satisfaction. Schultheiss (2009) added to the mattering literature as it relates to work by pointing out that the type of work done could play a role in relationship to mattering. Schultheiss' study was about care work, particularly mothering, done by women. Interestingly, not long after Kawamura and Brown (2010) explored the influence of mattering on their perception of work, particularly the division of household labor. They found a positive relationship between perceived mattering and perceived fairness of the division of labor. The results of the study recently published in James C. Stoner's (2016) dissertation indicate that those Residence Assistants that chose to not return to their jobs experienced lower levels of mattering and higher levels of feeling burnout as compared to their peers who chose to return. Stoner also found that feeling burnout and lower levels of mattering to their residents explained a good portion of the variance of job satisfaction. These studies very clearly demonstrate that work and the workplace is a context in which mattering is both practical and applicable.

Most recently Jung and Heppner (2017) argued that mattering provides a lens through which to better understand individual's work experiences. Jung and Heppner (2017) confirmed and validated a two-factor model of mattering in the workplace – the Work Mattering Scale (WMS). The two main domains of work mattering they conceptualized are societal mattering and interpersonal mattering, which obviously relates to Rosenberg and McCullough's (1981) original theory. The overall scale is 10 items long, which is very convenient for those who may want to utilize the scale in a workplace setting where individuals are often very busy. Alpha coefficients were above 0.85. One limitation of the study that the authors pointed out is the homogenous ethnicity and education levels of the sample. This limitation is even interesting as very few mattering studies even address the diversity of the sample.

Organizational Mattering

Reece, A., Yaden, D. B., Kellerman, G., Robichaux, Goldstein, Schwartz, Seligman, M. E. P., & Baumeister, R. (in press) combined literature from various fields and lenses and looked at mattering slightly differently. The main premise of their orientation of mattering was inspired by philosopher Rebecca Goldstein (2015), which led to the naming sub-factors of their new scale – recognition and achievement. They strayed from previous definitions that mattering means the difference one makes, and instead examined subjective mattering by using the frame that "an individual matters because they have acted, and because their actions have had an impact on some object in the environment…" (p. 3). The authors simply noted their action-oriented approach versus the feeling-oriented approach of Rosenberg & McCullough (1981) and the many who followed to this point. Organizational Mattering Scale (OMS) has three factors, a general mattering factor and two sub-factors, recognition and achievement (p. 1). The factors have alphas ranging from 0.83 to 0.86. As hypothesized, OMS scores were positively related to positive business outcomes such as job satisfaction, leadership roles, promotion, and retention.

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Gaps in Current Mattering Literature

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Though mattering has been studied now for nearly forty years, there is still plenty of space to continue to study this positive psychosocial construct. It is only until recently that the shift has been from phenomenological in nature to more conceptual. Nothing has been outright mentioned, but the literature tells a story of wanting to work toward common definitions and common theoretical conceptualizations, or at least to continue having a healthy discussion of them. "The range of social and personal issues that would benefit from an analysis that includes mattering is nearly endless" (Elliott et al., 2004, p. 353). Mattering has shifted into the spotlight

because it has the potential to prove to be an antecedent of outcomes that have positive impacts for individuals, organizations, and communities alike.

A large gap in this research is both that of a reliable, valid, and efficient scale that is well-tested and generalizable. Measurement of mattering has also been a recent discussion amongst these scholars interested in mattering. Common definitions and frameworks of course would aid in measurement, but even the existing scales leave much to be desired, as has been pointed out by many researchers in this arena. Further, like constructs, such as meaning, (Baumeister, 1991; Baumeister, Vohs, Aaker, & Garbinsky, 2013; Seligman, 2012) do not have established empirical correlations. Taking the time to research constructs such as these, as well as other common individual difference variables and psychometric properties would help to strengthen the reliability and validity of the mattering construct, legitimize, and even encourage conversations and practical applications of mattering in contexts in which it may make a lasting impact. While the measurement of mattering needs to be a focus for this research area in the future, it is a few lifetimes' worth of work.

Perception is a fickle thing. "…individual difference variable – relatively stable and enduring over time. Mattering can and will fluctuate according to life experiences" (Flett, 2018, p. 6-7) and within contexts. Perceiving you matter varies over time and in different spaces. Parents, leaders, and employers cannot simply assume that because they behave in a way that one would think others feel that they matter, that the others actually do feel like they matter. The seemingly best way forward for studying mattering is to continue to focus in on a group in a contextual setting. Of course, there is the risk of making statements that are not generalizable, but there is also too much noise to be able to study mattering in a broad sense.

Another gap that is rarely mentioned in the literature is that of the temporal nature of mattering. France (2011) and Flett (2018) both note that mattering is a relatively stable concept, but beyond that really few have done any longitudinal study of mattering to investigate this characteristic. This lack of research leaves several questions: How long does it take to establish a relationship enough that one feels like they matter? When a person enters a new relationship with another individual or a community, are they pre-disposed to feel that they matter until they do not? And then, where is the tipping point of making that perception? Do they enter that relationship in a neutral state (this seems unlikely as they are bound to have expectations) and then, do/es how they are treated and cultural influences determine if they perceive they matter or that they do not matter? It appears that current scales of mattering or not mattering measure perceptions in a more general sense of time – "How much does this person depend on you?". Yet, behaviors that convey to someone that they matter or do not matter take time, so is there a point at which a feeling of mattering or not becomes stronger? And then, is it long lasting (plausibly with minimal inputs after a certain time in the relationship) – or does a feeling of mattering need to continue to be cultivated, even if slowly over time? It also seems plausible that if someone were experiencing micro-aggressions over time, they might perceive that they do not matter and reach a tipping point of being motivated to behave negatively? But then again, some persons might be more apt to do so earlier than others (plausibly depending on their *need to matter)*. What happens if someone were to give another mixed signals?

Another area for further exploration deals with interpersonal and societal mattering. France (2011) suggests that at a university it does not really matter to whom a person matters, just that they feel like they matter to someone. No studies on mattering have been located that have explored the relationship of individual to community. For instance, is it possible to feel like

one does not matter to an individual within an organization, but yet feel like they matter to the organization as a whole? Or conversely, is it possible to feel like one matters to certain individuals, but does not matter to the group or organization?

Workplace Outcomes

Every surviving and thriving organization works to be more effective and efficient in what it does. In order to best make decisions that will affect the work they typically pay attention to and often examine and assess outcomes like turnover, engagement, and morale.

Turnover

Organizations benefit from talented employees who do their jobs well. However, they only benefit if those employees stay for a considerable period of time. Granted some level of voluntary turnover, the rate that employees leave an organization, is good and healthy for upwardly mobilizing employees and bringing in new ideas. Organizations should be cautious, though, of creating an unwelcoming climate or unreasonable policy and practices that spur employees to turnover more rapidly. Employee retention efforts will decrease search cost and decrease cost of training. Low turnover will lead to more qualified, often over-qualified, employees at mid-level (especially at universities) and deeper, more complete organizational knowledge (DeConinck & Johnson, 2009).

Engagement

Engagement in work refers to high levels of diligence and concentration. "In engagement, organization members harness their full selves in active, complete work role performances by driving personal energy into physical, cognitive, and emotional labors" (Rich, Lepine, & Crawford, 2010, p. 619). Harter, Schmidt, Agrawal, and Plowman, researchers for Gallup, conducted a meta-analysis study on engagement in 2016. They found that organizations that had

more engaged employees were more productive, safer, had less absenteeism, more satisfied customers, and were more profitable. They were more profitable both because engaged employees were more productive, but also that they do not cost as much. While not all universities as organizations necessarily have outcomes that are direct equivalents to satisfied customers or profits, the concept holds true that people engaging in their work results in positive organizational outcomes.

Morale

Morale is not a well-defined concept and one with a definition that is generally assumed. Hardy (2009) did extensive research on what morale is. His definition follows:

> Morale is, therefore, a mental state which can be distinguished from other phenomena. It is influenced by stimuli which impact the individual's affective state and sense of the future either directly or through moderation by others. It affects performance although not in all cases and is believed to be an important factor for individuals and in organisations. (p. 244)

High morale is considered good and low morale is considered bad. Low morale can lead to withdrawal or burnout, negative organizational outcomes. High morale is often associated with high productivity and affinity creation. Institutional affinity leads to good word-of-mouth. Positive word-of-mouth is paramount in reaching institutional goals and situating relationships within the community and on a broader level, the system of higher education.

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Guiding Theories

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To begin developing this new psychometric measure of *need to matter,* two main theories were utilized as the framework – self-determination theory and ecological systems theory.

Self-determination Theory

Self-determination theory is a broad umbrella of a theory that is broken into six-mini theories. Overall, the theory outlines the basic psychological needs of autonomy, competence, and relatedness. One of these mini-theories is the Basic Psychological Needs Theory (BPNT). The Basic Psychological Needs Theory deals specifically with the needs of autonomy, competence, and relatedness predicting psychological health and wellbeing (Deci & Ryan, 2000). Since mattering is considered a relatedness construct, also highly situated near the concept of self and wellbeing, this study uses self-determination theory as a guide in item creation and for validation purposes.

Ecological Systems Theory

Urie Bronfenbrenner is well known for the Ecological Systems Theory (1977; 1979). This theory describes a perspective that behavior is influenced both by individuals and their environments. In particular, environmental influences are examined in four system levels, including micro-, meso-, exo-, and macrosystems (Bronfenbrenner, 1977). The microsystem is the most immediate and direct environment we have. For this study, this would be equivalent to those that work closest with us, our coworkers. The mesosystem is one step outside the microsystem, involving the relationships between the microsystems. In the context of the higher education workplace, this would represent one's department or unit. The exosystem is the environment that is again a level above the preceding level. This would be the university or college. In addition, the final system would be the macrosystem. For this study, the "profession" would be the correspondent level. These system levels and the individual have a reciprocal relationship, each influencing the other. Since mattering is both contextualized and regarded as

existing in two domains, interpersonal and societal, the levels of the Ecological Systems Theory

help to frame a matrix of items for the Need to Matter Scale.

CHAPTER THREE: METHODS

The purpose of this study was to develop a measure of whether perceiving one matters holds importance to individuals. Further, this study examines the psychometric properties of the newly developed instrument and its relation to work-related outcomes such as turnover, engagement, and morale. The following questions were addressed: Can the *need to matter* be measured? What are the relationships between the *need to matter* and existing measures of mattering? Does *need to matter* moderate the relationships between existing mattering scales and workplace outcomes such as turnover, engagement, and morale? In order to answer these questions, the following methods were used.

Participants/Subjects

In order to achieve the purpose of the study, participants were invited to participate using a census sample of mid-level staff in a band of professionals across a mid-western state university system. This university system is made up of 11 public institutions ranging from trade/technical/community colleges to 4-year research universities. In addition to serving as an appropriate population for study due to anticipated variations in their experience of mattering, it provides greater insight into this critical group. At the time of survey deployment, there were 1,945 employees in this broadband, each with the same chance to participate in the survey. This band of position is defined as:

> Positions with the primary purpose is performing academic support, student service and institutional support activities, whose assignments would require either college graduation or experience of such kind and amount as to provide a comparable background. This includes employees such as librarians, accountants, systems analysts, and computer programmers. (North Dakota University System, 2018).

This band was selected because it most closely resembles the mid-level, academic support staff previously defined in Chapter One. Participants were randomly assigned to one of three groups by the survey software, with each group receiving the core instrument as well as a sub-set of outcome measures in an effort to limit participants' time commitment.

All participants were treated according to ethical guidelines as stated by the North Dakota State Universities Institutional Review Board for the Protection of Human Subjects. According to these guidelines, participants were asked to provide informed consent (see Appendix A), were assured of the confidentiality of their responses, and were given the opportunity to withdraw from the research at any time without consequence. Participants were invited to participate via a series of recruitment emails (see Appendices B, C, & D) sent from each institution's human resources director over the course of three full weeks. HR directors were encouraged to allow their employees to take the survey during working hours.

The sample initially consisted of 316 participants. However, 3 participants did not complete all of the instruments but were removed from the sample. Two participants completed all of the instruments but were removed from the sample because of the time it took them to complete the instrument and the unvarying answers for all items. Therefore, 311 participants completed the survey and were retained for the analyses. The resulting sample consisted of 72% ($n = 224$) identifying as a woman, 26.7% ($n = 83$) identifying as a man, 1% ($n = 3$) identifying as non-binary, and 0.3% ($n = 1$) who opted to not disclose their gender. The average age of the sample was 43.6 years ($SD = 12$ years), ranging from age 22 to age 70. Additional descriptive information for this sample as intersected by gender can be found in Table 1. Table 2 shows a more descriptive breakdown of job-type intersected by institution type. The sample, though

relatively un-diverse, well represents the geographic area and this population group of

employees.

Table 1

Demographic Information of Participants Intersected by Gender

Demographic	Gender				
	Man	Woman	Non-binary	Did not say	Total
Age					
20-24 years old	2	8	0	0	10
25-29 years old	7	21	0	0	28
30-34 years old	9	36	0	1	46
35-39 years old	12	37	0	0	49
40-44 years old	9	27	2	0	38
45-49 years old	10	25	0	0	35
50-54 years old	15	15	1	0	31
55-59 years old	8	28	0	0	36
60-64 years old	8	19	0	0	27
65-69 years old	3	6	0	0	9
70-74 years old	0	1	0	0	1
Race/Ethnicity					
white	74	210	2	1	287
black or African American	1	1	0	0	2
American Indian or Alaska Native	1	0	0	0	1
Asian	1	0	0	0	1
Native Hawaiian or Pacific Islander	0	1	0	0	1
Hispanic	1	1	0	0	2
Other	3	1	0	0	4
Highest Level of Education					
High school grad	0	1	0	0	1
Trade/technical/ vocational	0	6	0	0	6
Associate degree	2	5	1	0	8
Bachelor's degree	37	98	0	0	135
Master's degree	30	95	1	1	127
Professional degree	1	2	1	0	4
Doctorate degree	5	5	0	0	10
Some college credit, no degree	5	5	0	0	10
Pursuit of Education					
No	64	188	3	0	255
Yes	18	35	0	1	54
Type of Institution					
4 yr research	68	172	2	1	243
4 year non-research	10	27	1	0	38
2 year technical/ regional/community	5	22	0	0	27

Table 2

Job/Position Descriptions by Institution Type

	Type of Institution			
	4 year research	4 year non-research	2 year technical/ regional/community	Total
Length of Time Working at Current Institution (years)				
less than 1 year	22	4	0	26
1 to 2 years	45	6	2	53
3 to 5 years	35	4	2	41
6 to 10 years	38	10	13	61
more than 10 years	103	14	10	127
Length of Time Working in Current Position (years)				
less than 1 year	39	4	0	43
1 to 2 years	58	8	2	68
3 to 5 years	49	7	8	64
6 to 10 years	28	10	10	48
more than 10 years	67	9	7	83
Length of Time Working in Similar Level Position within a College/University (years)				
less than 1 year	65	9	7	81
1 to 2 years	27	4	4	35
3 to 5 years	30	6	6	42
6 to 10 years	35	9	6	50
more than 10 years	84	7	4	95
Campus Unit Type				
Leadership & Diversity	7	0	1	8
Business/ Administrative	72	10	8	90
External Affairs	20	4	4	28
Student Life/ Services	54	10	7	71
Academic Affairs	79	13	6	98
	Type of Institution			
	4 year research	4 year non-research	2 year technical/ regional/community	Total
Title of Position				
Accountant	5	3	3	11
Administrator	10	1	0	11
Advisor	26	1	1	28
Analyst	18	1	0	19
Archivist	1	0	0	1
Assistant	3	0	0	3
Assistant Director	15	7	1	23
Associate Director	5	0	0	5
Chief	2	1	0	3
Consultant	2	1	0	3
Coordinator	22	3	3	28
Counselor	12	1	3	16
Director	11	6	10	27
Editor	3	0	0	3
Librarian	7	5	0	12
Manager	29	2	5	36
Officer	4	0	0	4
Programmer	6	0	0	6
Scientist	15	0	0	15
Specialist	36	3	0	39
Supervisor	2	0	0	2
Technologist	9	3	0	12

Instruments

In an effort to thoroughly test this new instrument to see how it relates to preexisting measures of mattering as well as workplace outcomes such as turnover, engagement, and morale, a number of instruments were included in this study. Through involvement in this study, participants in each group received one of three sets of instruments (See appendix E). This aimed to reduce the time it took each participant due to the large number of included instruments. Each received a demographic survey, the *Need to Matter Scale* (NMS), and the *Basic Psychological Need Satisfaction and Frustration Scale – Work Domain* (Chen, Vansteenkiste, Beyers, Boone, Deci, Van der Kaap-Deeder, Duriez, Lens, Matos, Mouratidis, & Ryan, 2015; Schultz, Ryan, Niemiec, Legate, & William, 2014). Stem One included the *Mattering Index* (Elliott, 2004), *Copenhagen Burnout Inventory* (Kristensen, Borritz, Villadsen, & Christensen, 2005), and *Turnover Intention* (Singh, Verbeke, and Rhoads, 1996). Stem Two consisted of the *University Mattering Scale* (UMS) (France & Finney, 2010), *Center for Epidemiologic Studies Depression Scale,* (Kohout, Berkman, Evans, & Cornoni-Huntley, 1993), the *Subjective Happiness Scale* (Lyubomirsky & Lepper, 1999), and *Prosocial Motivation* (Grant, 2008). Stem Three added the *Work Mattering Scale* (WMS) (Jung & Heppner, 2017) and the *Job Satisfaction Survey* (Spector, 1997) (See Table 3.) Each version of this instrument was 129-130 items, which took approximately 10-15 minutes to complete. Though the instrument titles are listed here as well as in Appendix E, participants did not see the titles, so as to lower response bias.

Table 3
Instruments

Instrument	Reference	No. Items	Abbreviation
Survey Prime (n = 311)			
demographic items		11	
Need to Matter Scale		48	NMS
Basic Psychological Need Satisfaction and Frustration Scale – Work Domain	Chen et al. (2015) Schultz et al. (2014)	24	BPNSF
Stem 1 (n = 106)			
Mattering Index	Elliott, 2004	24	MI
Copenhagen Burnout Inventory	Kristensen et al. (2005)	19	CBI
Turnover Intention	Singh et al. (1996)	3	Turnover
Stem 2 (n = 100)			
University Mattering Scale	France & Finney, (2010)	24	UMS
Center for Epidemiologic Studies Depression Scale	Kohout et al. (1993)	11	Depression
Subjective Happiness Scale	Lyubomirsky & Lepper (1999)	4	Happiness
Prosocial Motivation	Grant (2008)	8	PM
Stem 3 (n = 105)			
Work Mattering Scale	Jung & Heppner, 2017	10	WMS
Job Satisfaction Survey	Spector, 1997	36	JSS

Demographic Survey

The demographic survey was used to collect information regarding the participants' age, race, gender, education level, pursuit of further education, time at the institution, length of time in the position, length of time in the type of position, and what kind of institution they work for. Because mattering is related to one's concept of self (Dixon & Robinson Kurpius, 2008; Elliott et al, 2004; France & Finney, 2009; Joeng & Turner, 2015; Marcus, 1991a; Rosenberg, 1985; Rosenberg & McCullough, 1981) and self-identity is also intersected by age, race, and gender, items for each are included. Items about education level and type of institution helped determine

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if there are large differences in positions across the sample of employees and also helped to ensure representativeness of the sample. Participants were asked if they are pursuing more education because it is typical of this group to be over-educated. The final three demographic items helped determine if there were differences in the relationship to *Need to Matter* and the length of time an employee has worked on campus, worked in a particular position, or in a similar type of position. The demographic questions were asked of all participants.

Need to Matter Scale

The Need to Matter Scale is a newly developed measure and was the focus of this study. The NMS presented to participants consisted of 48 items designed to assess participants' desire to feel that they have a significant existence in the world as related to their work at a university. The items for the NMS were generated for the initial scale in three ways: (a) through reviewing literature regarding the perception of mattering and other "need for"- scales, (b) by having four experts review the items, and (c) by having four experts review for language and other feedback. This procedure was adapted from DeVellis (2016). Participants answered items on a 6-point scale ranging from completely unlike me to completely like me.

Initially, a large pool of 160 items was created. Generally, the language used in these items was based in existing mattering perception scales like the MI and the UMS (Elliott, Koa, & Grant, 2004; France & Finney, 2010), which use the facets of mattering from the foundational theory of mattering by Rosenberg and McCullough's (1981). Since the research on the four facets is often used and is more recent, the NMS is based on the four facets. Additionally, several "need" scales were consulted, so that item structure was set up similarly. Using the Ecological Systems Theory (Bronfenbrenner, 1977; 1979) to form a matrix of the four system levels, 10 items per mattering facet were created at each level (micro-, meso-, exo-, and macrosystems).

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For consistency's sake, wording of each item was altered so that the item made sense for the microsystem (coworkers), mesosystem (department or unit), exosystem (university or college), and macrosystem (the "profession"). At this point 11 items were removed, as they were not applicable to specific systems levels, leaving 149 items (See Appendix F).

Subsequently, these items were reviewed and revised by a panel of four mattering experts. These individuals were considered experts because they are all published researchers who were familiar with the construct of mattering and positive psychology. The panelists did not know who the other panelists were, nor were they geographically near each other. Therefore, the chance of them consulting one another was extremely small. The panelists were given the 149 items and asked to give feedback to narrow the item pool by indicating the facet and level they believed each item was designed to represent. The top three items according to their rating from each facet/level combination were retained provided the items reached at least (75%) agreement between the reviewers. When necessary, items under the 75% threshold were adjusted based upon reviewer feedback. To make item determinations, firstly all items were marked for removal that were not agreed upon by at least three of four panelists for which facet the item best represented. Next, the remaining items were further checked against agreement of panelists for which level the item best represented. For any section that did not have three clear items, the wording of the item was reviewed to make sure that it was understandable which level the item best represented. Panelist feedback was consulted here, too. This process relieved two items in question. One section (Exo – importance), there were no items that were agreed upon at 75%. There were several agreed upon at 50%. One item was 75% agreed upon for the level. That item was included. A selection for two more items in this section was based upon which items were included for the other importance factors. Two items that were most different from the other

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levels were chosen in an attempt to limit method bias. Then, based upon panelist feedback any

items that started with "I like" were changed to include verbs that were more emphatic than

"like" as "like" has a connotation of less importance than the other included verbs. Additionally,

the scale asks how "like" the phrase is to the individual and including another "like" could have

been confusing to participants. Lastly, each item was reread to check for misplaced modifiers,

brevity, and words that may have caused a participant to get confused on whether the item

concerned an individual or the larger group and revised if necessary. By doing this, any issues

that were brought up by panelists were addressed. Figure 1 illustrates both the environmental

levels and facets and gives an example item of the NMS for each level in one of the facets. The

feedback from the panelists easily joined agreement to narrow the scale to three items per facet,

per system level (a 4×4 matrix) for a total of 48 items. The 48 item NMS was presented to all

participants.

Figure 1
NMS Example Items

It is essential to me to be called by name by others in my profession.

It is imperative to me to be acknowledged by my institution.

