RETHINKING THE HEDONIC TREADMILL WITHIN THE CONTEXT OF

BROADEN AND BUILD THEORY:

DEVELOPING RESOURCES THROUGH POSITIVE EMPLOYEES

by

MAURA JOSEPHINE MILLS

B.A., Massachusetts College of Liberal Arts, 2005

M.S., Kansas State University, 2007

AN ABSTRACT OF A DISSERTATION

submitted in partial fulfillment of the requirements for the degree

DOCTOR OF PHILOSOPHY

Department of Psychology
College of Arts and Sciences

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Manhattan, Kansas

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Abstract

Entrenched within the sphere of positive psychology, the present series of studies takes a progressive approach to understanding and furthering the practical application of constructs subsumed within the subfield of positive organizational behavior (POB). The progression begins with Study 1, which analyzes the factorial structure and psychometric footholds of the primary measurement instrument for Psychological Capital (PsyCap), one of the newer positive psychological constructs. This study suggested that both the measurement of this construct in addition to its factor structure may need to be reevaluated in order to best conceptualize the multifactorial nature of this variable. In turn, Study 2 involves resilience, one of the four aspects of PsyCap, and suggests that it may play an important role in molding employees' work experiences. Specifically, Study 2 explores the relations between workload and eudaimonic and hedonic well-being over a two-week period, finding that workload is negatively related to eudaimonic well-being, but, interestingly, positively related to hedonic well-being. However, hypotheses suggesting that resilience and role salience may independently moderate workload's relations with eudaimonic and hedonic well-being were not supported. Finally, recognizing the potential value of these positive psychological constructs (resilience and well-being in particular) for employers and employees alike, Study 3 aimed to develop interventions capable of increasing individuals' positive personal resources, whereby they may enhance their ability to endure work challenges and even thrive in the face of such challenges. Findings indicated that the intervention targeting resilience did not result in

significant differences between a control group and the intervention group. The intervention targeting well-being resulted in no differences in hedonic well-being, but did evidence differences on the personal growth aspect of eudaimonic well-being. Overall, these three studies taken together speak to the applicability of positive organizational behavior constructs in the workplace, and how such constructs might be enhanced in employees.

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Acknowledgements

I will miss this place. Everything is bigger here.

And I will miss these people, as I have met some phenomenal ones.

Here's my nod to the professors, colleagues, and friends who are a part of Kansas State University, and who are now also a part of me.

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Finally, given my profound appreciation for good quotes, and in honor of my grandfather who planted and nurtured that interest, I feel it appropriate to close this chapter of my life with two very applicable ones, from two very different sources:

"It's the magic of risking everything for a dream nobody sees but you."

Million Dollar Baby

"I have fought the good fight, I have finished the course, I have kept the faith."

2 Timothy 4:7

Dedication

For my late uncle and godfather,

Harold Edson Cady,

who graciously instructed me

in some of the most important lessons

I have ever learned.

Preface

As is well-known in the field of psychology, the discipline began with a focus on positive human functioning. As far back as Aristotle, we can see detailed writings about the importance of individual contentment and human welfare, not just physically, but also – and arguably more importantly – psychologically. For instance, in his *Nicomachean Ethics* (translated 1947), Aristotle puts forth his belief that happiness is the greatest good for which human beings might strive, and argues that such happiness necessarily involves functioning positively and striving toward individual excellence, summed up as 'living the good life.'

Nevertheless, despite Aristotle's positive view of human functioning and the intersection between philosophy and psychology that necessarily occurs therein, his approach to the study of positive functioning was deductive rather than empirical. Therefore, while it is worthwhile to note Aristotle's historical perspective herein, modern research regarding positive human functioning has, as a result of its more empirical nature, deviated somewhat from Aristotle's conceptualization. Such deviations will be outlined at a later point in this manuscript.

Unfortunately, during World War II, the world witnessed some of the worst that humanity has to offer, and many academic and professional disciplines responded accordingly. Psychology's response to these atrocities was to place a greater focus on the negative aspects of humanity. This included not only a focus on such issues as the oft-disastrous effects of authoritarianism or even groupthink, which were more directly

related to the War, but it also generalized to a more negative focus overall. Psychological research on topics such as mental pathologies, human weaknesses, and in general, interest in simply 'what is wrong with people' became increasingly popularized, and such foci continued to dominate the field for some time.

Fortunately, more recently the field has experienced somewhat of an about-face in its focus. While research continues to be conducted regarding the aforementioned negative aspects of the discipline, as without such research the discipline could not be considered comprehensive, it has expanded to once again include positive aspects of human functioning as a large part of its focus. This enlightened, proactive focus on identifying and enhancing individual flourishing goes beyond a focus on the negative by recognizing that simply removing pathologies or problems does not automatically result in enhanced personal psychological welfare (Huppert, 2009; World Health Organization, 1946). Rather, positive psychology recognizes that it is indeed necessary to go beyond such a narrow, negative focus, and to embrace psychology's responsibility toward enhancing human potential, well-being, and fulfillment (Seligman & Csikszentmihalyi, 2000).

This turnaround to once again focus on the positive aspects and potential of humanity can be largely attributed to Martin Seligman, the then-president of the American Psychological Association (APA). In a 1999 speech to the APA, and later in an introduction to a special issue of *American Psychologist* (2000) proselytizing the positive psychology movement, Seligman recounted a moment in which his young daughter gently chastised him for 'being so grouchy' and had suggested that life might be better for him were he to stop being so grouchy, just as she had decided to stop whining

once she turned five. It was in this moment, Seligman maintained, that he was forced to realize the great potential of what he termed 'positive psychology' (see also Snyder & Lopez, 2002).

Since that time, positive psychology has trickled into almost every sub-discipline of psychology, and has certainly not gone without affecting industrial and organizational (I/O) psychology. Specifically, this sub-field is now increasingly focused on modifying the workplace and the work itself so as to enhance employees' positive experiences both on and off the job. Most notably, Positive Organizational Scholarship (POS; Dutton, Glynn, & Sprietzer, 2006) and Positive Organizational Behavior (POB; Luthans, 2002) have made major impacts in the way I/O researchers study both organizations and their employees, and have also impacted upon the outcome measures that researchers consider to be of substantial import. For instance, organizations are now increasingly concerned with employee-driven outcome measures in regard to the employee experience of the work itself. This stands in opposition to past measurement trends in I/O, which have focused primarily on organizations' concern with more typical outcome measures such as productivity and bottom-line profits.

To briefly distinguish between POS and POB, POS deals in more of a macro, organizational-level domain, whereas POB focuses more directly on the micro employee-level domain (Luthans, Youssef, & Avolio, 2007). Luthans and Avolio (2003) have also argued that POB constructs have a greater relation with performance outcomes than do POS constructs. Cameron, Bright, and Caza (2004) have likewise argued that POS constructs tend to be less amenable to development, whereas inclusion within POB

necessarily requires constructs to be partially or wholly state-like so as to make intervention possible and meaningful.

Therefore, the positive psychological umbrella under which the present research falls should be considered to be POB. All three studies consider employee-level constructs that have shown to have positive relations with a variety of conceptualizations and measures of performance. Furthermore, the third study in the series focuses on the development of personal resources and characteristics within employees, with the understanding that such development should in turn impact employee experiences of the workplace and the work itself, in addition to even possibly impacting overall organizational performance, as is recommended as consideration for future research.

CHAPTER 1 - Study 1

Psychological Capital

One of the constructs that is inextricably intertwined with positive psychology and positive organizational behavior is that of 'positive psychological capital,' otherwise known as 'psychological capital,' or even simply PsyCap (Luthans, Youssef, and Avolio, 2007). PsyCap is an individual's positive psychological state in which he or she strives toward development of self and feels buoyant about the future. Although PsyCap consists of four components which will be discussed momentarily, it is important to note that initial research has consistently found that these components function synergistically in that the whole appears to be greater than the sum of the parts (e.g., Luthans, Avolio, Norman, & Avey, 2007; Luthans, Avolio, Walumbwa, & Li, 2005; Luthans, Youssef, & Avolio, 2007). That is, the higher-order holistic construct of PsyCap tends to be more strongly related to measures of various individually- and organizationally-important outcomes (e.g., satisfaction, performance) than are any of the four components when employed alone.

Various constructs have been considered as possibly contributory to PsyCap. These include various cognitive factors (e.g., creativity, wisdom), affective factors (e.g., well-being, flow, humor), social factors (e.g., gratitude, forgiveness, emotional intelligence, spirituality), and higher-order factors (e.g., authenticity, courage, spirituality). As systematically outlined by Luthans, Youssef, and Avolio (2007), each of these capacities is considered in light of criteria deemed important for the inclusion of a construct as a part of POB and, specifically, PsyCap. These criteria include that the construct a) be state-like, b) *also* have a *relatively* fixed (trait-like) component, c) be both

theoretically-based and supported by research, d) be measurable (validly and reliably so), e) that it be related to work performance, and f) also be related to other positive outcomes (e.g., job satisfaction).

Arguably, the three inclusion criteria most heavily weighted and arguably of most interest to organizations are that the construct: a) be (validly and reliably) measurable, b) be state-like, and c) have an impact on the individual's level of job performance. Ultimately, after much research, Fred Luthans and his colleagues (e.g., Luthans & Avolio, 2003; Luthans, Avolio, Avey, & Norman, 2007; Luthans & Jensen, 2002; Luthans, Vogelgesang, & Lester, 2006, Peterson & Luthans, 2003) deemed four constructs as appropriate for inclusion as dimensions of PsyCap. These will be discussed momentarily. First, however, it is prudent to explain why each of the inclusion criteria is important.

The criterion of a state-like construct, versus a more stable trait-like construct, is important so as to ensure that the construct is malleable within individuals. As such, organizations may opt to develop the construct within their employees, and can feel reasonably confident that such developmental activities will in fact result in improved levels of the construct of interest.

This leads us to the next inclusion criterion. Why would an organization want to invest money and time into developing such constructs? The answer, from a solely financially-driven business perspective, is that an organization should only seek to invest in developing employees in ways that will ultimately be economically contributory to the organization itself. The second of the two aforementioned criteria ensures that this is the

case. That is, developing these constructs in employees is in turn likely to improve those employees' on-the-job performance, thus directly benefiting the organization as a whole.

The four constructs that met these criteria are that of self-efficacy, optimism, hope, and resilience, which are now recognized as the four dimensions of PsyCap. They can be described as follows:

Self-efficacy, alternatively referred to as *confidence* or simply *efficacy,* is an individual's belief in him or herself, and his or her belief that expending the necessary effort on a given task is in turn likely to lead to his or her success at that activity, even when the activity is challenging. Nevertheless, one might reasonably argue that such a statement should be qualified by an understanding of Mihalyi Csikszentmihalyi's (1975, 1990) construct of 'flow,' a key dimension of which is the challenge/skill balance. The challenge/skill balance states that when both challenges and associated skills are low, apathy results, whereas when both challenges and requisite skills are high, the individual experiences what Csikszentmihalyi (1975, 1990) recognizes as an optimal experience called flow. Other combinations include low skills and high challenges, which results in anxiety, and high skills and low challenges, which results in boredom. Therefore, in light of this conceptualization of the challenge/skill balance, it is worthwhile noting that confidence may be most likely to result in this flow condition – and possibly also in the 'boredom' condition, although likely to a lesser degree in the latter since the individual in this condition will not be functioning at his or her highest potential.

Having this self-efficacy is important not only in carrying out and succeeding at a given activity, but also to pursuing the opportunity and accepting the challenge in the first place, assured that one has a real chance of succeeding. As with the other dimensions of

PsyCap, this efficacy dimension is also a construct of interest in and of itself, most notably popularized by Bandura (1977), who extensively researched it 2-3 decades ago. Part of Bandura's contribution that is pertinent herein is his recognition of various sources of efficacy beliefs, the most notable of which is task mastery but which also include social persuasion and associated positive feedback, arousal (psychological and/or physiological), modeling, and vicarious learning. Likewise, Bandura (1986) specifies that an individual's level of self-efficacy influences his or her subsequent behaviors in three ways: By influencing the behaviors in which an individual chooses to engage, by subsequently determining expenditure of effort and level of persistence on those activities, and finally, via the resulting physiological arousal.

Optimism is another dimension of PsyCap, and can be defined as thinking positively and attributing success to oneself in future endeavors. A crucial issue to keep in mind, however, when considering optimism is the importance of distinguishing realistic optimism from idealistic optimism. Realistic optimism focuses on an attainable positive outcome, whereas idealistic optimism dwells on an idyllic circumstance which can rarely if ever be reached. Thus, realistic optimism is the best and most productive type of optimism, since idealistic optimism is rarely satisfied and can therefore lead to a string of continual disappointments. Similarly, Luthans, Youssef, and Avolio (2007) note that optimism must also be flexible in that it can adapt as the situation changes thereby altering possible outcomes. Luthans and colleagues (2007) have noted that the lack of such flexibility can result in further disappointments. Therefore, in order to be useful and functional in the workplace, these researchers argue, optimism must be both realistic and flexible. Individuals whose optimism is not bounded by these qualifiers are likely to

expose themselves – and thereby also their organizations – to unnecessarily high risks, and are subsequently more likely to avoid responsibility for any ensuing failures. Realistic and flexible optimists don't shy from risks, but rather fully evaluate them and their potential consequences prior to taking action on them.

However, in addition to positive thinking, another component to optimism is regarding one's explanatory style. That is, when an (positive or negative) event occurs, what reasoning does the individual attribute to that occurrence? For instance, an individual low in optimism may attribute a negative event to the 'fact' that 'everything always seems to go wrong at work,' in which case the event would contribute toward that individual's confirmation bias, whereas he or she would likely overlook positive events without searching for their meaning or reasoning. An individual with an (flexible, realistic) optimistic explanatory style, however, may recognize a negative event for what it is, but may hold out expectations for more preferable outcomes in the future.

This is similarly true when outcomes are still uncertain. For instance, when an organization is waiting to hear whether it has won a particular client, the situation is still uncertain. However, employees high in PsyCap optimism know that they gave a solid presentation to the client, that they have a competitive offer on the table, and that they can deliver what the client needs if the bid is won. Realistically, these employees are aware that their organization may still lose the bid. However, such optimistic employees would not become truly discouraged by such an outcome, as they realize the merits of their presentation, offer, and deliverables, and expect that the next client will appreciate those and offer them the contract.

Likewise, Luthans, Youssef, and Avolio (2007) argue that optimistic employees are more likely to embrace change than are employees low in optimism. This is crucial in today's market, in which change has arguably become more of a rule than an exception, therefore making it increasingly necessary for employees to adapt to new situations and varied work assignments. Similarly to this, optimistic employees are more likely to believe that positive things lay ahead, and therefore may be more likely to recognize and embrace new opportunities in the future, both individually and organizationally.

Hope is the next of the PsyCap constructs, and is a term that is commonly used in the vernacular. However, the conceptualization of hope as a measurable psychological strength varies somewhat from the common understanding of the construct. Academically, the hope construct actually rests within a relatively substantial basis of literature, and thus rightfully deserves its place as another of the PsyCap dimensions. Hope can be described as believing in the eventuality of a positive outcome and having faith that one will eventually achieve what one desires. This definition may sound somewhat similar to the aforementioned definition of optimism. However, it is worthwhile to note that while similar, hope is more rooted in emotions than is optimism, which is generally more the result of deliberate and reasoned thought. Hope, however, also has a very action-focused orientation that optimism, which is more cognition-focused, does not have. Specifically, those who are hopeful also make specific plans through which they can take action to achieve the goals for which they hope.

Hope as a psychological construct has arguably been most extensively researched by Rick Snyder (2000). He notes that hope, like many constructs, is itself comprised of

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multiple elements, and he posits these as being *goals*, *agency*, and *pathways*. *Goals* are relatively self-explanatory, and are the end outcomes that one desires to reach. *Agency* is the energy that a person is willing to expend in order to attain those goals, and finally, *pathways* can be described as the plans that an individual makes in regard to how (s)he will go about succeeding at those goals, including any specific actions that need to be taken by that individual in order to do so.

Nevertheless, despite the relative acceptance of Snyder's (2000) conceptualization of hope, it is also worth noting Scioli's (2006, 2007; Scioli & Biller, 2009) more recent work regarding hope. Scioli (2006) has similarly proposed a multidimensional conceptualization of hope, but has argued that it consists of four factors: Attachment, mastery, survival, and spirituality. While interesting, Scioli's (2006) proposal has not yet been explored fully enough so as to match Snyder's model in level of acceptance throughout the professional and academic communities. More importantly for the present series of studies and for organizational implementation, Snyder's (2000) conceptualization of hope is much more easily amenable to use in an intervention than is Scioli's (2006), the dimensions of which may be more ethereal in quality when it comes to implementing a practical and reasonable intervention.

Hope has been associated with a number of positive outcomes. For instance, researchers have found positive correlations between leader hope and subordinate satisfaction and retention (Peterson & Luthans, 2003), and also between hope and job satisfaction, work-related happiness, and organizational commitment (Youssef, 2004). However, many organizations prefer to see relations to more immediate and obvious organizationally-beneficial outcomes, and hope has been supported in that realm, also.

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Most notably, many researchers have found a positive correlation between hope and in-role performance in the work domain (e.g., Luthans, Avolio, Walumbwa, & Li, 2005; Luthans, Van Wyk, & Walumbwa, 2004; Peterson & Luthans, 2003; Youssef & Luthans, 2003). Also, recognizing that performance does not always have a direct relationship with organizational outcomes (or the bottom line on which organizations are often focused), other research has also supported a positive correlation between employee hope and unit *profitability* (Peterson & Luthans, 2003), as well as larger-scale organizational profitability (Adams, Snyder, Rand, King, Sigmon, & Pulvers, 2003).

Finally, *resilience* is the last of the four PsyCap dimensions, and can be defined as successfully overcoming obstacles that stand in the way of reaching one's goals. Resilient individuals bounce back from adversity, often to a level beyond that which they were at prior to the adverse event (Luthans, Youssef, & Avolio, 2007). However resilience, similarly to the hope dimension, can also be further subdivided into various components. Masten (2001) has determined that resilience can be factored out into *asset factors*, *risk factors*, and *influence processes*. Logically, *asset factors* are those qualities that provide a solid basis for the individual and therefore increase resilience (e.g., if an employee is laid off from his or her job, having a solid educational background may serve to enhance that individual's ability to bounce back from such a setback). On the other hand, *risk factors* are characteristics or practices that may decrease resilience levels (e.g., having grown up in a neglectful family and never having had a successful role model who held a stable job). Finally, *influence processes* are cognitions and beliefs that people have during times of adversity that affect their resilience levels. The ideal, of course, is to influence these thoughts out of a negative domain and into a positive domain, based

upon knowledge of one's own strengths and ability to overcome the problem at hand. These three facets of resilience (asset factors, risk factors, influence processes) will be discussed in greater depth at a later point in this manuscript.

Similarly to individuals who are *realistically* optimistic, individuals possessing high levels of resilience also tend to accurately perceive their reality (Coutu, 2002). This in turn equips said individuals with an accurate knowledge of the situation with which they are dealing, therefore allowing them to better prepare for how they will successfully deal with it.

The purpose of Study 1 is to further explore the nature of the PsyCap construct as measured by Luthans, Youssef, and Avolio's (2007) Psychological Capital Questionnaire (PCQ), thereby directly addressing the measurement criteria specified earlier. In particular, Study 1 will explore the factor structure of the PsyCap construct, including seeking to determine whether a unifactorial measure may be more appropriate, or whether a multifactorial conceptualization is preferable, and if so, what are the natures of the associated factors.

Method

Participants

Participants in Study 1 consisted of 98 county extension agents who were employed full-time throughout a state in the Midwestern United States. With 240 extension agents employed in the state and contacted about the research, this amounted to a response rate of 40.83%. Extension agents work in every county in the state to develop community activities and foster community involvement. They have three primary

specialties: Agriculture, Family and Consumer Sciences, and 4-H and Youth Development. However, regardless of specialty area, all extension agents work in service to their communities and in event organization and planning. Their job is largely self-directed and self-structured.

Sixty-six percent of these participants were female, and 98% were Caucasian. Participant ages ranged from 22 to 69, with a mean of 41.06 years ($SD = 12.18$). Fifty-five percent of participants reported their highest level of education as being a bachelors degree, and 42% had also completed a masters degree. Finally, participants worked an average of 48.81 hours per week ($SD = 5.13$) and had been employed in their current position for an average of 11.06 years ($SD = 9.64$). Note that, in all three of the studies reported herein, this latter tenure question was presented to participants in a write-in format, with no limit to number of characters. Therefore, in those instances where individual participants gave a range of hours (e.g., I work 40-42 hours per week), an average of that range was taken an applied to that individual (e.g., in this example, 41 hours per week).

All participants gave informed consent as consistent with ethical requirements in addition to the requirements of the Kansas State University Institutional Review Board, through which the present study was approved. Given that this was an online survey, informed consent information was provided on the first page of the survey. Participants could not move forward to the remainder of the survey before having indicated that they had read and understood the informed consent. The informed consent for Studies 1 and 2 can be seen in Appendix A.

Procedure

The author and two additional researchers met with potential participants two months before the study in order to explain the research and answer any questions or respond to any concerns that eligible participants might have at that time. To enhance participation, the director of the state's extension agent program sent a mass e-mail to all agents encouraging their participation in the project. Soon thereafter, participants were sent a mass e-mail that explained the project again and included a link to an initial online survey that collected the informed consent of willing participants in addition to collecting basic demographic data. A subsequent survey was then sent to participants including a link to the Time 1 (T1) survey. This is the survey that was used in the current Study 1. Subsequent surveys were also administered, and will be further explicated in a discussion of the procedure for Study 2. All surveys for each individual were linked via participant name and, later, participant number.

Materials

The online surveys used in this research consisted of a variety of established measures, in addition to demographic questions. Demographic questions included items identifying the participant's sex, race, age, relationship status, tenure, and hourly workload per week. The only measure relevant to Study 1 was that designed to tap psychological capital. Coefficient alphas for this measure are represented along diagonals in the correlation matrix found in Table B.1.

Psychological capital was measured using Luthans, Youssef, and Avolio's (2007) (see also Luthans, Avolio, Avey, & Norman, 2007) Psychological Capital Questionnaire

(PCQ) measure. The measure is comprised of 24 items measuring the four PsyCap dimensions of self-efficacy (confidence), optimism, hope, and resilience, with each of the four subscales being developed with regard for previous psychometrically sound measures of each construct: efficacy/confidence (Parker, 1998), optimism (Scheier & Carver, 1985), hope (Snyder, et al., 1996), and resilience (Wagnild & Young, 1993). Response options for Luthans and colleagues' (2007) PsyCap measure are on a six-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*).

An example of an item measuring *efficacy* is, "I feel confident contacting people outside the company (e.g., suppliers, customers) to discuss problems." A sample *optimism* item is, "If something can go wrong for me work-wise, it will" (reverse-coded). An examples of an item measuring *hope* is, "If I should find myself in a jam at work, I could think of many ways to get out of it." Finally, an example of a *resilience* item is, "When I have a setback at work, I have trouble recovering from it, moving on" (reverse-coded).

Although this scale is relatively new, initial research has supported the validity and reliability of resulting scores in a wide variety of cross-cultural and cross-occupational samples. However, it is worth noting that the vast majority of this research has been conducted by Luthans and his colleagues (e.g., Avey, Patera, & West, 2006; Avey, Wernsing, & Luthans, 2008; Luthans, Avolio, Avey, & Norman, 2006; Luthans, Avolio, et al., 2007). As with the other measures used throughout this study, the PCQ is not included in full in an appendix due to lack of copyright permissions to do so. However, the full instrument can be found in Luthans, Youssef, and Avolio (2007).

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Results

Data Screening

Prior to analysis the data were screened for missing values, and also to determine if there were any violations of the assumptions underlying the general linear model.

Missing data were missing completely at random (MCAR; Tabachnick & Fidell, 2007). This was established through Little's (1988) MCAR test, wherein a nonsignificant value indicates that the data are missing completely at random. The results of this dataset on Little's (1988) MCAR test were indeed nonsignificant: $\chi^2 (23) = 27.946$, $p = .218$, and therefore the missing data can be reasonably believed to be MCAR.

Whereas MCAR may typically prompt researchers to employ listwise or pairwise deletion, or to replace values with the mean of the respective item across all participants, none of these options were employed in the present research, and cases with missing values were not replaced. This was not expected to meaningfully affect results, given the considerations that a) there were few missing data points, b) those data points that were missing were missing randomly as opposed to systematically, and c) where construct scores were computed from compiling responses to all items on the respective measure, such scores were computed by way of a mean rather than a sum.

All assumptions of the general linear model were met sufficiently so as to proceed with the analyses herein (correlation and factor analyses). All variables were free from both skew and kurtosis, and likewise there were no violations of linearity, normality, or homoscedasticity. No outliers were found that would unduly influence the data. Cronbach's alpha reliabilities are discussed in the subsequent section and can also be found in Table B.1.

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Correlation and Reliability

After data screening was complete, data were initially analyzed using bivariate correlations in addition to confirming Cronbach's coefficient alpha reliabilities of both the overall measure and also its lower-order dimensions. As expected, all correlations were significantly positive while failing to indicate any multicollinearity or singularity issues whereby the dimensions in question would be considered to be tapping the same underlying construct. Reliabilities for both the overall PsyCap measure in addition to three of the four dimensions were acceptable, with the reliability for the resilience dimension being somewhat lower at $\alpha = .64$. Results from these analyses can be found in Table B.1.

Confirmatory Factor Analysis

Factor analysis is used to determine the structure of a set of variables or items, and presumes that there is one or more common root variable(s) from which such items are derived. Confirmatory factor analysis, or CFA, is preferred over exploratory factor analysis (EFA) in the present study because the PsyCap construct has a predetermined factor structure which the present study is simply attempting to confirm within the current sample, given the relatively recent emergence of the construct. Therefore, the present study will force the analysis to derive four factors (as we know them, efficacy, hope, optimism, and resilience), and will notate which items load on each of the four dimensions, and to what extent. We would expect to find results indicating that the items for each dimension do in fact load on that corresponding factor. If cross-loadings do

exist, they should only exist to the extent that an item should not load more heavily on subsequent factors than it does on its initially hypothesized factor. For instance, if the analysis confirms all factors as previously theorized, an item listed in the original scale as a resilience item should not load higher on the efficacy dimension than it does on the resilience dimension. This is in line with what has come to be known as Thurstone's Criteria, which specifies that ideal factor solutions have items that load strongly and clearly on the relevant factor, with minimal or (preferably) nonexistent cross-loadings on the other factors; that is, that the factor solution have what Thurstone (1947) called a 'simple structure.'

Many factor analyses include data rotation in order to enhance the ease and meaningfulness of data interpretation, and the present study was no exception. While orthogonal varimax rotation is the most popular type of rotation, the present study utilizes oblique rotation, the most popular of which is direct oblimin, since this rotation accounts for correlation between factors. As discussed previously, there is good reason to suspect that, while ultimately distinct, the four PsyCap components of efficacy, hope, optimism, and resilience could be reasonably expected to correlate with one another. Employing direct oblimin rotation allowed for these correlations and therefore neither skewed results nor inhibited meaningful interpretation.

The CFA was conducted in AMOS 5.0 (Arbuckle, 2003). Various popular goodness-of-fit indices were used in order to examine the degree to which the specified model fit the sample data (see Table B.2). An examination of two fit indices initially indicated a good fit: $\chi^2/df = 1.87$, $p < .001$, RMSEA = .09. Both of these fit indices will be briefly reviewed in turn.

First, since χ^2 is affected by sample size, it must be divided by degrees of freedom in order to yield an accurate representation of fit. The lower the resulting number, the better the fit. Marsh and Hocevar (1985) have indicated that research regarding this fit index is still progressing and that various researchers have offered differing recommendations as to what the cut-off score should be. Nevertheless, most researchers (e.g., Carmines & McIver, 1981; Wheaton, Muthén, Alwin, & Summers, 1977) agree that the resulting value should not exceed 5.00, and ideally should not exceed 3.00. Byrne (1989) has posited that the value should not exceed 2.00, although her position is generally recognized as an extreme one. Nevertheless, the present value of $\chi^2/df = 1.87$ meets even Byrne's strictest of recommendations.

The root mean square error of approximation index, or RMSEA, often accompanies the χ^2/df fit index, and is another popular measure of fit. The RMSEA is indicative of the degree to which the specified model deviates from a theoretically perfectly-fitting model (Bentler, 1990). RMSEAs exceeding 0.10 indicate the need for model rejection, and RMSEAs falling below .05 (Browne & Cudeck, 1993) or .06 (Hu & Bentler, 1995, 1999) indicate very good fits. Therefore, the present RMSEA of .09 is indicative of an acceptable fit, although it does not indicate an *ideal* fit of the model to the data.

However, despite this initial support from these two fit indices, further examination of two other popular indices indicated substantial room for improvement: CFI = .79, NFI = .65. The comparative fit index (CFI; Bentler, 1990) is somewhat similar to the previous two fit indices that were discussed in that it takes sample size into account (Fan, Thompson, & Wang, 1999). The CFI can therefore offer a more accurate

indication of actual fit than can fit indices that overlook this consideration, and this also contributes to the consideration that the CFI can also offer accurate measures of fit even in small samples (Hu & Bentler, 1998, 1999). As its name implies, the CFI also compares the fit of the proposed model to that of other potential models (Ullman & Bentler, 2003). Likewise, although the normed fit index (NFI; Bentler & Bonnet, 1980) fails to consider sample size as do the previous three indices of fit, it does indicate the degree to which the specified model has improved fit over and above the null model.

It is a widely-accepted standard that both CFI and NFI should meet or exceed .90 in order to indicate a good fit (e.g., Hoyle, 1995). More recent research has suggested a more stringent standard of .95 for the CFI (Hu & Bentler, 1999), although generally models meeting the .90 criteria are still accepted as appropriate fits. Bentler and Bonnet (1980) further note that models with an NFI failing to meet the common .90 standard may benefit from respecification and/or adding or subtracting variables.

Discussion

Therefore, overall, findings indicate that the PsyCap model and its associated measurement with the PCQ is not ideal, however should also not be entirely discounted at this time. Cronbach's alpha reliabilities were acceptable for overall PsyCap as well as for three of the four component factors. However, it should be noted that the resilience dimension of the construct evidenced a surprisingly low reliability at $\alpha = .64$ (see Table B.1). Therefore, use of the PCQ to measure resilience in Study 2 proceeded with caution, and results of this scale should be interpreted with caution prior to further research and

possible redefinition of the items used to tap the proposed resilience dimension of PsyCap.

Similarly, results of the CFA for the PCQ indicate a less-than-ideal fit. Although CFI and NFI indices were not in the range of an ideal fit, they approximated .80 and .65 respectively and therefore should not be entirely discounted. Additionally, some indices of fit (e.g., χ^2/df, RMSEA) did indeed deem the fit of the model to the data to be acceptable, and therefore the PsyCap factor model as it currently stands should not be discounted prior to further research. Nevertheless, it should also be noted that the current analyses, while providing some limited support for the model, also evidenced substantial room for improvement, thereby indicating that the model might benefit from some respecification.

Such respecification may involve diverting, omitting, and/or adding paths. An exploratory factor analysis and/or an examination of modification indices could recommend which such respecifications might be most appropriate and fruitful. Nonetheless, since the fit indices failed to indicate that the model was grossly misspecified, it should be considered that it is possible that the established model simply did not fit ideally to the sample data herein. Additionally, it is necessary to note that the sample size of 98 in the present study only approximates minimum sample size recommendations for such a model.

Therefore, while the findings noted here should lend some caution to future researchers, it would be both inappropriate and premature to reject the PsyCap factor model entirely based solely upon the findings from this sample. Rather, it is appropriate simply to encourage future researchers to conduct similar confirmatory (and exploratory)

analyses with different data, and also to provide some measure of caution in the present series of studies as they move ahead with their consideration of the PsyCap dimensions. Specifically, future research should consider the viability of a unifactorial conceptualization of PsyCap, and whether such a structure may be more appropriate than the multifactorial conceptualization that the PCQ is designed to measure.

Future research should also utilize cross-validation in order to confirm results. The initial plan for the current research had been to conduct such cross-validation via an 80/20 split – that is, 80% of the sample would have been included in a primary CFA, with the remaining 20% being included in a subsequent CFA in order to confirm the results of the first. However, unfortunately, the sample size of 98 precluded any such division of the data, and therefore such cross-validation must simply be left as a recommendation for future research.

CHAPTER 2 - Study 2

Introduction

After Study 1 analyses were completed in order to further inform the present research regarding the structure of PsyCap within the present sample and as measured by the PCQ, further analyses with the construct can proceed, taking such results into consideration, including the present Study 2 which involves the resilience dimension of PsyCap. Therefore, Study 2 proceeds with this added value from Study 1.

The relatively recent emergence (and in some cases, re-emergence) of positive psychological constructs such as PsyCap have given further rise for potential utilization of such constructs within organizations. However, in these challenging economic times, many organizations find it hard enough to keep their bottom line 'in the red,' and, as a result, positive organizational behavior and associated initiatives often land on the back burner. Therefore, Study 2 and Study 3 single out the resilience dimension of PsyCap given that it seems as though the zeitgeist is particularly appropriate at the present time for a focus on this dimension in particular.

One unfortunately widespread result of the current recession has been extensive layoffs. These personnel cuts have affected even the most conscientious and employee-focused organizations, and each has had trouble dealing with them. It is nonetheless true that the effect of layoffs on many organizations are often somewhat mitigated by the fact that they may have less business, and therefore need fewer employees to manage the remaining workload. However, when workloads remain high, the remaining workers are left to complete the work of all. Therefore, although initially relieved after having

survived the layoff, these remaining workers are now distressed not only by the loss of their colleagues and friends, and by what are likely decreased perceptions of job security and organizational support, but also by being burdened with a heavier workload (Brockner, 1990; Brockner, Grover, Reed, DeWitt, & O'Malley, 1987; Virick, Lilly, & Casper, 2007).

Unfortunately, while many of these employees' organizations have cut back on or even outright eliminated positive organizational behavior initiatives during this time of financial strain, it is ironic that this is in fact the time that such initiatives would be of greatest benefit to employees. In turn, it may well stand true that employees who feel supported by their organization during a period of such (di)stress may be more likely to remain committed to that organization once the current recession lifts and external job opportunities loom on the horizon. Therefore, it stands to reason that organizations who continue investing in their employees via POB initiatives through times of struggle may well be paying service not only to their employees, but also ultimately to the well-being of the organization as a bottom-line-driven entity. The present study seeks to outline the relations between workload and eudaimonic and hedonic well-being, and furthermore suggests that both the PsyCap dimension of resilience and also that of role salience may independently serve to moderate each of those relations (see Figures C.1 and C.2, respectively).

Workload

Workload, sometimes referred to as quantitative workload, is conceptualized as both amount of work and also as the time span one has in which to complete said work.

A high workload, therefore, implies that an individual has a lot of work to do and relatively little time in which to complete it. Thus, a high workload often translates into a sense of time pressure, therefore necessitating employees to work faster and/or longer hours in order to complete the work (Major, Klein, & Ehrhard, 2002). Workload may even be perceived to be high during shortened work hours, if the same or greater amount of work is expected to be completed during that time. Therefore, workload is indicative of job demands and, when high, has also been considered to be a source of job stress (e.g., Grunfeld, Zitzelsberger, Coristine, Whelan, Aspelund, & Evans, 2005; Spector, Dwyer, & Jex, 1988).

Thus, in addition to quantitative workload, which can be seen as an objective measure of the construct (Frone et al., 1997; Jimmieson et al., 2004), many studies (including the present one) have also used a more subjective 'perceived workload' to measure the construct (e.g., Hetty van Emmerik & Jawahar, 2006; Ilies, Schwind, Wagner, Johnson, DeRue, & Ilgen, 2007). Perceived workload can be equated to the idea of time pressure (Hetty van Emmerik & Jawahar, 2006), and is indicative of employees' feelings of having too many things to do but not enough time in which to do them (Frone et al., 1997). Therefore, whereas quantitative workload is largely dependent upon indicators such as number of hours worked, perceived workload is arguably more able to capture the pace or nature of that work and its subsequent impact upon the worker.

For purposes of thoroughness, it is worth noting that workload can also be measured both daily and holistically. That is, measures of day-specific workload capture workload on a day-to-day basis and, when multiple measures are taken, workload can be tracked and compared across days. Measures of chronic or holistic workload, however,

capture employees' perceptions of their workload (or a quantitative measure of it) on a more overarching level. For the purposes of the present study, a measure of day-specific workload was taken in order to capture perceptions of potential workload variation on multiple days within a two-week period.

Well-Being

Well-being is yet another construct that is necessarily encapsulated within the positive psychology domain. However, while the term 'well-being' is often used within everyday conversation among laypeople, and while it is generally understood what is meant by the term when used in that context, it actually has a more detailed definition and explanation in the psychological domain.

Some researchers have indeed conceptualized well-being as a unidimensional construct broadly defined as overall personal welfare and happiness. However, it is now widely understood that well-being is actually comprised of two distinguishable components, hedonic well-being and eudaimonic well-being (e.g., Deci & Ryan, 2008; Ryan & Deci, 2001). Nevertheless, unfortunately, despite this recognition, some research continues to claim to study well-being as a whole while in actuality only focusing on one aspect of the two well-being components. The component that is most often singled out as representing well-being as a whole is that of hedonic well-being (Deci & Ryan, 2008).

This is where the modern conceptualization of positive functioning, and well-being specifically, stand in contrast to that initially proposed by Aristotle (translated 1947), as outlined in the preface of this manuscript. Aristotle's formulation of well-being actually purported to equate 'happiness' with 'eudaimonia,' as it is proposed that the

former is the translation of the latter, a Greek term. This, however, has since been questioned, as it implies that eudaimonia can be theoretically equated with happiness, which is generally understood as more representative of hedonic well-being. Waterman (1984) notes that the historic Greek culture made important distinctions between satisfying appropriate desires versus satisfying inappropriate desires, and therefore suggests that it is unlikely that Aristotle would classify happiness as the greatest human good without further distinguishing the merits (or lack thereof) of the causes of such well-being. It is more likely that Aristotle's classification of 'happiness' can be more accurately likened to the current conceptualization of eudaimonia, versus the hedonism that the term 'happiness' generally implies within the modern well-being literature.

The distinction between hedonic well-being and eudaimonic well-being will now be further outlined:

Hedonic well-being (HWB) is often referred to as subjective well-being. It can also be thought of as simple 'happiness,' and, as is mentioned previously, is often conceptualized as such in the associated literature. Therefore, although hedonic well-being is more widely studied than is eudaimonic well-being (Deci & Ryan, 2008), it is also easy to see how some well-being researchers might be tempted to place a lower theoretical value on hedonism than on eudaimonia, which is conceptualized as a sense of self-fulfillment and striving toward one's potential. Nevertheless, Ryan, Huta, and Deci (2008) have argued that the study of hedonic well-being should not be neglected as a less-important focus than eudaimonia, as have Kahneman, Diener, and Schwarz in their edited text tackling the subject of hedonic well-being (1999). Ryan and colleagues (2008) note that positive affect and pleasure as represented in hedonism are important not

only because they represent the prototypical intrinsically motivated experience, but also because such positive affect has been repeatedly shown to facilitate other aspects of positive human functioning (e.g., see Isen, 2003; King et al., 2006).

The majority of the literature represents hedonic well-being as a single construct that has been broadly defined as happiness. Nevertheless, recent researchers (e.g., Deiner, 2000; Norrish & Vella-Brodrick, 2008) have suggested that, like eudaimonic well-being, hedonic well-being may be further broken down into constituent parts. First, they note that it can be dichotomized into a *cognitive* component and an *affective* component. The former is comprised of one's appraisals regarding their circumstances or happenings and their determination of whether such events are good or bad. The latter, the affective component, can be said to be how the individual then feels about such events, or how such events make the individual feel. The aforementioned researchers propose that this affective component can then be further broken down into two constituent parts: the *presence* of *positive affect* (PA), and the *absence* of *negative affect* (NA). As will become evident later in this manuscript when the popular PANAS measure for assessing hedonic well-being is discussed, the proposed affective component of HWB is typically conceptualized in the literature as a sufficient measure of the construct, without regard for the cognitive component proposed by Deiner (2000) and Norrish and Vella-Brodrick (2008).

Eudaimonic well-being (EWB) has been alternatively referred to as psychological well-being (e.g., Lent & Brown, 2008; Ryff, 1989; Ryff & Keyes, 1995). It is the feeling of working toward one's life goals, striving toward self-fulfillment, and living up to one's greatest potential. EWB is evidenced in a famous quote by William Butler Yeats, a well-

known Irish poet of the early 20th century: "Happiness is neither virtue or pleasure, not this thing nor that, but simply growth. We are happy when we are growing." The most well-known proponent of research on eudaimonic well-being is Carol Ryff (1989, 1995).

Ryff takes issue with the hedonic approach to well-being and argues that, when used as the sole measure of well-being as it unfortunately sometimes is, it is grossly insufficient in that it fails to explain any aspect of an individual's affective, emotional, or mental welfare other than subjective happiness. In particular, hedonic well-being fails to take into account individuals' future-oriented outlooks and their associated desires to strive for something greater than that which they already have. Therefore, theoretically, an individual could at any time be relatively low on hedonic well-being (e.g., completing a large-scale report) while simultaneously scoring relatively high on eudaimonic well-being (e.g., knowing that completing the report is likely to lead to the promotion for which the individual has been striving).

Having highlighted the need for the inclusion of eudaimonic well-being, Ryff then further compartmentalized well-being by outlining six dimensions of eudaimonic well-being: Autonomy, personal growth, self-acceptance, purpose in life, environmental mastery, and positive relations with others (Ryff, 1989; Ryff & Keyes, 1995). These are further explicated as follows:

Autonomy can be seen as the desire to have control over and freedom regarding one's own activities and one's own destiny. An autonomous individual is the initiator of his or her own actions, and is necessarily making choices about his or her behavior in the context of the surrounding environment. The autonomous individual has the intention and the motivation to act in the particular manner in which he or she chooses. This is

emphasized by Deci and Ryan's (Deci, 1975; Deci & Ryan, 1985; Ryan & Deci, 2002) self-determination theory, or SDT, which will be discussed shortly.

Personal growth is the desire to continually develop one's potential and to grow as an individual. The individual who strives for personal growth frequently recognizes opportunities and ways to progress and advance as an individual. This person is never satisfied with a fixed state after a particular goal has been accomplished, but rather recognizes that other goals always exist, and then fixates upon reaching those goals, also. This individual takes pride in both seeking out and accepting new challenges, and subsequently confronting them head on, as such individuals see such challenges as opportunities and as ways through which they can grow as a person. As is true for many of the components of eudaimonic well-being, the self-actualized individual is likely to have a strong need for personal growth. Ryff (1989) notes that the individual high on the personal growth dimension of EWB is also likely to score highly on the 'openness to experience' dimension of popular personality measures, and that such willingness and desire to expand one's horizons is essential to the fully and ideally functioning person high in eudaimonic well-being. In fact, Ryff (1989) states that the personal growth component of eudaimonic well-being "may also be the dimension of well-being that comes closest to Aristotle's notion of eudaimonia" (p. 1071).

In regard to personal growth in the workplace, it is worthwhile to consider the notion of growth need strength (GNS), as described by Hackman and Lawler (1971). Growth need strength, considered to be a moderator in Hackman and Oldham's (1976) well-known Job Characteristics Model (JCM), refers to the degree to which an individual seeks to fulfill him or herself via the nature of one's job- and work-related activities.

Thereby, employees high in growth need strength will seek out job activities that expand upon their current knowledge and capabilities, and challenge them in new and interesting ways. Likewise, the degree to which individuals possess growth need strength is often used as an indicator of their readiness and ability to respond in a positive manner to job enrichment activities as described by the work design theory of motivation hailed in the JCM.

Self-acceptance can be described as appreciating and valuing oneself, and being content with who one is, who one has become, and the direction in which one is headed. Ryff (1989) describes self-acceptance as being an essential component of both overall mental health, and also as being indispensable to any self-actualized individual: She states, "holding positive attitudes toward oneself emerges as a central characteristic of positive psychological functioning" (p. 1071).

Purpose in life is also at the heart of eudaimonic well-being. It stems from a human need to feel as though one's life has meaning, and to believe that they are on earth for a (usually beneficent) purpose. Therefore, individuals with a sense of purpose in life experience a sense of intentionality, and possess a clear awareness of their goals. The other components of eudaimonic well-being go toward detailing *how* individuals should best go about reaching such goals and accomplishing their ultimate purpose in life.

Environmental mastery is a prime example of a component of eudaimonic well-being that helps an individual determine precisely how he or she can best go about achieving his or her goals and purpose, thus adding a realistic and practical component to a sense of eudaimonic well-being. When an individual possesses environmental mastery, he or she has a strong sense of confidence, and feels in control of his or her environment.

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In this way, this component of eudaimonic well-being can help an individual advance and succeed in the world: One can seek out, recognize, take advantage of, and make the most of opportunities in one's environment. This active participation in one's environment is at the heart of environmental mastery, and stands in stark contrast to a passive acceptance of what is to be. An environmentally masterful individual is able to substantially and meaningfully manipulate his or her environment in order to best suit his or her personal needs, desires, and ultimate goals and purpose. In turn, successful mastery experiences enhance an individual's self-efficacy (Bandura, 1977).

Finally, *positive relations with others*, or *positive social relations,* appears to be another crucial component of functioning satisfactorily and fully in life. The ability to establish and maintain constructive and symbiotic relations with other people is important for individual eudaimonic well-being. Having quality interpersonal relations is believed to be indicative of emotional maturity, and includes possessing a greater potential for identification with others, and thus also includes heightened ability and willingness to empathize. Self-actualized individuals, for instance, strive for greater acceptance of and love for humanity, and try to embrace such a sentiment in their everyday lives. As such, it also stands that such individuals are capable of – and strive for – deeper, more meaningful relationships with others, which contribute to the meaning that one perceives in one's life and also to eudaimonic well-being overall.

Nevertheless, just as Ryff criticized the hedonic well-being approach, her conceptualization of eudaimonic well-being has also been criticized. In particular, while some CFAs have confirmed Ryff's proposed six-dimensional factor model (e.g., Ryff & Keyes, 1995), others have brought it into question – rightfully so, considering that most

(exploratory) factor analyses will not yield as many as six strong factors. For this reason, an initial intent to give added value to the present series of studies had been to conduct some initial analyses on Ryff's measure, its psychometric properties, and its factor structure, as was done for the PCQ in Study 1.

However, unfortunately, given the extensive number of parameters that a CFA for Ryff's measure would need to encompass, the sample size of 98 in the present study is insufficient to meet the recommended standard. Because these CFAs are conducted via structural equation modeling, the sample size recommendations for structural equation modeling should be used as the recommended standard in the present analyses also. These recommendations vary slightly depending upon the particular researcher making the recommendation, although some of the most respected recommendations include the recommendations of 15 cases per predictor (Stevens, 1996), five cases per parameter estimate (as long as the data are normally distributed; Bentler & Chou, 1987), and an overall recommendation by Loehlin (1998) of a minimum sample size of 100 for all models that include no more than ten variables. Clearly, the present sample size of 98 is insufficient to generate enough power to conduct a CFA on this six-factor, 42-item measure.

Nevertheless, the present study conducted basic bivariate correlational and reliability studies in order to offer a rudimentary look at the scale's psychometric soundness and to rule out any correlations exceeding .90 or approximating 1.00 that may indicate multicollinearity or singularity, respectively. The results of these analyses can be found in Table C.1. Results indicated that all EWB dimensions were relatively reliable, although some borderline so, with the exception of the personal growth

dimension which in and of itself had an unacceptably low Cronbach's coefficient alpha reliability of $\alpha = .56$. No evidence of multicollinearity or singularity was found, and in fact some correlations lacked significance where it would be expected. Therefore, given these potential issues at the dimension level using data from the present sample, Study 2 only analyzes EWB as a composite, overall construct ($\alpha = .88$).

Robbins and Kliewer (2000) further criticized Ryff's scale by arguing that various empirical studies have used one or more of Ryff's six dimensions not as indices of eudaimonic well-being itself, but rather as either predictors or outcomes of such well-being. This is problematic not only because it fails to recognize Ryff's conceptualization, but also (and primarily) because it makes it increasingly unclear as to where such constructs fit within any discussion of well-being.

Perhaps as a result of this albeit limited controversy regarding Ryff's conceptualization of eudaimonic well-being, other researchers have likewise theorized how eudaimonic well-being might be best conceptualized. For instance, Waterman (2008) has put forth a conceptualization of eudaimonia that is even more greatly focused on self-realization than is Ryff's, which is more behavioral (and motivational) in nature in that it focuses largely on optimal psychological functioning.

Ryan and Deci (2000; Ryan, Huta, & Deci, 2008) have also outlined their own theory of eudaimonia that falls in line with their motivation-focused self-determination theory (SDT; Deci, 1975; Deci & Ryan, 1985; Ryan & Deci, 2002). These researchers argue that there are four components to eudaimonic living, and that all are related to individual motivation. Each of these components will now be discussed in turn.

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First in this series of the four proposed components is said to be intrinsic motivation overall. That is, it is the process of pursuing goals that are pleasurable and enjoyable for their own sake, rather than for some external or extrinsic reward to which such goal-attainment might lead. Goals derived from intrinsic motivation have also been said to be 'autotelic,' from the Greek *auto*, which means 'self,' and *telos*, translated as 'goal' (Csikszentmihalyi, 1975).