It is critical to me that my presence is known by my department.

I have a strong urge to ask if I was missed, if I was out of the office.
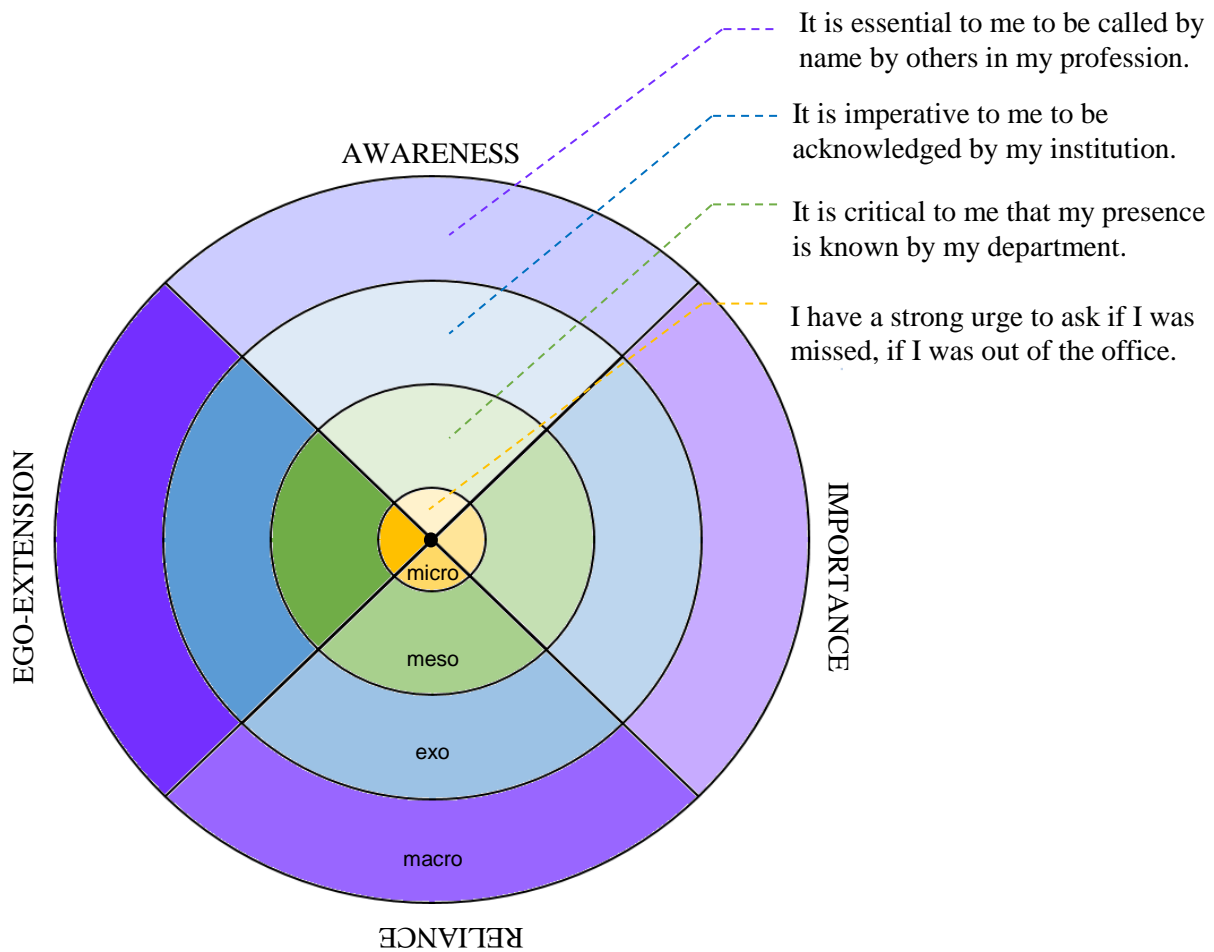
Basic Psychological Need Satisfaction and Frustration Scale – Work Domain

Since the NMS is a novel scale, it was important to compare the scale to another "need"-type scale to test that it behaved similarly. This Basic Psychological Need Satisfaction and Frustration Scale is a 24-item scale that looks at both need satisfaction and frustration in the context of the workplace, addressing the needs of competence, autonomy, and relatedness (Chen et al., 2015; Schultz, Ryan, Niemiec, Legate, & William, 2014). Items are somewhat parallel to the NMS. Participants rate their agreement on a 7 point scale to statements such as "I feel confident that I can do things well on my job." Inter-item consistency for this measure is high

with need satisfaction at $\alpha = 0.82$ and frustration at $\alpha = 0.83$. It was expected that the NMS would be positively related to the Basic Psychological Need Satisfaction and Frustration Scale, but not share a great deal of overlap between constructs, as they are similar, but not the same. The Need scale was administered to all participants.

Mattering Index

Elliott, Koa, and Grant (2004) created the Mattering Index. This measure closely follows Rosenberg and McCullough's (1981) framework using three of the original facets: *awareness, importance, and reliance.* It leaves out *ego-extension*, indicating that it is mainly focused on interpersonal mattering. *Awareness* is simply being recognized as existing. *Importance* includes the care, concern, and interest others have in our wellbeing. *Reliance* is the belief that others need us. The Mattering Index is regarded as one of the most reliable mattering instruments, as it is referred to frequently in mattering literature. It is a 24-item index with high internal consistencies with Cronbach's alphas ranging in the high 0.80s to low 0.90s. Participants respond on a 5 point Likert-type scale to statements like "People are usually aware of my presence." The Mattering Index does have several items that are reverse coded, negative statements, for which it has been criticized. Group one of participants received this instrument.

Copenhagen Burnout Inventory (CBI)

The Copenhagen Burnout Inventory is 19-items, measured on a 5-point scale (Kristensen, Borritz, Villadsen, & Christensen, 2005). The CBI has three sub-scales, each with high internal consistency, including personal burnout ($\alpha = 0.87$), work-related burnout ($\alpha = 0.87$), and client-related burnout ($\alpha = 0.85$) (p. 200). Burnout is commonly used as a proxy for the work outcomes of turnover, engagement, and morale. The sub-scales of this instrument had the potential to tell a more interesting, nuanced story. The purpose of including this instrument was to examine its

relationship with NMS. The NMS was expected to influence the anticipated negative relationship of mattering and burnout. The CBI was administered to the group of participants also taking the Mattering Index.

Turnover Intention

Turnover intention is another proxy measurement for the work-related outcome of turnover. Turnover intention was measured on a very simple, face value scale of 3-items created by Singh, Verbeke, and Rhoads (1996). The items are scored on a 5-point scale. The internal consistency of this scale is moderately high ($\alpha = 0.88$). The NMS was expected to moderate the negative relationship of turnover intention and mattering. The turnover intention items were administered to the group of participants also taking the Mattering Index.

University Mattering Scale (UMS)

France and Finney (2010) created the University Mattering Scale (UMS). This scale is 24-items in length with a 5-point agreement scale. The inter-item correlations are moderately high to high for the four facets of mattering: *awareness* ($\alpha = 0.86$), *importance* ($\alpha = 0.81$), *reliance* ($\alpha = 0.87$), and *ego-extension* ($\alpha = 0.71$) (p. 56). Using χ^2 tests for factor analysis, they found that including the fourth facet of *ego-extension* is a better fitting model than the three factor model using only *awareness, importance,* and *reliance.* Since the NMS items were created with all four facets in mind, the UMS scale was included for the second group of participants. Items are very similar to that of the MI but are set within the context of the university. The original scale was created to measure the unique construct university mattering. University mattering is a measurement originally intended for students, however, all 24 items do not outright state anything about being a student. For the purposes of this study, the UMS was modified to read "my work institution" or "my institutional community" in place of the JMU,

James Madison University that was in the original scale. An example of this change is "The people of my institutional community are usually aware of my presence." No other wording was modified.

Center for Epidemiologic Studies Depression Scale

Wellbeing is commonly associated with mattering. Somewhat ironically, depression instruments are frequently used to measure wellbeing. The original Center for Epidemiologic Studies Depression Scale 20-item scale was developed by Radloff in 1977. For the purposes of this study, a shorter Iowa 11-item scale prepared by Kohout, Berkman, Evans, and Cornoni-Huntley (1993) was used. It used a 3-point scale. The internal reliability for the shorter scale is moderately high ($\alpha = 0.76$). The Depression Scale and the UMS were expected to be negatively related and moderated by the NMS. The Depression Scale was administered in the second set of instruments.

Subjective Happiness Scale

This 4-item measure, rated on a 7-point Likert scale, assesses global subjective happiness (Lyubomirsky & Lepper, 1999). Internal reliability ranged from moderately high to high ($\alpha = 0.79$ to 0.94) across 14 samples. The instrument also proved stable over time. Measuring happiness acted as a proxy measure for the workplace outcome of morale. The Happiness Scale and the UMS were expected to be positively related and moderated by the NMS. Group two's survey stem included the Subjective Happiness Scale.

Prosocial Motivation

Grant (2008) measured motivation using 8 items – 4 prosocial items and 4 intrinsic motivation items on a 7 point Likert scale. Prosocial motivation is motivation driven by the desire to help others. Intrinsic motivation is driven by personal enjoyment. The prosocial and

intrinsic types of motivation parallel the societal and interpersonal split of mattering. The prosocial items have a high internal consistency ($\alpha = 0.90$) and the intrinsic motivation items have a somewhat lower, but still acceptable internal consistency ($\alpha = 0.71$). The instrument prompt asks, "Why are you motivated to do your work?" The NMS is anticipated to moderate the expected positive relationship of Prosocial Motivation instrument and mattering. This scale was administered to participant group two.

Work Mattering Scale (WMS)

The Work Mattering Scale (WMS) is a 10-item instrument with a 6 point agreement scale (Jung & Heppner, 2017). It was included because it interestingly has a two-factor perspective of mattering – societal mattering and interpersonal mattering. Internal reliability coefficients are high for both societal mattering ($\alpha = 0.91$) and interpersonal mattering ($\alpha = 88$). An example of a societal mattering item is "I feel my work meets a societal need." An example of an interpersonal item is "My coworkers/colleagues would be disappointed if they knew that I may leave my job." The WMS was administered to the third group of participants.

Job Satisfaction Survey

The Job Satisfaction Survey is 36-items (Spector, 1997) covering nine facets. Inter-item correlations are low to moderately high: Pay ($\alpha = 0.75$), Promotion ($\alpha = 0.73$), Supervision ($\alpha = 0.82$), Fringe Benefits ($\alpha = 0.73$), Contingent Rewards (performance based rewards) ($\alpha = 0.76$), Operating Procedures (required rules and procedures) ($\alpha = 0.62$), Coworkers ($\alpha = 0.60$), Nature of Work ($\alpha = 0.78$), and Communication ($\alpha = 0.71$). Although it is odd to report, internal consistency reliability for the overall scale is $\alpha = 0.91$. Job satisfaction was expected to be positively related to mattering and moderated by *Need to Matter.* There are a few other widely

used scales that measure job satisfaction. However, Spector's seemed to be a best fit for this study.

Research Procedures

The Human Resource Council for the university system deployed the recruitment email and two follow up emails respectively (Appendix B, C, & D) which included the link to the electronic survey to each campus' human resource department to be delivered to the appropriate band of employees on that campus. The survey included the informed consent page (Appendix A). Having the human resource departments on each campus send out the recruitment emails reduced any indication that the ask was a phishing ploy and increased legitimacy.

The electronic survey allowed survey takers to automatically and randomly be sorted into the three groups, with one stem of survey items available to them. Additionally, the order of items varied within each stem. This reduced the effects of order and length. The survey did not take more than 15 minutes to complete. Participants were notified that they were allowed to take the survey during working hours, so to reduce any feeling of intrusion on work or job expectations. The survey was live for three full weeks to allow plenty of time for respondents to participate. Reminder emails (Appendix C and D) were sent at the beginning of week two and three respectfully.

Limitations

As with any type of research there are some limitations. For this particular study, one such limitation was that of the sample's characteristics. This sample was of course selected purposefully, but because it is a specific band of employees with similar types of jobs, there may be some unknown variable that biased the sample or inadvertently made the results ungeneralizable. Another known limitation of this survey is that of the potential of social

desirability bias. Since this instrument concerns something that is really important to most people – their work and also their feelings and intentions, respondents may have been sensitive to how they answered items. The nature of this type of study is limited by lack of opportunity to request qualitative data, so while the intention was to be thorough and as detailed as possible, there will always be a part of the story untold. Even in its current state, each stem of this survey still had a large amount of items. This could have led to participant burnout, though it does not appear that happened. Unfortunately, there is not an efficient way around this limitation in order to create a highly reliable and valid scale. New scale creation and especially one including self-report measures is guaranteed to suffer from these types of limitations.

CHAPTER FOUR: RESULTS

Data analysis for this psychometric study focused on reliability and validity of the *Need to Matter Scale* (NMS) aiming at addressing the primary research questions. For convenience, those questions are as follows:

1. Can the *need to matter* be measured?

    a. How does this new instrument relate to existing measures of mattering and other related constructs?

    b. Do these relationships vary according to gender or other demographic differences?

2. What is the relationship between *need to matter* and workplace outcomes such as turnover, engagement, and morale?

    a. Do these relationships vary according to mattering satiation?

    b. Do these relationships vary according to gender or other demographic differences?

Data Analysis

Data analysis was conducted using SPSS version 26 and STATA 16. The results are going to be organized by the research questions. As a reminder, participants were each asked to answer some similar scale items, but then were split into three groups. Each group had approximately 100 participants to it.

Initial analysis examined the specified theoretical model of each of the four facets across the four environmental systems levels; micro-, meso-, exo-, and macrosystems (see Figure 2). Items noted in Figure 2 can be found in Appendix E with corresponding numbering. To examine the internal consistency reliability of the Need to Matter Scale, Cronbach's alpha was calculated.

Cronbach's alpha serves as an indicator of the instrument's error of measurement. An additional test of congeneric reliability, Omega, was calculated when applicable. A Pearson's correlation examined the relationships between the *Need to Matter Scale* and the *University Mattering Scale (UMS)* (France & Finney, 2010), the *Mattering Index* (Elliott, 2004), *Work Mattering Scale (WMS)* (Jung & Heppner, 2017) and the *Basic Psychological Need Satisfaction and Frustration Scale – Work Domain* (*BPNSF)* (Chen, Vansteenkiste, Beyers, Boone, Deci, Van der Kaap-Deeder, Duriez, Lens, Matos, Mouratidis, & Ryan, 2015; Schultz, Ryan, Niemiec, Legate, & William, 2014). Relationships between the appropriate mattering scale and *Copenhagen Burnout Inventory (CBI)* (Kristensen, Borritz, Villadsen, & Christensen, 2005), *Turnover Intention* (Singh, Verbeke, and Rhoads, 1996), *Center for Epidemiologic Studies Depression Scale* (Kohout, Berkman, Evans, & Cornoni-Huntley, 1993), *Subjective Happiness Scale* (Lyubomirsky & Lepper, 1999), *Prosocial Motivation* (Grant, 2008), and *Job Satisfaction Survey (JSS)* (Spector, 1997) were also examined. Basic data cleaning was done before any analysis.

Figure 2
System Level by Mattering Facet Item Matrix

NMS items	Awareness	Importance	Reliance	Ego-extension
Microsystem level	1	4	7	10
	2	5	8	11
	3	6	9	12
Mesosystem level	13	16	19	22
	14	17	20	23
	15	18	21	24
Exosystem level	25	28	31	34
	26	29	32	35
	27	30	33	36
Macrosystem level	37	40	43	46
	38	41	44	47
	39	42	45	48

Research question 1 was addressed with a Confirmatory Factor Analysis.

Specified Theoretical Model

The theoretical model was specified as a four-factor, standard CFA model with 18 parameters and 48 degrees of freedom. Since this was a standard CFA, the model was identified. The unit-variance identification constraint was used with this model. The model was stratified at the environmental system level to test if the generally accepted four-facet model of mattering would hold up across environmental contextual levels. Parameters were estimated using maximum likelihood.

The initial model was four factors that were allowed to correlate, with no correlated measurement errors. The comb structure, as depicted in Figure 3, means all pairwise correlations among the factors are present. In other words, it is a basic congeneric model. This model was used to analyze data at each of the four environmental context levels.

Figure 3
Initial Model
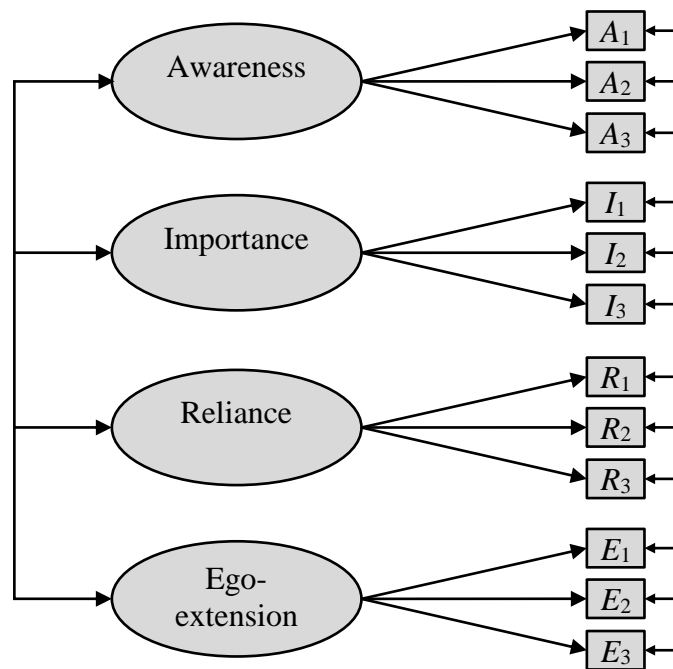
Note: Initial model is the same for all four environmental context levels. The observed variables are the items from the NMS. The variables are named in accordance with the construct that they were originally meant to measure.

Micro Level

The microsystem level represents the individual's closest working peers.

Initial Model

The initial model at the micro level ($n = 308$) showed a good global fit, $\chi^2(48) = 89.009$ ($p < .001$), RMSEA $= 0.053$, CFI $= 0.973$, SRMR $= 0.045$. However, there were issues with discriminant validity as a number of the correlations between factors were well above reasonable limits (Table 4).

Table 4
Micro Level Factor Correlations – Initial Model

Factor	A	I	R	E
A	1.000			
I	0.913	1.000		
R	0.661	0.588	1.000	
E	0.995	0.970	0.625	1.000

Note. All correlation coefficients were significant ($p < 0.001$).

Modified Model

Model modification was necessary due to the extremely high correlations among some of the factors in the initial four-factor model. More specifically, factors with high correlations were allowed to coalesce. This resulted in a two factor model AEI, Awareness, Ego-extension, Importance, and R, reliance. In addition, after reviewing micro items reliance 2 and reliance 3 it was determined that these two items were negligibly different. Therefore, the measurement errors for these two items were allowed to correlate. The correlation in the error terms suggests that there is more information in the data that has not been explained by the modified model. All standardized loadings were greater than 0.40, so no measurement items were eliminated from the instrument.

Parameter Estimates

Unstandardized and standardized solutions, factor and error term correlations, and standard error for each were calculated. These appear in Table 5.

Table 5
Micro Level Parameter Estimates – Modified Model

Variable		Parameter Estimates		SE	z	p	95% CI	
		Unstandardized	Standardized					
Loadings								
AEI	Awareness1	0.892	0.587	0.082	10.86	<0.001	0.731	1.053
	Awareness2	0.567	0.468	0.068	8.33	<0.001	0.433	0.700
	Awareness3	0.942	0.701	0.069	13.62	<0.001	0.806	1.077
	EgoExt1	0.859	0.626	0.073	11.77	<0.001	0.716	1.002
	EgoExt2	0.837	0.652	0.067	12.41	<0.001	0.705	0.969
	EgoExt3	0.917	0.737	0.063	14.59	<0.001	0.793	1.040
	Importance1	1.103	0.766	0.071	15.42	<0.001	0.963	1.243
	Importance2	1.073	0.829	0.062	17.35	<0.001	0.952	1.194
	Importance3	1.030	0.799	0.063	16.41	<0.001	0.907	1.153
R	Reliance1	0.749	0.747	0.063	11.92	<0.001	0.626	0.872
	Reliance2	0.769	0.648	0.076	10.16	<0.001	0.621	0.918
	Reliance3	0.577	0.590	0.062	9.25	<0.001	0.454	0.699
Covariances								
Reliance2 Error	Reliance3 Error	0.212	0.297	0.063	3.36	0.001	0.088	0.335
AEI	R	0.676	0.676	0.050	13.65	<0.001	0.579	0.773

Note. UVI used (all factor variances constrained to 1.0).

Global Fit

The modified model showed very good fit (See Table 6). Although the chi-squared statistic is significant, the normed chi-squared ($\chi^2/df = 1.742$) is well within acceptable range.

Table 6
Micro Level Global Fit Statistics – Modified Model

Fit test	Value
Likelihood-ratio chi-squared (χ^2)	90.568[a]
Root mean squared error of approximation (RMSEA)	0.049
Comparative fit index (CFI)	0.975
Standardized root mean squared residual (SRMR)	0.040

[a]$df = 52$, $p = 0.001$

Reliability

The modified model showed moderately strong reliabilities (see Table 7).

Table 7
Micro Level Reliabilities for Subscales – Modified Model

Subscale	Cronbach's alpha	Omega
AEI	0.887	0.891
R	0.742	---

Note. Omega (congeneric) reliability is not available for factor R because of the correlated error terms.

A visual representation of the modified model can be found in Figure 4.

Figure 4
Micro Level Modified Model
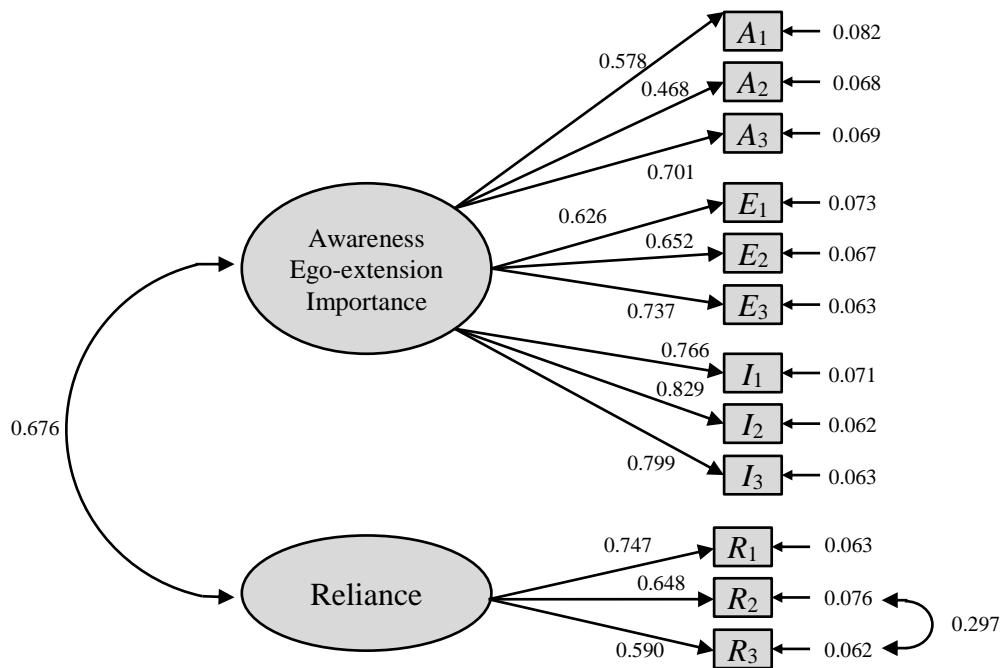
Note. Standardized estimates reported in figure.

Meso Level

The mesosystem consists of the person's department or slightly bigger group of work peers.

Initial Model

The initial model at the meso level ($N = 308$) showed a good global fit, $\chi^2(48) = 182.300$ ($p < .001$), RMSEA = 0.095, CFI = 0.929, SRMR = 0.061. However, there were issues with discriminant validity as a number of the correlations between factors were well above reasonable limits (Table 8).

Table 8
Meso Level Factor Correlations – Initial Model

Factor	A	I	R	E
A	1.000			
I	0.867	1.000		
R	0.880	0.743	1.000	
E	0.945	0.991	0.904	1.000

Note. All correlation coefficients were significant ($p < 0.001$).

Modified Model

Again, model modification was necessary due to the high correlations among the factors in the initial four-factor model. More specifically, factors with high correlations were allowed to coalesce. This resulted in a modified model with only one factor. Additionally, a number of measurement errors were allowed to correlate. The correlation in the error terms suggests that there is additional information in the data that has not been fully captured by the modified model. All standardized loadings were greater than 0.40, so no measurement items were eliminated from the instrument.

Parameter Estimates

Unstandardized and standardized solutions, factor and error term correlations, and standard error for each were calculated. These appear in Table 9.

Table 9
Meso Level Parameter Estimates – Modified Model

Variable		Parameter Estimates		*SE*	*z*	*p*	95% CI	
		Unstandardized	Standardized					
Loadings								
ARIE	Awareness1	0.912	0.685	0.069	13.17	<0.001	0.776	1.047
	Awareness2	1.022	0.787	0.064	16.03	<0.001	0.897	1.147
	Awareness3	0.833	0.699	0.062	13.53	<0.001	0.712	0.953
	Reliance1	0.503	0.517	0.054	9.30	<0.001	0.397	0.609
	Reliance2	0.953	0.680	0.073	13.07	<0.001	0.810	1.095
	Reliance3	0.395	0.422	0.053	7.40	<0.001	0.290	0.499
	Importance1	1.023	0.799	0.062	16.39	<0.001	0.901	1.146
	Importance2	0.942	0.760	0.062	15.08	<0.001	0.819	1.064
	Importance3	0.958	0.789	0.060	16.05	<0.001	0.841	1.075
	EgoExt1	0.862	0.736	0.059	14.52	<0.001	0.745	0.978
	EgoExt2	0.785	0.646	0.064	12.26	<0.001	0.660	0.911
	EgoExt3	0.567	0.523	0.060	9.44	<0.001	0.450	0.685
Covariances								
Awareness1 Error	Awareness3 Error	0.189	0.228	0.055	3.44	0.001	0.081	0.296
Reliance1 Error	Reliance3 Error	0.270	0.383	0.045	6.04	<0.001	0.183	0.358
Reliance1 Error	EgoExt3 Error	0.320	0.416	0.050	6.41	<0.001	0.223	0.418
Reliance3 Error	EgoExt3 Error	0.332	0.423	0.050	6.58	<0.001	0.233	0.431
Importance1 Error	Importance2 Error	0.125	0.203	0.042	2.98	0.003	0.043	0.208
Importance2 Error	Importance3 Error	0.146	0.243	0.042	3.51	<0.001	0.064	0.227

Note. UVI used (all factor variances constrained to 1.0).

Global Fit

The modified model showed very good fit (see Table 10). Although the chi-squared statistic is significant, the normed chi-squared ($\chi^2/df = 1.894$) is well within acceptable range.

Table 10

Meso Level Global Fit Statistics – Modified Model

Fit test	Value
Likelihood-ratio chi-squared (χ^2)	90.901[a]
Root mean squared error of approximation (RMSEA)	0.054
Comparative fit index (CFI)	0.977
Standardized root mean squared residual (SRMR)	0.038

[a]$df = 48$, $p < 0.001$

Reliability

Cronbach's alpha was used as a test of reliability for the modified model at the meso

level. Alpha was 0.912.

A visual representation of the modified model can be found in Figure 5.

Figure 5

Meso Level Modified Model
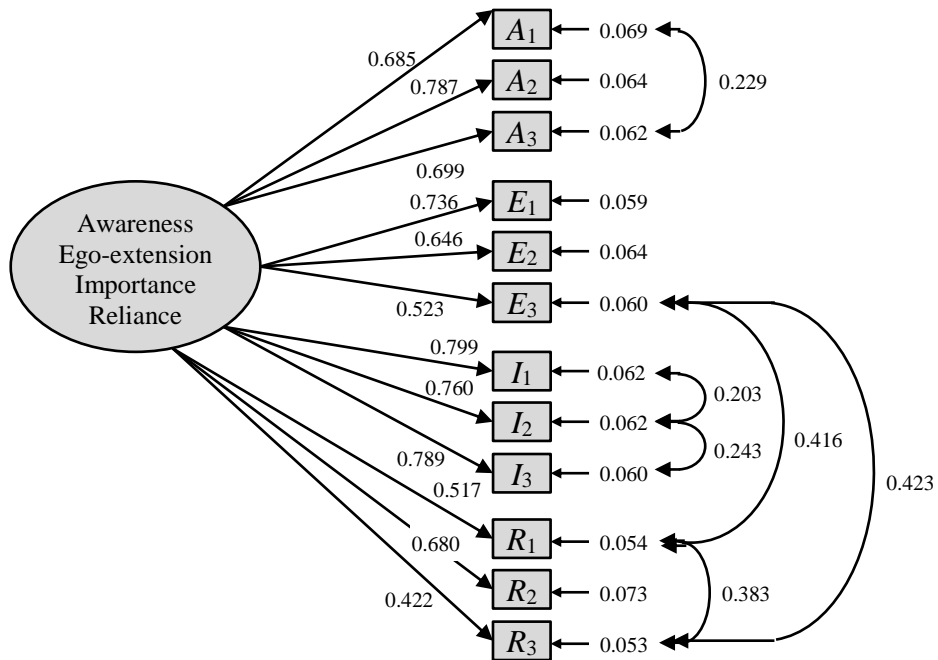
Note. Standardized estimates reported in figure.

<div align="center">**Exo Level**</div>

The exosystem is the institution or university that the person works.

Initial Model

The initial model at the exosystem level ($N = 308$) showed a good global fit, $\chi^2(48) =$ 250.486 (p < 0.001), RMSEA = 0.118, CFI = 0.891, SRMR = 0.086. Though lesser than the other levels, there were still issues with discriminant validity as a number of the correlations between factors were still quite above reasonable limits (Table 11).

Table 11
Exo Level Factor Correlations – Initial Model

Factor	A	I	R	E
A	1.000			
I	0.720	1.000		
R	0.561	0.524	1.000	
E	0.710	0.663	0.854	1.000

Note. All correlation coefficients were significant (p < 0.001).

Modified Model

Model modification was necessary due to the high correlations among some of the factors in the initial four-factors. Factors with high correlations did not, however, coalesce. Measurement errors for a number of items were allowed to covary. Due to the large number of covarying error terms between factors R and E, allowing them to coalesce was explored. This did not result in a viable modified model. Therefore, the modified model for the exo level is a four factor model. The correlation in the error terms suggests that there is certainly more information in the data that is not explained by the modified model. All standardized loadings were greater than 0.40, so no measurement items were eliminated from the instrument.

Parameter Estimates

Unstandardized and standardized solutions, factor and error term correlations, and standard error for each were calculated. These appear in Table 12.

Table 12

Exo Level Parameter Estimates – Modified Model

Variable		Parameter Estimates		*SE*	*z*	*p*	95% CI	
		Unstandardized	Standardized					
Loadings								
A	Awareness1	0.993	0.708	0.077	12.94	<0.001	0.843	1.143
	Awareness2	0.928	0.677	0.076	12.25	<0.001	0.779	1.076
	Awareness3	1.046	0.843	0.064	16.26	<0.001	0.920	1.172
I	Importance1	0.724	0.642	0.062	11.68	<0.001	0.602	0.845
	Importance2	0.995	0.786	0.065	15.42	<0.001	0.869	1.121
	Importance3	1.084	0.881	0.060	18.00	<0.001	0.966	1.202
R	Reliance1	0.539	0.576	0.057	9.41	<0.001	0.427	0.651
	Reliance2	1.048	0.748	0.089	11.83	<0.001	0.874	1.221
	Reliance3	0.341	0.401	0.056	6.13	<0.001	0.232	0.450
E	EgoExt1	0.731	0.694	0.058	12.61	<0.001	0.618	0.845
	EgoExt2	0.929	0.843	0.057	16.22	<0.001	0.817	1.041
	EgoExt3	0.650	0.609	0.061	10.60	<0.001	0.529	0.770
Covariances								
Awareness1 Error	Awareness2 Error	0.441	0.441	0.082	5.38	<0.001	0.280	0.602
Awareness3 Error	EgoExt2 Error	0.111	0.283	0.046	2.41	0.016	0.021	0.202
Reliance1 Error	Reliance3 Error	0.265	0.445	0.044	6.03	<0.001	0.179	0.351
Reliance1 Error	EgoExt1 Error	0.222	0.384	0.043	5.13	<0.001	0.137	0.307
Reliance1 Error	EgoExt3 Error	0.206	0.318	0.046	4.53	<0.001	0.117	0.296
Reliance3 Error	EgoExt1 Error	0.206	0.349	0.041	5.01	<0.001	0.125	0.287
Reliance3 Error	EgoExt3 Error	0.267	0.404	0.045	5.91	<0.001	0.178	0.355
EgoExt1 Error	EgoExt3 Error	0.279	0.435	0.050	5.60	<0.001	0.182	0.377

Note. UVI used (all factor variances constrained to 1.0).

The exo level factors for the modified model had reasonably high correlations (see table 13).

Table 13

Exo Level Factor Correlations – Modified Model

Factor	A	I	R	E
A	1.000			
I	0.767	1.000		
R	0.792	0.672	1.000	
E	0.849	0.741	0.816	1.000

Note. All correlation coefficients were significant (p < 0.001).

Global Fit

The modified model at the exosystem level showed very good fit (see Table 14).

Although the chi-squared statistic is significant, the normed chi-squared ($\chi^2/df = 1.965$) is well

within acceptable range.

Table 14

Exo Level Global Fit Statistics – Modified Model

Fit test	Value
Likelihood-ratio chi-squared (χ^2)	78.616[a]
Root mean squared error of approximation (RMSEA)	0.057
Comparative fit index (CFI)	0.979
Tucker-Lewis index (TLI)	0.966
Standardized root mean squared residual (SRMR)	0.039

[a]$df = 40$, $p = 0.001$

Reliability

The modified model for the exo level shows strong reliabilities for the A, I, and E factors

and moderately strong reliability for the R factor (see table 15).

Table 15

Exo Level Reliabilities for Subscales – Modified Model

Subscale	Cronbach's alpha
A	0.836
I	0.806
R	0.644
E	0.829

A visual representation of the modified model can be found in Figure 6.

Figure 6
Exo Level Modified Model
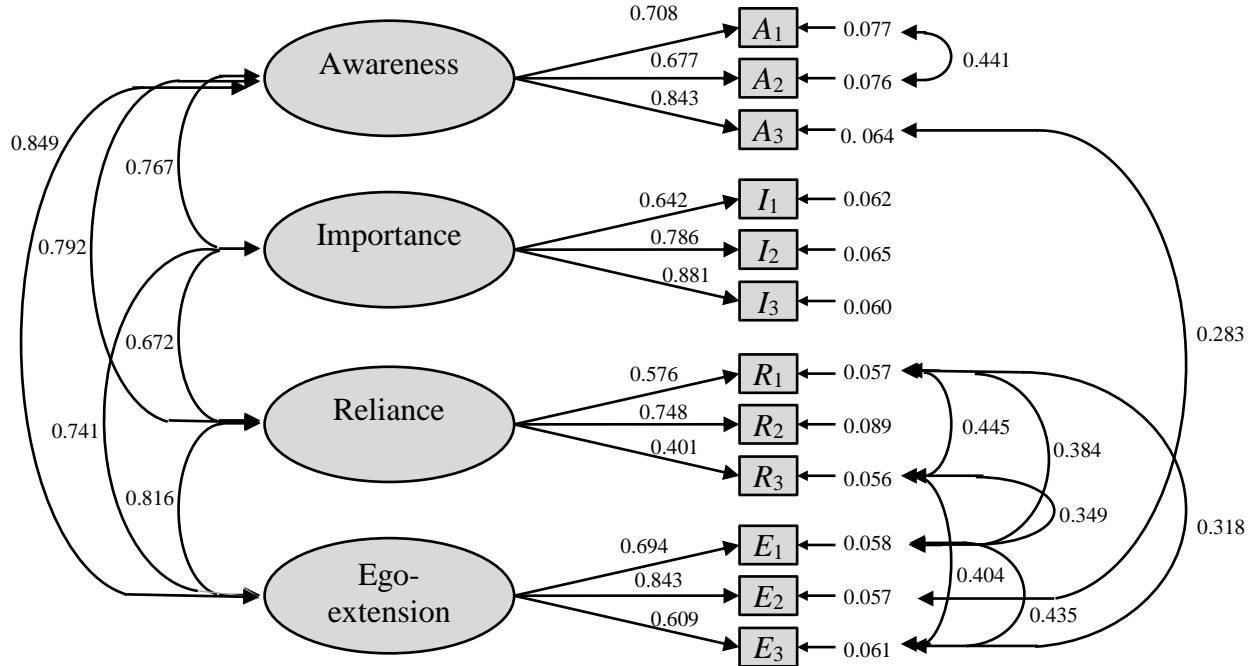
Note. Standardized estimates reported in figure.

Macro Level

The macrosystem is the profession to which the person belongs.

Initial Model

The initial model at the micro level ($N = 308$) showed a good global fit, $\chi^2(48) = 281.245$ (p < .001), RMSEA = 0.127, CFI = 0.922, TLI = 0.892, SRMR = 0.085. However, there were issues with discriminant validity as a number of the correlations between factors were well above reasonable limits (Table 16).

Table 16
Macro Level Factor Correlations – Initial Model

Factor	A	I	R	E
A	1.000			
I	0.821	1.000		
R	0.661	0.713	1.000	
E	0.854	0.957	0.856	1.000

Note. All correlation coefficients were significant ($p < 0.001$).

Modified Model

Model modification was necessary due to the extremely high correlations among some of the factors in the initial four-factor model. More specifically, factors with high correlations were allowed to coalesce. This resulted in a two factor model, A, Awareness and IRE, Importance, Reliance, Ego-extension. In addition, the measurement errors for these items were allowed to correlate. The correlation in the error terms suggests that there is more information in the data that has not been explained by the modified model. All standardized loadings were greater than 0.40, so no measurement items were eliminated from the instrument.

Parameter Estimates

Unstandardized and standardized solutions, factor and error term correlations, and standard error for each were calculated. These appear in Table 17.

Table 17

Macro Level Parameter Estimates – Modified Model

Variable		Parameter Estimates		*SE*	*z*	*p*	95% CI	
		Unstandardized	Standardized					
Loadings								
A	Awareness1	1.270	0.876	0.067	18.99	<0.001	1.139	1.401
	Awareness2	1.170	0.864	0.063	18.52	<0.001	1.046	1.294
	Awareness3	1.286	0.918	0.063	20.49	<0.001	1.163	1.409
IRE	Importance1	1.165	0.857	0.063	18.46	<0.001	1.041	1.289
	Importance2	1.169	0.852	0.064	18.27	<0.001	1.043	1.294
	Importance3	1.169	0.886	0.060	19.51	<0.001	1.052	1.287
	Reliance1	0.751	0.587	0.069	10.96	<0.001	0.617	0.885
	Reliance2	1.124	0.786	0.070	16.15	<0.001	0.987	1.260
	Reliance3	0.783	0.610	0.068	11.47	<0.001	0.649	0.917
	EgoExt1	1.048	0.744	0.070	14.91	<0.001	0.910	1.185
	EgoExt2	1.090	0.807	0.065	16.79	<0.001	0.963	1.217
	EgoExt3	0.933	0.712	0.066	14.06	<0.001	0.803	1.064
Covariances								
Reliance1 Error	Reliance3 Error	0.702	0.666	0.076	9.25	<0.001	0.553	0.851
A	IRE	0.844	0.844	0.022	38.57	<0.001	0.801	0.887

Global Fit

The modified model at the macrosystem level showed good fit (see Table 18). Although

the chi-squared statistic is significant, the normed chi-squared ($\chi^2/df = 3.482$) is within

acceptable range.

Table 18

Macro Level Global Fit Statistics – Modified Model

Fit test	Value
Likelihood-ratio chi-squared (χ^2)	181.042[a]
Root mean squared error of approximation (RMSEA)	0.091
Comparative fit index (CFI)	0.957
Tucker-Lewis index (TLI)	0.945
Standardized root mean squared residual (SRMR)	0.044

[a]$df = 52$, $p = 0.001$

Reliability

The modified model factors for the macro level show high reliabilities (see Table 19).

Table 19
Macro Level Reliabilities for Subscales – Modified Model

Subscale	Cronbach's alpha
A	0.914
IRE	0.929

A visual representation of the modified model can be found in Figure 7.

Figure 7
Macro Level Modified Model
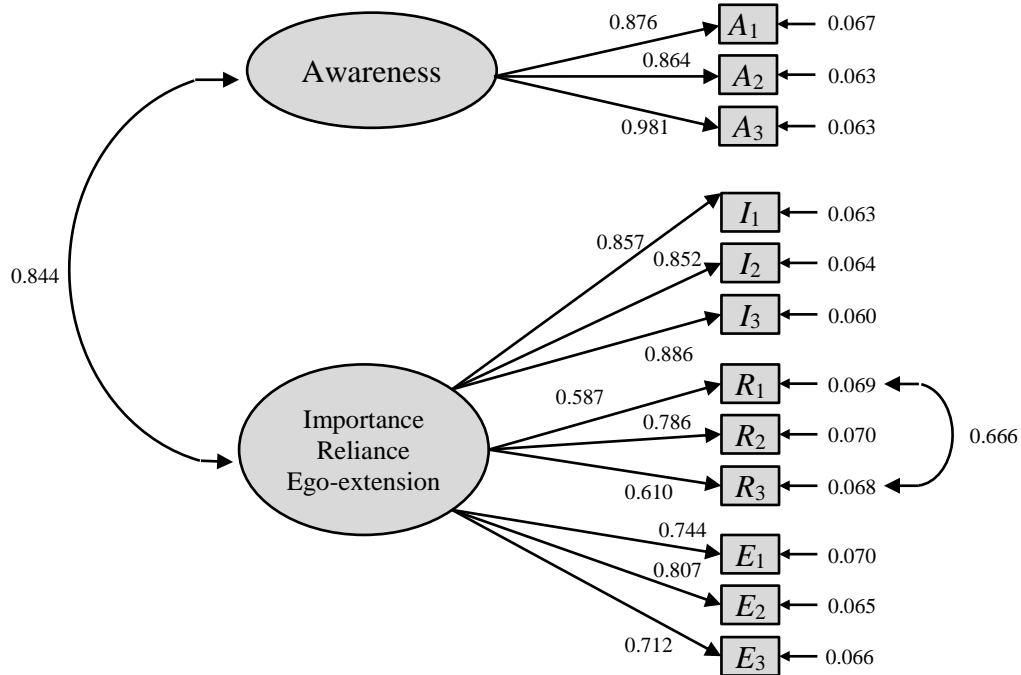
Note. Standardized estimates reported in figure.

Need to Matter can be measured, though, how is dependent on the contextual environmental level. Resultantly there are four different models, one for each respective environmental context level. No items were eliminated in the model modification process.

Discriminant Validity

Research question 1A investigates how the Need to Matter Scale relates to existing measures of mattering and other related constructs. It was addressed with Pearson's correlations of the NMS and the Work Domain version of the BPNSF (Table 20), the MI (Table 21), the UMS (Table 22), and the WMS (Table 23). Some of the preexisting measures also reported global measurements in the corresponding original literature. An attempt was made to include correlations of the NMS with those scores, as well as any reported subscales.

Table 20
Model Correlations with BPNSF

	Micro AIE	Micro R	Meso	Exo A	Exo I	Exo R	Exo E	Macro A	Macro IRE
Autonomy Satisfaction	0.113*	0.197*	0.101	0.142*	0.113*	0.180*	0.167*	0.049*	0.068
Autonomy Frustration	-0.018	-0.081	0.018	0.013	-0.062	-0.018	-0.052	0.111	0.090
Relatedness Satisfaction	0.238*	0.214*	0.230*	0.132*	0.151*	0.121*	0.123*	0.081	0.091
Relatedness Frustration	0.033	-0.069	0.031	0.076	0.036	0.022	0.074	0.122	0.150
Competence Satisfaction	-0.113*	0.194*	0.055	0.062	-0.023	0.197*	0.186*	-0.012	0.018
Competence Frustration	0.152*	-0.066	0.007	-0.046	0.039	-0.133*	-0.111	0.060	0.051
Total Satisfaction	0.125*	0.257*	0.174*	0.150*	0.115*	0.208*	0.199*	0.056	0.080
Total Frustration	0.067	-0.096	0.025	0.020	0.002	-0.053	-0.039	0.129*	0.127*

Note. $n = 308$. *Significant at the $p < 0.05$ level.

Of note is that total satisfaction is significant for micro, meso, and exo levels, but not at the macro level. However, total frustration is significantly correlated to *need to matter* only at the macro level. The strength of all these significant relationships is very weak.

Table 21
Model Correlations with MI

	Micro AIE	Micro R	Meso	Exo A	Exo I	Exo R	Exo E	Macro A	Macro IRE
Awareness	0.072	0.024	0.155	0.244*	0.227*	0.151	0.145	0.201*	0.166
Importance	0.025	0.008	0.111	0.082	0.157	0.085	0.189	-0.003	0.028
Reliance	-0.039	0.114	0.144	0.169	0.116	0.240*	0.241*	0.135	0.224*
Mattering	0.025	0.051	0.161	0.185	0.200*	0.178	0.232*	0.113	0.148

Note. $n = 106$. *Significant at the $p < 0.05$ level.

Though there are a few factors of the MI that are significantly correlated with factors of

the NMS at different levels, all the relationships are week, less than 0.25.