Second is the concept of autonomy. This states that an individual living the eudaimonic life should act volitionally, based on his or her own decisions. This stands in contrast to heteronomous actions, which are controlled or directed by others. Likewise, in concordance with the aforementioned (first) proposed component, autonomous actions are generally intrinsically motivated, as opposed to nonautonomous actions which are not in and of themselves rewarding. This proposed component can be seen as being wholly in line with Ryff's (1989) proposed eudaimonic dimension of autonomy, as discussed previously.

Third is the process of living mindfully and behaving in ways that reflect one's understanding of and appreciation for the surrounding environment. Acting mindfully is characterized by a complete and unbiased awareness of what is occurring in the present moment, as well as how such current occurrences may affect future happenings. This proposed component of eudaimonia is akin to Aristotle's contention that eudaimonia necessarily entails contemplation and reflection on one's own life and the ramifications of one's actions. It represents a philosophical appreciation for living well, and can be likened to Ryff's dimensions of personal growth, self-acceptance, and purpose in life, in

that through an intricate combination of contemplation, self-reflection, event processing, and goal pursuit one strives to be the best person he or she can be for this world.

Finally, the fourth component of eudaimonic living as proposed by Ryan and Deci (2000; Ryan, et al., 2008) is acting in ways that will satisfy SDT's three proposed innate human needs. Although arguably the most well-known aspect of self-determination theory is its proposed motivational continuum, another crucial component is its proposal of three innate human needs: The need for autonomy, the need for competence, and the need for relatedness. It is easy to see how the *need for autonomy* relates to the previous dimensions of autonomy in both Ryan and Deci's (2000; Ryan, et al., 2008) and also Ryff's (1989) respective conceptualizations of eudaimonic well-being. Deci and Ryan (1994) contend that when this need is satisfied, the resulting behaviors are qualitatively better than are behaviors that are less self-determined (e.g., controlled by external contingencies). Interestingly, it is also the case that the *need for competence* is in line with Ryff's (1989) dimension of environmental mastery. As is well-known by now and as has been consistently supported by various researchers (most notably, Bandura, 1977, 1986), mastering diverse aspects of one's environment in turn leads one to become self-efficacious, thereby fulfilling the proposed need for competence. Likewise, the *need for relatedness* relates to Ryff's (1989) dimension of positive social relations, both of which highlight the need for functional and fulfilling interpersonal relations.

These three needs fit nicely into the holistic conceptualization of eudaimonia and, as is evident here, are also in line with Ryff's conceptualization of the construct. Activities that gratify one or more of these three needs also cultivate intrinsic motivation, whereby an individual seeks to do something for the inherent satisfaction that one earns

from doing it (ergo not for an external or extrinsic reward such as payment). This is in line with Ryan and Deci's (2000; Ryan et al., 2008) first proposed component of eudaimonia. Moreover, these three aforementioned needs are purported to combine and subsequently lead to a variety of positive outcomes, including a more holistic conceptualization and understanding of not only motivation but also of performance and overall well-being.

Therefore, as should be evident by now, upon further inspection these various conceptualizations of eudaimonic well-being are not as different as they may initially appear. Upon examining the two most well-known conceptualizations of eudaimonia (Ryan et al., 2008; Ryff, 1989), it is clear that they parallel one another in many ways, indicating some overarching agreement regarding what comprises eudaimonia and eudaimonic living. For the purposes of the present studies I will utilize Ryff's conceptualization, being that it is arguably more thoroughly supported and also has an associated measurement instrument that has been well-researched and relatively well-supported. Nevertheless, as outlined previously it is important to understand that other conceptualizations of eudaimonia, such as that of Ryan and colleagues (2008), are in many ways supportive of and largely in agreement with many of Ryff's propositions.

Workload and Well-Being

There is a large body of empirical research consistently supporting the linkage between workload and well-being. The peripheral underpinning of this proposed relation is the understanding that work-related stress undermines employee well-being (for reviews, see Kahn & Byosiere, 1992; Sonnentag & Frese, 2003). While this is

theoretically important in that stress and workload are at times comparable for some individuals (and, as previously noted, workload is oftentimes considered a job stressor in and of itself), this understanding served only as the backdrop for more explicit investigations into the workload-well-being relation.

In particular, numerous studies have since explored the latter relation, and have consistently found that high workload is one of the primary factors compromising employees' well-being (in addition to compromising their physical health, which is undoubtedly noteworthy although outside the scope of the present study). These studies have been conducted under a variety of designs and methodologies, from cross-sectional (Greenglass, Burke, & Moore, 2003; Meijman & Kompier, 1998; Rafnsdottir, Gunnarsdottir, & Tomasson, 2004) to longitudinal (e.g., Carayon, 1993; Ganster, Fox, & Dwyer, 2001; Rydstedt, Johansson, & Evans, 1998; Spector, Chen, & O'Connell, 2000), and, thereafter, including empirical reviews and meta-analytic investigations (e.g., Sparks, Cooper, Fried, & Shirom, 1997; Van der Doef & Maes, 1999). Some of the more specific findings of such various studies will be further described herein.

In recognizing the aforementioned distinction between objective and perceived workload, it is worthwhile to note that *both* objective *and* perceived workload should be associated with well-being in the hypothesized direction (e.g., Burke, Weir, & DuWors, 1980; see also others cited throughout). Tyler and Cushway (1995) also found negative main effects on mental well-being for workload, and Hancock and Meshkati (1988) have found that mental workload affects well-being. Relatedly, other studies (Grunfeld, et al., 2005; Huby, Gerry, McKinstry, Porter, Shaw, & Wrate, 2002) have found heavy

workloads to lead to lowered employee morale, which could be considered contributory to decreased happiness or (hedonic or eudaimonic) well-being.

Similarly, using the same workload measure used in the present study, Ilies and colleagues (Ilies, Schwind, Wagner, Johnson, DeRue, & Ilgen, 2007) proposed and tested a model in which subjective workload influenced affect which then affected work-to-family conflict over time. Specifically, after controlling for objective number of hours spent at work, they found that employees' perceived workload influenced both positive and negative affect at work, which in turn influenced both positive and negative affect at home, then leading to inter-role conflict.

While Ilies and colleagues' (2007) research involved both negative and positive affect in regard to workload, most studies of workload and affect have focused solely on negative affect. Such studies (e.g., Geurts, Kompier, Roxburgh, & Hourtman, 2003; Repetti, 1993; Rothbard, 2001; Totterdell, Wood, & Wall, 2006; Zohar, 1999) have consistently found workload and employment strain in general to have a direct positive relation with negative affect. This is also true for subjective workload as operationalized as perceived time pressure (e.g., Hetty van Emmerik & Jawahar, 2006). This gap in the literature is crucial given our understanding that negative and positive affect are in fact separate constructs (e.g., Inglehart & Klingemann, 2000), and are not at opposite ends of one 'affect continuum,' as is oftentimes misconceived. Therefore, further understanding of the nature of the relation between workload and *positive* affect is necessary.

Likewise, this proposed relation appears to hold true across cultures. Lu, Gilmour, Kao, and Huang (2006) compared British (individualistic) and Taiwanese (collectivistic) cultures in this regard, and found that in both cultures, as work demands

increased, so did work-family conflict, which in turn was negatively related to employee hedonic well-being. Even though this study proposed a mediated relationship between these two constructs, it also provides some initial cross-cultural support for the relation between workload and well-being.

Another similarity of Ilies and colleagues' (2007) research with the present study is the short-term longitudinal nature of both of the studies' designs, answering a call from a variety of other researchers, including Avey, Luthans, and Mhatre (2008) outlining the need for increased longitudinal research in positive organizational behavior. In particular, as separate from the idea of *chronic* workload, they found *daily* workload to be an important predictor of *daily* affect. Following from that, they note that past findings that have linked workload with affective outcomes cannot be wholly due to non-affective factors such as stable individual personality differences or differences in the nature of the jobs in question.

The abovementioned findings – and the hypothesized direct relation between workload and well-being – can be further supported via consideration of Weiss and Cropanzano's (1996) affective events theory (AET). Well-known and widely accepted, AET proposes that various aspects of an individual's work, including job demands such as workload, have immediate consequences on said employee's affect, or hedonic well-being, thereby lending support to the present research hypotheses. Such affect then, they argue, eventually leads individuals to develop relatively stable attitudes about their organizational commitment and job satisfaction, which in turn influence their extra-role and in-role behaviors, or performance, on the job.

Stevan Hobfoll's (1989, 2002) conservation of resources (COR) theory may also go toward supporting the hypothesized relation between workload and well-being. COR theory is rooted in the premise that all individuals have what they consider to be their core resources in any given domain (e.g., work, home, etc.), and argues that people are motivated to protect these accumulated resources by guarding against potential resource loss or diminishment. Likewise, COR theory posits that when these resources are threatened, diminished, and/or inadequate, negative affect and stress result.

For instance, a high workload, at its core, results from a lack of sufficient resources with which to handle the overload. For instance, an additional employee (with whom to share the load) and a longer deadline (more time) could both be considered resources that would reduce an individual's perceived and objective workload. However, without such additional resources, workload remains high and thus the individual has limited energy to expend on other outlets. Additionally in such a situation, employees' expectations may not be met (for instance, extra pay or rewards for extra work), thus also diminishing the employees' perceptions of workplace equity (Adams, 1965). As such, Hobfoll's (1989, 2002) theory suggests, suffering from a lack of resources can undermine well-being by acting as a stressor upon the individual, both psychologically and also via limiting the individual's ability to invest in other pursuits.

Further support for the relation proposed in the present study can be found by Hetty van Emmerik and Jawahar (2006) and Sparks and colleagues (1997), all of whom support the contention that, as a stressor, workload amounts to a job demand that holds great potential to negatively influence mood. Hetty van Emmerik and Jawahar (2006) go on to further contend that this relation may be particularly strong when workload is high.

Likewise, Repetti (1993) found supporting results in her study of air traffic controllers (ATCs), with results indicating that high workload was associated with decrements in hedonic well-being (in addition to physical well-being, which again, though interesting, is outside the scope of the present study). Repetti (1993) measured both objective workload (operationalized as high air traffic volume and low visability) and perceived workload (operationalized as difficult conditions and busy day), and found that negative moods were associated with both operationalizations of perceived workload, and also the 'high air traffic volume' operationalization of objective workload.

Interestingly, however, Repetti (1993) failed to find an association between positive mood and either conceptualization of workload. Nevertheless, Repetti concedes to the limitation that she measured HWB only on a same-day basis, and failed to look at any time-lagged effects that such workload conditions may have on either positive or negative mood. Likewise, she acknowledges that a preponderance of the research has indeed found that "more distressed mood states also have been reported by subjects on days when they perceive a high workload as well as during the high-demand periods of a single workday." Therefore, Repetti (1993) herself admits that although some of her results go toward supporting the present research, those that do not support it appear to be anomalous in comparison to the majority of research on the topic. It is worthwhile noting that this may be due at least in part to the very unique nature of her sample population. That is, it is well-known that air traffic controllers have a particularly intense and stressful job as compared to the general population of employed individuals (e.g., Shouksmith & Burrough, 1988).

Nevertheless, findings supporting the tenets of the present research have also been found among military populations, which may also be considered high-stress. For instance, Stetz, Castro, and Bliese (2007) found that high workload led to low well-being, which then led to turnover intentions, thus once again reinforcing the practicality of this research for organizational outcomes. Bliese and Castro (2003) also found high workload to lead to increased anxiety resulting from a fear of being unable to cope with such heavy work requirements. In a previous study, Bliese and Castro (2000) also found that work overload can lead to psychological strain in soldiers. Finally, Dolan, Adler, Thomas, and Castro (2005) noted that military 'operations tempo' or 'optempo' can be equated to (objective) workload, as daily number of hours worked averaged over the previous week. They found that such workload has a direct impact on physical health and tends to be moderated by wellness behaviors.

In discussing this research regarding workload and employee attitudes, it is worthwhile to note that several researchers have found workload to be unrelated to employee job satisfaction (a construct related to, although not equitable with, well-being). Neill (2006) found this, as did Boultinghouse and colleagues (Boultinghouse, Hammack, Vo, & Dittmar, 2007). The latter of these studies found no significant relation between mental workload and job satisfaction, although it seems likely that an insufficient sample size (N = 5) may have limited the accuracy and generalizability of results in Boultinghouse et al.'s (2007) study.

While I recognize the inherent differences between job satisfaction and well-being, the constructs are similar enough on some levels that these divergent findings warrant mention. More directly applicable to the present study are the findings of

Strauss-Blasche, Ekmekcioglu, and Marrktl (2002). In their Austrian sample, they found

that perceived workload had no effect on individuals' hedonic well-being prior to their

leaving for vacation. Interestingly, however, upon returning from vacation, perceived

workload did in fact have the hypothesized negative effect on HWB.

On the other end of the spectrum is discrepant research suggesting opposite

associations between workload and well-being to those hypothesized previously. Hetty

van Emmerick and Jawahar (2006), while finding a negative association between

perceived workload and hedonic well-being as specified earlier, actually found different

results when it came to *objective* workload, high reports of which they found to be related

to *decreased* negative mood and *increased* positive mood. This finding, while both

counterintuitive and also counter to the majority of the relevant research as outlined

previously, is still worthy of note and is mentioned as an indication that the relation

between workload and well-being is still undergoing consideration and revision in the

literature.

Nevertheless, although this finding is initially surprising, particularly given the

fact that an objective measure of workload was used, the credence given to the finding

should be limited, given that the Dutch sample employed therein worked substantially

fewer hours on average per week than does a typical (U.S.) worker. Therefore, it may

even stand true that working increased hours served to satisfy a need for competence and

fulfillment in the employees, thereby increasing positive affect and decreasing negative

affect, as results suggested.

Another study offers a more convincing description of such an arguably

counterintuitive positive relation between workload and well-being. Specifically, unlike

most other studies associating workload with well-being, a study by Lindfors, Berntsson, and Lundbert (2006b) deals with eudaimonic well-being as opposed to hedonic well-being. As such, it is evident from their results that it is necessary to treat hedonic and eudaimonic well-being as separate entities when considering this relation. Therefore, the present research involves separate hypotheses for workload's proposed relation with hedonic well-being versus workload's proposed relation with eudaimonic well-being.

Moreover, however, Lindfors and colleagues' (2006b) research also indicates that a unidimensional interpretation of eudaimonic well-being may not be appropriate in that it may mask crucial information. That is, in looking at workload's relation with the various dimensions of Ryff's (1989) eudaimonic well-being, Lindfors and colleagues (2006b) found that the various dimensions evidence differential relations with workload. Although the primary intent of Lindfors and colleagues' (2006b) research was to look at *total* workload (including paid work and unpaid home-related work), they also provided results for paid work alone. They likewise divided their sample by gender and explored those relations. In doing so, they found workload to be *positively* related to the *personal growth* EWB dimension for both men and women. This makes intuitive sense in that heightened work may make an individual feel as though they are building upon their knowledge base and achieving. However, Lindfors and colleagues (2006b) also found that increased workload was *negatively* related to the *purpose in life* EWB dimension, although only in women (arguably indicating women's greater levels of work-family conflict). Therefore, given Lindfors and colleagues' (2006b) careful consideration of the construct of EWB and its constituent parts, the present hypothesis concerning workload's relation with EWB (Hypothesis 1b) is non-directional. That is, past research supports the

possibility that workload could lead to either increased or decreased composite levels of eudaimonic well-being.

Therefore, given this preponderance of research, and also bearing in mind the crucial distinction between HWB and EWB, the first two hypotheses for Study 2 are as follows:

Hypothesis 1a: There is a significant negative relation between perceived workload and affective hedonic well-being.

Hypothesis 1b: There is a significant relation between perceived workload and eudaimonic well-being.

Resilience

As discussed previously, resilience is one of four proposed dimensions of the PsyCap construct (Luthans et al., 2007). It taps an individual's ability or propensity to be able to 'bounce back' from adverse events – not only to the level at which the person was at before the adverse event occurred, but even beyond that level. Resilient individuals accurately perceive their reality, and are able to constructively make use of that reality. Asset factors are maximized, risk factors are minimized, and influence processes, in turn, ensure that the resilient individual's cognitive focus is positive and functional (e.g., focusing on their asset factors as means through which they can overcome the obstacle at hand).

When discussing the construct of resilience I would be remiss were I to omit at least a brief discussion of the related concept of hardiness and, moreover, why the present series of studies employs the former in favor of the latter. Hardiness is a somewhat

narrower construct than that of resilience, although it falls under the more encompassing resilience umbrella of having the strength to withstand – and succeed in the face of – adversity. In essence, various research (e.g., Eid, Johnsen, Bartone, & Nissestad, 2008; Kobasa, 1979) has suggested that hardiness may rightly be considered the dispositional aspect of resilience in that one's level of hardiness is derived largely from heritable factors.

Therefore, the present series of studies employed resilience in favor of the somewhat similar construct of hardiness not only because resilience falls under the higher order PsyCap construct that is of interest here, but also – and perhaps more importantly – because resilience represents a construct that is more amenable to development and intervention than is hardiness, which the literature suggests is more trait-like in nature. All of the moderation hypotheses specified in this study and, more explicitly, the intervention suggested in Study 3, speak toward the practical benefits of dealing with a state-like construct as opposed to a trait-like one, the latter of which arguably holds little practical value for an organization in regard to its incumbent employees.

Having outlined the distinction between resilience and hardiness, and why the former is used in favor of the latter in the present series of studies, let us move on to the more explicit hypotheses at hand. The present study proposes that resilience might independently moderate the relations between perceived workload and hedonic and eudaimonic conceptualizations of well-being. The reader should refer to the earlier discussion of resilience for a more comprehensive overview of the construct itself, as, since the construct was outlined earlier, the sole focus of this section will be on providing

theoretical support for the moderation hypotheses, to the exclusion of an additional (redundant) description of the construct itself.

One stream of supporting research is that of Meijman and Mulder (1998). In their aptly-titled chapter, "Psychological aspects of workload," they specified what they called the Effort-Recovery Model. This model argues that high effort expenditure (here, high workload) by an individual leads him or her to experience high psychological 'load reactions.' These load reactions, they argue, decrease well-being. This is particularly true when the individual's recovery from the overload is insufficient. For the present study, the latter point is particularly salient. That is, the inclusion of resilience as a hypothesized moderator here is rooted in the knowledge that high levels of resilience aid individuals in recovering from adversity.

Petterson and Arnetz (1997) proposed a similar relationship, wherein they suggested that the relationship between what they called 'subjective work environment' (including things such as workload and job demand) and 'reactions/health' (comprised of a variety of physical and psychological well-being outcomes, including 'mental well-being') was moderated by both social environment and individual resources. One of the three variables comprising the overarching 'individual resources' moderator was that of 'coping ability,' which can be likened to the proposed moderator of resilience in the present study.

Considering resilience as a potential moderator in the proposed workload–well-being relation also brings us back to Hobfoll's (1989, 2002) conservation of resources (COR) theory. As previously described, COR theory specifies that individuals strive to accumulate and maintain their resources (of varied type), and that stress results when

such resources are diminished or threatened. Previously I considered the resource of having sufficient time in which to complete one's work, and that excessive work (or limited time in which to complete the work) is consistent with resource loss. Expanding upon that, it should also be clear that resilience can indubitably be considered a personal resource, the expansion of which can help buffer the effects of such loss. Therefore, the present moderation hypotheses propose that having sufficient other resources (here, resilience) can serve to buffer the detrimental effect of this resource loss (high workload) on beneficial outcome measures (hedonic and eudaimonic well-being, respectively).

Nevertheless, it is worth noting that Hobfoll (2001) did concede that "resource loss is disproportionately more salient than resource gain" (p. 343). That is, research (e.g., Taylor, 1991) has shown that, all other things being equal, negative events tend to have a more drastic effect on individuals than do positive events of comparable magnitude. As applied to the example in the present study, this would suggest that great resilience would be necessary in order to sufficiently counter the effects of even a moderately high workload.

This then emphasizes the importance of another of COR theory's main tenets: Essentially, to invest in building resources. Doing so, the theory contends, will help individuals recover from resource loss in other areas. This tenet of COR theory directly supports the present study's suggestions that a) resilience can serve as a buffer against the potentially negative effects of a high workload, and that b) resilience should be developed as a personal resource (to be addressed in Study 3).

Given this past research, the first two moderation hypotheses are as follows. An overall graphic representation of these hypotheses can be seen in Figure C.1.

Hypothesis 2a: The relation between perceived workload and hedonic well-being is moderated by the PsyCap dimension of resilience.

Hypothesis 2b: The relation between perceived workload and eudaimonic well-being is moderated by the PsyCap dimension of resilience.

Role Salience

The construct of role salience – also known as role centrality (Martire, Stephens, & Townsend, 2000) – gives individuals a framework from which to develop a personal sense of purpose, agency, and meaning (for a review, see Niles & Goodnough, 1996; Reitzes & Mutran, 1994). Role salience is based upon Super's (1980, 1990) Life-Span Life-Expectancy Theory. It taps how important various domains of life are to any given individual; that is, what an individual considers to be of central importance to his or her life and/or personal identity, and what makes that person feel fulfilled.

According to Super's theory, there are three components to role salience. *Participation* is the behavioral component that refers to the amount of time actively spent in the role (e.g., hours of work). *Commitment*, an affective component, refers to how important the individual considers that role to be to his or her self-concept. *Values expectations*, another affective component, refers to whether (and, if so, to what degree) an individual is able to exhibit his or her personal beliefs and values within the role in question.

While there are various possible salient roles within an individual's life (worker, home/family, community, student, leisurite; see Super, 1980, 1990), the present study focuses on the work and home roles (which, interestingly, Noor [2004] found lacked a

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significant relation with one another in a sample of employed women in England). The majority of the research on work- and home- role salience has been conducted in regard to gender issues, with employed women consistently being found to experience higher levels of role conflict than do employed men (e.g., Madill, Brintnell, Macnab, Stewin, & Fitzsimmons, 1988). However, the construct also holds the potential to yield fruitful information in a variety of other domains.

For instance, the present study proposes that role salience will moderate the relation between workload and well-being. The research literature has thus far been somewhat inconsistent as to the nature of the relation between role salience and well-being. Some studies have argued that role salience provides individuals with a sense of self-worth and purpose, thus providing a theoretical foundation for their hypotheses that role salience is *directly* predictive of psychological well-being (e.g., Burke, 1991; Martire, et al., 2000; Pleck, 1985; Simon, 1992). Other researchers (e.g., Thoits, 1995) have put forth moderation hypotheses (e.g., Krause, 1994; Lent & Brown, 2008; Simon, 1992; Thoits, 1992) or even mediation hypotheses (e.g., Perrone & Civiletto, 2004) regarding the constructs. Moreover, Noor (2004) more recently found that both direct and moderator effects of role salience on well-being are possible, and that which is more appropriate in any given situation depends on the outcome variables considered.

It should be noted that the present role salience moderation hypotheses are non-directional. One possibility is that the relations between perceived workload and well-being (hedonic or eudaimonic) will be stronger for individuals with low work role salience than it will be for employees with high work role salience. That is, individuals who place greater importance on their work and consider it a central aspect of their life

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will suffer less of a detriment to their well-being due to high workload than will individuals who place less importance on their work role – and possibly, although not necessarily, more importance in other roles, such as home roles (and who may therefore consider a heavy workload to be impeding on their ability to be physically and/or emotionally available to their family at home). Such a proposition is supported by research such as that by Martire and colleagues (2000), who found that holding a role as most salient can actually serve to buffer the effects of any stresses encountered in that role.

Similarly to the consideration of how role salience may indirectly affect well-being (e.g., through job satisfaction, as proposed by Lent and Brown, 2008), it is certainly possible that a high workload may be more of an impediment to this well-being for individuals with home role salience than for individuals with work role salience, as previously suggested. Employees with high work-role salience may be more likely to be engaged in their jobs than individuals with a home-role salience, and therefore may thrive on work-related projects, considering them challenging and possibly even enjoyable. Individuals with a home-role salience, however, may be less likely to reach that level of engagement in their work, and may therefore consider it tedious and laborious, simply something they must do in order to financially support their family. This would seem especially likely to be true if this high home-role salience is coupled with a particularly low level of work-role salience.

However, the moderation hypotheses proposed herein are non-directional hypotheses, for the following reason. Although the above consideration is certainly possible, there is another side of the coin. That is, a high workload may actually be more

of an impediment to well-being for an individual high in work-role salience than it would be for an individual high in home-role salience. This, in fact, is the general direction of hypotheses suggesting role salience as a moderator (e.g., Krause, 1994; Lent & Brown, 2008; Simon, 1992; Thoits, 1992). That is, when the role in question (here, work) is put under stress (here, high workload), people who hold that particular life role as highly salient to their self-image suffer a greater effect on their well-being as a result of that stress (workload). Noor (2004) suggests that this is so "because when an individual experiences stress in a social role that is highly salient to the individual's self, it will be perceived as threatening and may undermine his or her psychological well-being" (p. 391).