Table 22
Model Correlations with UMS

	Micro AIE	Micro R	Meso	Exo A	Exo I	Exo R	Exo E	Macro A	Macro IRE
Awareness	-0.077	0.030	-0.082	-0.028	-0.175	0.105	0.084	-0.073	-0.023
Importance	-0.043	-0.017	-0.052	-0.060	-0.174	0.107	0.078	-0.095	-0.039
Ego-Extension	0.035	0.059	-0.021	0.026	-0.056	0.071	0.148	0.095	0.077
Reliance	-0.056	0.070	0.012	0.117	-0.072	0.195	0.175	-0.026	0.010
Mattering	-0.053	0.035	-0.048	0.009	-0.147	0.139	0.130	-0.049	-0.006

Note. $n = 99$. *Significant at the $p < 0.05$ level.

No correlations are significant between the NMS and the UMS.

Table 23
Model Correlations with WMS

	Micro AIE	Micro R	Meso	Exo A	Exo I	Exo R	Exo E	Macro A	Macro IRE
Societal	0.289*	0.227*	0.301*	0.271*	0.273*	0.393*	0.410*	0.259*	0.327*
Inter-personal	0.278*	0.303*	0.280*	0.246*	0.229*	0.260*	0.203*	0.096	0.170

Note. $n = 105$. *Significant at the $p < 0.05$ level.

All levels of the NMS are significantly related to the societal factor of the WMS. Yet, the

strength of the relationships are weak. Notably, the macro level of the NMS is not significantly

related to the WMS interpersonal factor.

Demographic Differences

Research question 1B examines if the relationships from question 1A, between the NMS and the BPNSF, the MI, the UMS, and the WMS, vary according to gender or other demographic differences. Other demographic differences include age, education level, and institution type. These four demographics were chosen from the many available because age and gender are commonly found in other mattering literature. Institution type and education level adds a layer of context to the environmental systems considered. Due to excessive collinearity as measured by the variance inflation factor, education level was removed from analysis. A multiple-linear regression was used to compare demographic groups. Variables were centered to counter collinearity that occurs with interactions. Age was considered with the actual numerical value and was not categorized. Gender and institution type were categorized (see Table 1 for categories). NMS composite scores for each level and composite scores for the MI and UMS were used in the analysis because had the subscales been used, it would have caused a large amount of analysis which would increase the risk of committing at least one type-I error. These results are presented by the NMS levels in Tables 24-39.

Table 24
Micro NMS Model with BPNSF by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	43.628	14	3.116	5.14	<0.001
BPNSF total satisfaction	7.212	1	7.212	11.89	0.001
BPNSF total frustration	5.117	1	5.117	8.44	0.004
age	8.770	1	8.770	14.46	0.000
gender	6.333	1	6.333	10.44	0.001
institution type	1.471	2	0.735	1.21	0.299
satisfaction × age	2.043	1	2.043	3.37	0.068
satisfaction × gender	0.153	1	0.153	0.25	0.615
satisfaction × inst. type	0.534	2	0.267	0.44	0.644
frustration × age	1.162	1	1.162	1.92	0.167
frustration × gender	0.104	1	0.104	0.17	0.679
frustration × inst. type	0.067	2	0.034	0.06	0.946
residual	173.419	286	0.606		
total	217.047	300	0.723		

Note. n = 301, R^2 = 0.201, RMSE =0.779, $R^2_{adjusted}$ = 0.162, Significant at the $p < 0.05$ level.

At the micro level the relationship between *need to matter* and the BPNSF does not vary by age, gender, or institution type. All main effects, other than institution type, are significant.

Table 25
Meso NMS Model with BPNSF by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	40.865	14	2.919	4.59	<0.001
BPNSF total satisfaction	9.052	1	9.052	14.22	<0.001
BPNSF total frustration	7.219	1	7.219	11.34	<0.001
age	3.637	1	3.637	5.71	0.018
gender	4.974	1	4.974	7.81	0.006
institution type	3.751	2	1.876	2.95	0.054
satisfaction × age	1.848	1	1.848	2.90	0.090
satisfaction × gender	0.335	1	0.335	0.53	0.460
satisfaction × inst. type	0.558	2	0.279	0.44	0.645
frustration × age	3.556	1	3.556	5.59	0.018
frustration × gender	0.242	1	0.242	0.38	0.538
frustration × inst. type	0.389	2	0.194	0.31	0.737
residual	182.031	286	0.636		
total	222.896	300	0.743		

Note. n = 301, R^2 = 0.183, RMSE =0.798, $R^2_{adjusted}$ = 0.143, Significant at the $p < 0.05$ level.

At the meso level the relationship between *need to matter* and total frustration varies by

age. As age increases, the strength of the relationship between the meso NMS and frustration

gets more intense.

Table 26
Exo NMS Model with BPNSF by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	34.319	14	2.451	4.15	<0.001
BPNSF total satisfaction	6.543	1	6.543	11.08	0.001
BPNSF total frustration	2.796	1	2.796	4.73	0.030
age	1.987	1	1.987	3.36	0.068
gender	1.525	1	1.525	2.58	0.109
institution type	2.040	2	1.020	1.73	0.180
satisfaction × age	2.772	1	2.772	4.69	0.031
satisfaction × gender	0.022	1	0.022	0.04	0.849
satisfaction × inst. type	1.797	2	0.899	1.52	0.220
frustration × age	2.712	1	2.712	4.59	0.033
frustration × gender	0.008	1	0.008	0.01	0.907
frustration × inst. type	0.200	2	0.100	0.17	0.845
residual	168.951	286	0.591		
total	203.271	300	0.678		

Note. n = 301, R^2 = 0.169, RMSE =0.769, $R^2_{adjusted}$ = 0.128, Significant at the $p < 0.05$ level.

At the exosystem level the relationships between *need to matter* and total satisfaction and

total frustration vary by age. As age increases, the strength of the relationships between the exo

NMS and both satisfaction and frustration get more intense.

Table 27
Macro NMS Model with BPNSF by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	54.133	14	3.867	3.79	<0.001
BPNSF total satisfaction	16.989	1	16.989	16.67	<0.001
BPNSF total frustration	14.258	1	14.258	13.99	<0.001
age	1.897	1	1.897	1.86	0.174
gender	1.185	1	1.185	1.16	0.282
institution type	2.111	2	1.055	1.04	0.356
satisfaction × age	4.627	1	4.627	4.54	0.034
satisfaction × gender	2.393	1	2.393	2.35	0.127
satisfaction × inst. type	2.358	2	1.179	1.16	0.316
frustration × age	2.503	1	2.503	2.46	0.118
frustration × gender	1.343	1	1.343	1.32	0.252
frustration × inst. type	0.031	2	0.016	0.02	0.985
residual	291.447	286	1.019		
total	345.581	300	1.152		

Note. n = 301, $R^2 = 0.157$, RMSE =1.010, $R^2_{adjusted} = 0.115$, Significant at the $p < 0.05$ level.

At the macro level the relationship between *need to matter* and total satisfaction as measured by the BPNSF varies by age. As age increases, the strength of the relationship between the macro NMS and satisfaction increases.

Table 28
Micro NMS Model with MI by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	8.800	9	0.978	1.67	0.106
MI	0.103	1	0.103	0.18	0.675
age	6.372	1	6.372	10.90	0.001
gender	0.157	1	0.157	0.27	0.605
institution type	0.036	2	0.018	0.03	0.970
MI × age	0.001	1	0.001	0.00	0.972
MI × gender	0.147	1	0.147	0.25	0.617
MI × institution type	0.382	2	0.191	0.33	0.722
residual	54.943	94	0.584		
total	63.743	103	0.619		

Note. n = 104, $R^2 = 0.138$, RMSE =0.765, $R^2_{adjusted} = 0.056$, Significant at the $p < 0.05$ level.

The relationship between *need to matter* and mattering satiation as measured by the MI does not vary by age, gender, or institution type at the micro level. The main effect of age is significant.

Table 29

Meso NMS Model with MI by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	7.160	9	0.796	1.52	0.151
MI	0.031	1	0.031	0.06	0.809
age	1.630	1	1.630	3.12	0.081
gender	0.180	1	0.180	0.35	0.558
institution type	0.525	2	0.263	0.50	0.606
MI × age	0.018	1	0.018	0.03	0.852
MI × gender	0.604	1	0.604	1.16	0.285
MI × institution type	0.609	2	0.304	0.58	0.560
residual	49.065	94	0.522		
total	56.226	103	0.546		

Note. n = 104, R^2 = 0.127, RMSE =0.722, $R^2_{adjusted}$ = 0.044, Significant at the $p < 0.05$ level.

The relationship between *need to matter* and mattering satiation as measured by the MI does not vary by age, gender, or institution type at the meso level. No main effects are significant.

Table 30

Exo NMS Model with MI by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	10.294	9	1.144	1.55	0.141
MI	1.987	1	1.987	2.70	0.104
age	0.349	1	0.349	0.47	0.493
gender	0.011	1	0.011	0.01	0.904
institution type	0.386	2	0.193	0.26	0.770
MI × age	1.042	1	1.042	1.41	0.237
MI × gender	0.037	1	0.037	0.05	0.822
MI × institution type	0.436	2	0.218	0.30	0.745
residual	69.262	94	0.737		
total	79.556	103	0.772		

Note. n = 104, R^2 = 0.129, RMSE =0.858, $R^2_{adjusted}$ = 0.046, Significant at the $p < 0.05$ level.

The relationship between *need to matter* and mattering satiation as measured by the MI

does not vary by age, gender, or institution type at the exo level. No main effects are significant.

Table 31
Macro NMS Model with MI by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	13.764	9	1.529	1.37	0.215
MI	0.417	1	0.417	0.37	0.543
age	0.521	1	0.521	0.47	0.497
gender	0.060	1	0.060	0.05	0.818
institution type	0.273	2	0.137	0.12	0.885
MI × age	3.663	1	3.663	3.27	0.074
MI × gender	1.916	1	1.916	1.71	0.194
MI × institution type	1.029	2	0.514	0.46	0.633
residual	105.238	94	1.120		
total	119.002	103	1.155		

Note. n = 104, R^2 = 0.116, RMSE =1.058, $R^2_{adjusted}$ = 0.031, Significant at the $p < 0.05$ level.

The relationship between *need to matter* and mattering satiation as measured by the MI

does not vary by age, gender, or institution type at the macro level. No main effects are

significant.

Table 32
Micro NMS Model with UMS by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	9.463	9	1.051	1.48	0.170
UMS	0.051	1	0.051	0.07	0.789
age	0.015	1	0.015	0.02	0.886
gender	6.702	1	6.702	9.41	0.003
institution type	0.727	2	0.364	0.51	0.602
UMS × age	0.357	1	0.357	0.50	0.481
UMS × gender	0.227	1	0.227	0.32	0.574
UMS × institution type	0.865	2	0.432	0.61	0.547
residual	61.969	87	0.712		
total	71.432	96	0.744		

Note. n = 97, R^2 = 0.133, RMSE =0.844, $R^2_{adjusted}$ = 0.043, Significant at the $p < 0.05$ level.

At the micro level the relationship between *need to matter* and mattering satiation as measured by the UMS does not vary by age, gender, or institution type. The main effect of gender is significant.

Table 33
Meso NMS Model with UMS by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	9.436	9	1.048	1.32	0.238
UMS	0.003	1	0.003	0.00	0.955
age	0.001	1	0.001	0.00	0.974
gender	5.347	1	5.347	6.73	0.011
institution type	0.744	2	0.372	0.47	0.628
UMS × age	0.015	1	0.015	0.02	0.890
UMS × gender	0.275	1	0.275	0.35	0.558
UMS × institution type	1.454	2	0.727	0.92	0.404
residual	69.092	87	0.794		
total	78.529	96	0.818		

Note. n = 97, R^2 = 0.120, RMSE = 0.891, $R^2_{adjusted}$ = 0.029, Significant at the $p < 0.05$ level.

At the meso level the relationship between *need to matter* and mattering satiation as measured by the UMS does not vary by age, gender, or institution type. The main effect of gender is significant.

Table 34
Exo NMS Model with UMS by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	6.047	9	0.672	1.16	0.329
UMS	0.129	1	0.129	0.22	0.638
age	0.010	1	0.010	0.02	0.893
gender	3.587	1	3.587	6.20	0.014
institution type	0.780	2	0.390	0.67	0.512
UMS × age	0.003	1	0.003	0.01	0.942
UMS × gender	0.084	1	0.084	0.14	0.705
UMS × institution type	0.661	2	0.331	0.57	0.567
residual	50.296	87	0.578		
total	56.343	96	0.587		

Note. n = 97, R^2 = 0.107, RMSE = 0.760, $R^2_{adjusted}$ = 0.015, Significant at the $p < 0.05$ level.

At the exo level the relationship between *need to matter* and mattering satiation as measured by the UMS does not vary by age, gender, or institution type. The main effect of gender is significant.

Table 35
Macro NMS Model with UMS by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	11.524	9	1.280	1.06	0.403
UMS	2.778	1	2.778	2.29	0.134
age	0.273	1	0.273	0.23	0.636
gender	1.902	1	1.902	1.57	0.214
institution type	0.899	2	0.450	0.37	0.691
UMS × age	1.078	1	1.078	0.89	0.348
UMS × gender	2.540	1	2.540	2.09	0.151
UMS × institution type	5.002	2	2.501	2.06	0.133
residual	105.500	87	1.213		
total	117.023	96	1.219		

Note. n = 97, R^2 = 0.099, RMSE = 1.101, $R^2_{adjusted}$ = 0.005, Significant at the $p < 0.05$ level.

At the macro level the relationship between *need to matter* and mattering satiation as measured by the UMS does not vary by age, gender, or institution type. No main effects are significant.

Table 36
Micro NMS Model with WMS by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	28.170	14	2.012	3.26	<0.001
WMS societal	2.543	1	2.543	4.12	0.045
WMS interpersonal	2.621	1	2.621	4.25	0.042
age	2.716	1	2.716	4.40	0.039
gender	6.250	1	6.250	10.13	0.002
institution type	0.134	2	0.067	0.11	0.897
WMS societal × age	0.404	1	0.404	0.65	0.421
WMS societal × gender	0.035	1	0.035	0.06	0.811
WMS societal × inst. type	1.517	2	0.759	1.23	0.297
WMS interpersonal × age	0.016	1	0.016	0.03	0.872
WMS interpersonal × gender	1.334	1	1.334	2.16	0.145
WMS interpersonal × inst. type	0.363	2	0.181	0.29	0.746
residual	53.666	87	0.617		
total	81.837	101	0.810		

Note. n = 102, R^2 = 0.344, RMSE = 0.785, $R^2_{adjusted}$ = 0.239, Significant at the $p < 0.05$ level.

The relationship between *need to matter* and mattering satiation as measured by the

WMS does not vary by age, gender, or institution type at the micro level. All main effects,

except institution type, are significant.

Table 37
Meso NMS Model with WMS by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	30.327	14	2.166	3.38	<0.001
WMS societal	3.984	1	3.984	6.21	0.015
WMS interpersonal	1.830	1	1.830	2.85	0.095
age	1.906	1	1.906	2.97	0.088
gender	9.448	1	9.448	14.73	<0.001
institution type	1.665	2	0.832	1.30	0.279
WMS societal × age	0.224	1	0.224	0.35	0.556
WMS societal × gender	0.035	1	0.035	0.05	0.816
WMS societal × inst. type	1.325	2	0.663	1.03	0.360
WMS interpersonal × age	0.345	1	0.345	0.54	0.465
WMS interpersonal × gender	0.388	1	0.388	0.60	0.439
WMS interpersonal × inst. type	0.551	2	0.276	0.43	0.652
residual	55.815	87	0.642		
total	86.142	101	0.853		

Note. n = 102, R^2 = 0.352, RMSE = 0.801, $R^2_{adjusted}$ = 0.248, Significant at the $p < 0.05$ level.

The relationship between *need to matter* and mattering satiation as measured by the

WMS does not vary by age, gender, or institution type at the meso level. The main effects of

NMS the model, the WMS societal factor, and gender are significant.

Table 38
Exo NMS Model with WMS by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	21.168	14	1.512	2.83	0.001
WMS societal	2.992	1	2.992	5.59	0.020
WMS interpersonal	1.388	1	1.388	2.59	0.110
age	1.078	1	1.078	2.02	0.159
gender	2.460	1	2.460	4.60	0.034
institution type	0.542	2	0.271	0.51	0.604
WMS societal × age	0.073	1	0.073	0.14	0.712
WMS societal × gender	0.131	1	0.131	0.25	0.621
WMS societal × inst. type	0.405	2	0.202	0.38	0.686
WMS interpersonal × age	0.073	1	0.073	0.14	0.714
WMS interpersonal × gender	0.209	1	0.209	0.39	0.534
WMS interpersonal × inst. type	0.345	2	0.172	0.32	0.725
residual	46.542	87	0.535		
total	67.711	101	0.670		

Note. n = 102, R^2 = 0.313, RMSE = 0.731, $R^2_{adjusted}$ = 0.202, Significant at the $p < 0.05$ level.

The relationship between *need to matter* and mattering satiation as measured by the

WMS does not vary by age, gender, or institution type at the exo level. The main effects of the

model, the WMS societal factor, and gender are significant.

Table 39
Macro NMS Model with WMS by Demographic Differences

	Partial Sum of Squares	df	Mean Square	F	p
NMS model	35.443	14	2.533	2.96	0.001
WMS societal	6.924	1	6.924	8.11	0.006
WMS interpersonal	1.178	1	1.178	1.38	0.244
age	0.495	1	0.495	0.58	0.449
gender	2.059	1	2.059	2.41	0.124
institution type	0.027	2	0.014	0.02	0.984
WMS societal × age	2.147	1	2.147	2.51	0.117
WMS societal × gender	1.167	1	1.167	1.37	0.246
WMS societal × inst. type	8.812	2	4.406	5.16	0.008
WMS interpersonal × age	1.065	1	1.065	1.25	0.267
WMS interpersonal × gender	2.938	1	2.938	3.44	0.067
WMS interpersonal × inst. type	2.462	2	1.231	1.44	0.242
residual	74.309	87	0.854		
total	109.752	101	1.087		

Note. n = 102, R^2 = 0.323, RMSE = 0.924, $R^2_{adjusted}$ = 0.214, Significant at the $p < 0.05$ level.

The relationship between *need to matter* and mattering satiation as measured by the WMS societal factor varies by institution type. The strength of the relationship between the macro NMS and societal mattering satiation is not uniform across institution type.

These are the results for research question one based on the analysis presented.

Moderation

Research question 2 investigates the relationship of existing mattering scales measuring mattering satiation and workplace outcomes such as turnover, engagement, and morale (as sometimes measured by proxy). Question 2A was addressed by measuring the interaction effect between the independent (mattering) and dependent variables (workplace outcomes), across the moderating variable (*need to matter*) with a multiple-linear regression. Findings for these two research questions are in Tables 40-49. Subscales of the workplace outcomes measures were considered in addition to global measures when the subscales are generally accepted as independent instruments as in the case of the burnout inventory (Tables 40-43) and the motivation scale (Tables 47 and 48). If that was not the case, only the global measurement was considered. The global scores for the MI and UMS were again used in this set of analysis for the same reason as in research question 1. As a reminder, participants were only asked to complete one mattering measurement and some of the workplace outcome instruments, so sample sizes are smaller, closer to 100, for each analysis. Additionally, each mattering scale is paired with the corresponding workplace outcome/s associated with each survey stem.

Table 40

CBI – Personal Burnout with MI by NMS

	Coefficient	Standard Error	t	*p*	95% Conf. Interval	
MI	-11.591	4.452	-2.60	0.011	-20.442	-2.740
NMS MicroAIE	-1.725	3.446	-0.50	0.618	-8.576	5.125
NMS MicroR	3.116	3.529	0.88	0.380	-3.899	10.131
NMS Meso	-2.931	5.496	-0.53	0.595	-13.856	7.995
NMS ExoA	0.400	2.967	0.13	0.893	-5.499	6.299
NMS ExoI	1.898	3.118	0.61	0.544	-4.301	8.097
NMS ExoR	0.898	4.163	0.22	0.830	-7.377	9.173
NMS ExoE	-0.193	3.832	-0.05	0.960	-7.811	7.425
NMS MacroA	-2.922	3.859	-0.76	0.451	-10.594	4.751
NMS MacroIRE	5.937	4.146	1.43	0.156	-2.305	14.180
MI × MicroAIE	2.066	6.950	0.30	0.767	-11.749	15.882
MI × MicroR	4.127	8.933	0.46	0.645	-13.631	21.885
MI × Meso	0.204	10.417	0.02	0.984	-20.504	20.912
MI × ExoA	-0.083	7.011	-0.01	0.991	-14.021	13.855
MI × ExoI	-5.266	5.566	-0.95	0.347	-16.330	5.798
MI × ExoR	-5.510	8.848	-0.62	0.535	-23.098	12.079
MI × ExoE	9.181	7.447	1.23	0.221	-5.623	23.986
MI × MacroA	4.409	8.489	0.52	0.605	-12.466	21.284
MI × MacroIRE	-8.170	9.354	-0.87	0.385	-26.766	10.425
intercept	43.342	2.016	21.50	<0.001	39.334	47.350

Note. $n = 106$. Significant at the $p < 0.05$ level.

Mattering satiation as measured by the Mattering Index has a significant relationship with personal burnout as measured by the CBI subscale. This relationship was not moderated by the NMS.

Table 41

CBI – Work-related Burnout with MI by NMS

	Coefficient	Standard Error	t	*p*	95% Conf. Interval	
MI	-7.032	3.979	-1.77	0.081	-14.942	0.879
NMS MicroAIE	-0.197	3.080	-0.06	0.949	-6.319	5.926
NMS MicroR	-1.113	3.154	-0.35	0.725	-7.383	5.156
NMS Meso	-2.239	4.912	-0.46	0.650	-12.003	7.525
NMS ExoA	1.540	2.652	0.58	0.563	-3.732	6.812
NMS ExoI	-0.955	2.787	-0.34	0.733	-6.494	4.585
NMS ExoR	0.875	3.720	0.24	0.815	-6.520	8.270
NMS ExoE	0.208	3.425	0.06	0.952	-6.600	7.017
NMS MacroA	-2.023	3.449	-0.59	0.559	-8.880	4.834
NMS MacroIRE	6.330	3.706	1.71	0.091	-1.037	13.697
MI × MicroAIE	1.365	6.211	0.22	0.827	-10.982	13.712
MI × MicroR	10.002	7.983	1.25	0.214	-5.869	25.872
MI × Meso	0.699	9.310	0.08	0.940	-17.808	19.206
MI × ExoA	0.988	6.266	0.16	0.875	-11.468	13.445
MI × ExoI	-4.031	4.974	-0.81	0.420	-13.919	5.857
MI × ExoR	-14.413	7.907	-1.82	0.072	-30.132	1.306
MI × ExoE	4.606	6.656	0.69	0.491	-8.624	17.837
MI × MacroA	-1.235	7.587	-0.16	0.871	-16.317	13.846
MI × MacroIRE	-0.398	8.360	-0.05	0.962	-17.017	16.220
intercept	44.305	1.802	24.59	<0.001	40.723	47.887

Note. $n = 106$. Significant at the $p < 0.05$ level.

Mattering satiation as measured by the Mattering Index had no relationship with work-related burnout as measured by the CBI subscale.

Table 42

CBI – Client-related Burnout with MI by NMS

	Coefficient	Standard Error	t	p	95% Conf. Interval	
MI	-8.147	4.941	-1.65	0.103	-17.971	1.676
NMS MicroAIE	0.959	3.825	0.25	0.803	-6.644	8.562
NMS MicroR	-0.798	3.916	-0.20	0.839	-8.583	6.987
NMS Meso	1.838	6.100	0.30	0.764	-10.288	13.964
NMS ExoA	-0.462	3.293	-0.14	0.889	-7.009	6.085
NMS ExoI	-1.763	3.461	-0.51	0.612	-8.643	5.116
NMS ExoR	-1.264	4.620	-0.27	0.785	-10.448	7.920
NMS ExoE	0.4763	4.253	0.11	0.911	-7.979	8.931
NMS MacroA	1.250	4.283	0.29	0.771	-7.265	9.765
NMS MacroIRE	0.807	4.602	0.18	0.861	-8.341	9.955
MI × MicroAIE	0.671	7.713	0.09	0.931	-14.662	16.004
MI × MicroR	10.144	9.914	1.02	0.309	-9.564	29.852
MI × Meso	-3.767	11.561	-0.33	0.745	-26.749	19.216
MI × ExoA	-2.383	7.781	-0.31	0.760	-17.851	13.086
MI × ExoI	7.058	6.177	1.14	0.256	-5.222	19.337
MI × ExoR	-10.175	9.820	-1.04	0.303	-29.696	9.345
MI × ExoE	-5.573	8.265	-0.67	0.502	-22.003	10.858
MI × MacroA	-5.953	9.421	-0.63	0.529	-24.682	12.775
MI × MacroIRE	8.757	10.382	0.84	0.401	-11.881	29.395
intercept	29.352	2.238	13.12	<0.001	24.904	33.800

Note. $n = 106$. Significant at the $p < 0.05$ level.

Mattering satiation as measured by the Mattering Index has no significant relationship with client-related burnout as measured by the CBI subscale.

Table 43

CBI with MI by NMS

	Coefficient	Standard Error	t	*p*	95% Conf. Interval	
MI	-8.407	3.780	-2.22	0.029	-15.923	-0.891
NMS MicroAIE	-0.393	2.911	-0.13	0.893	-6.182	5.396
NMS MicroR	0.563	2.975	0.19	0.850	-5.351	6.478
NMS Meso	-1.429	4.658	-0.31	0.760	-10.690	7.832
NMS ExoA	0.984	2.527	0.39	0.698	-4.041	6.010
NMS ExoI	-0.057	2.642	-0.02	0.983	-5.309	5.195
NMS ExoR	-0.270	3.536	-0.08	0.939	-7.300	6.760
NMS ExoE	0.559	3.257	0.17	0.864	-5.917	7.034
NMS MacroA	-1.617	3.249	-0.50	0.620	-8.078	4.843
NMS MacroIRE	4.506	3.490	1.29	0.200	-2.434	11.446
MI × MicroAIE	2.183	5.901	0.37	0.712	-9.549	13.915
MI × MicroR	7.565	7.562	1.00	0.320	-7.471	22.601
MI × Meso	0.299	8.841	0.03	0.973	-17.280	17.877
MI × ExoA	-2.644	6.122	-0.43	0.667	-14.816	9.527
MI × ExoI	-1.468	4.719	-0.31	0.756	-10.851	7.915
MI × ExoR	-9.616	7.492	-1.28	0.203	-24.511	5.279
MI × ExoE	2.592	6.297	0.41	0.682	-9.927	15.112
MI × MacroA	0.649	7.258	0.09	0.929	-13.782	15.080
MI × MacroIRE	-0.581	7.918	-0.07	0.942	-16.323	15.162
intercept	39.159	1.705	22.97	<0.001	35.770	42.548

Note. $n = 106$. Significant at the $p < 0.05$ level.

Mattering satiation as measured by the Mattering Index has a significant relationship with burnout as measured by the CBI. This relationship was not moderated by the NMS.

Table 44

Turnover Intention with MI by NMS

	Coefficient	Standard Error	t	p	95% Conf. Interval	
MI	-0.422	0.281	-1.50	0.137	-0.981	0.137
NMS MicroAIE	0.106	0.218	0.49	0.627	-0.327	0.539
NMS MicroR	0.067	0.223	0.30	0.764	-0.376	0.510
NMS Meso	-0.501	0.347	-1.44	0.153	-1.191	0.189
NMS ExoA	0.171	0.187	0.91	0.365	-0.202	0.543
NMS ExoI	-0.150	0.197	-0.76	0.448	-0.542	0.242
NMS ExoR	0.298	0.263	1.13	0.260	-0.224	0.821
NMS ExoE	-0.251	0.242	-1.04	0.303	-0.732	0.230
NMS MacroA	0.243	0.244	1.00	0.322	-0.242	0.727
NMS MacroIRE	0.088	0.262	0.34	0.737	-0.433	0.609
MI × MicroAIE	-0.306	0.439	-0.70	0.488	-1.178	0.567
MI × MicroR	0.225	0.564	0.40	0.691	-0.897	1.347
MI × Meso	0.588	0.658	0.89	0.374	-0.720	1.896
MI × ExoA	0.438	0.443	0.99	0.325	-0.442	1.319
MI × ExoI	0.193	0.352	0.55	0.584	-0.506	0.892
MI × ExoR	-0.296	0.559	-0.53	0.598	-1.407	0.815
MI × ExoE	-0.518	0.470	-1.10	0.274	-1.454	0.417
MI × MacroA	-1.281	0.536	-2.39	0.019	-2.347	-0.215
MI × MacroIRE	0.838	0.591	1.42	0.160	-0.336	2.013
intercept	2.125	0.127	16.68	<0.001	1.871	2.378

Note. n = 106. Significant at the *p* < 0.05 level.

Mattering satiation as measured by the Mattering Index has no significant relationships with turnover intention. However, the relationship between mattering and turnover intention is significant when moderated by the NMS macro level awareness factor. The relationship gets weaker as NMS macro awareness increases.

Table 45

Depression with UMS by NMS

	Coefficient	Standard Error	t	p	95% Conf. Interval	
UMS	-1.784	1.760	-1.01	0.314	-5.287	1.719
NMS MicroAIE	1.035	1.630	0.63	0.528	-2.211	4.281
NMS MicroR	-0.499	1.460	-0.34	0.733	-3.405	2.407
NMS Meso	0.291	2.427	0.12	0.905	-4.542	5.123
NMS ExoA	1.261	1.489	0.85	0.400	-1.704	4.226
NMS ExoI	0.282	1.521	0.19	0.853	-2.746	3.309
NMS ExoR	-0.417	2.082	-0.20	0.842	-4.561	3.727
NMS ExoE	-0.949	1.627	-0.58	0.562	-4.189	2.291
NMS MacroA	-0.898	1.354	-0.66	0.509	-3.594	1.798
NMS MacroIRE	0.406	1.742	0.23	0.816	-3.062	3.875
UMS × MicroAIE	-2.427	2.670	-0.91	0.366	-7.743	2.889
UMS × MicroR	7.677	2.609	2.94	0.004	2.483	12.871
UMS × Meso	-2.762	4.798	-0.58	0.567	-12.31	6.791
UMS × ExoA	3.495	3.238	1.08	0.284	-2.952	9.942
UMS × ExoI	1.181	2.613	0.45	0.652	-4.020	6.383
UMS × ExoR	1.994	4.554	0.44	0.663	-7.072	11.061
UMS × ExoE	-0.363	3.025	-0.12	0.905	-6.385	5.658
UMS × MacroA	1.796	3.563	0.50	0.616	-5.297	8.888
UMS × MacroIRE	-6.361	4.431	-1.44	0.155	-15.182	2.460
intercept	10.733	0.960	11.18	<0.001	8.821	12.644

Note. $n = 99$. Significant at the $p < 0.05$ level.

Mattering satiation as measured by the University Mattering Scale has no significant relationships with depression. However, the relationship between mattering and depression is significant when moderated by the NMS micro level reliance factor. This interaction changes the impact from a negative relationship to a positive relationship.

Table 46

Happiness with UMS by NMS

	Coefficient	Standard Error	t	*p*	95% Conf. Interval	
UMS	0.971	0.196	4.95	<0.001	0.581	1.361
NMS MicroAIE	0.315	0.182	1.73	0.087	-0.047	0.677
NMS MicroR	-0.121	0.163	-0.74	0.460	-0.445	0.203
NMS Meso	-0.570	0.262	-2.18	0.033	-1.092	-0.048
NMS ExoA	0.086	0.167	0.52	0.607	-0.246	0.418
NMS ExoI	0.219	0.166	1.32	0.191	-0.111	0.549
NMS ExoR	0.374	0.229	1.63	0.106	-0.082	0.830
NMS ExoE	-0.053	0.181	-0.29	0.773	-0.414	0.309
NMS MacroA	-0.065	0.151	-0.43	0.669	-0.365	0.236
NMS MacroIRE	0.083	0.193	0.43	0.668	-0.301	0.467
UMS × MicroAIE	-0.126	0.298	-0.42	0.673	-0.718	0.466
UMS × MicroR	-0.700	0.292	-2.40	0.019	-1.280	-0.119
UMS × Meso	1.180	0.531	2.22	0.029	0.124	2.236
UMS × ExoA	-1.025	0.362	-2.83	0.006	-1.744	-0.305
UMS × ExoI	0.083	0.290	0.29	0.776	-0.494	0.659
UMS × ExoR	-0.618	0.499	-1.24	0.219	-1.610	0.375
UMS × ExoE	0.519	0.338	1.53	0.129	-0.154	1.191
UMS × MacroA	0.648	0.397	1.63	0.107	-0.142	1.438
UMS × MacroIRE	-0.709	0.493	-1.44	0.154	-1.690	0.271
intercept	5.274	0.107	49.23	<0.001	5.061	5.487

Note. $n = 99$. Significant at the $p < 0.05$ level.

The relationship of mattering satiation as measured by the UMS and happiness is moderated by the NMS micro reliance factor, the meso factor, and the exo level awareness factor. Markedly, the relationship gets weaker as NMS micro reliance increases, stronger as NMS meso increases, and weaker as NMS exo awareness increases.

Table 47

Prosocial Motivation with UMS by NMS

	Coefficient	Standard Error	t	*p*	95% Conf. Interval	
UMS	0.726	0.180	4.03	<0.001	0.367	1.084
NMS MicroAIE	0.088	0.167	0.53	0.599	-0.245	0.421
NMS MicroR	-0.163	0.150	-1.09	0.281	-0.460	0.135
NMS Meso	-0.167	0.241	-0.69	0.491	-0.646	0.313
NMS ExoA	-0.187	0.153	-1.22	0.225	-0.492	0.117
NMS ExoI	0.241	0.152	1.58	0.118	-0.062	0.544
NMS ExoR	0.174	0.210	0.83	0.410	-0.244	0.593
NMS ExoE	0.181	0.167	1.09	0.281	-0.151	0.513
NMS MacroA	-0.108	0.139	-0.78	0.438	-0.384	0.168
NMS MacroIRE	0.358	0.177	2.02	0.047	0.005	0.711
UMS × MicroAIE	-0.522	0.273	-1.91	0.060	-1.066	0.022
UMS × MicroR	-0.203	0.268	-0.76	0.451	-0.736	0.330
UMS × Meso	0.659	0.487	1.35	0.180	-0.311	1.630
UMS × ExoA	0.427	0.332	1.28	0.203	-0.235	1.088
UMS × ExoI	-0.506	0.266	-1.90	0.061	-1.036	0.023
UMS × ExoR	-0.067	0.458	-0.15	0.884	-0.979	0.845
UMS × ExoE	-0.038	0.310	-0.12	0.904	-0.656	0.580
UMS × MacroA	0.001	0.365	0.00	0.998	-0.725	0.727
UMS × MacroIRE	-0.289	0.453	-0.64	0.524	-1.190	0.611
intercept	6.137	0.098	62.36	<0.001	5.942	6.333

Note. $n = 99$. Significant at the $p < 0.05$ level.

The relationship between mattering satiation as measured by the UMS and prosocial motivation is nearing moderation by the NMS Micro level AIE and Exo level I factor with significance values of about 0.06. Given the sample size, this is a finding that should still be noted. The relationship gets weaker as NMS increases.

Table 48

Intrinsic Motivation with UMS by NMS

	Coefficient	Standard Error	t	*p*	95% Conf. Interval	
UMS	0.708	0.224	3.16	0.002	0.262	1.154
NMS MicroAIE	-0.146	0.208	-0.70	0.485	-0.560	0.268
NMS MicroR	0.133	0.186	0.71	0.477	-0.238	0.504
NMS Meso	-0.380	0.300	-1.27	0.208	-0.977	0.216
NMS ExoA	-0.075	0.190	-0.40	0.694	-0.454	0.304
NMS ExoI	0.190	0.190	1.00	0.319	-0.187	0.568
NMS ExoR	0.243	0.262	0.93	0.357	-0.278	0.764
NMS ExoE	0.115	0.207	0.55	0.581	-0.298	0.528
NMS MacroA	0.148	0.173	0.86	0.394	-0.196	0.491
NMS MacroIRE	-0.013	0.221	-0.06	0.953	-0.452	0.426
UMS × MicroAIE	0.121	0.340	0.36	0.723	-0.556	0.798
UMS × MicroR	-0.909	0.333	-2.73	0.008	-1.573	-0.246
UMS × Meso	0.694	0.606	1.14	0.256	-0.513	1.901
UMS × ExoA	-0.538	0.413	-1.30	0.197	-1.361	0.285
UMS × ExoI	0.203	0.331	0.61	0.540	-0.455	0.862
UMS × ExoR	-0.113	0.570	-0.20	0.844	-1.247	1.022
UMS × ExoE	-0.013	0.386	-0.03	0.972	-0.782	0.755
UMS × MacroA	-0.556	0.454	-1.23	0.224	-1.459	0.347
UMS × MacroIRE	0.661	0.563	1.17	0.244	-0.460	1.781
intercept	5.684	0.122	46.42	<0.001	5.440	5.927

Note. *n* = 99. Significant at the *p* < 0.05 level.

The relationship between mattering satiation as measured by the UMS and intrinsic motivation is moderated by the NMS micro level reliance factor. The relationship gets weaker as NMS micro level reliance increases.

Table 49

Job Satisfaction with WMS by NMS

	Coefficient	Standard Error	t	*p*	95% Conf. Interval	
WMS Societal	-0.489	0.609	-0.80	0.424	-1.702	0.724
WMS Interpersonal	3.362	0.631	5.33	<0.001	2.105	4.619
NMS MicroAIE	12.497	5.418	2.31	0.024	1.705	23.290
NMS MicroR	6.195	4.150	1.49	0.140	-2.073	14.462
NMS Meso	-17.57	6.913	-2.54	0.013	-31.337	-3.795
NMS ExoA	-5.613	4.229	-1.33	0.188	-14.039	2.812
NMS ExoI	-0.628	3.932	-0.16	0.873	-8.461	7.205
NMS ExoR	4.529	5.049	0.90	0.373	-5.530	14.588
NMS ExoE	1.976	3.775	0.52	0.602	-5.545	9.497
NMS MacroA	-0.417	3.798	-0.11	0.913	-7.982	7.149
NMS MacroIRE	2.609	4.599	0.57	0.572	-6.553	11.771
WMSS × MicroAIE	-0.062	1.569	-0.04	0.969	-3.187	3.063
WMSS × MicroR	1.156	0.883	1.31	0.194	-0.602	2.915
WMSS × Meso	0.634	1.920	0.33	0.742	-3.192	4.459
WMSS × ExoA	-1.212	0.998	-1.21	0.228	-3.199	0.776
WMSS × ExoI	1.038	0.793	1.31	0.194	-0.541	2.618
WMSS × ExoR	-2.149	1.310	-1.64	0.105	-4.758	0.460
WMSS × ExoE	1.286	1.172	1.10	0.276	-1.048	3.621
WMSS × MacroA	0.626	0.920	0.68	0.498	-1.207	2.460
WMSS × MacroIRE	-1.439	1.034	-1.39	0.168	-3.498	0.621
WMSI × MicroAIE	1.141	1.315	0.87	0.388	-1.477	3.760
WMSI × MicroR	-1.229	1.009	-1.22	0.227	-3.238	0.781
WMSI × Meso	-1.819	1.887	-0.96	0.338	-5.578	1.939
WMSI × ExoA	-0.254	0.892	-0.28	0.777	-2.030	1.523
WMSI × ExoI	0.351	1.025	0.34	0.733	-1.691	2.392
WMSI × ExoR	2.977	1.197	2.49	0.015	0.592	5.362
WMSI × ExoE	-0.021	1.057	-0.02	0.984	-2.127	2.085
WMSI × MacroA	-0.661	0.897	-0.74	0.464	-2.447	1.126
WMSI × MacroIRE	-0.018	1.092	-0.02	0.987	-2.194	2.158
intercept	141.211	2.420	58.35	<0.001	136.390	146.032

Note. $n = 105$. Significant at the $p < 0.05$ level.

The relationship of interpersonal mattering satiation as measured by the Work Mattering Survey and job satisfaction is moderated by the NMS exosystem level reliance factor. Societal mattering satiation had no significant relationship to job satisfaction.

Demographic Differences

Research question 2B examines if the relationships from question 2, between *need to matter* and workplace outcomes, vary according to gender or other demographics differences. Due to excessive collinearity, institution type, education level, and gender demographics were removed from the analysis. The only demographic difference considered in the analysis and presented is age. A multiple-linear regression was used to compare demographic groups. Variables were centered to counter collinearity that occurs with interactions. Age was considered with the actual numerical value and was not categorized. These results are presented by the workplace outcomes in Tables 50-59.

Table 50
CBI – Personal Burnout with NMS by Demographic Differences

	Coefficient	Standard Error	t	p	95% Conf. Interval	
age	-0.168	0.188	-0.89	0.374	-0.541	0.206
NMS MicroAIE	-1.731	3.760	-0.46	0.647	-9.205	5.744
NMS MicroR	2.920	3.527	0.83	0.410	-4.091	9.932
NMS Meso	-4.769	5.601	-0.85	0.397	-15.903	6.364
NMS ExoA	0.473	3.154	0.15	0.881	-5.796	6.742
NMS ExoI	0.968	3.317	0.29	0.771	-5.626	7.562
NMS ExoR	1.914	4.341	0.44	0.660	-6.716	10.543
NMS ExoE	-0.357	4.393	-0.08	0.935	-9.090	8.376
NMS MacroA	-0.850	3.517	-0.24	0.810	-7.842	6.142
NMS MacroIRE	3.274	3.883	0.84	0.402	-4.446	10.993
MicroAIE × age	-0.047	0.306	-0.15	0.879	-0.654	0.561
MicroR × age	0.182	0.303	0.60	0.550	-0.421	0.785
Meso × age	0.621	0.454	1.37	0.174	-0.280	1.523
ExoA × age	-0.003	0.283	-0.01	0.991	-0.566	0.560
ExoI × age	-0.108	0.283	-0.38	0.704	-0.671	0.455
ExoR × age	-0.258	0.344	-0.75	0.456	-0.942	0.426
ExoE × age	-0.153	0.289	-0.53	0.599	-0.728	0.422
MacroA × age	-0.233	0.306	-0.76	0.449	-0.841	0.375
MacroIRE ×age	0.285	0.374	0.76	0.448	-0.458	1.029
intercept	43.961	2.343	18.76	<0.001	39.303	48.619

Note. $n = 106$. Significant at the $p < 0.05$ level.

The relationship between personal burnout and *need to matter* does not vary by age. No

main effects were significant.

Table 51
CBI – Work-related Burnout with NMS by Demographic Differences

	Coefficient	Standard Error	t	*p*	95% Conf. Interval	
age	-0.178	0.154	-1.16	0.250	-0.483	0.127
NMS MicroAIE	0.055	3.076	0.02	0.986	-6.060	6.171
NMS MicroR	-1.178	2.886	-0.41	0.684	-6.915	4.558
NMS Meso	-3.922	4.582	-0.86	0.394	-13.031	5.187
NMS ExoA	0.451	2.580	0.17	0.862	-4.678	5.581
NMS ExoI	-0.921	2.714	-0.34	0.735	-6.317	4.474
NMS ExoR	2.165	3.551	0.61	0.544	-4.896	9.225
NMS ExoE	0.953	3.594	0.27	0.792	-6.192	8.098
NMS MacroA	0.838	2.878	0.29	0.771	-4.882	6.559
NMS MacroIRE	3.288	3.177	1.03	0.304	-3.028	9.603
MicroAIE × age	-0.287	0.250	-1.15	0.255	-0.784	0.210
MicroR × age	0.222	0.248	0.89	0.374	-0.272	0.715
Meso × age	0.750	0.371	2.02	0.046	0.012	1.488
ExoA × age	0.049	0.232	0.21	0.833	-0.412	0.510
ExoI × age	-0.105	0.232	-0.45	0.652	-0.565	0.356
ExoR × age	-0.448	0.281	-1.59	0.115	-1.007	0.112
ExoE × age	-0.180	0.237	-0.76	0.449	-0.651	0.290
MacroA × age	-0.561	0.250	-2.24	0.028	-1.058	-0.064
MacroIRE × age	0.984	0.306	3.21	0.002	0.375	1.592
intercept	43.820	1.917	22.86	<0.001	40.009	47.631

Note. *n* = 106. Significant at the *p* < 0.05 level.

No main effects were significant. However, the relationship between work-related

burnout and *need to matter* at the mesosystem and the macrosystem levels varies by age. As age

increases the strength of the relationship between personal burnout and *need to matter* at the

meso level intensifies. Notably the relationship with macro awareness weakens, while the other

macro factor, IRE strengthens when age increases.

Table 52

CBI – Client-related Burnout with NMS by Demographic Differences

	Coefficient	Standard Error	t	*p*	95% Conf. Interval	
age	0.068	0.200	0.34	0.733	-0.329	0.465
NMS MicroAIE	3.558	3.999	0.89	0.376	-4.392	11.508
NMS MicroR	-0.304	3.751	-0.08	0.936	-7.762	7.153
NMS Meso	2.671	5.956	0.45	0.655	-9.170	14.512
NMS ExoA	-2.176	3.354	-0.65	0.518	-8.844	4.491
NMS ExoI	-0.850	3.528	-0.24	0.810	-7.864	6.163
NMS ExoR	-2.959	4.617	-0.64	0.523	-12.14	6.219
NMS ExoE	-0.044	4.672	-0.01	0.993	-9.331	9.244
NMS MacroA	0.804	3.741	0.21	0.830	-6.632	8.240
NMS MacroIRE	2.084	4.130	0.50	0.615	-6.126	10.293
MicroAIE × age	-0.066	0.325	-0.20	0.840	-0.712	0.580
MicroR × age	0.081	0.322	0.25	0.802	-0.560	0.722
Meso × age	0.331	0.482	0.69	0.495	-0.628	1.290
ExoA × age	-0.129	0.301	-0.43	0.670	-0.728	0.470
ExoI × age	-0.061	0.301	-0.20	0.839	-0.660	0.537
ExoR × age	-0.556	0.366	-1.52	0.132	-1.283	0.172
ExoE × age	0.212	0.308	0.69	0.492	-0.399	0.824
MacroA × age	-0.602	0.325	-1.85	0.067	-1.249	0.044
MacroIRE × age	0.856	0.398	2.15	0.034	0.065	1.647
intercept	28.779	2.492	11.55	<0.001	23.825	33.732

Note. n = 106. Significant at the *p* < 0.05 level.