For instance, Lent and Brown (2008) suggest that work role salience may moderate the relation between work-related goals and job satisfaction, such that failure to meet such goals is more likely to result in dissatisfaction for individuals who consider work to be most salient than it is for individuals who consider another life role to be most salient. Notably in regard to the present study, Lent and Brown (2008) went on to suggest that "[a]ssessment of role salience may help to identify targets for intervention and ascertain the degree to which job dissatisfaction may be affecting satisfaction in other areas of a person's life" (p. 17), for instance, overall happiness or life satisfaction.

As Lent and Brown (2008) suggested, employees with high work-role salience have a strong desire to succeed at work. Individuals with a higher home-role salience may not be quite so invested in work success, because they find more self-fulfillment elsewhere (in the home). They may not be striving as hard for the promotion or the boss' approval, since work is not the most salient aspect of their lives. Employees with higher

home-role salience may not interpret a failure at work as a failure in life, because they then leave work to return home to their families, whom they find most fulfilling and most salient to their personal identity.

It is interesting to note, however, that Sonnentag and Bayer (2005) suggested a mediation model wherein detachment from work was suggested to mediate the relation between (both day-specific and chronic) workload and daily well-being. Likewise related to the present study, Noor (2004) recently explored a moderation hypothesis relevant to the one being explored in the present study. That is, using a sample of employed English mothers, she looked at the relation between work-to-family conflict and distress, and how that relation might be moderated by high work role salience. First, although Noor (2004) had hypothesized that WIF (work interfering with family) conflict would be more detrimental to working women's well-being than would FIW (family interfering with work) conflict, she actually found the opposite to be true (contrary to some past research). She suggested that this may be the case partly because "rewards from work are directly utilized for the well-being of the family" (p. 400). For instance, a bonus, a pay raise, or additional vacation allowances are all likely to allow additional resources to be directed toward the family. Furthermore, and in more direct regard to the present study, Noor (2004) found that this relation between WIF conflict and distress was moderated by work role salience, such that high WIF conflict led to increased distress (interpreted as [lack of] well-being) only for those individuals reporting high work role salience.

Given all of this past research, the final hypotheses for Study 2 are as follows. An overall graphical representation of these hypotheses can be seen in Figure C.2.

Hypothesis 3a: The relation between perceived workload and hedonic well-being is moderated by work role salience.

Hypothesis 3b: The relation between perceived workload and eudaimonic well-being is moderated by work role salience.

Method

Participants

Participants in Study 2 are a subset of those in Study 1. While Study 1 included all participants who completed the T1 survey as discussed in the previous study, Study 2 consisted only of those participants who had completed both the T1 survey and also daily surveys to follow (two per day). Therefore, Study 1 participants who had not participated in both aspects of the study were eliminated from Study 2 analyses, as were those participants who failed to complete at least five of the daily surveys during the two-week time period.

Therefore, participants in Study 2 consisted of 75 county extension agents who were employed full-time throughout a state in the Midwestern United States (see Study 1 for a brief description of the job of an extension agent). This meets Kreft's (1996) broad contention that multilevel, or hierarchical, linear modeling is a large sample technique, in addition to meeting Hox's (1995) recommendation that such models have a sample size of at least 20, and preferably 50, in order to yield sufficient power. Other researchers (e.g., Bassiri, 1988; van der Leeden & Busing, 1994, as cited in Hofmann et al., 2000) have given more specific recommendations that in order to attain sufficient power, HLM samples should include a minimum of 30 groups comprised of at least 30 individuals

each, but that there is a trade-off here in that the greater the number of groups, the less individuals need to comprise each group in order to attain the same sufficient level of power.

Therefore, in the present analyses, where multiple measures within individuals are used as opposed to individuals within groups, the large individual sample size allows for a greatly reduced number of measures per person in order to maintain power. That is, the individual sample size of 75 should balance out the lesser number of level-1 measures (M = 9.47 daily measures per employee over the course of two weeks), as together they yield a final sample size of 710 data points.

Participants were 61% female, and 97% Caucasian. Ages of these extension agents participating in Study 2 ranged from 22 to 69, with a mean of 41.85 years (SD = 12.34). Participants worked an average of 49.09 hours per week (SD = 5.24) and had been employed in their current position for an average of 11.09 years (SD = 9.69).

Procedure

In addition to the recruitment efforts, informed consent, demographic, and T1 surveys aforementioned in Study 1, data collection continued for an additional 2 weeks. For two weeks following the T1 survey, participants were sent daily reminder e-mails that included links to two daily surveys, 'work' and 'home,' which were to be completed at the end of the work day and then at night immediately before retiring to bed, respectively.

It should be noted that while the work survey was the same for all participants, there were two versions of the home survey. Although the versions are similar in the

scales they used, there are some slight differences between the two, and which version any given participant received depended upon whether he or she had a spouse or partner living at home with them. After the two weeks of twice daily surveys, participants were sent a final e-mail containing a link to the Time 2 (T2) survey. All participants completing both the T1 and T2 surveys in addition to at least five consecutive days of the daily work survey received a $20 gift card to a popular online retailer.

Finally, it should also be noted that a limited number of hard-copy survey packets were mailed via postal mail in order to accommodate individuals who did not have daily access to the internet. This option was particularly necessary considering the nature of the extension agent job, which requires some travel.

Materials

As mentioned in Study 1, surveys included of a variety of established measures, in addition to various demographic and personal questions. Demographic questions included items identifying the participant's sex, race, age, relationship status, tenure, and hourly workload per week. The measures contained within the survey are as follows. Coefficient alphas for each of the following measures are represented along diagonals in Tables C.1, C.8, and C.16.

Workload was measured using eight job demand questions initially proposed by Van Veldhoven and Meijman (1994), and later adapted by Janssen (2001). Examples of these items include, "I had to work under time pressure today" and "I had to deal with a backlog at work today." In addition to the original eight items in this measure, also included was one overarching item ("The workload is high for this day") added later by

Ilies and colleagues (Ilies, Schwind, Wagner, Johnson, DeRue, & Ilgen, 2007).
Workload was measured both in T1 and T2 surveys, in addition to during daily work surveys.

The daily surveys used the modified version of the items that Ilies and colleagues (2007) adapted in order to reflect daily workload rather than overall evaluations of workload. Note that for T1 and T2 surveys, more general workload items were used: Rather than inquiring as to workload on a particular day, they inquire as to the workload that the individual experiences on the job in general. Likewise, for both versions each item deals with the amount of work the respondent had to deal with in his or her job (on that particular day, if daily version) or how pressured he or she felt regarding such work assignments. Respondents are asked to note whether they agree with each statement, and to what degree. Responses are measured on a six-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*), and the scale includes one reverse-coded item. Previous research using this measure has found internal consistencies to be acceptable (e.g., .93; Ilies et al., 2007).

Hedonic well-being was measured using a popular mood-based measure used to evaluate HWB in various previous studies (e.g., Diener, Smith, & Fujita, 1995; Fullagar & Kelloway, 2009; Scollon, Diener, Oishi, & Biswas-Diener, 2005). This measure presents respondents with a list of paired, polarized adjectives and asks them to describe their mood based along each continuum. The scale consists of ten such pairings, including alert-drowsy, excited-bored, sociable-detached, and cheerful-irritable, including three reverse-coded pairings wherein the negative adjective precedes the positive adjective in the pairing. The mood referents used in the scale were chosen because of

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their ability to best distinguish between major types of pleasant and unpleasant mood (Csikszentmihalyi & Csikszentmihalyi, 1988; Diener, Smith, & Fujita, 1995). Respondents are then asked to indicate their current position along each of the continuums on a seven-point scale from, for instance, "very cheerful" to "very irritable." Previous research using this measure has found internal consistencies to be acceptable (e.g., .96; Fullagar & Kelloway, 2009).

Eudaimonic well-being was measured using the Psychological Well-Being Scale (Ryff, 1989). There are several versions of the scale by length, and the version used in the present study consists of 42 items measuring the six aforementioned dimensions of EWB (autonomy, personal growth, self-acceptance, positive relations with others, environmental mastery, purpose in life). Sample items for each of the dimensions follow: Autonomy, "I have confidence in my own opinions at work even if they are contrary to the general consensus"; personal growth, "I do not enjoy being in new work situations that require me to change my old familiar ways of doing things" (reverse-coded); self-acceptance, "In many ways, I feel disappointed about my achievements at work" (reverse-coded); positive relations with others, "I enjoy personal and mutual conversations with the people I work with"; environmental mastery, "I am good at juggling my time at work so that I can fit everything in that needs to get done"; and purpose in life, "I enjoy setting goals at work and striving to achieve them."

Each dimension is measured via seven items, and many items are reverse-coded. All items have a four-point Likert response scale ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). The above-mentioned 42-item version of the scale was used during the T1 and T2 administrations. Research has supported the validity and reliability of such

longer versions of the scale on samples both in- and outside of the United States (e.g., Van Dierendonck, 2004; Lindfors, Berntsson, & Lundberg, 2006a; Ryff, 1989; Ryff & Keyes, 1995).

A shorter (six-item) version of Ryff's (1989) scale was used as part of the daily work surveys, with one item tapping each underlying dimension. Items were phrased so as to assess participants' work-related psychological well-being *on a daily level*. These items were as follows: Autonomy, "Social pressures and the expectations of others made me act and think in certain ways at work today" (reverse-coded); personal growth, "My work challenged me and made me grow as a person"; self-acceptance, "I feel positive about myself and the events that happened at work today"; positive relations with others, "I had satisfying and positive relations with others at work today"; environmental mastery, "I had difficulty managing my daily affairs and controlling events at work today" (reverse-coded); and purpose in life, "I did not have a sense of purpose and meaning in my work today" (reverse-coded).

Unfortunately, a similar 18-item shortened version of the scale has been found to have questionable internal consistency (e.g., Van Dierendonck, 2004). Interestingly, however, this version has also been found to be particularly valid in some samples (e.g., Van Dierendonck, 2004), and the subscales of this version also evidence strong positive correlations with the corresponding subscales of the longer versions (Lindfors et al., 2006b). Furthermore, although single-item dimensions will not yield a reliability estimate, the overall reliability of this six-item EWB scale has been found to be acceptable (e.g., $\alpha = .82$; Culbertson, Fullagar, & Mills, 2010).

Nevertheless, although not ideal, this shorter version was used during daily administrations for purposes of parsimony and as a preventative measure against attrition. Although Ryff (C. Ryff, personal communication, July 29, 2009), similarly cautions against the use of shortened versions of the scale, citing their oft-compromised reliability, she recognizes that in certain circumstances such versions are necessary given the excessive length of the more typical versions, and has herself used them when the necessity arises (e.g., phone surveys).

As for the proposed moderating variables, PsyCap resilience was measured using the resilience subscale (six items) of the Luthans and colleagues (2007) PsyCap measure explicated in Study 1. Although the resilience dimension of PsyCap suffered from a somewhat low Cronbach's coefficient alpha reliability ($\alpha = .63$) in Study 1, unfortunately since these data were derived from the same sample as that of Study 1, this limitation was unable to be overcome in this Study 2. That is, while other research has found the PsyCap dimensions to be reliable (e.g., Avey, Patera, & West, 2006; Avey, Wernsing, & Luthans, 2008; Luthans, Avolio, Avey, & Norman, 2006; Luthans, Avolio, et al., 2007), this finding does not hold in regard to the resilience subscale of this particular sample. Study 3 will attempt to account for this by including an additional, more longstanding measure of resilience, but for the aforementioned reasons that measure was unable to be included in Study 2.

Role salience, the other proposed moderator, was measured using the Family Role Reward and Occupational Role Reward subscales of the Life Role Salience Scale (Amatea, Cross, Clark, & Bobby, 1986). It should be noted that the Family Role Reward subscale was adapted for purposes of the current study from Amatea and colleagues'

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(1986) original Marital Role Reward subscale. These subscales are comprised of five items each, with statements regarding the importance of family in life (sample item: "A happy family life is the most important thing to me"), and statements regarding the importance of work in life (sample item: "It is important to me to feel successful in my work"), respectively. Respondents are asked to respond to each statement on a five-point Likert scale ranging from 1 (*strongly disagree*) to five (*strongly agree*). There is one reverse-coded item included in the Occupational Role Reward Subscale.

Internal consistency reliabilities have been found to be acceptable for both the Marital Role Reward subscale (MRRS; .91-.94; Amatea et al., 1986) and the Occupational Role Reward subscale, alternatively known as the work role salience scale (ORRS; .82-.85; Amatea et al., 1986). These reliabilities have held consistent in both Western and Non-Western cultures (e.g., Aryee, 1992; Bhatnagar & Rajadhyaksha, 2001; Chi-Ching, 1995). One interesting deviation of relevance is noted by Noble, Eby, Lockwood, and Allen (2004), in which they arrived at a borderline .71 for the ORRS only after having removed one problematic item. I inquired with both the first and second authors as to which item appeared problematic. However, both noted that they were unable to retrieve the data (C. L. Byrum [née Noble], personal communication, July 20, 2009; L. T. Eby, personal communication, July 13, 2009), and in addition the second author further conceded that their finding may have been sample specific (L. T. Eby, personal communication, July 13, 2009).

Results

Data Screening

Prior to the analysis, missing data were accounted for, and the resulting data was screened to determine whether there were any violations of the assumptions underlying hierarchical linear modeling (HLM).

Because of the use of hierarchical linear modeling in Study 2, all missing data had to be imputed, given that HLM as analyzed through the HLM statistical software package (Raudenbush, Bryk, & Congdon, 2008) requires complete datasets with no missing data points. Therefore, given the time series nature of the data in Study 2, missing data were imputed in the following manner.

The missing data in the T1 (level 2) dataset was missing completely at random (MCAR), as indicated by nonsignificance on Little's (1988) MCAR test, $\chi^2 (4) = 1.81$, $p = .771$. However, the missing data in the daily (level 1) dataset were not MCAR, as indicated by significance on the same test, $\chi^2 (1034) = 1345.24$, $p < .000$. Rather, these missing data fell under the less-stringent missing at random (MAR), as indicated by nonsignificant separate variance t-tests. Therefore, a multiple regression approach to imputation is appropriate (e.g., Wayman, 2003). As such, each missing data point was estimated based upon multiple regression, using non-missing data points from a given individual on a given measure to estimate any missing data for that individual on that measure. That is, in order to impute any given missing data point, only that particular individual's non-missing responses are used to estimate the missing response.

Nevertheless, such multiple regression-based imputation, regardless of whether it is within- or across-individuals, does have the disadvantage of increasing the probability

that the data will be over-corrected when missing values are imputed, in that the resulting noise levels may be deceivingly low. Therefore, specifically, the stochastic substitution approach to multiple regression-based data imputation was used to estimate missing values for Study 2. Stochastic substitution employs multiple regression, however the resulting value for the missing data point is estimated not only from traditional regression techniques, but by default also takes into consideration a regression-derived residual error from a random case with non-missing data for that value (Little & Schenker, 1995).

In addition to accounting for and imputing missing data points, prior to analysis the data were also screened to identify any violations of pertinent assumptions. For instance, independence should be ensured at not only one, but at two levels. That is, in HLM level 1 and level 2 residuals should ideally be uncorrelated with one another, in addition to the fact that the variables at the highest level of observation should ideally be uncorrelated with one another. However, one of the benefits of HLM is that it recognizes that, by virtue of the hierarchical or grouped nature of the data, intraclass correlation is indeed likely to exist. For instance, in the current study, it is not expected that one individual's scores on any given variable for one day would be entirely independent of that same individual's scores on that same variable on subsequent days. As will be discussed momentarily, allowing for this nonindependence in such situations is one benefit of HLM over other potential analyses, including ordinary least squares regression (OLS).

Therefore, it should be evident that the assumptions for hierarchical linear modeling differ somewhat than those for the analytic techniques derived from the popular general linear model, for which the assumption of independence must be met. As such,

hierarchical linear modeling has five assumptions that should ideally be met prior to proceeding with analyses (Bryk & Raudenbush, 1992, p. 200; Hofmann, 1997; Hofmann, Griffin, & Gavin, 2000, p. 490). These assumptions are as follows (Bryk & Raudenbush, 1992, p. 200).

- Level 1 residuals are independent and normally distributed with a mean of zero and variance of σ^2 for every level 1 unit within each level 2 unit.

- Level 1 predictors are independent of level 1 residuals.

- Random errors at level 2 are multivariate normal, each with a mean of zero, a variance of τqq, and a covariance of τqq', and are independent among level 2 units.

- The set of level 2 predictors is independent of every level 2 residual. (This assumption is similar to assumption 2, but for level 2.)

- Residuals at level 1 and level 2 are also independent.

In both the daily and level 2 datasets, all variables were found to be free of skew in that they met not only the recommended +/- 2 but also remained within the more stringent, oft-recommended bounds of +/- 1. Fisher's Kurtosis was found to be satisfactory for all items and variables in both datasets with the exception of items EWB1 and EWB2 from the daily (level 1) dataset, both of which failed to satisfy the Fisher's Kurtosis criterion of +/- 3 or +/- 2, as they had kurtosis values of 4.32 and 4.12, respectively. Such positive kurtosis indicates that graphical distributions for those two items are leptokurtic, indicating too few values in the tails of the distribution and a disproportionately high peak toward the center of the distribution. However, no

transformations were employed here, as most analyses are relatively robust to the violation of this assumption.

Tests for multivariate outliers revealed several outliers in the daily dataset and two outliers in the T1 (level 2) dataset as identified by visual boxplots, Mahalanobis' distance, and χ^2 values exceeding the critical value of χ^2 for the relevant degrees of freedom. However, none of these outliers had a Cook's distance greater than 1.0, indicating that none of them unduly influenced the data. Therefore, considering the lack of undue influence, and also considering the daily nature of the level 1 data wherein fluctuations, even to extremes, are somewhat expected and are believed to be representative of the population, it was deemed unnecessary – and in fact, inappropriate – to remove these cases from further analyses. Therefore, they were included in all analyses.

Tests for homogeneity of level 1 variances indicated that both HWB and EWB variables violated this assumption. Therefore, a procedure was employed that could correct for violation of a variety of assumptions, including heterogeneity and non-normality. George Box and David Cox (1964) developed the Box-Cox procedure, a power transformation aimed at identifying the appropriate exponent (lambda, λ) to which data should be raised in order to correct for issues of non-normality.

Therefore, in the present analysis the Box-Cox procedure was run on the level 1 variables of HWB and EWB. By way of initial examination of resulting plots (see Figures C.3 and C.4, respectively), followed by examination of the lambda and root mean square error (RMSE) data points themselves, one then locates the lambda that corresponds to the smallest RMSE value. For the present dataset, Box-Cox indicated that

for HWB, the smallest RMSE = .792, corresponding to λ = .90; for EWB, the smallest

RMSE = .330, corresponding to λ = .30. One then transforms the dependent variable by

raising it to the power of said lambda value. Therefore, in the present dataset HWB was

transformed by raising it to a power of .90, and EWB was transformed by raising it to a

power of .30.

Nevertheless, the Box-Cox procedure does not guarantee resulting normality,

since it infers normality based upon the size of standard deviations (Buthmann, 2009).

Therefore, it is necessary to re-check assumptions post-transformation.

As such, tests for homogeneity of level 1 variances were once again computed,

and were now shown to be satisfactory for EWB, χ^2 (73) = 22.20, $p > .05$. However, they

were still significant (indicating heterogeneity) for HWB, χ^2 (74) = 135.05, $p < .05$. As

such, alternative options were considered, including the Johnson transformation

(Johnson, 1978). However, given the severity of the Johnson transformation, it should

only be used in extreme circumstances and when there is no just theoretical reasoning as

to why assumption violations may have occurred in a particular variable. In the present

case, however, it stands to reason that the longitudinal, time-series nature of the data

contributed toward dependent residuals (Bryk & Raudenbush, 1987; James, 1995 as cited

in Hofmann et al., 2000). Therefore, further transformation attempts were not justified

and therefore not employed.

As with tests for homogeneity of variances, Shapiro-Wilk's tests for normality

were also computed once again post-transformation for level 1 variables. Unfortunately,

however, they still indicated non-normal variable distributions for two of the variables:

Workload, W (710) = .975, $p < .05$; EWB(transformed), W (710) = .939, $p < .05$. The

exception was the (untransformed) HWB, $W(710) = .996$, $p = .05$. However, once again,
lack of a theoretical justification prevented further transformation.

For the T1 (level 2) dataset, the Shapiro-Wilk's test for normality showed
resilience to be satisfactorily normally distributed, $W(75) = 0.97$, $p > .05$. Note that a
variable with a perfectly normal distribution in a given dataset will yield $W = 1$, $p = ns$.
The other level 2 variable, work role salience, was non-normal, $W(75) = 0.95$, $p < .05$.
The Box-Cox transformation was inappropriate to transform work role salience, given
that it necessitates a dataset containing both dependent and independent variable(s),
whereas the variables in the level 2 dataset are hypothesized to act as moderators.

Moreover, because neither skew nor kurtosis were found to be problematic, and
because there would be no theoretical justification for transforming the variable (since we
can reasonably expect that most county extension agents may consider their work highly
salient), no attempt was made to normalize it further. Such retention of non-normal,
untransformed variables is supported by a variety of researchers (e.g., Breyfogle, 2009;
James, 1995, as cited in Hofmann et al., 2000; Norris & Aroian, 2004; Wheeler, 2009a &
2009b) when, as noted, there is a lack of theoretical justification for transformation. In
short, they argue that transforming in the face of such a lack of justification may indeed
result in biased results that cannot be accurately generalized to a true population.

Hierarchical Linear Modeling

While there are several computer software programs available to analyze such
nested data, the most appropriate (De Leeuw, 1992) and arguably the most popular is one

called simply HLM (Raudenbush, Bryk, & Congdon, 2008). Therefore, HLM was the software package used in the present analyses.

Hierarchical linear modeling is alternatively known as multi-level modeling, and is designed for use with nested data (Guo, 2005). The conceptual foundation of hierarchical linear modeling is that people tend to exist within a variety of other social groups, organizational structures, or the like, which can then be seen as compounding on top of one another to create a hierarchy of sorts. For example, students exist within classrooms, which exist within schools, which exist within school systems. Employees may exist within teams, which exist within departments, which exist within a franchise or geographic regions of a business, which exist within larger organizational conglomerates.

For the purposes of the present application of HLM, I accept the truth that data continually collected on the same individual is also hierarchical, in that multiple observations are then nested within one individual. Therefore, the short-term longitudinal data collected for the present study are indeed hierarchical, and therefore appropriate analysis can proceed with HLM. Beyond this, simply by virtue of the use of this analytic technique in regard to POB and well-being issues as a whole, the present research makes a contribution to the literature by answering the call of researchers, including Ryan and Deci (2001), who have argued that this domain warrants more research conducted with such multilevel modeling (for an exception, see Ilies, Schwind, & Heller, 2007).

Nevertheless, it is worth noting that one of the primary criticisms levied upon HLM is the similarity or homogeneous nature of data within levels (Osborne, 2000). For instance, consider that a performance analyst is attempting to compare the job

performance of all Human Resources employees in Company X. Company X, however, is a relatively large corporation with multiple locations, each of which houses an HR department. The issue, therefore, is that overall HR employee performance may be significantly higher in the Washington, D.C. branch than in the London or Sydney branches. While this information can prove very useful in some respects (e.g., it may spur the analyst to find the answer to the question, "What is the HR manager at the Washington, D.C. branch doing right?"), it can also be indicative of error (e.g., maybe the Washington, D.C. manager simply has a greater leniency bias when rating his/her employees than do the managers in London and Sydney, therefore resulting in range restriction via ceiling effect) and can limit the utility of the data when researchers are trying to conduct their analyses on a hierarchical level rather than on a more basic level that simply compares the various groups at the lowest level of the hierarchy.

However, while it is necessary to mention this (lack of) independence-of-observations problem here as an important limitation of HLM in some situations, it should also be noted that it does not necessarily present itself as a limitation for the application of HLM in the present study, given that all observations at the lowest level of the hierarchy belong to a particular individual, and therefore while they can thus be reasonably expected to be more similar within-individual than between-individual, part of what the present study is seeking to further explore is this within-individual progression over time.

Osborne (2000) notes that while it is often possible to analyze nested data with alternate procedures, proceeding with analysis via HLM places less restrictions on the data insofar as assumptions that must be met prior to proceeding with analysis. For

instance, the (lack of) independence-of-observations problem noted earlier is also statistically problematic – and this statistical side of the problem would hold true for the present data, also. The issue here is that most data analytic techniques require observations to be independent of one another. However, *all* nested data violates this assumption that is typically necessary to satisfy requirements of other statistical procedures.