Though there are no significant relationships with age or the NMS with client-related burnout. Age does vary the relationship between the NMS macro IRE factor and client-related burnout. As age increases, this relationship strengthens.

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Table 53

CBI with NMS by Demographic Differences

	Coefficient	Standard Error	t	p	95% Conf. Interval	
age	-0.116	0.152	-0.77	0.445	-0.418	0.185
NMS MicroAIE	0.292	3.035	0.10	0.924	-5.743	6.327
NMS MicroR	0.908	2.858	0.32	0.751	-4.774	6.591
NMS Meso	-2.712	4.522	-0.60	0.550	-11.703	6.279
NMS ExoA	0.417	2.575	0.16	0.872	-4.703	5.537
NMS ExoI	-0.029	2.681	-0.01	0.991	-5.359	5.300
NMS ExoR	0.262	3.497	0.07	0.940	-6.691	7.215
NMS ExoE	0.545	3.549	0.15	0.878	-6.511	7.602
NMS MacroA	-0.073	2.843	-0.03	0.980	-5.726	5.580
NMS MacroIRE	2.696	3.134	0.86	0.392	-3.535	8.927
MicroAIE × age	-0.192	0.248	-0.78	0.440	-0.685	0.300
MicroR × age	0.186	0.244	0.76	0.448	-0.300	0.672
Meso × age	0.535	0.366	1.46	0.147	-0.192	1.263
ExoA × age	0.044	0.231	0.19	0.850	-0.416	0.504
ExoI × age	-0.075	0.228	-0.33	0.744	-0.528	0.379
ExoR × age	-0.416	0.277	-1.50	0.137	-0.966	0.135
ExoE × age	-0.043	0.232	-0.19	0.853	-0.506	0.420
MacroA × age	-0.495	0.247	-2.01	0.048	-0.985	-0.004
MacroIRE ×age	0.709	0.301	2.35	0.021	0.110	1.308
intercept	38.678	1.906	20.29	<0.001	34.887	42.468

Note. $n = 106$. Significant at the $p < 0.05$ level.

No main effects were significant. However, the relationship between burnout and *need to matter* at the macrosystem levels varies by age. Notably, again, the relationship with macro awareness weakens, while the other macro factor, IRE strengthens when age increases.

Table 54

Turnover with NMS by Demographic Differences

	Coefficient	Standard Error	t	p	95% Conf. Interval	
age	0.001	0.012	0.11	0.914	-0.022	0.024
NMS MicroAIE	0.254	0.232	1.10	0.275	-0.206	0.715
NMS MicroR	0.038	0.217	0.18	0.861	-0.394	0.470
NMS Meso	-0.415	0.345	-1.20	0.232	-1.101	0.271
NMS ExoA	0.098	0.194	0.51	0.615	-0.288	0.484
NMS ExoI	-0.234	0.204	-1.15	0.255	-0.641	0.172
NMS ExoR	0.113	0.267	0.42	0.674	-0.419	0.645
NMS ExoE	-0.005	0.271	-0.02	0.986	-0.543	0.533
NMS MacroA	-0.053	0.217	-0.24	0.809	-0.483	0.378
NMS MacroIRE	0.274	0.239	1.14	0.255	-0.202	0.750
MicroAIE × age	0.005	0.019	0.29	0.771	-0.032	0.043
MicroR × age	0.011	0.019	0.58	0.561	-0.026	0.048
Meso × age	-0.007	0.028	-0.26	0.796	-0.063	0.048
ExoA × age	0.012	0.017	0.71	0.478	-0.022	0.047
ExoI × age	0.016	0.017	0.93	0.355	-0.018	0.051
ExoR × age	-0.029	0.021	-1.36	0.178	-0.071	0.013
ExoE × age	-0.020	0.018	-1.13	0.261	-0.056	0.015
MacroA × age	-0.019	0.019	-1.00	0.319	-0.056	0.019
MacroIRE × age	0.033	0.023	1.42	0.159	-0.013	0.079
intercept	2.207	0.144	15.29	<0.001	1.920	2.494

Note. n = 106. Significant at the *p* < 0.05 level.

The relationship between turnover intention and *need to matter* does not vary by age. No main effects were significant.

Table 55

Depression with NMS by Demographic Differences

	Coefficient	Standard Error	t	p	95% Conf. Interval	
age	-0.228	0.077	-2.94	0.004	-0.382	-0.074
NMS MicroAIE	-0.451	1.683	-0.27	0.789	-3.802	2.900
NMS MicroR	-0.242	1.395	-0.17	0.863	-3.019	2.535
NMS Meso	2.982	2.466	1.21	0.230	-1.928	7.892
NMS ExoA	2.385	1.488	1.60	0.113	-0.577	5.347
NMS ExoI	-1.271	1.742	-0.73	0.468	-4.738	2.196
NMS ExoR	-1.171	1.966	-0.60	0.553	-5.085	2.743
NMS ExoE	-1.746	1.561	-1.12	0.267	-4.854	1.362
NMS MacroA	-2.063	1.399	-1.48	0.144	-4.848	0.722
NMS MacroIRE	0.993	1.758	0.56	0.574	-2.507	4.493
MicroAIE × age	-0.170	0.156	-1.09	0.279	-0.480	0.141
MicroR × age	-0.105	0.121	-0.87	0.388	-0.346	0.136
Meso × age	0.397	0.279	1.42	0.160	-0.160	0.953
ExoA × age	-0.022	0.112	-0.20	0.842	-0.246	0.201
ExoI × age	-0.210	0.147	-1.43	0.156	-0.502	0.082
ExoR × age	-0.260	0.181	-1.43	0.156	-0.621	0.101
ExoE × age	0.349	0.152	2.30	0.024	0.047	0.651
MacroA × age	-0.023	0.113	-0.20	0.841	-0.247	0.202
MacroIRE × age	0.018	0.164	0.11	0.915	-0.310	0.345
intercept	10.843	0.906	11.96	<0.001	9.039	12.648

Note. $n = 99$. Significant at the $p < 0.05$ level.

The relationship between depression and *need to matter* exosystem level ego-extension factor varies by age. As age increases, this relationship strengthens.

Table 56

Happiness with NMS by Demographic Differences

	Coefficient	Standard Error	t	p	95% Conf. Interval	
age	0.003	0.011	0.29	0.774	-0.018	0.025
NMS MicroAIE	0.507	0.2318	2.19	0.031	0.047	0.967
NMS MicroR	-0.221	0.192	-1.15	0.252	-0.603	0.161
NMS Meso	-1.051	0.3281	-3.20	0.002	-1.705	-0.397
NMS ExoA	0.097	0.205	0.47	0.638	-0.311	0.505
NMS ExoI	0.096	0.236	0.41	0.687	-0.374	0.565
NMS ExoR	0.773	0.268	2.88	0.005	0.239	1.308
NMS ExoE	0.013	0.214	0.06	0.953	-0.414	0.439
NMS MacroA	-0.120	0.193	-0.62	0.537	-0.503	0.264
NMS MacroIRE	0.331	0.240	1.38	0.172	-0.147	0.809
MicroAIE × age	0.040	0.021	1.88	0.064	-0.002	0.083
MicroR × age	-0.018	0.017	-1.10	0.275	-0.051	0.015
Meso × age	-0.030	0.038	-0.78	0.440	-0.106	0.047
ExoA × age	-0.007	0.015	-0.43	0.672	-0.037	0.024
ExoI × age	0.029	0.020	1.42	0.159	-0.011	0.069
ExoR × age	0.008	0.025	0.32	0.751	-0.042	0.058
ExoE × age	-0.022	0.021	-1.05	0.299	-0.063	0.020
MacroA × age	0.006	0.015	0.42	0.679	-0.024	0.037
MacroIRE × age	-0.025	0.023	-1.09	0.277	-0.070	0.020
intercept	5.292	0.124	42.58	<0.001	5.045	5.539

Note. $n = 99$. Significant at the $p < 0.05$ level.

Happiness and the NMS are not moderated by age. However, *need to matter* at the micro AIE factor, meso factor, and exo level reliance do have a significant relationship with age.

Table 57

Prosocial Motivation with NMS by Demographic Differences

	Coefficient	Standard Error	t	p	95% Conf. Interval	
age	-0.005	0.009	-0.55	0.581	-0.023	0.013
NMS MicroAIE	0.055	0.198	0.28	0.783	-0.339	0.448
NMS MicroR	-0.015	0.164	-0.09	0.929	-0.342	0.312
NMS Meso	-0.216	0.281	-0.77	0.443	-0.775	0.342
NMS ExoA	-0.276	0.175	-1.57	0.120	-0.625	0.074
NMS ExoI	0.172	0.202	0.85	0.396	-0.229	0.574
NMS ExoR	0.163	0.230	0.71	0.480	-0.294	0.620
NMS ExoE	0.174	0.183	0.95	0.345	-0.191	0.539
NMS MacroA	-0.104	0.165	-0.63	0.530	-0.432	0.224
NMS MacroIRE	0.421	0.205	2.05	0.044	0.012	0.830
MicroAIE × age	-0.001	0.018	-0.07	0.941	-0.038	0.035
MicroR × age	0.004	0.014	0.31	0.754	-0.024	0.033
Meso × age	0.021	0.033	0.65	0.519	-0.044	0.087
ExoA × age	-0.004	0.013	-0.31	0.759	-0.030	0.022
ExoI × age	-0.008	0.017	-0.49	0.626	-0.043	0.026
ExoR × age	-0.020	0.021	-0.94	0.352	-0.062	0.023
ExoE × age	-0.018	0.018	-1.03	0.308	-0.054	0.017
MacroA × age	-0.002	0.013	-0.16	0.869	-0.029	0.024
MacroIRE × age	0.023	0.019	1.18	0.240	-0.016	0.061
intercept	6.156	0.106	57.91	<0.001	5.945	6.368

Note. $n = 99$. Significant at the $p < 0.05$ level.

Prosocial motivation and the NMS are not moderated by age. However, *need to matter* macro IRE does have a significant relationship with age.

Table 58

Intrinsic Motivation with NMS by Demographic Differences

	Coefficient	Standard Error	t	*p*	95% Conf. Interval	
age	0.014	0.011	1.25	0.214	-0.008	0.036
NMS MicroAIE	-0.048	0.237	-0.20	0.839	-0.519	0.423
NMS MicroR	0.129	0.196	0.66	0.514	-0.262	0.520
NMS Meso	-0.726	0.336	-2.16	0.034	-1.395	-0.057
NMS ExoA	-0.108	0.210	-0.51	0.609	-0.525	0.310
NMS ExoI	0.251	0.241	1.04	0.302	-0.230	0.731
NMS ExoR	0.420	0.275	1.53	0.130	-0.127	0.966
NMS ExoE	0.184	0.219	0.84	0.403	-0.252	0.621
NMS MacroA	0.162	0.197	0.82	0.414	-0.230	0.554
NMS MacroIRE	0.129	0.246	0.53	0.601	-0.360	0.618
MicroAIE × age	0.036	0.022	1.65	0.103	-0.008	0.080
MicroR × age	0.010	0.017	0.59	0.556	-0.024	0.044
Meso × age	-0.054	0.039	-1.37	0.175	-0.132	0.025
ExoA × age	-0.000	0.016	-0.02	0.982	-0.032	0.031
ExoI × age	0.028	0.021	1.36	0.177	-0.013	0.069
ExoR × age	-0.003	0.026	-0.14	0.892	-0.054	0.047
ExoE × age	-0.020	0.021	-0.93	0.354	-0.063	0.023
MacroA × age	0.009	0.016	0.56	0.577	-0.023	0.040
MacroIRE × age	-0.022	0.023	-0.95	0.347	-0.068	0.024
intercept	5.710	0.127	44.92	<0.001	5.457	5.963

Note. $n = 99$. Significant at the $p < 0.05$ level.

The relationship between intrinsic motivation and the NMS does not vary by age.

However, *need to matter* meso level does have a significant relationship with age.

Table 59

Job Satisfaction with NMS by Demographic Differences

	Coefficient	Standard Error	t	*p*	95% Conf. Interval	
age	-0.097	0.246	-0.40	0.693	-0.586	0.391
NMS MicroAIE	11.958	5.707	2.10	0.039	0.609	23.307
NMS MicroR	3.566	4.316	0.83	0.411	-5.018	12.150
NMS Meso	-13.764	7.573	-1.82	0.073	-28.824	1.296
NMS ExoA	-1.582	4.537	-0.35	0.728	-10.604	7.440
NMS ExoI	0.829	3.853	0.22	0.830	-6.834	8.491
NMS ExoR	8.502	5.350	1.59	0.116	-2.137	19.142
NMS ExoE	-0.963	4.107	-0.23	0.815	-9.131	7.204
NMS MacroA	-2.213	4.514	-0.49	0.625	-11.188	6.763
NMS MacroIRE	2.655	5.013	0.53	0.598	-7.315	12.625
MicroAIE $\times$ age	-0.292	0.585	-0.50	0.619	-1.455	0.871
MicroR $\times$ age	0.396	0.509	0.78	0.439	-0.617	1.408
Meso $\times$ age	-0.246	0.630	-0.39	0.697	-1.500	1.007
ExoA $\times$ age	0.523	0.414	1.26	0.210	-0.301	1.348
ExoI $\times$ age	-0.113	0.423	-0.27	0.791	-0.954	0.729
ExoR $\times$ age	-0.153	0.573	-0.27	0.790	-1.293	0.986
ExoE $\times$ age	-0.225	0.333	-0.68	0.501	-0.888	0.438
MacroA $\times$ age	0.526	0.386	1.36	0.177	-0.242	1.293
MacroIRE $\times$ age	-0.377	0.511	-0.74	0.462	-1.393	0.639
intercept	139.523	2.604	53.58	<0.001	134.344	144.702

Note. $n = 105$. Significant at the $p < 0.05$ level.

The relationship between job satisfaction and the NMS does not vary by age. However,

the *need to matter* micro AIS factor does have a significant relationship with age.

These are the results for research question two based on the analysis presented.

CHAPTER FIVE: DISCUSSION

Mattering is a relatively new construct. It was first discussed in literature in 1981 by Morris Rosenberg and B. Claire McCullough. To matter is to feel like you have significance to someone else or to a larger community. Theory suggests that there are four facets that make up mattering, four ways that an individual perceives that they matter: awareness, importance, reliance, and ego-extension. Awareness is the perception that others are cognizant of your presence. Importance is the idea that an individual is held with esteem, that an/others care about them. Reliance is the feeling that others depend on you. Ego-extension is the discernment that another is recognized through association with you. Mattering is considered a motivator. If someone feels like they matter, they are motivated to continue to behave in positive ways that support the relationships and social systems that make them have that feeling. Researchers are continuing to examine what happens when people feel like they do not matter, but previously it was thought of as simply a motivator to behave negatively, mainly in an effort to be noticed. However, it is assumed that merely the satiation of this feeling, that one perceives that they matter, mattering is what motivates people. This study calls into question that assumption. First and foremost, this study is an instrument development study to see if the degree to which an individual yearns to feel they have a significant existence to another or to a larger community, or *need to matter,* can be measured. Secondly, this new instrument, the Need to Matter Scale, is used to test whether an individual's *need to matter* modifies mattering, as measured by three existing mattering scales, and workplace outcomes such as turnover, engagement, or morale.

Most of the mattering literature notes a distinction between interpersonal mattering, mattering to another, and societal mattering, mattering to a larger community. Though the majority of instruments that measure mattering are not designed to clearly examine both.

Additionally, a good deal of that literature may mention both, but primarily focuses on interpersonal mattering. This study was designed with the purposeful idea to explore these relationships within explicit contextual social environments. Bronfenbrenner's Ecological Systems Theory (1977; 1979) was used a framework to model these environmental contexts in four system levels, including micro-, meso-, exo-, and macrosystems. The microsystem level represents the individual's closest working peer/s. The mesosystem consists of the person's department or slightly bigger group of work peers. The exosystem is the organization that the person works. The macrosystem is the profession to which the person belongs. Though this particular study is done within the context of higher education, these levels seem that they could be generalizable to almost any type of organization or work.

This study is situated within the context of higher education. Though nearly any group could have been examined, the mid-level manager-type staff positions were resolutely selected as the focus of this study. This level staff at an institution of higher education is the technical core, the backbone of the operations of the institution and yet, both in higher education literature and pragmatically in day-to-day institutional decision making, it is an often ignored group. This study importantly adds to the body of higher education literature in several ways. Continued research on mattering is a worthwhile endeavor, which can help better understand individuals and society as a whole, especially that within the context of work and higher education.

The purpose of this study was to develop a measure of whether perceiving one matters holds importance to individuals, to examine the psychometric properties of this new instrument, and its relation to existing measures of mattering and workplace outcomes such as turnover, engagement and morale. The research questions answered in this study were: Can the *need to matter* be measured?, How does this new instrument relate to existing measures of mattering and

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other related constructs?, Do these relationships vary according to gender or other demographic differences?, What is the relationship between *need to matter* and workplace outcomes such as turnover, engagement, and morale?, Do these relationships vary according to mattering satiation? Do these relationships vary according to gender or other demographic differences?

To answer these research questions, the following methodology was used. Firstly, a large pool of items was generated. These items were then organized and edited for grammatical consistency. This smaller group of items was vetted by content experts, further reducing the number of items. Several instruments in addition to the new Need to Matter Scale sent via email to mid-level academic support staff at 11 institutions of higher education in a Midwestern state. Participants were all asked to answer a common set of questions and then continued with answering items from one of three sets of additional instruments. Response rate for this group was about 16%, resulting in 311 viable responses following basic data cleaning. Each stem had approximately 100 responses.

Summary of Findings

Analysis first looked at the specified theoretical model of each of the four mattering facets across the four environmental system levels. The theoretical model was an identified, standard CFA model. The basic congeneric model was used to analyze data at each environmental system level. At each of the four levels, the model fit better when modified, resulting in four different models. No items were removed during the modification process, so all 48 items were retained. Fit tests and reliability for each modified model were very good, especially considering the novelty of the instrument. *Need to matter*, or the importance of or drive to feel like one matters can be measured. However, measurement of this need is dependent on the environmental level.

The next analysis examined discriminant validity of the NMS by studying the relationships between the NMS and existing measure of mattering and other related constructs (the BPNSF, MI, UMS, and WMS). Though all significant relationships with any of the factors of the other instruments were very week, there were a few that were interesting. Total satisfaction was significant for micro, meso, and exo levels, but not at the macro level. However, total frustration was significantly correlated to *need to matter* only at the macro level. There was no real pattern among the significant relationships with the MI. No relationships were significant with the UMS. The WMS had the strongest significant relationships, still only at about 0.40 at the strongest. All levels of the NMS were related to the societal factor of the WMS, but the macro level of the NMS was not significantly related to the WMS interpersonal factor. Therefore, it can be concluded that the NMS is measuring something more like a basic psychological need, and not measuring the same thing as the mattering scales.

Next these relationships were further explored to see if any varied by demographic differences such as age, education level, institution type, or gender. Here again, there were a few relationships that were different, given the demographics, but there was little pattern to the findings. For the relationships with the BPNSF, at the meso level the relationship between *need to matter* and total frustration varies by age. At the exosystem level the relationships between *need to matter* and total satisfaction and total frustration vary by age. And, at the macro level the relationship between *need to matter* and total satisfaction as measured by the BPNSF varies by age. For the MI, the only significant finding was at the micro level of the NMS, the main effect of age. The UMS is similar in that the only significant findings were that of main effects. At the micro, meso, and exo levels, the main effect of gender is significant. The WMS too mostly has significant main effects. At the micro level, both age and gender main effects were significant.

And the meso and exo level, gender was significant. Notably, at the macro level, the relationship between *need to matter* and mattering satiation as measured by the WMS societal factor varied by institution type.

Analysis was then conducted through a multiple linear regression to examine the relationships between existing mattering scales and workplace outcomes, and to see if the *need to matter* moderated this relationship. Significant findings in this analysis were scattered and few. Mattering and burnout, as well as the factor of personal burnout, have a significant relationship that was not moderated by the *need to matter*. The relationship between mattering and turnover intention is moderated by the NMS macro level awareness factor. The relationship between mattering and depression is moderated by the NMS micro level reliance factor. Mattering and happiness are moderated by the NMS micro reliance factor, the meso factor, and the exo level awareness factor. The relationship between mattering and prosocial motivation is moderated by the NMS macro level IRE factor. Mattering and intrinsic motivation is moderated by the NMS micro level reliance factor. The relationship of interpersonal mattering and job satisfaction is moderated by the NMS exosystem level reliance factor. Societal mattering had no significant relationship to job satisfaction. An interesting result found in this analysis is the nature of these relationships is not the same throughout. Some relationships get weaker and others stronger as the *need to matter* increases, sometimes within the same relationships but depending on the NMS factor. At times these relationships are counter to what would be expected. Table 45, for example, shows that the relationship between mattering and depression is significant when moderated by the NMS Micro level Reliance factor, but the sign is positive when one would expect it to be negative.

The last analysis was aimed at answering research question 2b. Again, a multiple linear regression was used to study whether the any of the relationships in research question 2 and 2a were varied by demographic differences. Unfortunately, due to excessive collinearity only age was considered in this analysis. The relationship between work-related burnout and *need to matter* at the mesosystem and the macrosystem levels varies by age. Age varies the relationship between the NMS macro IRE factor and client-related burnout. The relationship between burnout and *need to matter* at the macrosystem levels varies by age. The relationship between turnover intention and *need to matter* does not vary by age. The relationship between depression and NMS exosystem level ego-extension factor varies by age. Happiness, prosocial motivation, intrinsic motivation and job satisfaction and the *need to matter* do not vary by age.

Limitations

One of the largest hurdles that limits a good deal of social psychology research is definitions. This study too was not unique in that regard. There are variations in how the words mattering and need are defined and used throughout the body of literature related to this study. This type of barrier often leads to researchers being unable to make generalizable comparisons or to misunderstandings.

Methodologically, this study was limited by sample size. Overall, a total sample of about 300 is decidedly decent. However, because respondents were sorted into one of three survey sets, this reduced the sample to only about 100 for some of the analysis. This was not ideal and was at times restricting. Sample size could have been improved if reminder emails could have been sent directly to those that had not responded yet versus to the entire group. This was not possible given how the link for the electronic survey was shared.

This is the first need to matter study, so the instrument design should continue to be fine-tuned. Though items were vetted by experts and great attention was paid to try to limit bias and measurement error, there could still be improvement. For example, items within each level were randomized, but the levels themselves were not randomly presented to participants. It is possible that this created an unaccounted for error. This is also the first study to use four environmental context levels versus two. While this may be an improvement and an addition to this body of literature, it complicates comparison between existing literature and this study.

This research was conducted primarily during an unprecedented time in history, the COVID-19 global pandemic. Certainly, this was not something that was planned for, nor was it considered during survey design or administration, and therefore adjustments made to work from the pandemic could have impacted participant responses and response rate. Many in this band of staff found themselves working remotely, despite never having done so before. Additionally, many had to work with fewer resources while also trying to manage personal health, families, and other obligations simultaneously to their jobs. The self-report nature of this type of survey is undoubtedly confounded by catastrophic events such as these. The impact of this cataclysm is immeasurable and as of now, unknown.

Implications

Though the research questions for this study are seemingly modest in scope, the findings suggest a number of exciting implications for theory, research, and practice.

Implications for Theory

Based on the results of this study, mattering and need to matter are different from each other. Though definitions are not exact across the literature, most can agree that mattering is the perception that one feels like they are significant and that mattering has important implications

for almost all areas of a person's life. Mattering researchers are also in agreement that every individual has a need to matter. By nature, people are social creatures who depend on relationships and interactions with other people. Thus far mattering research makes the assumption that the strength of this need is inherently similar for everyone. However, realistically, some individuals may place more importance or focus on that need than others. This study began exploring this notion by creating an instrument to measure the degree to which an individual values the feeling of mattering, contextually within their workplace in higher education. This idea was prompted by a similar line of thinking by Hackman and Oldham (1976) in their research on job redesign where they found that job redesign was moderated by Growth Need Strength. A pragmatic illustration of this explored phenomenon might be a person that has a high need to matter yet feels like they do not matter, may be motivated to gain that feeling or then again may be disgruntled in their work and may be looking to move on. Alternatively, as seen in Figure 8, an individual who has a low need to matter and perceives that they do highly matter to the organization may be frustrated with their situation but stay at the organization out of some altruistic sense of loyalty.

Figure 8
Low/High Need to Matter with Low/High Mattering
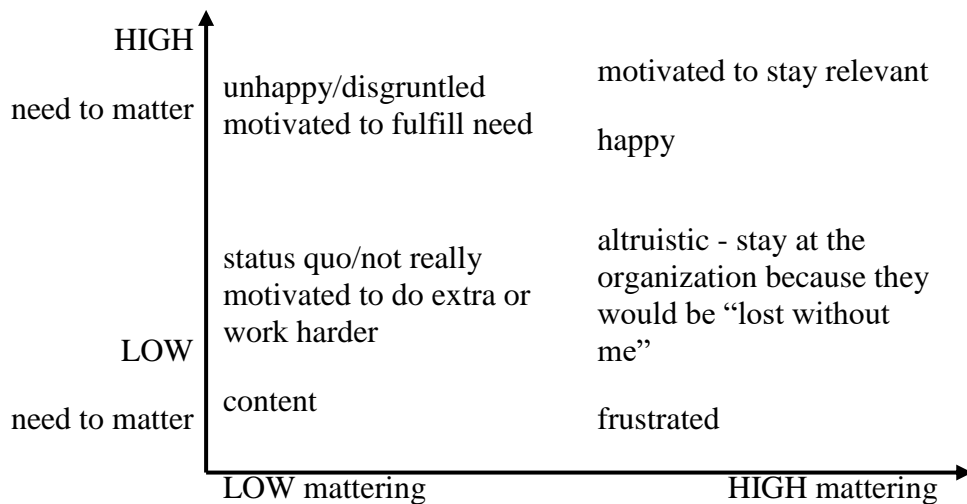
It is also interesting to question whether or not people consciously think about mattering or the extent to which mattering plays a role in what makes an individual feel whole. It is plausible to think that an individual might not really think about needing to matter until they perhaps need to make some sort of decision or transition or are in some form of crisis or change. In that sort of instance, the individual is also not likely to be able to name the construct as mattering. As an example, if an individual has a strong need to matter and was interviewing for a new job, mattering would probably play a role in their decision making about whether or not the job and the environment the job affords were a good fit. During the interview process, the individual is going to be looking for signals, consciously or subconsciously, that reassure them that they will matter to their coworkers, department, institution, or profession.

Mattering has been measured many ways since the construct was first introduced. Most of the instruments that are used to measure mattering are comprised of the factors that consider the ways in which one can perceive they matter; awareness, importance, reliance, ego-extension (Elliott et al., 2004; France & Finney, 2010). Jung and Heppner (2017), however, introduce a two factor model that measures societal and interpersonal work mattering. As they point out, one trend is that almost all mattering inventories measure only interpersonal mattering (Jung & Heppner, 2017, p. 468). This is thought-provoking because the other mattering measurements to date focus on assessing interpersonal mattering, though in almost all the literature both interpersonal and societal mattering are mentioned. Jung and Heppner develop an inventory to measure mattering by instead realizing there are common ways that a person perceives they matter, but the difference is not between the ways that they matter and instead is between the environments of mattering. Recognizing this as a difference, this particular study sought to further the mattering literature of Jung and Heppner by exploring four different environmental

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levels as it seems practical to think about the intensity of needing to satisfy that feeling of mattering that it would not be the same for one's close work group to your organization to your profession.

The findings of this study do confirm that the degree of needing to matter does vary by environmental level. This is evident in the differing modified models. Essentially, people have a stronger urge to matter in different ways, depending on the level. This shows that environmental context is important. France (2011) might have been correct in that, it does not matter to whom specifically a student matters at a university, but simply that they do, in the sense that it is relevant to student persistence and retention efforts. In the context of the workplace and studying the individual differences, the results of this study do prove that it does matter to whom and how they matter. It seems reasonable that if one were to examine mattering in a more taxonomic way that the ways in which a person perceives they matter would differ too.

Statistically the results of this study indicate that *need to matter* has some similar properties to other types of need, but not enough overlaps that it is concerning or that it is measuring the same need. The BPNSF was included in the survey to see how the NMS compared to another, similar need scale. As was expected, they were positively and significantly related. However, the relationship between the two is not strong, which is also as expected. Two need scales should have some shared variance, but not enough so that they are essentially the same thing. The largest overlap is about 7% of the variance. What is most interesting about the significant relationships is the noticeable split between environmental levels; the micro, meso and exo levels were related to the total satisfaction and the macro level was related to total frustration. A closer look also shows that at the three more inner levels, the more specific satisfaction factors of the BPNSF, autonomy, relatedness, and competence, are mostly

significant, whereas none of the factors of frustration are significant for the macro level. Only the total frustration is significant. Individuals that are satisfied with their autonomy, relatedness, and competence in/at their work also find it important that they matter to their co-worker, peers, and institution. Individuals that are frustrated with their work also have an urge to matter to their profession.

The correlations between the mattering indexes and the Need to Matter Scale show that indeed they do not have much, if any, overlap between the Mattering Index and the UMS. Fascinatingly, one would imagine that the NMS may have the most overlap with the UMS due to simply context, since they are both within the context of a university. However, there was absolutely no correlation between the University Mattering Scale and the Need to Matter Scale. This may have been because the items were reworked to be more generic, reading institution versus JMU. However, even though the original items were targeted at students at an institution, the items themselves mention really nothing of student life at a university. The Work Mattering Scale did show more correlations; however, they were very weak. This nevertheless does theoretically make more sense because the WMS and the NMS are both concerned with the environmental level.

Marshall (2001) scale creation paper discussed the idea that mattering is different from one person or group to another. The experimental nature of this type of study leaves things open to interpretation. One might interpret what happens when factors merge or when facets are blended. For example, in the micro level reliance stood out as its own factor and awareness, importance and ego-extension were blended into one factor. As a reminder the micro level is one's closest working peers. What this is telling us is that at the micro level, individuals have a distinct need to know that others depend on them, and then they also have a need for all of the

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other ways that one can show that they matter. However, they do not necessarily categorize those ways as distinctly. At the meso level all four factors merged. At the exo system level all four factors are separate, and at the macro level awareness is its own factor and the other three merge. This last, widest environmental level is also a great example. At a level when people do not know each other as intimately as the other closer environmental levels, individuals have a need to matter expressed through awareness that is isolated from the other facets. One might oversimplify what happens as meaning making for self-preservation.

The Need to Matter Scale did not moderate as expected in this study. For most of the work outcomes that were measured the main effects were significant, which does indicate the expected relationships between mattering and those workplace outcomes. Many of these have been proven time and time again. Counter to this point, weirdly mattering and depression have no significant relationship. The lack of moderation indicates that either the Need to Matter Scale is not measuring something different from mattering satiation, which clearly it is given these findings, or there was a research design problem that is not giving a clear enough picture as to if it is moderating. It could also be that causal order is out of order. It also calls into question the validity of the other instruments used. There is simply no way to know without further research. At this point, this study would suggest that a supervisor or institution could use these instruments, any of the mattering indices and the Need to Matter Scale, in pursuit of specific objectives without having to worry about moderation.

Implications for Research

The profession is an interesting idea to ponder, especially in this context of higher education. The participant directions for this study do not define what was meant by profession. It could be interpreted as the profession of working in higher education or it could be taken as the

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profession of a librarian or an accountant. Rayle's (2006a) study did not define profession either, but was set within the counseling context, which is more straightforward. Mattering is subjective and so is defining what profession means. Hindsight might suggest that it should be more well-defined, but because higher education and especially this group of individuals is such a complex group, it may be best to leave it defined by each individual's perspective from their own positionality.

The discussion on profession, however, brings up another interesting notion. Mattering is both interpersonal and societal. The profession is acting as defining the societal component, or the outermost environmental level in this study, however, it is not really addressing whether there is an element of the surrounding community, country, or the world, which might also be how one defines societal. Moreover, a level within the existing four studied may make more sense to add. Adding a level of supervision or a supervisor to the environmental levels may show even a different model of needing to matter because that relationship is one that is completely separate and different than that of one's coworkers and that of other colleagues across an organization.

Self-determination theory suggests that the three psychological needs, autonomy, competence, and relatedness need to be satisfied for individuals to have positive wellbeing. Need frustration leads to illbeing. Like most of the findings, there is not an across-the-board pattern, but there are several instances where the satisfaction and frustration relationship to the NMS varied by age. Enough so that it is worth noting. At the meso level frustration varies by age. This is important to note because none of the BPNSF frustration factors, nor total frustration had a significant relationship with the meso level NMS. At the exo level both satisfaction and frustration vary. At the macro level satisfaction varies by age even though satisfaction previously

did not show a significant relationship with the macro level NMS. What is most interesting is that there almost seems to be a longitudinal difference or a maturity difference between when the relationship between the need to matter and satisfaction and frustration strengthens and also by the level because neither is significantly different between groups at the micro level. Frustration becomes significant at the level when we are talking about departments. At the meso, institutional level both are significant when, and only satisfaction is significant at the macro level talking about the profession.

Personal burnout and total burnout had a significant relationship with mattering. This relationship was not moderated by the NMS. At the macro level age did make a significant difference on this relationship for total burnout. The some-times variation by age does beg to question if age is acting as a proxy to something else like generational expectation in the workplace. Perhaps a young adult's, early in their career, *need to matter* differs by environmental level differently from an older individual with more experience. Suggesting to whom and how they matter differs, differently. As a young person, being recognized by name by one's institution might not be as important as it is when a person is well established in their career. Basic human development theory would suggest this type of change to be expected. Further research is warranted here.

Though sample size for this study was relatively large, a much larger sample would perhaps be sensitive enough to more finely tune each subscale. One limitation of this study was that all three types of mattering scales were not used for all of the workplace outcomes. This limited sample sizes for some of the analysis, but more so potentially limited the findings. For example, there a few times that the interaction terms approached significance, but did not, potentially due to sample size. Follow up with larger samples would be optimal.

The way in which this study is set up is a unique repeated measures study because it looked within subject, by essentially doing the same scale four times per individual differing by contextual level. However, it is typical of repeated measures studies to study the same individual over time, longitudinally in nature. Going forward, it might be astute to conduct four separate groups as invariance studies for a more immediate and direct correlation between participants. A latent growth curve model might also be used to study this repeated measure type study, either truly over time or because of the hierarchical within-subjects design. There is likely something happening within an individual that is not solvable with a standard CFA. It has been keenly pointed out by Moschella and Banyard (2021) that "Because feelings of mattering fall along different points on a continuum (Elliott, 2009), people can experience feelings of mattering in one dimension and feelings of marginality in another (Schlossberg, 1989)." p. 55-56 and a latent growth curve model may be better able to analyze the structure.

In addition to repeating this study in other times (non-Covid), in other places, and in other job types, a minimum of two more instruments would be important to add. Firstly, a social desirability bias scale would help to indicate if participant's responses to items were biased because they thought it was how they *should* answer, versus what they really felt. Secondly, a personality instrument would add some currently missing depth to a follow up study. Adding a demographic item about care giving, to children or elderly parents, as a means of gauging other, possibly conflicting, roles would be an interesting addition. Other measures could also be included that would help identify the external factors leading to the correlated error terms in the measurement model. It might be that an individual with a high need to matter may have a personality trait that makes it more difficult to satisfy that need. The NMS was administered during the summer following the initial Covid outbreaks and many people had to disrupt their

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normal work practices. To truly make heads or tails of this study, it should be repeated again during a time when work practices have again leveled out. Additionally, this survey was conducted using only one subset of staff on campus. There are many other types of staff that this would seamlessly apply to, and it is very possible that the instrument could even been used outside of higher education.

As it is now, this instrument would very likely be too long to administer practically in full. Of course, the individual levels could be used independently, but that information might not be useful without seeing the results of the other levels. Future work could aim to shorten the full instrument.

Implications for Practice

As Rosser (2000) points out very plainly, staff in higher education, and especially mid-level management, are very often ignored in higher education literature. The findings from this study do reveal that this group is very multifarious, even though they are regionally similar. There is a lot of work left to do in studying this group in the future.

Results from this study show that administrators should be cautious of implementing interventions blindly to increase mattering because, for some, it may not improve things as expected and, instead, do harm. Some of the analysis indicates counterintuitive effects. In some cases, having a higher *need to matter* strengthens the positive effects of a mattering relationship to a workplace outcome. In other cases, it seems to have a negative impact, which may lead to maladaptive behavior. There is potentially such a thing as needing to matter too much. If that were the case, the NMS or portions of it, could be used as a screening instrument. Future research should be sure to address this enhancement of "the dark side of needing to matter."

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Though far from perfect, the NMS demonstrates that functionally this concept is a lot more complicated than previously thought.

More work needs to be done on researching *need to matter*, but findings from this study do suggest that institutions would be well served at exploring the idea of implementing interventions at targeted levels. As an administrator, it would be wise to be concerned with the environmental levels as to where it is best to focus time, energy, and monetary resources. At this time, it seems legitimate to use the NMS and mattering instruments as two separate instruments.

Conclusions

Mid-level university staff are a complex group. Institutions depend on them to operate, and yet these individuals may feel like they do not matter to their work peers, department, institution, or profession. Administrators at higher education institutions would be well served to consider individual differences of the persons in these groups to help them make better, more focused decisions to promote a healthy and vibrant university community. In general, more emphasis should be placed on university staff in higher education literature.

The purpose of this study was to develop a measure of the degree to which an individual yearns to feel that they have a significant existence to another or a larger community. The *need to matter* can be measured. It is not the same as mattering. Mattering is discussed as being both interpersonal and societal. Given the findings from this study, it can be concluded that people are impacted differently depending on the contextual level at which *need to matter* is considered. While there are no clear indicators from this study that workplace outcomes such as turnover, engagement, and morale vary by the strength of the need to matter, there are many exciting opportunities uncovered for future research.

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APPENDIX A: INFORMED CONSENT

Informed Consent Item on Qualtrics

I agree to participate in the research study "Developing a Need to Matter Scale." I have been selected to participate in this study based upon my employment in the 3000 Broadband of employees in the North Dakota University System.

I understand that this research is intended to assist the researchers in the development of a new measure of the desire to feel like I am significant to the world around me, specifically within the context of my work. There are no known risks associated with this project that are greater than those encountered in daily life.

As a participant in this study, I will respond to a variety of statements concerning my personal attitudes, feelings, and desires about myself and my work and my demographic information. This entire survey will last approximately 10-15 minutes.

I understand that the university community and society as a whole may benefit from my participation through a greater understanding of the need to matter.

I am aware this study is anonymous. That means that no one, not even members of the research team, will know that the information I give comes from me. My information will be combined with information from other people taking part in the study, they will write about the combined information that is gathered.

My participation is entirely my choice, and I may change my mind or quit participating at any time, without penalty.

If you have any questions about this project, please contact me at 701.231.8826 or kay.hopkins@ndsu.edu, or contact my advisor at 701.231.7921 or chris.ray@ndsu.edu.

You have rights as a research participant. If you have questions about your rights or complaints about this research, you may talk to the researcher or contact the NDSU Human Research Protection Program at 701.231.8995, toll-free at 1-855-800-6717, by email at ndsu.irb@ndsu.edu, or by mail at: NDSU HRPP Office, NDSU Dept. 4000, P.O. Box 6050, Fargo, ND 58108-6050.

APPENDIX B: INITIAL RECRUITMENT EMAIL

To: 3000 Band Employee
From: Kay Hopkins
Subject: Is feeling valued at work important to you?

Dear [Name Here]:

For many of us, being valued by those around us is important. I want to know how important it is to you to feel valued in the workplace. My name is Kay Hopkins and I am a doctoral graduate student in the School of Education at North Dakota State University, and I am conducting a research project to develop a new instrument that measures an individual's *Need to Matter*. It should take 10-15 minutes to complete the survey.

To participate in the survey, click here.

Thank you for your taking part in this research!

Best,
Kay Hopkins

APPENDIX C: FOLLOW UP EMAIL

To: 3000 Band Employee
From: Kay Hopkins
Subject: Reminder! Have you answered this survey, yet? - Is feeling valued at work important to you?

Dear [Name Here]:

Last week you received an invitation to participate in this research study. If you have already, thank you for your time; you may disregard this email. If you have not, you still have a chance to participate.

For many of us, being valued by those around us is important. I want to know how important it is to you to feel valued in the workplace. My name is Kay Hopkins and I am a doctoral student in the School of Education at North Dakota State University, and I am conducting a research project to develop a new instrument that measures an individual's *Need to Matter*. It should take 10-15 minutes to complete the survey.

To participate in the survey, click here.

Thank you for your taking part in this research!

Best,

Kay Hopkins

APPENDIX D: FINAL RECRUITMENT EMAIL

To: 3000 Band Employee
From: Kay Hopkins
Subject: Last chance! Have you answered this survey, yet? - Is feeling valued at work important to you?

Dear [Name Here]:

The previous two weeks you have received an invitation to participate in this research study. If you have already, thank you for your time; you may disregard this email. If you have not, you still have a chance to participate. **The survey will close at the end of the work day on September 4th, 2020**.

For many of us, being valued by those around us is important. I want to know how important it is to you to feel valued in the workplace. My name is Kay Hopkins and I am a doctoral student in the School of Education at North Dakota State University, and I am conducting a research project to develop a new instrument that measures an individual's *Need to Matter*. It should take 10-15 minutes to complete the survey.

To participate in the survey, click here.

Thank you for your taking part in this research!

Best,

Kay Hopkins

APPENDIX E: SURVEY

The following is a complete listing of all scales to be used among the three versions of the survey presented to participants. A participant will receive one of three sets of instruments outlined below:

All Participants

Demographic information – 11 items

Need to Matter Scale (Hopkins) – 48 items

Basic Psychological Need Satisfaction and Frustration Scale – Work Domain (Chen, Vansteenkiste, Beyers, Boone, Deci, Van der Kaap-Deeder, Duriez, Lens, Matos, Mouratidis, & Ryan, 2015; Schultz, Ryan, Niemiec, Legate, & William, 2014) – 24 items

Stem One

Mattering Index (Elliott, 2004) – 24 items

Copenhagen Burnout Inventory (Kristensen, Borritz, Villadsen, & Christensen, 2005) – 19 items

Turnover Intention (Singh, Verbeke, and Rhoads, 1996) – 3 items

Stem Two

University Mattering Scale (UMS) (France & Finney, 2010) – 24 items

Center for Epidemiologic Studies Depression Scale (Kohout, Berkman, Evans, & Cornoni-Huntley, 1993) – 20 items

Subjective Happiness Scale (Lyubomirsky & Lepper, 1999) – 4 items

Prosocial Motivation (Grant, 2008) – 8 items

Stem Three

Work Mattering Scale (WMS) (Jung & Heppner, 2017) – 10 items

Job Satisfaction Survey (Spector, 1997) – 36 items

Participant Demographic Information

Instructions: *To allow us to better analyze your results, please provide us with the following demographic information.*

Please indicate the following:

1. Age *(in years)*

2. Gender *(check one):*   Man
    Woman
    Non-binary
    Rather not say

3. Race/Ethnicity *(check one):*
    White
    Black or African American
    American Indian or Alaska Native
    Asian
    Native Hawaiian or Pacific Islander
    Hispanic
    Other

4. The highest level of education you have earned *(check one):*
    Some high school, no diploma
    High school graduate, diploma or the equivalent (for example: GED)
    Trade/technical/vocational training
    Some college credit, no degree
    Associate degree
    Bachelor's degree
    Master's degree
    Professional degree
    Doctorate degree

5. Are you currently pursuing additional education?
    Yes
    No

6. Type of institution you work at:
    4-year research university
    4-year non-research university
    2-year technical/regional/community college

7. How long have you worked at your current institution?
   less than 1 year
   1 to 2 years
   3 to 5 years
   6 to 10 years
   more than 10 years

8. How long have you worked in your current position?
   less than 1 year
   1 to 2 years
   3 to 5 years
   6 to 10 years
   more than 10 years

9. How long have you worked in a similar level position within a college/university?
   less than 1 year
   1 to 2 years
   3 to 5 years
   6 to 10 years
   more than 10 years

10. Which of the following best describes your unit on campus?
    Leadership and Diversity (Diversity, Equity, and Inclusion, Office of the Chancellor/President, Office of the Provost/Vice President)
    Academic Affairs (Academic Advising, Academic Department/School, Library Services, Research Institute or Support/Oversight (e.g., Institutional Review Board, Office of Contracts and Grants))
    Business / Administrative Services (Campus Safety/Police/Emergency Management, Capital Planning, Dining Services, Facilities – Custodial Services or Maintenance, Finance and Treasury (incl. Accounting), Human Resources, Information Technology Services, Institutional Research/Assessment/Planning, Legal Affairs, Medical Center/Hospital, Transportation and Parking)
    External Affairs (Alumni Affairs, Communications, Community Engagement/Partnerships, Public Relations, University Advancement/Development/Planned Giving)
    Student Life / Services (Admissions / Enrollment Management / Registrar, Athletics (Varsity / Club), Financial Aid, Housing/Residential Life, Student Affairs (e.g., Dean of Students, Student Government, Judicial Affairs, Orientation, Campus Activities, College Union, Student Recreation, Career Services, Student Health Services, International Student Services))

11. Which of the following most closely describes the title of your position? (*check one*)
    Accountant
    Administrator
    Advisor
    Analyst
    Archivist
    Assistant
    Assistant Director
    Associate Director
    Chief
    Consultant
    Coordinator
    Counselor
    Director
    Editor
    Librarian
    Manager
    Officer
    Programmer
    Scientist
    Specialist
    Supervisor
    Technologist

Need to Matter Scale

Please indicate how much the below statements describe you according to the following scale.