Osborne (2000) notes that were a hierarchical model to be analyzed with one of these procedures – ordinary least squares (OLS) regression, for example, which is typically presented as the potential alternate procedure to HLM (Osborne, 2000; Nezlek & Zyzniewski, 2000) – the resulting error terms would be incorrect (too small), therefore leading to an inappropriately high probability that the null hypothesis will be rejected and we will 'find' an effect that in actuality may fail to exist. Nezlek and Zyzniewski (2000) note that HLM overcomes this problem by using a combination of maximum likelihood and Bayesian methods to estimate parameters and, by allowing non-independence of observations, then uses a technique called precision weighting. In particular, the HLM 6 version of the software employs a weighting computation technique put forth by Pfefferman and colleagues (Pfefferman, Skinner, Homes, Goldstein, & Rasbash, 1998) that individually evaluates and weights each case per a maximum likelihood estimation framework, and is thus even more responsive to data effects than earlier versions of the software (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2004).

In essence, precision weighting determines the reliability of responses within a group and then when estimating variances, places less weight on the population mean of group(s) with low(er) reliability. Precision weighting allows for HLM's production of

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parameter estimation via Empirical Bayes Estimates, or EBEs, which in turn allow for separation of fixed (true) and random (error) parameter variance, thus contributing to increased power. This is yet another important distinction between HLM and OLS, since OLS combines these two sources of variance, thus limiting the information able to be derived from analysis. Relatedly, multilevel analysis such as HLM also allows for more detailed analysis and, correspondingly, richer data interpretation than do possible alternate analytical procedures.

With this in mind, data analysis proceeded via HLM. The initial step consisted of estimating null models. In HLM such models can be compared to analyses of variance (ANOVAs) in that they provide an assessment of the degree of between-group variance in the predictor (here, workload) by providing parameter estimates that can then be manually computed to yield an intra-class correlation, or ICC. As seen in Table C.2, approximately 44% of the variance in workload resides between individuals when the outcome is HWB, $\chi^2 = 571.28$ (74), $p < .001$. Likewise, Table C.3 suggests that 37% of the overall variance in workload is due to between-individual variance when EWB is the outcome, $\chi^2 = 479.91$ (74), $p < .001$. The significance for each of these statistics indicates that, for each, the between-individual variance is significantly different from zero and thus the intercept differs significantly across individuals.

Once exploration of the null models yielded this information as to the overall variance, random coefficient regression models were then computed for each of the outcome variables. These outcome variables are entered into the equations as centered around their respective grand means (that is, the deviation of each score from the grand

mean of the overall sample), as suggested by annotated output corresponding with Hofmann and colleagues (2000).

The null model for HWB was estimated first (see Table C.4 for the final estimation of variance components). Subsequently the random coefficient model estimating HWB as the proposed outcome variable was tested, and was found to be significant, T-ratio = 3.48 (74), p = .001 (see Table C.5 for the final estimation of variance components). However, as indicated by the positive T-ratio and as modeled in Figure C.6, this relation has been found to be positive, thus failing to support Hypothesis 1a and actually standing in opposition to it. Random coefficient regression models tested in HLM also estimate variance, similarly to the null model but controlling for the proposed outcome variable (here, HWB). This was found to be significant, χ^2 = 112.31 (74), p = .003, thus indicating that there is significant variance between-individuals in the intercept and slope parameters across persons even after controlling for HWB (see Table C.5 and Figure C.5).

The null model for EWB was then estimated (see Table C.6 for the final estimation of variance components). Subsequently, the random coefficient model estimating EWB as the proposed outcome variable was then tested and was found to be significant, T-ratio = -3.00 (74), p = .004 (see Table C.7 for the final estimation of variance components). This indicates that Hypothesis 1b is supported in that workload does indeed have a significant relation with EWB. Recall that the hypothesis was non-directional, and this test yields information suggesting that the relation is negative as indicated by the negative T-ratio, and as modeled in Figure C.6. The chi-square variance estimation outlined above was also estimated here, and was likewise found to be

significant, $\chi^2 = 119.13$ (74), $p = .001$, again indicating that there is significant variance between-individuals in the intercept and slope parameters across persons even after controlling for EWB (see Table C.7).

Moderation

HLM moderation analytic procedures (see Davison, Kwak, Seo, & Choi, 2002; Gavin & Hofmann, 2002; Jose, 2008) were used to evaluate the hypotheses that resilience and work role salience individually moderate the strength of the relation between perceived workload and the two different types of well-being. Resilience and work role salience are both hypothesized to be moderator variables here in that they are proposed to affect the strength of the relation between workload and the two different types of well-being, such that as either or both of these proposed moderating variables increase, so too will the strength of the relation between workload and well-being increase.

However, prior to further analysis, the reliabilities of the scores for perceived workload and work role salience were independently analyzed for reliability. The original Cronbach's coefficient alpha level for the work role salience scale was $\alpha = .61$. Therefore an item analysis was conducted in order to eliminate any hindering items. Results of the item analysis indicated that the item, "Building a name and reputation for myself through work is not one of my goals" (item 3; reverse-coded) significantly reduced the reliability and that the alpha value could be substantially increased with the elimination of that item. As such, Item 3 was eliminated from future analysis, and the work role salience scale as utilized herein then consisted of four items as opposed to five. As previously mentioned, Noble and colleagues (2004) also found and removed a

problematic item from this scale, although the authors were unable to recount which item in particular was removed.

While this finding should be taken into consideration by future researchers who may be considering work with this scale, it should also be noted that there is a possibility that this finding is sample-specific and that the item may indeed function in an acceptable manner in other samples. Specifically, two reasons were theorized for the failure of this item in this sample. First, it is possible that the participants misread the item or that they interpreted its phraseology as misleading or confusing. This hindrance may in fact apply to future samples. A second possibility, however, is more sample-specific. That is, the present sample consisted of publically-employed extension agents whose job is largely based on community outreach and is oftentimes heavily associated with volunteer programs. Therefore, it is possible that this subsample of employed individuals is less driven by extrinsic motivators such as money, business- or industry-fame, or name recognition than are individuals who are employed in organizations and/or jobs that are known to be less self-sacrificial or selfless in nature.

Table C.8 includes Cronbach's coefficient alpha reliabilities for both the resilience subscale of the PCQ and also for the four remaining items comprising the work role salience scale. As noted in Table C.8, the reliabilities for both scales were below both the stringent $\alpha = .80$ put forth by Cohen (1977), and were also below the oft-suggested value of $\alpha = .70$ (e.g., Nunnally, 1978). Nevertheless, in order that the moderation hypotheses could be evaluated, and considering that the scales came close to approximating a level of acceptable reliability, analyses proceeded as planned. However,

interpretation of subsequent results should be tempered by the consideration of the marginal reliability of these scales in this sample.

It should be noted that home role salience was also initially measured in this study, via an adaptation of the Marital Role Reward Subscale (Amatea et al., 1986). Therefore, given the questionable reliability of the Occupational Role Reward Subscale (Amatea et al., 1986) in both this sample and also Noble and colleague's (2004) sample, one might consider whether using the home role salience scale as a proposed moderator in place of the work role salience scale would be appropriate.

This, however, was deemed inappropriate for the following reason. While initial lay speculation may consider these two possible role salience targets as somewhat opposite ends of a continuum, that is in fact not necessarily the case. That is, one could theoretically be high on both home and work role salience. Therefore, using an indicator of home role salience in place of work role salience would be inappropriate, since, given the present study's focus on work (as opposed to home), such a replacement would presuppose that individuals scoring high on home role salience could therefore reasonably be considered to be low on work role salience. This, however, is unlikely to be the case, and therefore analyses presupposing such would be presumptive and, likely, inaccurate.

HLM analyzes for moderation somewhat differently than more typical moderation procedures (e.g., Gavin & Hofmann, 2002; Jose, 2008). Whereas more typical procedures (e.g., Baron & Kenney, 1986) require that the variable be dichotomized into 'high' and 'low' groups – either via a median split or via a more polarized division such as tertiles or quartiles (Preacher, Rucker, MacCullum, & Nicewander, 2005; Sharma,

Durand, & Gur-Arie, 1981) – and then compared to one another (e.g., model comparison options in AMOS; Arbuckle, 2003), HLM moderation analyses evaluate the moderator variable as continuous.

There are particular benefits for doing this; that is, for allowing the moderator variable to remain continuous rather than forcing it into a dichotomous categorical variable. First, if one were to keep the whole dataset and opt for a median split option, an important and widely-recognized problem necessarily occurs. That is, in using a median split, the researcher risks dividing very similar scores lying in the middle of the dataset into the two separate, polarized groups.

Second, versus the tertile and quartile dichotomy options, allowing the moderator variable to remain continuous allows the researcher to use the entirety of the dataset, rather that eliminating one-third to one-half of it. This is particularly important in relatively small samples. Likewise, various researchers (e.g., Aiken & West, 1991; Preacher, et al., 2005) admit that while dichotomizing a variable by way of an 'extreme groups approach' such as a tertile or quartile split is popular, it also tends to lead to the loss of valuable mathematical information. In particular, eliminating such a substantial portion of responses from the middle of the sample may have the effect of overestimating differences between groups, thus perhaps finding moderation when none exists, or exaggerating the effect of the moderating variable.

Nevertheless, once again, a benefit of conducting moderation analyses via HLM is that it does not require proposed moderator variables to be dichotomized, and therefore the present analyses proceeded with modeling the moderator variables as continuous.

Unfortunately, given that the relation presented in Hypothesis 1a was found to be significant in a direction counter to that which was expected, it was clear that data from the present sample prevented a meaningful examination of Hypotheses 2a and 3a, those are, the hypotheses proposing moderators on the (suspected negative) relation between workload and hedonic well-being. Therefore, Hypotheses 2a and 3a were unable to be explored with the present sample. Nevertheless, such a finding did not negate the utility of intercepts-as-outcomes models with HWB as an outcome, and so those models were run, even though they were not explicitly hypothesized. Intercepts-as-outcomes models are similar in theory to the chi-square statistics reported in the previous section in that they use residual variance in the intercepts in manual computations that then model how much variance in HWB is explained by level 2 variables (that is, the variables that otherwise would have been used as moderator variables – here, resilience and work role salience).

Results for the intercepts-as-outcomes model examined for resilience indicate that only 7% of the variance in HWB is explained by resilience. Moreover, t-tests reveal that resilience is not related to workload after controlling for HWB, T-ratio = -1.94 (73), p = 0.056, although the results are bordering significance, and when computed without robust standard errors, reveal significance, T-ratio = -2.18 (73), p = .032. Finally, chi-square estimates indicate that, after including resilience, there is still significant variance in the intercept term across individuals, χ^2 (73) = 298.041, $p < .001$ (see Table C.9). Such tests also indicate that there is significant variance in the slopes, χ^2 (74) = 112.478, p = .003 (see Table C.9), although the unexpected results of Hypothesis 1a theoretically prevent further exploration of whether resilience is related to that variance.

Results for the intercepts-as-outcomes model examined for work role salience indicate that only 2% of the variance in HWB is explained by work role salience. Moreover, t-tests reveal that work role salience is unrelated to workload after controlling for HWB, T-ratio (73) = -1.40, p = .17. Finally, chi-square estimates indicate that, after including work role salience, there is still significant variance in the intercept term across individuals, χ^2 (73) = 317.017, p < .001 (see Table C.10). Such tests also indicate that there is significant variance in the slopes, χ^2 (74) = 112.298, p = .003 (see Table C.10), although the unexpected results of Hypothesis 1a theoretically prevent further exploration of whether work role salience is related to that variance in a moderating fashion.

Nevertheless, while moderation hypotheses for HWB were unable to be examined due to unsupportive results of hypothesis testing for Hypothesis 1a, favorable results for Hypothesis 1b allowed for testing of Hypotheses 2b and 3b to continue as planned.

First, intercepts-as-outcomes models were computed as explained above. Results indicate that 15% of the variance in EWB is explained by resilience. T-tests indicate that resilience is positively related to workload after controlling for EWB, T-ratio = 2.48 (73), p = 0.016. Chi-square estimates indicate that, after including resilience, there is still significant variance in the intercept term across individuals, χ^2 (73) = 293.335, p < .001 (see Table C.11). Such tests also indicate that there is significant variance in the slopes, χ^2 (74) = 119.43, p = .001 (see Table C.11). This is further explored in the moderation hypotheses proper, wherein it is examined whether resilience is related to that variance.

Results for the intercepts-as-outcomes model examined for work role salience indicate that 13% of the variance in HWB is explained by work role salience. T-tests signify that work role salience is positively related to workload after controlling for

EWB, T-ratio (73) = 2.41, p = .019. Finally, chi-square estimates indicate that, after

including work role salience, there is still significant variance in the intercept term across

individuals, χ^2 (73) = 304.606, $p < .001$ (see Table C.12). Chi-square tests also indicate

that there is significant variance in the slopes, χ^2 (74) = 118.73, $p = .001$ (see Table C.12).

Again, this latter finding regarding the nature of the slopes is further examined in the

moderation hypotheses proper, which determine whether work role salience is related to

that variance in the slopes.

After these initial tests, direct tests of the proposed moderating effects of

resilience and work role salience were then performed for EWB. Unfortunately, neither

of these hypotheses was found to be significant. Specifically, no support was found for

Hypothesis 2b, suggesting that the relation between workload and eudaimonic well-being

found in the present sample is not moderated by the PsyCap dimension of resilience, T-

ratio (73) = -0.13, $p > .05$ (see also Figure C.7). Chi-square estimates indicate that after

including resilience, there remains significant variance in the slopes across individuals, χ^2

(73) = 119.338, $p < .05$ (see Table C.13), indicating that accounting for that variable did

little to explain away such variance. Likewise, no support was found for Hypothesis 3b,

indicating that the relation between workload and eudaimonic well-being found in the

present sample is also not moderated by work role salience, T-ratio (73) = 1.02, $p > .05$

(see also Figure C.8). (See Figure C.9 for a graph of the relationship modeling the

relationship of both hedonic and eudaimonic well-being with perceived workload.) Chi-

square estimates indicate that after including resilience, there remains significant variance

in the slopes across individuals, χ^2 (73) = 119.338, $p < .05$ (see Table C.13), indicating

that accounting for that variable did little to explain away such variance. Thus, neither Hypothesis 2b nor Hypothesis 3b was supported in the present sample.

However, based upon suggestions throughout annotated output corresponding to Hofmann and colleagues (2000), various modifications as described momentarily were made to the nature of the variables as entered into the analyses. After these adjustments were made, Hypotheses 2b and 3b were then tested once again in a series of post hoc analyses (see Table C.15).

In particular, Hofmann and Gavin (1998) have suggested that entering level 1 variables as group mean centered versus grand mean centered may be preferable when testing for moderation effects. Specifically, group mean centering allows the cross-level interaction to be separated from the between-individual interaction, whereas grand mean centering does not allow for this. However, unfortunately, post-hoc analyses run after these modifications remained non-significant. Therefore, once again these results failed to support the hypothesis that resilience moderated this relation, T-ratio (73) = 0.024, $p >$ .05, and likewise the differences in slopes remained significant after accounting for resilience, χ^2 (73) = 117.70, $p < .05$. Similarly, results failed to support the supposition that work role salience moderated this relation, T-ratio (73) = 0.95, $p > .05$, and likewise the differences in slopes remained significant after accounting for resilience in the model, χ^2 (73) = 115.04, $p < .05$.

Hofmann and colleagues (2000) have also suggested that, in addition to group mean centering level 1 variables, disaggregating the (level 1) outcome variable may also be appropriate in such moderation analyses. Therefore, the outcome variable of EWB was averaged within-individuals, thus generating a mean EWB score for each individual,

as compared to multiple EWB scores per participant (one per day, thus totaling ≥ 5 per individual). Nevertheless, while this is not entirely surprising given the high degree of insignificance reported in the previous analyses, unfortunately the recommended combination of both of these post-hoc modifications again yielded non-significant results. It is also important to note that these results were reached only after allowing the software to continue past a default maximum number of iterations (100) until the analyses converged. This was achieved at 263 and 256 iterations for the resilience and work role salience models, respectively.

Results indicated that resilience failed to moderate the relation between workload and eudaimonic well-being, T-ratio (73) = 0.007, $p > .05$, and that the differences in slopes remained significant despite accounting for resilience, χ^2 (73) = 131.78, $p < .05$. Similarly, results failed to support the supposition that work role salience moderated this relation, T-ratio (73) = 0.95, $p > .05$, and likewise the differences in slopes remained significant after accounting for resilience in the model, χ^2 (73) = 129.00, $p < .05$.

Variance estimations derived from both of the above post-hoc modifications were similar to those reported for the previous analyses.

Relative Weights Analysis

Since a majority of the initial hypotheses for Study 2 went unsupported, namely the moderation hypotheses, post hoc relative weights analyses were employed with the understanding that they might help to further illuminate the nature of the relation between the constructs of interest in the present sample.

Relative weights analysis, or RWA, was recently put forth by Jeff Johnson (2000), and more recently was introduced to the consulting psychology field by Johnson, LeBreton, and colleagues (Johnson, 2005; Johnson & LeBreton, 2004; LeBreton, Hargis, Griepentrog, Oswald, Ployhart, 2007). First it is important to note that while some researchers have alternatively referred to relative weights analyses as analyses of relative *importance*, Johnson and colleagues (Johnson, 2000; Johnson & LeBreton, 2004) note the ambiguity of the term 'importance,' citing Achen's (1982) discussion of various ways the term could be interpreted. Thus, he encourages the use of the terms 'relative *epsilons*' or 'relative *weights*,' which are therefore used herein. Johnson (2000) developed this analytic method in response to the request often made in practice to determine the relative importance of predictors for a particular outcome. He noted that Budescu (1993) developed a similar technique, 'dominance analysis,' that is also appropriate and yields comparable results (Johnson, 2000; LeBreton, Ployhart, & Ladd, 2004), but noted the complication that dominance analysis is arguably too computationally complex to expect consultants to use it on any sort of a regular basis.

The results yielded by RWA can easily be drawn from simple zero-order correlations and standardized regression coefficients when the predictive variables are uncorrelated with one another. However, this is rarely the case, and therefore using such analyses with correlated predictors yields misleading results. Specifically, these analyses fail to account for both the unique contribution of predictors in addition to their shared contribution with other predictive variables. That is, when there is shared contribution to the variance, these analyses credit such contribution to only one of the variables. RWA,

however, accounts for both unique and shared contribution to the variance, thereby providing a superior method to determine relative predictive importance.

RWA is able to do this by allowing the original predictor variables to correlate, after which it transforms them into their orthogonal counterparts, which then predict the outcome variable of interest (Johnson, 2005; Johnson & LeBreton, 2004). In this way, the analysis is then able to rank order all predictor variables in regard to each of their respective contributions to the overall variance of the outcome variable of interest. The obvious practical value in this is that it specifies areas in which action should be concentrated in order to yield the most marked and meaningful improvement in the prediction of the outcome variable. It can also contribute to parsimony in cases where overall survey length is an issue.

Therefore, in the present sample, a relative weights analysis can help further determine the nature of the relation between the variables herein by considering them all as direct predictors of well-being (eudaimonic and hedonic, independently), and subsequently determining how much variance in well-being each predictor accounts for and which, if any, primarily drives each respective well-being outcome. Therefore, in order to conduct a relative weights analysis with the present data, data for the relevant constructs were combined into a single dataset, and means were computed for each level 1 construct (workload, EWB [untransformed][1], HWB) within individuals across days. A correlation matrix for these data can be found in Table C.16.

In the prediction of (untransformed) eudaimonic well-being, the three employed predictors (resilience, work role salience, perceived workload) accounted for 34.1% of

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[1] Untransformed EWB was used here because it was unclear whether the variable would still necessitate transformation after aggregation, and therefore preemptive transformation may have been misleading.

the variance in EWB (R^2 = .341). Resilience and perceived workload contributed

relatively equally to the percentage of variance accounted for, accounting for 35.1% and

34.6% of the R^2, respectively. Work role salience accounted for 30.4% of the R^2.

In the prediction of hedonic well-being, the abovementioned three measured

predictors accounted for 19.5% of the variance in HWB (R^2 = .195). Perceived workload

was the primary contributor to accounting for the variance explained, accounting for

65.7% of the R^2. Work role salience and resilience accounted for 19.5% and 15.8% of

the R^2, respectively.

Discussion

The findings outlined above warrant some discussion, particularly insofar as some

did not support the theoretically-backed hypotheses outlined earlier. Perhaps the most

startling result was regarding the hypothesized direct relation between perceived

workload and HWB. Specifically, a *positive* relation was found between these

constructs, despite substantial support in the literature for a *negative* relation, which had

been predicted by Hypothesis 1a. Therefore, the findings herein suggested that as people

perceive heavier workloads, they also become happier. Recall another such exception to

the thrust of the findings in the literature, specifically that of Hetty van Emmerick and

Jawahar (2006). These researchers found a positive relation between objective workload

and positive mood (and, correspondingly, a negative relation between objective workload

and negative mood). Similarly, Noor (2004) had also found that objective workload was

negatively related to negative affectivity. While it is indeed the case that negative

affectivity is not the antipode of positive affectivity, it is nonetheless worthwhile to note

this interesting and relevant finding. Other researchers (e.g., Boultinghouse, et al., 2007; Neill, 2006; Repetti, 1993; Strauss-Blasche, et al., 2002) have found no significant association between the two constructs in either direction. Therefore, while the results of this aspect of the present study are indeed counter to both theoretical expectations and also the majority of the empirical findings, it is important to note that it does not stand alone in its findings.

Nevertheless, the finding in the present study was particularly interesting and unexpected considering that the present study used a measure of *perceived* workload, versus *objective* workload, the latter of which was utilized by the both Hetty van Emmerick and Jawahar (2006) and Noor (2004) as explicated above. That is, how pressured the individual felt to complete a lot of work in a short period of time. Nevertheless, this finding may be best understood within the theoretical framework of positive psychological constructs such as flow (e.g., Csiksentmihalyi, 1975, 1990) and engagement (e.g., Schaufeli et al., 2002), both of which are characterized by employees' positive experiences of their work and the gratification provided by work tasks in and of themselves.

In fact, in his description of flow, Csiksentmihalyi (1975, 1990) has conceptualized a graph of challenges (y-axis) and skills (x-axis) wherein the combination of high challenges and high skills (upper right quadrant) produces the enjoyable work experience of flow, the combination of low challenges and low skills (lower left quadrant) produces apathy, high challenges and low skills yield anxiety (upper left quadrant), and low challenges and high skills result in boredom (lower right quadrant). The results evidenced herein – that is, that increased perceived workload is positively

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associated with hedonic well-being – may indeed be indicative of the consideration that individuals may enjoy their work to the extent that performing it does indeed give them pleasure, and can indeed be considered in relation to some of the states discussed in the flow graph.

For instance, it is possible that lower workloads (lower challenges), particularly as perceived by people who otherwise feel excited by and capable of their work, could result in an experience of boredom. Of course, one may also reasonably presume that at some point the positive association of perceived workload with hedonic well-being would reach a plateau – that is, when the amount of work to be accomplished became truly overwhelming for the individual. This would be consistent with the experience of anxiety – as described in flow theory, feeling unable to cope with the requirements of the job or activity. However, that plateau does not appear to have been reached in the present results.

This is consistent with the qualitative (and now quantitative) understanding that we have of the extension agent population. That is, everything has pointed toward the fact that this tends to be a highly intrinsically motivated ('autotelic,' in flow theory) group of employees and opt for these careers not because of, but rather despite, the (low) pay, and who are therefore involved in this type of job because they truly do enjoy the work itself (D. Buchholz & S. Warner, personal communication, September 11, 2009, September 23, 2009). It is also true that these employees have a high degree of autonomy within their jobs. According to Gaillard and Wientjes (1994), working conditions (which here may be interpreted to include perceived workload) may be associated with reduced well-being only when the work environment offers little social support and few

opportunities for the employee to control his or her work activities. Therefore, this may go toward another explanation of this unique finding within this sample of a positive relationship between perceived workload and hedonic well-being.

Nevertheless, since this finding stands in stark contrast to the vast majority of the literature and also to any proposed theory, it should reasonably be considered that it may be sample specific. However, while this may limit the implications that this finding has for a wider range of employment, it provides interesting insights into the population represented by the sample herein. In fact, it may indeed yield information about these jobs that is likely to have been masked by research on other, more generalizable samples. Specifically, this research has illuminated the positive experiences that extension agents in particular tend to have on the job. The finding of the positive correlation herein also suggests that the relation may not be moderated, as hypothesized in Hypotheses 2a and 3a, but may be more accurately represented as a relation that is mediated by a third factor that was not considered in the present study (for instance, job satisfaction or engagement). The absence of this unknown construct, then, could have confounded the direct relation proposed herein, therefore yielding a misleading positive relation.