(1) completely unlike me
(2) mostly unlike me
(3) unlike me
(4) like me
(5) mostly like me
(6) completely like me

For the following, **consider your co-worker(s) or immediate work group**. This should be the handful of people you work with most closely.

Micro – co-workers/immediate work group

1. I find it really important to be called by name by my closest work peers.
2. I have a strong urge to ask if I was missed, if I was out of the office.
3. It is critical to me that my presence is known to my coworkers.
4. I find immense value when my coworkers demonstrate they are invested in my life.
5. I feel it is a must for my coworkers to care about me.
6. I need my closest work peers to be concerned about what happens to me.
7. I find it essential that my coworkers trust me with things that are important to them.
8. It is imperative to me that my contributions to my institution benefit my closest work colleagues.
9. It is important to me that my work contributions benefit my coworkers.
10. I think it is a must that my coworkers would also experience my disappointment if I did not reach my full potential.
11. Having similar feelings to others I work closest with is paramount.
12. It is critical to me that my coworkers are proud of my successes.

For the following, **consider your department or larger work unit**. This should be the slightly larger group of people you work with often.

Meso – department/unit

13. I find it essential to be called by name by those in my department.
14. It is critical to me that my presence is known by my department.
15. It is imperative to me to be acknowledged as an individual by my larger work unit.
16. It is indispensable to me that my larger work unit would be concerned if something were to happen to me.
17. I think it is a necessity for my work unit to take interest in my wellbeing.
18. I feel it is a must for my department to care about me.
19. It is a necessity to me that my department trust me with things that are important to it.
20. I feel it is essential that at least one other person in my department depends on me.
21. It is paramount to me that my work contributions benefit my department.
22. It is important to me that my larger work unit is empathetic to my feelings.

23. Having similar feelings to others in my department is paramount.
24. I find it a necessity that my work is a source of pride for my department.

For the following, **consider your university/college/institution as a whole**.

Exo – university/college/institution

25. It is critical to me to be called by name by people from my institution.
26. I need to be known by name around my university.
27. It is imperative to me to be acknowledged by my institution.
28. It is crucial to me that my university would be upset if I were mistreated.
29. I think it is a necessity for my university to take interest in my wellbeing.
30. I feel it is a must for my university to care about me.
31. I find it essential that my institution trusts me with things that are important to it.
32. I feel it is a necessity that at least one other person at my university depends on me.
33. It is important to me that my work contributions benefit my institution.
34. It is very important to me that my institution takes pride in the work I do.
35. It is critical to me that my university is proud of my successes.
36. I find it a necessity that my work is a source of pride for my institution.

For the following, **consider your profession as a whole**.

Macro – profession

37. It is essential to me to be called by name by others in my profession.
38. It is critical to me that my presence is known to those in my profession.
39. I need to be known by name by those in my profession.
40. It matters to me that my profession cares what happens to me.
41. I think it is a necessity for those in my profession to take interest in my wellbeing.
42. I need my professional peers to be concerned about what happens to me.
43. It is imperative to me that my work contributions to my institution benefit my profession.
44. I feel it is essential that at least one other person in my profession depends on me.
45. It is important to me that my work contributions benefit my profession.
46. It is crucial that my successes are a source of pride to my profession.
47. I think it is a must my professional peers would also experience my disappointment if I did not reach my full potential.
48. Having similar feelings to others in my profession is paramount.

Basic Psychological Need Satisfaction and Frustration Scale – Work Domain

Instructions: The following questions concern your feelings about your job during the PAST 4 WEEKS. Please indicate how much you agree with each of the following statements given your experiences on this job. Remember that your supervisor will never know how you responded to the questions. Please use the following scale in responding to the items.

1	2	3	4	5	6	7
strongly disagree			neutral			strongly agree

1. At work, I feel a sense of choice and freedom in the things I undertake.
2. I feel excluded from the group I want to belong to at work.
3. I feel confident that I can do things well on my job.
4. I feel that the people I care at work about also care about me.
5. Most of the things I do on my job feel like "I have to".
6. When I am at work, I have serious doubts about whether I can do things well.
7. I feel that my decisions on my job reflect what I really want.
8. I feel that people who are important to me at work are cold and distant towards me.
9. At work, I feel capable at what I do.
10. I feel forced to do many things on my job I wouldn't choose to do.
11. I feel disappointed with my performance in my job.
12. I feel connected with people who care for me at work, and for whom I care at work.
13. I feel my choices on my job express who I really am.
14. When I am at work, I feel competent to achieve my goals.
15. I feel pressured to do too many things on my job.
16. At work, I feel close and connected with other people who are important to me.
17. I feel insecure about my abilities on my job.
18. My daily activities at work feel like a chain of obligations.
19. I feel I have been doing what really interests me in my job.
20. I have the impression that people I spend time with at work dislike me.
21. In my job, I feel I can successfully complete difficult tasks.
22. I feel the relationships I have at work are just superficial.
23. When I am working I feel like a failure because of the mistakes I make.
24. I experience a warm feeling with the people I spend time with at work.

Mattering Index

Do not to focus on specific others in your life, but rather focus on other people in general.
5 – Strongest degree of Mattering
1 – Least degree of Mattering

1. Most people do not seem to notice when I come or when I go
2. In a social gathering, no one recognizes me
3. Sometimes when I am with others, I feel almost as if I were invisible
4. People are usually aware of my presence
5. For whatever reason, it is hard for me to get other people's attention
6. Whatever else may happen, people do not ignore me
7. For better or worse, people generally know when I am around
8. People tend not to remember my name
9. People do not care what happens to me
10. There are people in my life who react to what happens to me in the same way they would if it had happened to them
11. My successes are a source of pride to people in my life
12. I have noticed that people will sometimes inconvenience themselves to help me
13. When I have a problem, people usually don't want to hear about it
14. Much of the time, other people are indifferent to my needs
15. There are people in my life who care enough about me to criticize me when I need it
16. There is no one who really takes pride in my accomplishments
17. No one would notice if one day I disappeared
18. If the truth be known, no one really needs me
19. Quite a few people look to me for advice on issues of importance
20. I am not someone people turn to when they need something
21. People tend to rely on me for support
22. When people need help, they come to me
23. People count on me to be there in times of need
24. Often people trust me with things that are important to them

Copenhagen Burnout Inventory

5 point scale
Always or to a very high degree, often or to a high degree, sometimes, or somewhat, seldom or to a low degree, never/almost never or to a very low degree

1. How often do you feel tired?
2. How often are you physically exhausted?
3. How often are you emotionally exhausted?
4. How often do you think: ''I can't take it anymore''?
5. How often do you feel worn out?
6. How often do you feel weak and susceptible to illness?
7. Do you feel worn out at the end of the working day?
8. Are you exhausted in the morning at the thought of another day at work?
9. Do you feel that every working hour is tiring for you?
10. Do you have enough energy for family and friends during leisure time?
11. Is your work emotionally exhausting?
12. Does your work frustrate you?
13. Do you feel burnt out because of your work?
14. Do you find it hard to work with clients?
15. Does it drain your energy to work with clients?
16. Do you find it frustrating to work with clients?
17. Do you feel that you give more than you get back when you work with clients?
18. Are you tired of working with clients?
19. Do you sometimes wonder how long you will be able to continue working with clients?

Turnover Intention

(1=strongly disagree, 5=strongly agree)
1. I plan to be leaving my current place of work within the next year.
2. I plan to be looking for a new job within the next year.
3. I often think about quitting my current job.

University Mattering Scale (UMS)

Below are a series of statements that represent feelings toward your work institution. Think about your relationships with the people in your institutional community and indicate the degree to which each statement is in line with these relationships. When you respond to these statements, do not think of specific others at your work institution, rather, try to focus on your work institution in general as an entity or whole community. By "community" we mean your work institution students, faculty, administrators, and staff. Think of all these people as a whole when responding to these items. There are no right or wrong answers. Just answer as honestly as possible. Not all students feel the same way or are expected to feel the same way.

1	2	3	4	5
Strongly Disagree		Neutral		Strongly Agree

1. The people of my work institution community do not ignore me.
2. When people at my work institution need help, they come to me.
3. No one at my work institution really needs me.
4. Sometimes at my work institution, I feel almost as if I were invisible.
5. The people of my work institution community tend to rely on me for support.
6. My successes are a source of pride to the people of my work institution community.
7. At my work institution social gatherings, no one recognizes me.
8. No one of my institutional community would notice if one day I disappeared.
9. The people of my institutional community are usually aware of my presence.
10. I am not someone the people of my work institution community would turn to when they need something.
11. There is no one in my work institution community who really takes pride in my accomplishments.
12. Often, the people of my work institution community trust me with things that are important to them.
13. People of my work institution community tend not to remember my name.
14. People of my institutional community do not care what happens to me.
15. Much of the time, people of my institutional community are indifferent to my needs.
16. It is hard for me to get the attention of people of my institutional community.
17. Quite a few people of my institutional community look to me for advice on issues of importance.
18. Most people of work community do not seem to notice when I come or go.
19. I have noticed that people at my work will sometimes inconvenience themselves to help me.
20. There are people of my institutional community who react to what happens to me in the same way they would if it happened to them.
21. The people of my work community generally know when I am around.
22. When I have a problem, people of my institutional community usually don't want to hear about it.
23. There are people at my work institution who care enough about me to criticize me when I need it.
24. People of my work community count on me to be there in times of need.

Center for Epidemiologic Studies Depression Scale

How often have you felt this way during the past week?
0 – Rarely or none of the time (less than 1 day in the last week)
1 – Some of the time (1-2 days in the last week)
2 – Much of the time (3-4 days in the last week)
3 – Most or all the time (5-7 days in the last week)

1. I was bothered by things that don't usually bother me.
2. I did not feel like eating; my appetite was poor.
3. I felt I could not shake off the blues.
4. I felt as good as other people.
5. I had trouble keeping my mind on what I was doing.
6. I felt depressed.
7. I felt everything I did was an effort.
8. I felt hopeful about the future.
9. I thought my life had been a failure.
10. I felt fearful.
11. My sleep was restless.
12. I was happy.
13. I talked less than usual.
14. I felt lonely.
15. People were unfriendly.
16. I enjoyed life.
17. I had crying spells.
18. I felt sad.
19. I felt that people disliked me.
20. I could not get "going."

Subjective Happiness Scale

For each of the following statements and/or questions, please select the point on the scale that you feel is most appropriate in describing you.

1. In general, I consider myself:

1	2	3	4	5	6	7
not a very happy person						a very happy person

2. Compared with most of my peers, I consider myself:

1	2	3	4	5	6	7
less happy						more happy

3. Some people are generally very happy. They enjoy life regardless of what is going on, getting the most out of everything. To what extent does this characterization describe you?

1	2	3	4	5	6	7
not at all						a great deal

4. Some people are generally not very happy. Although they are not depressed, they never seem as happy as they might be. To what extent does this characterization describe you?

1	2	3	4	5	6	7
not at all						a great deal

Prosocial Motivation

1 (disagree strongly) to 7 (agree strongly)

Why are you motivated to do your work?

1. Because I care about benefiting others through my work
2. Because I want to help others through my work
3. Because I want to have positive impact on others
4. Because it is important to me to do good for others through my work
5. Because I enjoy the work itself
6. Because it's fun
7. Because I find the work engaging
8. Because I enjoy it

Work Mattering Scale (WMS)

Please respond to each item with the following scale

(disagree very much) 1   2   3   4   5   6 (agree very much)

1. I think that society values the work I do.
2. I feel my work meets a societal need.
3. I am connected to society through my work.
4. People say that my work influenced their life.
5. My work influences people's lives.
6. My coworkers/colleagues would be disappointed if they knew that I may leave my job.
7. I feel like I matter to my colleagues/coworkers.
8. My coworkers/colleagues value my ideas and suggestions.
9. My boss/supervisor would be disappointed if they knew that I may leave my job.
10. My coworkers/colleagues appreciate my support and help.

Job Satisfaction Survey

PLEASE SELECT THE ONE NUMBER FOR EACH QUESTION THAT COMES CLOSEST TO REFLECTING YOUR OPINION ABOUT IT.

1	2	3	4	5	6
Disagree very much	Disagree moderately	Disagree slightly	Agree slightly	Agree moderately	Agree very much

1. I feel I am being paid a fair amount for the work I do.
2. There is really too little chance for promotion on my job.
3. My supervisor is quite competent in doing his/her job.
4. I am not satisfied with the benefits I receive.
5. When I do a good job, I receive the recognition for it that I should receive.
6. Many of our rules and procedures make doing a good job difficult.
7. I like the people I work with.
8. I sometimes feel my job is meaningless.
9. Communications seem good within this organization.
10. Raises are too few and far between.
11. Those who do well on the job stand a fair chance of being promoted.
12. My supervisor is unfair to me.
13. The benefits we receive are as good as most other organizations offer.
14. I do not feel that the work I do is appreciated.
15. My efforts to do a good job are seldom blocked by red tape.
16. I find I have to work harder at my job because of the incompetence of people I work with.
17. I like doing the things I do at work.
18. The goals of this organization are not clear to me.
19. I feel unappreciated by the organization when I think about what they pay me.
20. People get ahead as fast here as they do in other places.
21. My supervisor shows too little interest in the feelings of subordinates.
22. The benefit package we have is equitable.
23. There are few rewards for those who work here.
24. I have too much to do at work.
25. I enjoy my coworkers.
26. I often feel that I do not know what is going on with the organization.
27. I feel a sense of pride in doing my job.
28. I feel satisfied with my chances for salary increases.
29. There are benefits we do not have which we should have.
30. I like my supervisor.
31. I have too much paperwork.
32. I don't feel my efforts are rewarded the way they should be.
33. I am satisfied with my chances for promotion.
34. There is too much bickering and fighting at work.
35. My job is enjoyable.
36. Work assignments are not fully explained.

APPENDIX F: INITIAL 149 ITEMS

**Bolded items were retained for the 48 item NMS

awareness

1. **I like being called by name by my work peers.**
2. It is essential for my work to be recognized as mine by my immediate work group.
3. I need to feel valued as an individual by those that work closest to me.
4. **I have a strong urge to ask if I was missed, if I were to be out of the office.**
5. **It is critical to me that my presence is known to my co-workers.**
6. I need to be known by name by my immediate work group.
7. I like to be acknowledged as an individual by my co-workers.
8. It is critical for my work to be recognized by others I work closest with.
9. I like being acknowledged by my immediate work peers.
10. Being missed by others in my office is extremely important to me.

importance

11. It is important to me that my co-workers pay attention to me.
12. I like when those I work with are sincerely interested in me.
13. It is indispensable to me that my work peers would be concerned if something were to happen to me.
14. It is essential to me that my co-workers would be upset if I were mistreated.
15. It matters to me that my closest work peers care what happens to me.
16. **I find immense value when my co-workers demonstrate they are invested in my life.**
17. I think it is a necessity for those who work closest to me to take interest in my wellbeing.
18. **I feel it is a must for my co-workers to care about me.**
19. **I need my closest work peers to be concerned about what happens to me.**

reliance

20. **I find it essential that my coworkers trust me with things that are important to them.**
21. It is necessary that I have people immediately around me at work, who give me advice when I need it.
22. When I have a problem, it matters to me if the people I work around want to hear about it.
23. It is important to me that my work is making a difference to my co-workers.
24. **It is imperative to me that my contributions to my institution benefit my closest work colleagues.**
25. I feel it is essential that at least one other person who works closely with me depends on me.
26. **It is important to me that my contributions of my work benefit my co-workers.**
27. I find it essential to have my co-workers to reach out to for advice.

28.   I have a strong urge to offer support to others who work closely with me.

ego-extension

29.   I need my coworkers to understand how I am feeling.
30.   I like when my work peers take pride in the work I do.
31.   It is important to me that those I work with and around are sympathetic to my feelings.
32.   It is crucial that my successes are a source of pride to my closest work peers.
33.   I think it is a must that my co-workers would also experience my disappointment if I did not reach my full potential.
34.   Having similar feelings to others I work closest with is paramount.
35.   It is critical to me that my co-workers are proud of my successes.
36.   I think it is important that those I work closest with understand how I feel.
37.   I find it a necessity that my work is a source of pride for my co-workers.
38.   It is a requisite that my co-workers understand where I am coming from.

Meso – department/unit

awareness

39.   I like being called by name by those in my department.
40.   It is essential for my work to be recognized as mine by my larger work unit.
41.   I need to feel valued as an individual by those in my department.
42.   It is critical to me that my presence is known to those in my department.
43.   I need to be known by name around my department.
44.   I like to be acknowledged as an individual by those in my larger work unit.
45.   It is critical for my work to be recognized by others in my department.
46.   I like being acknowledged by those in my department.
47.   Being missed by others in my department is extremely important to me.

importance

48.   It is important to me that those in my department pay attention to me.
49.   I like when those in my department are sincerely interested in me.
50.   It is indispensable to me that those in my larger work unit would be concerned if something were to happen to me.
51.   It is essential to me that persons in my department would be upset if I were mistreated.
52.   It matters to me that those in my department care what happens to me.
53.   I find immense value when people in my department demonstrate they are invested in my life.
54.   I think it is a necessity for those who work to take interest in my wellbeing.
55.   I feel it is a must for my co-workers to care about me.
56.   I need my peers in my department to be concerned about what happens to me.

reliance

57.   **I find it essential that people in my department trust me with things that are important to them.**
58.   It is necessary that I have people in my department, who give me advice when I need it.
59.   When I have a problem, it matters to me if the people in my larger work group want to hear about it.
60.   It is important to me that my work is making a difference to my department.
61.   It is imperative to me that my contributions to my institution benefit my department.
62.   **I feel it is essential that at least one other person in my department depends on me.**
63.   **It is important to me that my contributions of my work benefit my department.**
64.   I find it essential to have persons in my department to reach out to for advice.
65.   I have a strong urge to offer support to others in my department.

ego-extension

66.   I need my department to understand how I am feeling.
67.   I like when my department take pride in the work I do.
68.   **It is important to me that my larger work unit is sympathetic to my feelings.**
69.   It is crucial that my successes are a source of pride to my department.
70.   I think it is a must that my department would also experience my disappointment if I did not reach my full potential.
71.   **Having similar feelings to others of my department is paramount.**
72.   It is critical to me that my department is proud of my successes.
73.   I think it is important that my larger work unit understand how I feel.
74.   **I find it a necessity that my work is a source of pride for my department.**
75.   It is a requisite that my department understand where I am coming from.

Exo – university/college/institution

awareness

76.   **I like being called by name by people at my institution.**
77.   It is essential for my work to be recognized as mine by my university.
78.   I need to feel valued as an individual by those my university.
79.   It is critical to me that my presence is known to my institution.
80.   **I need to be known by name around my university.**
81.   I like to be acknowledged as an individual by others at my institution.
82.   It is critical for my work to be recognized by others at my university.
83.   **I like being acknowledged by my institution.**
84.   Being missed by others at my university is extremely important to me.

importance

85.   It is important to me that my university pay attention to me.
86.   I like when those at my institution are sincerely interested in me.
87.   It is indispensable to me that my university would be concerned if something were to happen to me.
88.   **It is essential to me that my university would be upset if I were mistreated.**

89. It matters to me that my institutional peers care what happens to me.
90. I find immense value when my institution demonstrates they are invested in my life.
91. I think it is a necessity for those at my university to take interest in my wellbeing.
92. I feel it is a must for my university to care about me.
93. I need my institution to be concerned about what happens to me.

reliance

94. I find it essential that my institution trust me with things that are important to them.
95. It is necessary that I have people at my institution, who give me advice when I need it.
96. When I have a problem, it matters to me if the people at my university want to hear about it.
97. It is important to me that my work is making a difference to my institution.
98. It is imperative to me that my contributions to my institution benefit my university.
99. I feel it is essential that at least one other person at my university depends on me.
100. It is important to me that my contributions of my work benefit my institution.
101. I find it essential to have my university to reach out to for advice.
102. I have a strong urge to offer support to others at my university.

ego-extension

103. I need my university to understand how I am feeling.
104. I like when my institution takes pride in the work I do.
105. It is important to me that my university is sympathetic to my feelings.
106. It is crucial that my successes are a source of pride to my university.
107. I think it is a must that my university would also experience my disappointment if I did not reach my full potential.
108. Having similar feelings to others of my institution is paramount.
109. It is critical to me that my university is proud of my successes.
110. I think it is important that those my university understand how I feel.
111. I find it a necessity that my work is a source of pride for my institution.
112. It is a requisite that my university understands where I am coming from.

Macro – profession

awareness

113. I like being called by name by others in my profession.
114. It is essential for my work to be recognized as mine by the profession.
115. I need to feel valued as an individual by those in my profession.
116. It is critical to me that my presence is known to those in my profession.
117. I need to be known by name by those in my profession.
118. I like to be acknowledged as an individual by the profession.
119. It is critical for my work to be recognized by others in the profession.
120. I like being acknowledged by professionals similar to me.
121. Being missed by others in my profession is extremely important to me.

importance

122. It is important to me that my profession pay attention to me.
123. I like when those in my profession are sincerely interested in me.
124. It is indispensable to me that those in my profession would be concerned if   something were to happen to me.
125. It is essential to me that professionals similar to me would be upset if I were mistreated.
126. **It matters to me that my profession care what happens to me.**
127. I find immense value when my profession demonstrates they are invested in my life.
128. **I think it is a necessity for those in my profession to take interest in my wellbeing.**
129. I feel it is a must for my profession to care about me.
130. **I need my professional peers to be concerned about what happens to me.**

reliance

131. I find it essential that my profession trust me with things that are important to them.
132. It is necessary that I have professionals similar to me, who give me advice when I need it.
133. When I have a problem, it matters to me if my profession wants to hear about it.
134. It is important to me that my work is making a difference to my profession.
135. **It is imperative to me that my contributions to my institution benefit my profession.**
136. **I feel it is essential that at least one other person in my profession depends on me.**
137. **It is important to me that my contributions of my work benefit my profession.**
138. I find it essential to have my profession to reach out to for advice.
139. I have a strong urge to offer support to others in my profession.

ego-extension

140. I need other professionals, similar to me to understand how I am feeling.
141. I like when my profession takes pride in the work I do.
142. It is important to me that my profession is sympathetic to my feelings.
143. **It is crucial that my successes are a source of pride to my profession.**
144. **I think it is a must that my profession would also experience my disappointment if I did not reach my full potential.**
145. **Having similar feelings to others of my profession is paramount.**
146. It is critical to me that my profession is proud of my successes.
147. I think it is important that those in my profession understand how I feel.
148. I find it a necessity that my work is a source of pride for my profession.
149. It is a requisite that other professionals, similar to me understand where I am coming from.