Unlike this first hypothesis regarding HWB, the other initial hypothesis proposed herein was supported. Recall that this hypothesis predicted a direct relation between perceived workload and eudaimonic well-being, and that this hypothesis was non-directional, since EWB has multiple components that may each contribute to the relation in a different way. Analyses found that this relation was indeed significant, and that it was negatively so. That is, as employees perceived higher workloads, they correspondingly reported lower eudaimonic well-being. There are a variety of reasonable

justifications as to why this was found to be the direction of the relation, as well as various implications that these results have for theory and practice.

First, it may be true that at times of high perceived workload, such workloads may be considered to be comparatively mundane or meaningless. For instance, perceived workload would also increase during times of a lot of mandatory paperwork, such as completing quarterly reports, expense reports, and the like. Such activities, simply by their very nature, are unlikely to contribute to an employee's sense of meaning or purpose in his or her work. Perceived workload could be expected to increase with increased meetings, which many people feel are often unproductive, lead to lower well-being (see Luong & Rogelberg, 2005; Rogelberg, Leach, Warr, & Burnfield, 2006) and serve only to increase the time pressure under which employees must complete the rest of their workload. Likewise, it may also be during times of high workload that employee autonomy is diminished, and therefore employees have less time to invest highly in the aspects of their work that they find most rewarding or fulfilling. While merely theoretical, this supposition might go toward suggesting a mediated relation as opposed to the moderated relations tested (and failed) herein.

The negative nature of this relation can also be supported by delving into some of the component parts of EWB and how each might contribute to this relation. For instance, the *positive relations with others* dimension of EWB may decrease with increased workload for a variety of reasons. First, despite likely positive relations with (at least some) coworkers, increased work time or pressure necessarily limits the time available to interact with one's friends and family outside of the workplace with whom one is likely to have more established and meaningful relations than those with

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coworkers. This may be particularly true for participants in the present sample, the nature of whose jobs are not necessarily office-based wherein one might establish close relations with coworkers through daily intraoffice contact. Extension agents' jobs also oftentimes require travel, therefore increasing the frequency of employees' brief interactions with various people with whom one is not acquainted and will likely never again encounter, and therefore yield primarily surface-level interactions.

Finally, the employees sampled herein generally reported high perceived workloads (see Table C.5). However, they may also be considered to be employed in a job that somewhat limits career development and progression, if not challenge. Therefore, the nature of the job itself may naturally lead to high and low levels of these two constructs, respectively, and the former may not necessarily be influencing the latter as suggested.

Moving on from these hypothesized direct relations, unfortunately, none of the moderating hypotheses in the present study were supported. Although counter to the majority of the research, these findings are in fact consonant with some earlier research by Petterson and Arnetz (1997), who likewise were unable to support their hypothesis that coping ability (which we can liken to resilience) moderated the relationship between work demands and well-being.

Nevertheless, although the present results are surprising, we must be careful not to mistake non-significance for insignificance. In fact, such results may go toward further enlightening theory in this area in addition to guiding future research. Unfortunately, the broad field of social science is all too guilty of writing off non-significant findings without further investigating their meaning and implications. For instance, it is well-

known that both non-significant findings as well as findings contrary to popular theory are both far less frequently published than are significant confirmatory findings. It logically follows that non-significant findings are not sufficiently disseminated to the field, creating what Rosenthal (1979) called the "file drawer problem," wherein manuscripts containing such findings remain relegated to a frustrated researcher's file cabinet. This results not only in misappropriation of scarce resources to research issues that have already been heavily researched but may have resulted in non-significant findings, but, relatedly, also results in a necessarily biased and misleading published literature.

For years the meta-analytic design has recognized the importance of non-significant results. That is, thorough meta-analyses include not only the published articles on a topic, but also the unpublished ones, as meta-analytic authors are fully aware of the aforementioned biases. Therefore, they are confident that the only way to accurately and comprehensively conduct their study is to include all accessible research on the issue. In fact, part of the reason that meta-analyses are valued to such a great degree is because they include this oft-neglected (but equally as important) part of the literature. Unlike many other researchers, it seems, meta-analytic authors fully recognize that the implications for non-significant findings can, of course, be just as meaningful as are significant findings, whether in and of themselves, or by virtue of guiding future theory and research.

As such, the present results can be used to guide future research in a couple of different ways. Perhaps the most obvious of these are findings that neither of the scales used to measure the proposed moderator variables evidenced ideal reliability in the

present sample. An initial warning is that we must interpret these non-significant results with some caution given this issue, and future research would do well to replicate these hypotheses on different samples once the scales have been modified sufficiently in order to improve upon the values of the reliabilities that they typically yield.

Both the (adjusted) Occupational Role Reward scale used to measure work role salience and also the resilience subscale of the Psychological Capital Questionnaire used to measure resilience yielded Cronbach's coefficient alpha reliabilities of $\alpha = .64$, thus falling below Nunnally's (1978) recommended minimum of $\alpha = .70$. This finding suggests that both scales may necessitate improvement in order to fully and accurately measure their respective constructs. Thus, future research should proceed with item analyses on a variety of samples and should modify and adapt the scales accordingly.

For the Occupational Role Reward scale in particular, the present study suggests a first step to improving the scale. That is, removal of the reverse-coded item, "Building a name and reputation for myself through work is not one of my goals" (item 3) resulted in improved scale reliability in this sample. As noted previously, this finding may indeed be sample specific. However, that is not believed to be the case. In particular, it is also suspected that this is the same item removed by Noble and colleagues (2004) in order to improve scale reliability in a different sample (employed single parents), although such authors failed to identify which item in particular was found to be problematic. Therefore, the present research suggests that a first step to improving the reliability of this scale would be either to a) remove this item from the scale entirely, for potential replacement with a more psychometrically-sound item (to be identified through an iterative and theoretically-sound process involving both empirical research and subject

matter experts), or b) to reword the item so that it is no longer reverse-coded (simply, "Building a name and reputation for myself through work is one of my goals"), and see if that simple change yields substantial improvement in Cronbach's alpha reliability.

Next, while these findings may be sample specific as discussed earlier, this too is of some practical benefit. That is, while such findings may lack applicability to a wider population of employees if indeed they are sample specific, they are very much applicable to the population from which this sample was drawn. Thus, they provide important insights into the work-related characteristics of community-based workers, and how such characteristics might best be leveraged to strengthen and maintain an organization's human capital resources. Therefore, even assuming that some of the findings herein may be somewhat sample-specific, the associated hypotheses do indeed have substantial theoretical support, and therefore the present research should act as a guide for future research, which would do well to replicate this study on more generalizable samples.

These non-significant results can also support future research by guiding how the construct of EWB in particular is both theoretically and empirically handled. Lindfors and colleagues (2006b) have suggested that evaluating EWB as a composite construct may mask underlying differential relations that each of the EWB facets may have with various work-related constructs. Unfortunately, the present study was unable to test hypotheses at the dimension level or analyze how the six component parts of EWB may have differentially related to perceived workload and, subsequently, whether any of these more targeted relationships may indeed have been moderated by resilience or work role salience.

Inability to conduct these further post-hoc analyses was due to the insufficient reliability of the personal growth dimension ($\alpha = .56$) and also some unexpected correlational patterns between some of the dimensions. In particular, there was shown to be a lack of significance in some bivariate correlations where such relations would have been theoretically expected to be significant, for instance environmental mastery was found to be unrelated to personal growth, $r = -.01$, $p = $ n.s., a relation that would have reasonably been expected to be significantly positive (see Table C.1). Nevertheless, the findings of the present research go toward supporting the theory that each of the EWB dimensions may hold differential relations with various other work-related constructs. Given that Lindfors and colleagues (2006b) have suggested that such differential relationships may indeed be likely, this is an important consideration for future research.

Finally, the relative weights analysis conducted post-hoc in order to further determine the nature of the predictor and proposed moderator variables in relation to eudaimonic and hedonic well-being did indeed yield some interesting insights into such relations. First, it is evident that the variables herein (that is, perceived workload, resilience, and work role salience) are together substantially better able to account for employees' levels of eudaimonic well-being than they are able to account for their hedonic well-being.

In regard to the prediction of eudaimonic well-being, it is also worth mentioning that resilience may be better conceptualized as a direct predictor of EWB than as a moderator of the relation between workload and EWB, at least in the present sample. The RWA concerning the outcome of hedonic well-being clearly substantiated the predictor status of workload as able to account for a substantial portion of the variance in

HWB. However, as noted previously, this finding may be sample-specific, since earlier HLM random regression coefficient analyses indicated that this finding was not in the supposed direction, and that higher perceived workloads were actually associated with increased HWB.

Nevertheless, while these contributions to R^2 are of interest and import, it is also necessary to note that, like other analytic techniques, RWA is subject to the reliability (or lack thereof) of the predictive variables, whereby unreliability of measurement tends to suppress correlations among variables and therefore may also suppress epsilon yields. Therefore, in such cases, small differences between relative weights for variables with questionable reliability should not necessarily be considered meaningful differences (Johnson, 2000).

This reliability issue is of particular import to the RWA targeting EWB, since in that analysis resilience and work role salience, both of which have somewhat questionable reliabilities, were found to be somewhat comparably predictive of EWB, approximating workload's predictive capacity of the construct. Initially this finding may lead us to consider the possibility that such variables failed as moderators because in actual fact they are better conceptualized as direct predictors. This is indeed possible, but warrants further exploration, particularly given the questionable reliability of those scales, which may have curtailed their associated epsilons reported herein.

CHAPTER 3 - Study 3

Introduction

After now having addressed in detail the positive psychological constructs of PsyCap, HWB, and EWB and how they relate to organizationally- and individually-pertinent variables such as perceived workload and work role salience, it is important to consider how organizations might act upon such knowledge and thereby leverage such information for their own benefit. Hence, Study 3 attempts to outline POB-driven interventions that organizations could implement in order to increase resilience and well-being in their employees.

These interventions are intended to be what Huppert (2009) calls "universal interventions" (p. 137). That is, it is recognized that targeting such interventions toward all individuals – as opposed to simply those who have been identified as having a problem in one or more of the areas of interest – is necessary in order to achieve the most positive results. This is also in line with the tenets of positive psychology and positive organizational behavior, which promote a focus on flourishing as prevention, versus a cure model that is inherently more focused on negativity. Nevertheless, as previously noted, constructs such as resilience and well-being are of import to employees and organizations regardless of internal or external economic status, however they are arguably even more crucial during uncertain and challenging times such as the recent recession.

When contemplating the necessity or potential impact of such interventions, an important theory to consider is the hedonic treadmill theory (Brickman & Campbell,

1971). This theory is currently being debated in the literature, and its central thesis is that

hedonic well-being in particular cannot be meaningfully altered. That is, although any

particular event or circumstance can certainly change an individual's level of felt and

reported happiness, Brickman and Campbell (1971) propose that such a change is merely

temporary and that those individuals' respective levels of happiness will eventually return

to closely approximate or even match their pre-event level of happiness (baseline).

These researchers therefore necessarily subscribe to the dynamic equilibrium

theory, more commonly known as the happiness set point theory (Headey, 2006). This

theory likewise proposes that although happiness may be temporarily altered by

environmental factors or events, each individual has an approximate level of happiness to

which they are generally accustomed and to which they will eventually revert once again.

Diener, Lucas, and Scollon (2006) refer to this proposed set point as "hedonic neutrality"

(p. 305) (although they later take issue with the concept itself, as will be described

momentarily).

Brickman, Coates, and Janoff-Bulman (1978) supported such a proposal through

their now well-known research on lottery winners and paraplegics. They found that,

although individuals tend to be extremely high on hedonic well-being or happiness

shortly after having won the lottery, in time such a sense of euphoria wanes and the

individuals return to what is now known as a happiness set point similar to the level of

happiness they felt prior to winning the lottery. Brickman and colleagues (1978) likewise

found that previously-mobile individuals who became paralyzed as a result of an accident

report very low levels of happiness shortly after paralysis. However, these researchers

found that eventually these individuals, too, return to their previous happiness set point, or thereabouts.

Obviously, these samples of lottery winners and paraplegics that Brickman and colleagues (1978) used were extreme examples, and therefore their generalizability to the rest of the human population can reasonably be questioned. In reality, bar the inevitable death of close loved ones, few individuals experience such unexpected, drastic, and everlasting changes in their life circumstances as did the individuals in these samples. Some might argue that since this was shown to be the case in these admittedly-extreme examples, shouldn't it also hold true for the typical population at large? I would argue that no, such generalizability would not necessarily be the case, and that in fact these extreme examples may have regressed in the direction of their previous happiness levels simply because the human body cannot physiologically sustain itself for extensive periods of time at such extremes of emotion.

Nevertheless, the theory itself is worth exploring, and has in fact received some increased attention in the literature as of late. The thrust of the recent interest in and criticism about these theories is that they obviously stand in stark opposition to the development of interventions and other applied projects aimed at improving such well-being. That is, why would an organization invest time and money in order to alter or improve something about their employees that would then eventually revert back to its starting point (or thereabouts)? Such a sentiment is altogether captured by Lykken and Tellegmen (1996), who argued that "it may be that trying to be happier is as futile as trying to be taller" (p. 189). If this statement, which is in line with the aforementioned

theories, is correct, designing and implementing any intervention aimed at improving employee happiness or well-being would be futile.

Thankfully, the potential utility of such interventions is supported by more recent research regarding the hedonic treadmill theory. In particular, Diener and colleagues (2006) recently proposed a five-pronged revision of the theory that argued that the construct of hedonic well-being or happiness is indeed amenable to meaningful and lasting manipulation. The five tenets of their proposed revision to the theory are as follows.

First, they propose that the happiness set point proposed by Brickman and Campbell (1971) is in fact not hedonically neutral. That is, they cite their own previous research (Diener & Diener, 1996) that reviewed various other studies and found that the majority of people appear to experience some above-neutral level of happiness most of the time. Furthermore, this finding appears to withstand cross-cultural examination (e.g., Biswas-Diener, Vittersø, & Diener, 2005). Of course, this should be tempered with the understanding that what is actually happening is that the majority of people in the world are *self-reporting to be* above neutral in happiness levels most of the time. We presume that such self-reports represent these individuals' actual happiness levels, as opposed to representing social desirability or some other such bias. However, we cannot be certain. This is a common issue in research such as this, and it will be more fully addressed in the discussion of limitations.

Second, Diener and colleagues (2006) argue that not all individuals have the same happiness set point. That is, such set points vary *across* individuals. This is largely due to the consideration that an individual's personality – which has been consistently shown

to have a substantial degree of heritability (20-45%, depending on the specific trait in question; Larsen & Buss, 2008) – will in turn predispose any given individual to experience a particular degree of well-being, since personality and well-being are highly correlated (Diener & Lucas, 1999).

Behavioral genetics studies have contributed largely to this contention that well-being may vary across individuals. Tellegen and colleagues (Tellegen, Lykken, Bouchard, Wilcox, Segal, and Rich, 1988) found that genetically identical monozygotic twins reared apart were significantly more similar in their reported levels of well-being than were dizygotic twins, who it is commonly known share no more genetic similarity than do ordinary, non-twin siblings.

Similar findings also resulted from a more extensive, longitudinal study conducted by McGue, Bacon, and Lykken (1993). These researchers administered the Multidimensional Personality Questionnaire (MPQ) at the beginning and end of a ten-year time span to 127 adult pairs of monozygotic (n = 79) and dizygotic (n = 48) twins, all of whom had been reared together. Findings indicated that both before and even after adjusting for nonshared environmental influences, monozygotic twins were significantly more similar in their reported levels of well-being than were dizygotic twins.

Third in Diener and colleagues (2006) proposed revisions to the hedonic treadmill theory is that any given individual may have more than one happiness set point. To support this contention, Diener and colleagues (2006) cite relevant research showing that well-being is not necessarily a unitary concept (Lucas, Diener, & Suh, 1996) and therefore may not be associated with only one unitary set point per individual. They cite cross-cultural research including the Victoria Quality of Life Panel Study out of Australia

(Headey & Wearing, 1989, 1992), and the multinational 1990 World Value Survey (Inglehart & Klingemann, 2000) that yielded results indicating life satisfaction to be different from positive affectivity, which in turn is separate from negative affectivity. For instance, such research found that life satisfaction can increase while positive emotions decrease.

Likewise, taking a longitudinal perspective, these researchers noted that if both positive *and* negative emotions decrease simultaneously, the resulting overall level of well-being may actually be *higher* than it may have been if both positive *and* negative emotions were both previously at higher levels. These findings are also supported by other research that found the construct of hedonic well-being to be multidimensional, the dimensions of which may a) have different biological roots (Watson & Clark, 1997), b) move independently from one another, and c) have unique relations with other constructs (e.g., Diener et al., 1999; Easterlin, 2005, as cited in Diener et al., 2006; Lent & Brown, 2008; Norrish & Vella-Brodrick, 2008).

Relatedly, again using data from the Victoria Quality of Life Panel Study, Diener and colleagues (2006) found that negative affectivity appears to be significantly more stable than does positive affectivity. This lends support to the contention that positive affectivity may be more malleable than negative affectivity, and therefore that interventions directed at improving positive affectivity may be of more value than those targeting negative affectivity – not only because they stand in consonance with the tenets of positive psychology, but also because they may indeed be more effective. Nevertheless, it also highlights the concern regarding whether any gains in positive affectivity resulting from such an intervention will endure over time. Finally, the

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abovementioned research regarding the existence and distinctiveness of various forms of well-being – and more specifically, affect – also highlights the importance of separating the positive and negative affectivity scales on measures such as the PANAS (Watson et al., 1988), which was used in the present study.

Fourth, Diener and colleagues (2006) suggest that well-being set points are amenable to change. That is, while Diener and colleagues' (2006) second proposed revision argued that set points may vary across individuals, the present revision argues that they may also vary *within* individuals. This revision stands in opposition to a body of research that suggests that well-being is in fact relatively stable (e.g., Eid & Diener, 2004), and therefore it is arguably the most important of Diener and colleagues (2006) five tenets. It is certainly the tenet most applicable to the present study. Diener and colleagues (2006) argue that much of the previous research suggesting the stability of well-being has failed to extend over sufficiently long periods of time so as to adequately test the supposition.

Diener and colleagues (2006) cite various evidence in support of their fourth tenet. To counteract the aforementioned longitudinal problem in such well-being research, Fujita and Diener (2005) tracked individuals' levels of well-being over a 17-year period. They found that although for the majority of individuals well-being remained relatively stable, some individuals' well-being levels had in fact changed significantly and, evidently, permanently. Diener and colleagues (2006) also reviewed Brickman and colleagues' (1978) data on paraplegic individuals, and found that post-paralysis these individuals were in fact statistically below mean happiness levels for the population at large.

Lucas (2007) found similar findings in that acquiring a disability lowered happiness levels and, even five-to-seven years post-onset, little adaptation had occurred. Diener and colleagues (2006) also cite cross-cultural research findings that nations with lower levels of affluence and lower human rights standards have correspondingly lower levels of well-being than do nations with higher affluence and better human rights. This all stands in contrast to Brickman and colleagues' (1978) argument in favor of a happiness set point to which all individuals will ultimately revert, regardless of their circumstances.

Fifth and finally, Diener and colleagues (2006) convincingly argue that different individuals may respond differently to the same or similar external events, with some of these individuals correspondingly and permanently altering their set points, and others reverting back to their previous set points. This contention makes intuitive sense, given our understanding of individual differences. Interestingly, however, these researchers also make the important point that how any given individual reacts to an external event (positive or negative) is largely dependent on the conditions which they normally experience. For instance, individuals who frequently experience positive life events may not appreciate one additional positive event to the extent that an individual who primarily experiences negative events would. That is, the latter individual would likely experience a greater gain in well-being as a result of the positive event than would the former individual.

The implications of Diener and colleagues' (2006) research are largely important for the present study, as the idea of a hedonic treadmill as it previously stood would be in direct opposition to the long-term utility of any intervention aimed at improving such

well-being. Nevertheless, despite the importance of Diener and colleagues (2006) work and the potential magnitude of its implications for the present study and for organizational implications in general, I would be remiss were I not to discuss other researchers' responses to the article and its propositions.

Lykken (2007), who co-authored the aforementioned 1996 article arguing that happiness is not malleable, offers one of these critiques. While he supports three of Diener and colleagues' (2006) propositions, he argues against the remaining two. One of the propositions that Lykken (2007) supports is the consideration that the happiness set point, if one exists, is probably not hedonically neutral. Lykken goes further and offers an interesting and reasonable evolutionary perspective on this issue, suggesting that our ancestors who had lower set point levels of at or below neutral may have been less likely to actively seek out or attract mates, therefore allowing our ancestors with higher set points more opportunity to reproduce, thereby increasing the set point mean within our species, presuming as he did that it has some heritable component. Therefore, relatedly, Lykken (2007) also supports Diener and colleagues' (2006) proposition that different individuals are likely to have different hedonic set points, and thus one particular level of happiness cannot be overarchingly attributed to the entire human race.

The final proposition supported by Lykken (2007) is Diener and colleagues' (2006) fifth proposition; that is, that different individuals are likely to respond differently to the same or similar external events, and that therefore individuals' corresponding (positive or negative) deviations from their personal set point will vary accordingly.

Nevertheless, Diener and colleagues (2006) were unable to convince Lykken (2007) of their propositions 3 and 4, to which Lykken offers brief objections. First, in the

case of Diener and colleagues' (2006) third proposition – that within each individual there may exist multiple set points – Lykken (2007) briefly cites the well-being scale of the MPQ, arguing that it provides an excellent and very reliable measure of individual well-being.

Finally, Lykken (2007) also objects to the fourth proposition – that well-being set points are amenable to change. This is in fact the proposition that I earlier noted as being of great import to the present study. Here, Lykken primarily criticizes Diener and colleagues (2006) for failing to offer any specific examples of individuals whose happiness set points were altered on a long-term basis. This stands in contrast to the examples offered in support of the happiness set point theory by Brickman and colleagues (1978) of lottery winners and paraplegics.

Likewise, Waterman (2007) also offers criticisms of Diener and colleagues' (2006) paper. As per the title of Waterman's critique ("On the importance of distinguishing hedonia and eudaimonia when contemplating the hedonic treadmill"), his most pressing criticism of the research was that he argues that it fails to distinguish between hedonism and eudaimonia, a criticism that he also leverages against the original hedonic treadmill theory. He suggests that the reason well-being levels change differently for different individuals might be that Diener and colleagues' (2006) measure collapses hedonia and eudaimonia into an overarching measure of well-being, and that such unexpected changes in well-being levels might be best understood if Diener and colleagues (2006) had measured and analyzed both hedonic and eudaimonic well-being as separate from one another.

As such, Waterman (2007) discusses what a *eudaimonic* treadmill might look like. He uses the example of Csikszentmihalyi's (1975, 1990) flow construct, a key dimension of which is the challenge/skill balance as discussed earlier. Waterman (2007) argues that an individual experiencing flow as resulting (at least partially) from an appropriate challenge/skill balance (high challenges, high skills) will also necessarily be experiencing eudaimonia. Nevertheless, Waterman also argues that such a state cannot be maintained with the same level of challenges. This is because as a person regularly engages in a challenging activity, he or she will generally become more capable at that activity. That is, the individual's skill level will surpass that necessary to experience flow and eudaimonia with those particular challenges, and they will then experience boredom (low challenges, high skills).

This is what Waterman (2007) suggests as the eudaimonic treadmill, which would ultimately lead to the conclusion inherent in the hedonic treadmill theory, that such well-being cannot be meaningfully changed and sustained. Nevertheless, Waterman concludes that this would be incorrect, and proposes that as long as challenges are increased in accordance with the increase in skills, one can continue to experience (flow and) eudaimonia, a process which he calls a "eudaimonic staircase" (p. 612), since the individual is striving to achieve increasingly higher levels of challenges, and would not revert back to any baseline level of eudaimonic well-being.

Waterman (2007) admits that such a staircase can only go so far and that if challenges continue to increase beyond skills, at some point the Peter Principle (Peter, 1969) will likely come into play and frustration may result. Nevertheless, Waterman (2007) emphasizes that eudaimonia is not the *attaining* of accomplishments or goals, but

is rather the very act of *striving* to attain those goals. That is, eudaimonia results more from the *process* of accomplishing than it does from the accomplishment itself. Likewise, Waterman (2007) notes that changes in eudaimonia may be more sustainable than are changes in hedonic well-being, since the staircase theory is more appropriate for an understanding of and application for eudaimonic well-being than for hedonic well-being.

Finally, it is also necessary to make mention of the issues that Bruce Headey (2006) takes with the dynamic equilibrium, or set point, theory, as he argues toward a more malleable understanding of well-being. Headey's primary findings indicated that correlations of within-individual indices of hedonic well-being tended to decrease over time, thus indicating well-being change. He found this in a variety of Western countries (Germany, England, Australia), thus pointing somewhat toward the cross-cultural relevance of the findings.

Broaden and Build Theory

The development and use of interventions is also supported by Fredrickson's (1998, 2001) broaden-and-build theory. In fact, this theory is arguably at the heart of such interventions, as it proposes, essentially, that positive emotions *can* be developed. Also at the root of the theory is Fredrickson's (1998) contention that positive emotions are evolutionarily adaptive, in that they are likely to have increased our early (and later) ancestors' probability of not only surviving themselves, but also of reproducing, thereby continuing their lineage. Fredrickson, along with many others, feel strongly about the importance of positive emotions, as evidenced by a special issue on positive emotions in

the *Journal of Positive Psychology* (see Fredrickson, 2006 for the opening editorial to this issue).

Fredrickson (1998) further explains this contention by noting that negative emotions narrow one's thoughts and subsequent actions to a very specific outcome (e.g., the fight or flight response), whereas positive emotions rather serve to expand upon the number and type of thoughts that any given individual may have, and can also subsequently widen the array of actions they might then take in response to those thoughts. This is true not only in theory, but has also been supported in laboratory studies (Fredrickson & Branigan, 2005). Thus, one of the main contentions of the broaden-and-build theory is that positive emotions expand (broaden) what Fredrickson calls *thought-action repertoires.*

Stemming from this, it is important to realize that Fredrickson also notes that the results of negative emotions can oftentimes be realized almost immediately, whereas the benefits of positive emotions often reveal themselves over a longer period of time, thus being stored as resources. Fredrickson and colleagues (Fredrickson, Brown, Cohn, Conway, & Mikels, 2005, as cited in Fredrickson & Losada, 2005; Fredrickson & Joiner, 2002) have supported this perspective that positive emotions impact our health and well-being not only in the moment (as proposed by past research, see Diener, 2000; Kahneman, 1999), but also (and perhaps more importantly) in the long-term (Fredrickson, 2001). This is further supported by research conducted by Dan Ariely (2010) and described in a recent issue of *Harvard Business Review* in his aptly-titled article, "The long-term effects of short-term emotions."

This, Fredrickson (1998) argues, is due to the fact that positive emotions build long-term personal *resources* that we can store and then utilize during various future situations in which we may need to draw upon them. These resources include the obvious, such as social support (we make more friends if we are nice), and also the less obvious, such as knowledge about our environment. The latter, however, is supported by the finding that negativity stifles exploration and openness (Fazio, Eiser, & Shook, 2004), thus closing us off to various opportunities that might enhance our knowledge about our environment and thereby be quite adaptive. Another resource that positive emotions can lead to, Fredrickson (2001) argues, is that of resilience. As I have noted in Studies 1 and 2, resilience is a crucial component of PsyCap that enables someone to bounce back from adverse or otherwise negative experiences.

This leads to yet another tenet of Fredrickson's (1998, 2001) broaden-and-build theory. That is, positive emotions have the capability not only to be beneficial in and of themselves, but can also aide in undoing any lingering effects of negative emotions. Fredrickson and colleagues have provided evidence of this *undoing hypothesis* (Fredrickson & Levenson, 1998; Fredrickson, Mancuso, Branigan, & Tugade, 2000) and have likewise suggested that the enduring nature of positive emotions surpasses the comparably fleeting nature of most negative emotions, thus enabling individuals to look at their lives in a broader, more positive context.

The final tenet of the broaden-and-build theory is that positive emotions can lead to *upward spirals*, thus leading to more positive emotions, which in turn lead to more, and so on. This is in part related and due to the aforementioned augmented resilience, which leads people to bounce back from adverse events both physically (Tugade &

Fredrickson, 2004) and psychologically, sometimes even to a point beyond their previous level, thus enhancing overall well-being (Fredrickson, 2001). Similarly, Fredrickson (2000a) found that experiencing positive emotions leads individuals to perceive more positive meaning in their life's events, but that the latter also leads to the former, thus creating a positive cycle that continually leads upward. The suggestion of this positive spiral, Fredrickson (2001) notes, can be seen as an antipode to the well-documented downward spiral that occurs in depressed individuals.

Therefore, Fredrickson's (1998, 2001) broaden-and-build theory helps us understand the mechanisms by which positive emotions are beneficial and how they might serve to enhance individuals' lives both momentarily and also on a long-term basis. It is with this in mind that we can come to further understand the benefit – necessity, even – of attempting to enhance such emotions in organizations' employees. This can be done through interventions. Since the present research will employ both resilience interventions and (hedonic and eudaimonic) well-being interventions, previous research and implementation of each is now discussed.

Psychological Capital and Resilience Interventions

Luthans and his colleagues (e.g., Luthans, Avey, et al., 2006; Luthans, Avey, & Patera, 2008; Luthans, Vogelgesang, & Lester, 2006; Luthans & Youssef, 2004; Luthans, Youssef, & Avolio, 2007) have done the vast majority of the theoretical and practical work regarding interventions aimed at developing individuals' levels of psychological capital. The term 'levels' is pluralized herein because, although the various dimensions of PsyCap have been consistently recognized as working best synergistically in that the

whole is greater than the sum of the parts, each of the four can be best developed when individually targeted. Therefore, when discussing PsyCap interventions it is necessary to discuss how each of the four proposed capacities is best developed individually. Although resilience is the only PsyCap dimension specifically targeted in the interventions herein, it is necessary to discuss all four dimensions of PsyCap, given their high correlations with one another and some of their similar characteristics, as noted in Study 1.

Hope is best developed by (logically) focusing in on the three main components of the hope capacity, namely agency, pathways, and goals, as outlined previously. Luthans, Youssef, and Avolio (2007) suggest what they call a 'personal reflection' exercise regarding PsyCap hope, in which they outline ten difficult or stressful situations and suggest asking participants how they would react to each. Specifically, what would their short-term response to the situation be, and what course(s) of action does the individual believe he or she would take in order to deal with the situation over the long-run? That is, what could he or she do to remedy the situation, including any actions that might be necessary in response to any further setbacks. Luthans and his colleagues (2007) also suggested asking participants to think about and record "the last very difficult situation you encountered at work" (p. 64), how they thought about the situation, and how they approached it with actionable steps. This goes toward personalizing the intervention for each participant, and enhances realism and applicability.

Likewise, in their one-to-three hour hope 'micro-interventions,' Luthans and colleagues (Luthans, Avey, Avolio, Norman, & Combs, 2006) first asked intervention participants to identify *and record* important goals. Goal identification should follow

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from Locke and Latham's (1990) well-supported goal-setting theory, and should therefore be both specific and challenging, but also attainable (Luthans, Youssef, & Avolio, 2007). The recording of such goals is crucial because it is likely to make them less psychologically amenable to change or abandonment. The facilitator then explains that such goals should have concrete and measurable end-points, should make use of an approach (versus avoidance) framework wherein individuals are actively moving toward desired goals, and should include sub-goals that identify smaller steps toward the ultimate goal and recognize meeting those progressive objectives. This latter goal recommendation is otherwise known simply as 'stepping' in Snyder's (2000) hope development training. Stepping is particularly helpful in that it allows participants to perceive long-term goals as tenable once they envision these larger goals as a series of smaller, more manageable steps (Luthans, Youssef, & Avolio, 2007).

Once goals are determined, the intervention must then support the identification and development of the means by which to reach said goals, which Luthans and colleagues (Luthans, Avey, et al., 2006; Luthans & Youssef, 2004; Luthans, Youssef, & Avolio, 2007) termed 'pathways.' The intervention requires that individuals uninhibitedly brainstorm as many pathways as possible to reach that goal, regardless of the pathway's practicality or realism. Participants then gather into small groups to share their goals and pathways with one another and offer suggestions to other members of the group regarding alternative pathways and the like.

Finally, the individual is asked to consider each potential pathway individually, including the viability of that pathway and the resources necessary to utilize it, thus narrowing the list to include realistic pathways only. This is consistent with Luthans and

Youssef's (2004) contention that when brainstorming ways to reach one's goals, individuals should mentally rehearse the process of achieving said goal, and should be able to visualize themselves doing so. I would also argue that the attractiveness of the pathway should also be explicitly considered, as consistent with Victor Vroom's (1964) well-known Expectancy Theory or VIE theory. Doing so may contribute to the likelihood that the individual will ultimately enact that particular means in order to achieve his or her end goal.

Exploring and identifying (within the context of a developmental intervention) how one should go about reaching one's goals is consistent with the results of research from the clinical domain, which has likewise supported enhancing hope levels through a variety of similar techniques. These interventions have succeeded via encouraging an increase in focusing on the positive rather than on the negative, and also via a focus on solution-related talk rather than problem-related talk, which supports Luthans and colleagues' focus on deriving pathways to one's goals. Likewise, Snyder (2000) has put forth that trainees should be encouraged to use imagery while developing pathways (as we would call them). That is, they should try to imagine themselves performing the necessary actions (or 'steps'), as though watching it in a movie. It is also worthwhile mentioning that Snyder (2000) encourages participants to recall past successes at similar activities (preferable) or even at dissimilar activities, both of which could also tie into the development of efficacy (whether situation-specific or global, respectively), as will be discussed later.

After one has identified the goals themselves in addition to identifying how they might realistically go about reaching those goals, it is important to consider that most

goals are also associated with obstacles. Some of these obstacles are easily foreseen, and others can blindside the goal-seeker. Thus, the final step of the hope intervention is for the participant to identify as many obstacles as possible to his or her goal by responding to the questions, "What can stop you from accomplishing your goal?" (Luthans, Avey, et al., 2006, p. 389) or "What if…?" and to then develop contingency plans to deal with such obstacles (Luthans & Jensen, 2002). Doing so is proposed to help with the goal-seeker's ability to anticipate (specific) obstacles, and thus plan for their potential (or likely, as the case may be) occurrence, and finally to overcome the obstacles and continue in successful goal pursuit (Luthans, Avey, et al., 2006). Luthans and Jensen (2002) also argue that when individuals are made explicitly aware of the potential for specific obstacles to occur, they may as a result be more likely to persist with their goal-seeking despite varied setbacks.

As in the previous step, this reflection and brainstorming is done individually, and is then replicated in small groups. The benefits of doing this in small groups, particularly when the intervention is work-targeted, is that other participants are likely to know the scope of their fellow participants' job at least to some degree and can therefore be particularly helpful in identifying obstacles (and pathways). An additional benefit of these small groups could be what Snyder (2000) has called "hope bonding," wherein individuals have (formal or informal) mentors with whom they discuss their goals, pathways, and obstacles.

Luthans and colleagues (Luthans & Jensen, 2002; Luthans & Youssef, 2004) note that part of analyzing such obstacles and the best response patterns to each is to be aware of and open to the oft necessity of what they call 're-goaling.' That is, some obstacles do

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in fact stand staunchly in the way of goals to the extent that the initial goals cannot be successfully met and therefore must be adjusted in light of the circumstances. Allowing for regoaling, Luthans and colleagues (Luthans & Jensen, 2002; Luthans & Youssef, 2004) argue, prevents individuals from becoming victims of perpetual false or unfulfilled hope.

Nevertheless, such hope development should become part of the organizational culture after the intervention in order to further encourage and instill such values within the employee. Luthans and Youssef (2004) note that, above and beyond those approaches which have already been mentioned as part of the intervention, after the intervention organizations should foster hope via preparedness and contingency planning in case of various unforeseen circumstances, by empowering employees through participative initiatives, and by managers showing confidence in their employees and believing that they will succeed. Luthans, Youssef, and Avolio (2007) suggest that organizations can further support employees' hope development by reinforcing (or rewarding) what might be called 'hopeful actions,' including goal-setting initiatives, goal accomplishment, and also by rewarding a variety of strategies by which an employee may reach the goal, thus encouraging employees to search for alternative pathways in the face of obstacles.

Nevertheless, these researchers also caution that organizations should do their best, within reasonable market constraints, to provide employees access to sufficient resources by which to attain their goals – both initial goals and also alternative pathways in the face of obstacles. This includes tangible resources such as materials and software in addition to intangible resources such as managerial and organizational support. The

latter includes organizational support of training initiatives that encourage pathways thinking in employees rather than stifling it in favor of one prescriptive path or method of doing things, implying that is the only way endorsed (and subsequently rewarded) by the organization.

An auxiliary benefit of hope development can be the simultaneous development of the *optimism* capacity of PsyCap. While there are some essential differences between the two constructs as outlined earlier, they also have some similar underlying components that can overlap at the point of intervention. Likewise, self-efficacy interventions as described next are also proposed to enhance optimism (Luthans, Avey, et al., 2006), given that the ideal of realistic optimism involves both a positive attributional style in addition to an expectancy-value orientation. Nevertheless, although Luthans, Avey, and colleagues (2006) did not outline a separate training procedure for optimism, other research has done so.

For instance, Schneider (2001) has suggested (and Luthans and Youssef, 2004, have supported) that realistic optimism can be developed by focusing on a number of strategies within the context of an intervention. One of these strategies is allowing leniency for the past, meaning that individuals should forgive themselves past failures and mistakes and learn to reframe such happenings under the guise of lessons learned. A somewhat similar strategy is appreciation for the present, wherein the intervention facilitator encourages participants to be thankful for various aspects of the life (or work life) they have at the current moment, and to not 'live in the past' or 'live in the future,' but rather to simply enjoy their present life.

Nevertheless, another strategy encourages individuals to seek opportunities for the future. This approach to developing optimism suggests that the future holds a fruitful amount of possibilities for personal and professional growth and development, and people should view it as such. Nonetheless, recall that what we are really seeking here is not necessarily unbridled optimism, which can lead to problematic consequences, but rather we are trying to develop an optimism that is both flexible and realistic. Luthans and Youssef (2004) acknowledge the importance of both of these qualifiers, but fail to suggest specific strategies whereby they may be developed.

Nevertheless, Luthans, Youssef, and Avolio (2007) offer suggestions for what they call a 'personal reflection' exercise to enhance the individual's understanding of PsyCap optimism. In this exercise, individuals are asked to recall a positive event that recently occurred in their life, and to honestly and thoroughly answer a series of questions regarding the event. An initial set of questions relates to the circumstances, causes, and outcomes of the event, and follow-up questions relate to the event as it may pertain to the future (e.g., "Do you believe that this positive event can happen again in the future?" [p. 89]). Once this is completed in regard to a positive event, individuals are asked to recall a recent negative event, and answer similar questions in regard to said event. Luthans, Youssef, and Avolio (2007) suggest that this exercise should instill in intervention participants a better understanding of both the construct of optimism itself, in addition to leading to an enhanced understanding about their personal attribution style and expectancy-value orientation as it relates to optimism. Finally, this section would be lax if it failed to recognize the contribution of Martin Seligman (1990) in forwarding the belief that optimism can be developed in his book *Learned Optimism*. In fact, in the book

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Seligman levies a major criticism against the stance taken by many churches that individuals have severely limited influence on the positive nature (or lack thereof) of their own lives.

Moving on, *efficacy* interventions are based largely on Bandura's extensive work on the construct. Bandura (1997) noted various sources from whence efficacy arises, including positive feedback, vicarious learning/modeling, social persuasion, arousal (psychological and/or physiological), and, the most important of these (Bandura, 1997; Luthans & Youssef, 2004), task mastery. In line particularly with this last source of efficacy, it is evident that the goal-setting and -pursuit aspect of the hope intervention is also applicable here (Luthans, Avey, et al., 2006), in that we set task goals, and when we master the applicable skills and subsequently meet said goals, our efficacy improves.

Therefore, goal exercises can also be used within the context of efficacy-development interventions, in addition to exercises in which the participant both experiences personal successes (whether envisioned – "imaginal" – or actual) and also simultaneously models that success for similar others in a small group. It should be noted here that in the context of an intervention it is important that everyone in a group be relatively similar (in job position, skill level, etc.), since when we see someone accomplish a task we are more likely to feel efficacious about our own ability to accomplish that same or similar task if the succeeding individual is similar to us in skills and abilities, versus when we perceive that the other individual outranks us in those areas.

It should be clear, therefore, that this is purportedly a cycle whereby achieving success at these comparably minor and/or short-term goals then increases the likelihood that participants will feel confident enough to set and accomplish more complex and/or

longer-term goals (Luthans, Avey, et al., 2006; Luthans & Youssef, 2004; Luthans, Youssef, & Avolio, 2007). Luthans, Youssef ,and Avolio (2007) offer a 'personal reflections' exercise regarding efficacy. They suggest that the individual think of a life domain in which he or she feels particularly confident and adept, and then consider all of the tasks that one must perform in that domain in order to be successful in it, and all of the skills and abilities that must be utilized. The individual is then asked to determine the most crucial and impactful three or four tasks, and then rate (on a scale of 0-100%) how confident he or she is in regard to a) 'getting by' on those tasks, b) meeting (self and others') expectations regarding those tasks, and c) excelling in those tasks.

Individuals are then asked to complete the same exercise for a domain in which they are not particularly skilled but in which they would like to improve, similarly breaking this domain into its component parts. While Luthans, Youssef, and Avolio (2007) admit that this exercise in and of itself may not enhance efficacy, it should, they argue, give individuals a better understanding of the construct and how it relates to their own lives – which is the first step in developing it further.

Finally, interventions designed to develop the PsyCap capacity of *resilience* are arguably the most set apart from interventions aimed at developing the other three capacities. Likewise, resilience-development interventions are not yet quite as developed as are the aforementioned intervention strategies for the other three capacities, and substantially more research is warranted regarding how best to develop resilience (Luthans, Vogelgesang, & Lester, 2006; Tugade & Fredrickson, 2004). Nevertheless, despite the limited empirical research on its development as of yet, the construct of resilience has nonetheless increasingly become a resource of interest. For instance, the

United States Army has recently announced plans to implement large-scale resiliency training among its soldiers (e.g., Carey, 2009).

An appropriate place to begin a discussion of resilience development is Luthans, Youssef, and Avolio's (2007) 'personal reflections' exercise designed to further enhance individuals' awareness of the construct, thereby opening them up to the possibility of subsequent development. In this exercise, individuals are asked to reflect on a number of questions regarding a) the last serious adversity they encountered (and their reaction to it, how they dealt with it, etc), b) how someone they regard highly as a mentor or role model handles adversity, c) any time they voluntarily stepped out of their comfort zone to challenge themselves. This exercise, as with the other 'personal reflections' exercises discussed in regard to the other PsyCap capacities, has been outlined solely in the context of Luthans, Youssef, and Avolio's (2007) book, and has not yet been implemented within the context of an intervention or with a live facilitator.

Nevertheless, despite the limited development of resilience interventions thus far, related research has served to guide basic intervention development. At the heart of this are the three components of resilience (asset factors, risk factors, and influence processes) discussed earlier. Masten and Reed (Masten, 2001; Masten & Reed, 2002) outline a three-pronged intervention strategy in response to these components.

For the most part, both asset and risk factors develop relatively early in life and have been purported to remain relatively stable. Nevertheless, Masten (2001) has found that these can in fact be developed by way of a) enhancing available assets and b) limiting risks. Enhancing available assets can be accomplished by expanding one's network and/or quality of social support, or, more obviously, by enhancing one's

employability via development of necessary knowledge, skills, and abilities. In other words, asset-focused strategies can focus on social capital and human capital respectively, in addition to other aspects of psychological capital (Luthans, Avey, et al., 2006; Luthans & Youssef, 2004; Luthans, Youssef, & Avolio, 2007; Luthans, Vogelgesang, & Lester, 2006; Youssef & Luthans, 2005).

The other strategy – avoiding and limiting risks – can be developed individually by taking actions such as being on time, meeting deadlines (Luthans, Avey, et al., 2006), being aware of the market if applicable, and can also be developed organizationally, or on a more macro level, via employee assistance and wellness programs, appropriate safety regulations and precautions (Luthans & Youssef, 2004), and by creating an organizational culture that is ethical and grounded in trust (Luthans, Vogelgesang, & Lester, 2006).

Nevertheless, Luthans and colleagues (Luthans, Youssef, & Avolio, 2007; Luthans, Vogelgesang, & Lester, 2006) have suggested that perhaps a more realistic strategy to managing risks is not solely to attempt to avoid them (see Masten & Reed, 2002 for this perspective), but rather to recognize their likelihood and therefore focus instead on trying to manage them. Luthans and his colleagues refer to this as more of a developmental strategy, whereby individuals would ideally perceive threats as developmental opportunities (or at least recognize and act upon that potential within the threat), therefore enhancing the changes that the individual will not only 'bounce back' but will in fact bounce back *beyond* their pre-threat position.

Luthans, Youssef, and Avolio (2007) suggest that individuals can be trained to see the developmental possibilities of threats via constructive feedback similar to that given

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in efficacy interventions, in addition to taking an inventory of their personal resources or assets which can be utilized when dealing with the threat. Which of these strategies (e.g., preventative versus developmental) is most appropriate is likely to be individual-, situation-, and/or organization-specific, and may change as circumstances (e.g., the market) change. Likewise, it is important to note that which assets and risks should be focused upon is to some extent dependent upon the nature of the job at hand as well as the individuals themselves, and therefore an ever-applicable, exhaustive list is not possible.

The third prong of Masten and Reed's (2002) resilience-development strategies focuses on process-focused strategies. In particular, the processes of self-awareness and self-regulation are hailed as integral in developing and sustaining functional coping mechanisms. Particularly important is the functionality of approach-coping (versus avoidance-coping), wherein the individual attacks the problem immediately and directly. This is related to the 'influence processes' aspect of resilience, which, similarly to the asset- and risk-focused aspects of resilience, can also be developed both organizationally and individually. On the former macro level, programs such as strategic planning initiatives are effective process-focused strategies (Luthans & Youseff, 2004).

However, more applicable to the present study, more micro-level interventions are individually-focused process strategies, which can also be developed, and which are also the aspect of resilience on which Luthans, Avey, and colleagues (2006) focused their resilience-development micro-intervention. Their strategy for developing resilience "focuses on developing and changing the participants' perception of influence through cognitive, emotional, and behavioral processes" (p. 390).

In Luthans, Avey, and colleagues (2006) intervention, the facilitator encourages participants to identify a recent setback at work and write about how they initially felt about or reacted to that setback, after which participants once again form small groups in which to discuss the issue and perceive it (and its solutions and actionable steps) in a realistic light, given that realism is at the heart of resilience.

This includes recognizing the level of control that the individual had over a) the particular situation, and b) any potential responses or remedies to the situation (emotional, cognitive, and/or behavioral). (Note that as a side benefit, this may also serve to develop both efficacy and realistic optimism.) At the heart of this influence processes resilience intervention, it enables participants to analyze their setbacks in regard to the *impact* they have on the individual, the level of *control* that the individual has over the issue, and the *options* or actionable steps that the individual then has available to respond to or deal with the setback. These three can be seen as representing the emotional, cognitive, and behavioral reaction domains as outlined previously.

Luthans, Vogelgesang, and Lester (2006) note that the previous three ways of developing PsyCap resilience (that is, asset-focused, risk-focused, and influence process- or cognitive-focused) can be seen as *proactive* attempts at preventing stressful situations from occurring and/or being perceived. Conversely, they note that it is also necessary to develop *reactive* strategies to dealing with taxing situations. They argue that this approach focuses more heavily on positive emotions in and of themselves, and argue that people may regularly need to be reminded (whether by themselves or others) to a) think positively rather than negatively, and b) find meaning in negative or stressful situations.

This should be done explicitly by intervention facilitators, and should also be done implicitly by organizational or department leaders once employees leave the context of the intervention and are back on the job (Luthans, Vogelgesang, & Lester, 2006). It is important that such a positive culture be ubiquitous and extended beyond the intervention, given that exposure to positive emotions both before and after stressful events can aid individuals in resilience development and maintenance (Fredrickson, Tugage, & Waugh, 2003).

Research has also considered whether implementing self-enhancement strategies into the reactive aspect of a resilience-development intervention may benefit resilience levels. Although most research has supported the belief that self-enhancing individuals tend to be overly positive rather than realistic (the latter of which is crucial, as mentioned earlier), some research (e.g., Bonnano, Field, Kovacevic, & Kaltman, 2002; Taylor & Brown, 1988) has found that, while this may be true, self-enhancers are also more able to cope with stressful events, tend to believe that they will ultimately be successful (thus also indicating a high sense of efficacy), and evidence greater well-being.

Overall, therefore, self-enhancing may indeed be adaptive in this regard, and therefore Luthans, Vogelgesang, and Lester (2006) suggest that it may be incorporated into resilience-development interventions, provided that it is well-managed and limited in some regard. These researchers also suggest using attribution strategies targeting loci of control – another strategy that would cross-over into optimism or hope development – whereby individuals are coached into understanding that they are the catalyst for their own behaviors and many subsequent outcomes, thereby making them more likely to act

to attain such outcomes, rather than take a more passive stance in regard to the desired end goal.

Well-Being Interventions

While interventions targeted at developing some of the PsyCap capacities (and thus overall PsyCap) are coming into their own, interventions aimed at developing well-being have been slow in coming. Therefore, relevant research to guide such interventions is scant, and, while it is reviewed and used to guide the present intervention, it stands that one of the contributions of the present study is the outline and implementation of an intervention targeted at well-being development.

One of the first researchers to attempt to increase well-being by way of an intervention – and to measure such proposed increases longitudinally – was Michael Fordyce (1977, 1983), who dealt in hedonic well-being specifically. Although all of Fordyce's seven studies used community college students as participants (versus employees within an organization), the designs of his interventions are nonetheless worthy of note. In Fordyce's (1977) first study, he implemented three separate pilot interventions (in addition to a control group), which he called the insight program, the fundamentals program, and the activities program, respectively. The *insight program* focused on educating participants about happiness, and required reading and note-taking from a relevant book, in addition to requiring participants to make a list of 'things that happy people do,' and to do at least three of them each day.

The *fundamentals program* took less of a formal instructional style than did the insight program, and participants in the fundamentals program were given more detailed

information about happiness. This included what Fordyce (1977) called the 'nifty nine,' that is, nine specific activities that participants could do daily to increase their happiness levels. These nine actions were identified via extensive research into the lifestyles and daily activities of self-reportedly happy people. They were:

"(a) spend more time socializing, (b) develop an outgoing, social personality, (c) become more active, (d) lower expectations and aspirations, (e) develop positive, optimistic thinking, (f) get better organized and plan things out, (g) eliminate negative problems (especially stop worrying), (h) become more present oriented, and (i) value happiness" (Fordyce, 1977, p. 512).

Fordyce (1977) also accompanied this list with specific and detailed instruction for participants as to how to go about implementing each of these in their daily lives. This was presumably particularly important given that some of them seem to be 'easier said than done' and could thus evoke somewhat of a hopeless attitude in participants were they left without such further guidance.

Finally, the *activities program* was less instructional and more personalized. Participants in this program were given no formal education regarding happiness or how to increase it. However, they were assigned various activities that encouraged them to think about their happiness, after which they were asked to compile a list of ten activities that tended to make them happy, and that they could take the time to do each day although they didn't at that time. Then, participants were asked to do at least three of these activities each day (somewhat similarly to participants in the first group).

Fordyce (1977) found that both the fundamentals program and the activities program produced significant improvements in happiness. The insight program produced

some such changes, but with less frequency and less strength than the other two programs. As such, Fordyce's (1977) subsequent study combined the most impactful aspects of the various pilot programs (focusing primarily on the fundamentals program) into a single program targeted at increasing happiness, called the "*14 fundamentals*" program. These 14 attitudinal and behavioral fundamentals included the nine outlined previously, in addition to the following five: Strengthen your closest relations, be a better friend, work on a healthy personality, reduce negative feelings, and become involved with meaningful work. As in the previous programs, subjects were asked to make use of each of these strategies and record their success (or lack thereof). Results indicated that this combined program produced even greater gains in happiness levels than did the previous three pilot interventions on which it was based. It is both interesting and important to note that this activity-focused intervention of Fordyce (1977) is in line with findings from others, including Cannon (2005), who identified similar activities to enhance well-being, and Sheldon and Lyubomirsky (2006), who found that hedonic well-being is most readily and sustainably improved by way of changes in one's actions and activities, as opposed to changes in one's circumstances, which tend to be less self-directed.

Fordyce (1977, 1983) then conducted a number of additional studies that again supported these findings. He also conducted a follow-up study providing evidence that the resulting gains in happiness had been largely sustained over a 9-to-18 month post-intervention period (Fordyce, 1983). Therefore, not only did Fordyce find that his interventions served to increase individual well-being, but he also found that these increases often endured for a year or more. This stands in opposition to the hedonic

treadmill theory, and goes toward supporting the meaningfulness of the present intervention.

As mentioned, research has shied away from attempting such interventions, caving to the assumption inherent in the hedonic treadmill theory that happiness cannot be meaningfully adjusted. Therefore, it was not until recently that we saw other research attempting a similar intervention. Seligman, Steen, Park, and Peterson (2005) found similar results to Fordyce (1977, 1983) in their one-week internet-based intervention.

Seligman and colleagues (2005) conducted five developmental interventions on a large scale (N = 577). The five interventions each took a different focus. One was targeted at developing gratitude by having participants write and deliver a letter of thanks to someone whom they had never properly thanked. Another intervention asked participants to list three things each evening that went well that day *and their perceived causes*. A third intervention asked participants to write about a time when they were 'at their best,' to identify the personal strengths manifest in that situation, and to review the story and reflect on said strengths daily.

Somewhat similarly, a fourth intervention administered an inventory of character strengths to participants, who then received tailored feedback regarding their five most prominent strengths. Facilitators then requested that participants employ one of their top strengths in a new way each day. Finally, the fifth intervention group was an abridged version of the latter group. Participants in this fifth group took the inventory and were given their top five strengths, but were simply told to use these strengths more often. Seligman and colleagues (2005) also included a sixth group subjected to a placebo control intervention focusing on early memories.

Seligman and colleagues (2005) found that participants assigned to the second and fourth of the abovementioned interventions (increasing positive thoughts about one's life and identifying and leveraging one's own strengths and virtues) increased their happiness over a period of six months, while the intervention focused on developing gratitude increased happiness over one month, and the neutral control group intervention had a transient effect on happiness. Therefore, like Fordyce (1977, 1983), Seligman and colleagues (2005) found that their interventions oftentimes led to enduring adjustments to an individual's happiness set point.[2]

This questioning of the hedonic treadmill theory is evident also in the goals (and also mere existence) of the counseling psychology profession, the mission statement of which states that the field should further "practices that help people improve their well-being…and increase their ability to live more highly functioning lives" (Society of Counseling Psychology, 2006, as cited in Lent & Brown, 2008). Likewise, some time ago, Super (1955) highlighted the importance that the field placed on "locating and developing personal and social resources" (p. 5). Note that the inclusion of social resources is in line with the importance of developing eudaimonic well-being as well as hedonic well-being, given Ryff's (1989) conceptualization and deconstruction of the former.

More recently, Sheldon and Lyubomirsky (2004) conducted a series of three large scale interventions with undergraduate students, and found that increases in hedonic well-

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[2] It is worthwhile noting that the gratitude intervention actually led to the largest happiness increase of all of the interventions. This is notably interesting because it was the only (non-control) intervention targeted at developing something other than positive thoughts about oneself and/or one's life. Nevertheless, such effects are somewhat neutralized by the consideration that they were comparably short-lived, as individuals in this intervention returned to their baseline levels of happiness within one month.

being can be facilitated by changes in daily activities or routines. This was particularly true when such changes incorporated performing several random acts of kindness. That is, happiness levels are more likely to be enduringly changed when the catalyst for the change is an intentional action or decision on the part of the individual, versus a life event or circumstance outside of the individual's control. In regard to the samples of intervention participants utilized in the present study, Sheldon and Lyubomirsky's (2004) findings may go toward suggesting that, particularly in the extension agent subsample, such participants may actually have somewhat high levels of baseline happiness compared to the rest of the population. This may be true not only because their job involves lots of change and varied activities rather than a monotonous routine, but also because their job involves some service to the public. While this may not be considered a 'random act of kindness,' as it is part of their job, it remains true that they are in a positively-focused job and therefore may correspondingly have higher-than-average baseline levels of happiness.[3]

This brings us to Lykken's (1999) proposed formula for happiness, which he argues consists of any given individual's happiness set point, his or her personal circumstances or events, and voluntary factors that are under the individual's control. Lyubomirsky and colleagues (Lyubomirsky, Sheldon, & Schkade, 2005) go further, giving percentages for each of these factors (50%, 10%, and 40%, respectively). It follows, then, that by addressing the third of these factors, we can increase any given individual's happiness levels. Seligman (2003) suggests that interventions aimed at

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[3] Let it be noted, however, that a directional relation should not be implied here. That is, people may derive positive emotions from their positively-focused jobs, or positive people may choose to enter into positively-focused jobs or professions. This is beyond both the scope and purpose of this study, but is worthwhile mentioning in context.

developing such well-being can be successful, a contention newly supported by some other researchers, also (e.g., Norrish & Vella-Brodrick, 2008). Specifically, Seligman (2002) suggests that this may be done by spacing rewards and enjoyable moments some time apart (thereby giving one something to which to look forward), reflecting on positive experiences, and using one's individual strengths to invest in worthwhile causes (note here the potential for eudaimonic well-being development in addition to hedonic development).

Emmons and McCullough (2003) similarly found that positive affect can be increased via interventions targeted at developing thoughts of gratitude. Recall that gratitude was one of the variables considered for inclusion within the overarching construct of PsyCap (Luthans, Youssef, & Avolio, 2007) and was also the target of one of Seligman and colleagues' (2005) interventions that was found to sustain happiness increases for a one-month period (although shorter than the six-month period for positive thoughts).

Emmons' and McCullough's (2003) findings have recently been brought into the mainstream by way of lay recognition that faithfully keeping a daily gratitude journal can increase positive thoughts about one's day and, overall, one's life. Likewise, however, it should be noted that a variety of research (e.g., Lyubomirsky, Sousa, & Dickerhoof, 2006; Pennebaker, Kiecolt-Glaser, & Glaser, 1988) has found that the act of writing about ones problems can, in and of itself, have positive long-term effects.[4] Therefore, we

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[4] It should be noted, however, that these researchers also found that, while writing about one's problems does appear to increase *positive* mood in the *long-term*, it also appears to increase *negative* mood in the *short-term*, as unpleasant circumstances may have to be relived in order for an individual to work through them. It should also be noted that Lyubomirsky and colleagues (2006) found the act of writing to be most helpful in processing negative experiences, and that writing about positive experiences may in fact not be as beneficial as reliving the experience itself.

may consider the possibility that simply writing about our feelings and experiences, whether they be positive (Seligman et al., 2005) or negative (e.g., Pennebaker et al., 1988), may serve to both enhance recognition of the positive aspects of our lives, in addition to recognizing that although there are problems in our lives we have a) the willingness to attempt to fully understand those problems, and b) the ability to develop and implement solutions to those problems.

Until this point, primarily interventions targeted at hedonic well-being have been discussed, as this is where the majority of the research on well-being interventions lies. Nevertheless, developing eudaimonic well-being is equally as important. However, as one might imagine, given the very nature of eudaimonic well-being, its development may require more action in addition to thought and analysis.

While I was unable to locate the full version of the associated paper, one of the few studies that targeted eudaimonic well-being in addition to hedonic well-being was Staudinger and Kuhbandner's (2004) intervention. Although it is warranted that we keep in mind that their intervention was targeted toward a geriatric population, their study can still yield interesting considerations for the present research. Staudinger and Kuhbandner (2004) found that participating in volunteer activities, social activities, and self-reflection all contributed to increased eudaimonic well-being, as did high levels of openness to new experiences. It is further interesting to note that Staudinger and Kuhbandner (2004) hypothesized and subsequently found that their intervention increased eudaimonic well-being even more so than it did hedonic well-being (although reasoning for such a hypothesis was based upon a theoretical reasoning specific to a geriatric population).

Lent and Brown (2008) suggested another subpopulation that might benefit from intervention, although they hesitated to make very specific or explicit recommendations, recognizing the problem of limited research. Their population of interest was employed adults who were particularly dissatisfied with their jobs. This is beyond the scope of the present research, since as mentioned previously it seems feasible that at least the extension agent subsample herein will not be job-dissatisfied and may actually have higher levels of well-being than would the general population.

Lent and Brown (2008) did note, however, that although attempting to alter personality characteristics is not a realistic goal (e.g., Brown, Ryan, and McPartland, 1996), "it may be realistic to help people understand and manage the behavioral and cognitive concomitants of their affective tendencies" (p. 17). This may include recognizing and subsequently challenging negative thoughts, focusing on more objective realities, or committing to eudaimonic development rather than exclusively hedonic happiness. In general, Lent and Brown (2008) highlight the potential importance of the social cognitive model in intervention development, and therefore that empowering individuals with a sense of agency over their own thoughts and mental foci may be a fruitful avenue toward well-being development.

In the paper in which they proposed a revision of the hedonic treadmill theory, Diener and colleagues (2006) provide a caution that some interventions targeted at developing well-being may increase individuals' levels of the construct temporarily, just as any other positive life event would, but that eventually the individual would return to his or her baseline, or set point, level of happiness. As such, the goal in designing the present series of interventions – and a benefit of their somewhat multi-point nature – is to

make the intervention not an event in and of itself, but rather a mechanism through which participating individuals can learn more positive strategies (both mental and action-oriented) by which to alter their approach to life on a long-term basis.

Nevertheless, despite this caution provided by Diener and colleagues (2006), these researchers also suggest that these baseline levels of well-being can in fact be changed, contrary to the hedonic treadmill theory to which they propose various revisions, as outlined earlier in this manuscript.

Therefore, given all of this information, hypotheses for the present study are as follows:

Hypothesis 4a: Participants in the intervention group aimed at developing resilience will have significant increases in resilience over the course of the intervention as compared to the control group.

Hypothesis 4b: Participants in the intervention group aimed at developing resilience will also experience significant increases in eudaimonic well-being over the course of the intervention, as compared to the control group.

Hypothesis 5a: Participants in the intervention group aimed at developing well-being will have significant increases in hedonic and eudaimonic well-being over the course of the intervention, as compared to the control group.

Hypothesis 5b: Participants in the intervention group aimed at developing well-being will *not* have significant increases in resilience over the course of the intervention, as compared to the control group.

Finally, after having been briefly delineated above, two of the abovementioned hypotheses warrant slightly further explanation; that is, Hypotheses 4b and 5b. Recent

research has indicated that PsyCap and its four component parts, including resilience, tends to lead to eudaimonic well-being (and its six component parts), which then in turn appears to have an effect on hedonic well-being measured as positive affectivity (Culbertson, Fullagar, & Mills, 2010). Therefore, in the present study, we can reasonably expect individuals undergoing an intervention targeting resilience to experience an associated increase in eudaimonic well-being. However, as per the direction of the effects discussed previously, would not expect those individuals undergoing an intervention targeted at developing eudaimonic and hedonic well-being to necessarily experience any meaningful increase in resilience.

Method

Participants

As in the previous studies, all participants in Study 3 gave informed consent as consistent with ethical requirements in addition to the requirements of the Kansas State University Institutional Review Board, through which the present study was approved. As consistent with the previous online surveys, informed consent information was provided on the first page of each of the survey (pre-survey *and* post-survey). Participants could not move forward to the remainder of the survey before having indicated that they had read and understood the informed consent. The informed consent for Study 3 can be seen in Appendices E and F (for the intervention groups and the control group, respectively).

There were three participant groups that partook in the intervention portion of this project. This was necessary because two of the three targeted groups yielded low levels

of participation in this aspect of the project. This lower-than-expected participation is likely due to the time-intensive nature of this portion of the study in addition to requiring substantial travel for some participants in the first (extension agent) subsample, given that such agents are dispersed throughout the state. It is also expected that the lack of an incentive in exchange for participation in this portion of the study also contributed to low participation rates for the extension agents, who had previously been offered an incentive to participate in the first portion of this study.

Therefore, as stated, one of these groups is a subsample of the extension agents in Studies 1 and 2. As previously mentioned, extension agents work in every county in the state, and those participating in the intervention are agents who work primarily in local counties approximating the intervention site. Due to lack of participants, only one intervention (the well-being intervention) was able to be employed with this participant group.

The extension agent subsample participating in the well-being intervention consisted of six agents. However, only four of these agents completed both the pre-intervention and the post-intervention surveys. Therefore, only their demographics and responses are recorded and analyzed here, given that without information from both pre- and post-intervention measures, it is not possible to calculate degree of change (if any). Of these individuals who completed both surveys, 75% (n = 3) were male, and all self-reported as Caucasian. Ages ranged from 33 to 50 ($M = 43.75$, $SD = 7.46$), and 75% (n = 3) reported being married, while 25% (n = 1) were not married but were involved in romantic relationships. 50% (n = 2) reported a bachelors degree as their highest level of education, and the other 50% (n = 2) reported holding a master's degree. They worked

an average of 47.5 hours per week ($SD = 2.89$), and had been employed as extension agents for anywhere between 5.4 to 23 years ($M = 14.35$, $SD = 8.39$).

Extension agents who did not participate in the intervention served as a subsample for a control group. Nineteen agents completed both Time 1 and Time 2 surveys for this purpose. An additional 72 agents completed *either* a Time 1 *or* a Time 2 survey, but not both, and were therefore eliminated from analysis for the reason specified previously. Of these individuals who completed both surveys, 26.3% (n = 5) were male, and 73.7% (n = 14) were female. All self-reported as Caucasian. Ages ranged from 26 to 61 ($M = 47.11$, $SD = 11.18$). Seventy-nine percent (n = 15) reported being married, while 15.8% (n = 3) were single, and 5.3% (n = 1) were not married but were involved in romantic relationships. Eighty-four percent (n = 16) held a bachelor's degree, and the remaining 15.8% (n = 3) held a master's degree. They worked an average of 46.89 hours per week ($SD = 8.99$), and had been employed as extension agents for anywhere from six months to 38.5 years ($M = 15.7$, $SD = 12.5$).

Demographics for this participant group as a whole (all extension agents participating in Study 3) are as follows. Of 23 participants in this subsample, 34.8% (n = 8) were male, and 65.2% (n = 15) were female. All self-reported as Caucasian. Ages ranged from 26 to 61 ($M = 46.50$, $SD = 10.53$). Seventy-eight percent (n = 18) were married, while 13% (n = 3) were single, and 8.7% (n = 2) were otherwise involved in romantic relationships. Seventy-eight percent (n = 16) held a bachelor's degree, and 21.7% (n = 7) had a master's degree. These participants worked an average of 47 hours per week ($SD = 8.20$), and had been employed as extension agents for anywhere from six months to 38.5 years ($M = 15.47$, $SD = 11.74$).

The second group participating in the intervention was comprised of employees of a city with a population of approximately 45,000 in the Midwest United States. This group was targeted because they were relatively similar in nature to the previous group of participants in that their jobs were publically-funded and they worked largely in service to their community. Overall, the city employs 334 individuals, 320 of whom are employed full-time. Approximately 32% of those 320 employees could be classified as white-collar workers, and approximately 65% could be classified as blue-collar workers. The remaining three-to-five percent were deemed as 'unclassifiable' by a human resources professional who worked for the city, who noted that those jobs included substantial components of both blue- and white- collar work.

Because of the wide range of jobs that the city funds, intervention participation was somewhat targeted so as to ensure some level of homogeneity within the groups. This was necessary in order to increase the chances that participants would feel comfortable interacting with one another and would be able to relate to one another's work experiences and examples. Therefore, in this group of participants, white-collar workers where invited to participate in one intervention (resilience), while blue-collar workers were invited to participate in one intervention (well-being). While true random assignment to groups would have been preferable if all possible participants had similar jobs, this type of assignment of worker type to intervention group was arbitrary and was based solely upon the need to have some homogeneity of participant jobs within groups, such homogeneity is required simply by the nature of the intervention, which asks that participants discuss work experiences with others who have some reasonable understanding of their job duties.

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City employees participating in the resilience intervention included five individuals. However, only four of these participants completed both the pre-intervention and the post-intervention surveys. Therefore, only their demographics and responses are recorded and analyzed here. Of these individuals who completed both surveys, 50% (n = 2) were male, and all self-reported as Caucasian. Ages ranged from 31 to 54 (M = 41.25, SD = 11.53), and 75% (n = 3) reported being married, while 25% (n = 1) were single. Twenty-five percent (n = 1) had some college education (but no degree), 50% (n = 2) had a bachelors degree, and while the remaining 25% (n = 2) held a master's degree. They worked an average of 42.75 hours per week (SD = 4.86), and had been employed in their current position with the City for anywhere from 4.0 to 18.7 years (M = 7.83, SD = 7.25).

City employees taking part in the well-being intervention consisted of six participants. However, only four of these individuals completed both the pre-intervention and the post-intervention surveys. Therefore, only their demographics and responses are recorded and analyzed here. Of these individuals who completed both surveys, 75% (n = 3) were male, and all self-reported as Caucasian. Ages ranged from 43 to 62 (M = 51.75, SD = 7.85), and 75% (n = 3) reported being married, while 25% (n = 1) were not married but were involved in romantic relationships. Twenty-five percent (n = 1) had an associate's degree, another 25% (n = 1) had a bachelors degree, and the remaining 50% (n = 2) held master's degrees. They all reported working 40 hour workweeks, and had been employed in their current position by the City for anywhere between 3.3 to 8.9 years (M = 6.18, SD = 2.70).

City employees who did not participate in the intervention served as a subsample for a control group. Twenty-three agents completed both Time 1 and Time 2 surveys for

this purpose. An additional 30 City employees completed *either* a Time 1 *or* a Time 2

survey, but not both, and were therefore eliminated from analysis. Of those individuals

in this subsample who completed both surveys, 56.5% (n = 13) were male, and 43.5% (n

= 10) were female. All self-reported as Caucasian. Ages ranged from 24 to 63 (*M* =

42.61, *SD* = 11.62). Seventy percent (n = 14) were married, while 21.7% (n = 5) were

otherwise involved in romantic relationships, and 17.4% (n = 4) were single. Nine

percent (n = 2) of these participants had a high school diploma or the equivalent (e.g., a

GED), 34.8% (n = 8) had some college education (but no degree), 17.4% (n = 4) held an

associate's degree, 84.2% (n = 16) held a bachelor's degree, and the remaining 15.8% (n

= 3) held a master's degree. They worked an average of 42 hours per week (*SD* = 4.35),

and had been employed by the City in their current positions for anywhere from three

months to 36.5 years (*M* = 9.65, *SD* = 9.17).

Demographics for this participant group as a whole (all City employees

participating in Study 3) are as follows. Of 31 participants in this subsample, 58.1% (n =

18) were male, and 41.9% (n = 13) were female. All self-reported as Caucasian. Ages

ranged from 24 to 63 (*M* = 43.61, *SD* = 11.35). Sixty-five and one-half percent (n = 20)

were married, 16.1% (n = 5) were single, and 19.4% (n = 6) were otherwise involved in

romantic relationships. Six and one-half percent (n = 2) of these participants had a high

school diploma or the equivalent as their highest level of education, 29.0% (n = 9) had

some college education (but no degree), 16.1% (n = 5) held an associate's degree, 32.3%

(n = 10) held a bachelor's degree, and the remaining 16.1% (n = 5) held a master's

degree. These participants worked an average of 41.84 hours per week (*SD* = 4.10), and

had been employed by the City for anywhere from three months to 36.5 years ($M = 8.97$, $SD = 8.32$).

The third group participating in these interventions was comprised of undergraduate psychology students. Seventy-six and one-half percent of these students worked, and therefore these participants were asked to partake in the interventions while keeping their current job in mind. Likewise, they were instructed to answer the surveys in regard to their jobs. Those 23.5% (n = 8) of participants who were not employed were instructed think of past jobs they have held for the purposes of the intervention examples and experiences, and were also instructed to consider school as their job for the purposes of the survey.[5]

This third group of participants were drawn from three psychology courses, and therefore this sample is represented in each of the three intervention groups; resilience, well-being, and control. Demographics for each are discussed in turn, followed by a brief note regarding the overall demographics of this participant group. As with the previous subsamples, those who did not complete surveys at both time periods were eliminated from analysis. For this student sample, that amounted to eight individuals.

The undergraduate student sample participating in the resilience intervention can be described as follows. Of 15 original participants, only 14 are represented here, as the additional participant had completed only one of the two surveys. Of those eligible participants, 64.3% (n = 9) were female, while 35.7% (n = 5) were male. Seventy nine percent (n = 11) characterized themselves as Caucasian, while 7.1% (n = 1) identified as

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[5] Note that while this is somewhat inconsistent, focusing on a job was necessary in order to contribute during the intervention, while the nature of the survey required that the participant focus on a *current* 'job,' since the goal of its multiple administrations was to measure change.

Hispanic, 7.1% as African American, and 7.1% as 'other.' Ages of participants ranged

from 19 to 48, ($M = 26.5$, $SD = 9.68$). Thirty-six percent (n = 5) reported being single,

with the same percentage also reporting being in a relationship but not married. Twenty-

nine percent (n = 4) were married. Eighty-six percent of this sub-sample was employed,

with 14.3% (n = 2) employed in the restaurant industry, the same percentage employed as

Certified Nursing Assistants, or CNAs, and 50% (n = 7) reporting employment lying

outside of the abovementioned categories. Fourteen percent (n = 2) reported being

unemployed, and one participant failed to respond to this question.

The undergraduate sample participating in the well-being intervention can be

characterized by the following demographics. Of the nine eligible participants (an

additional two individuals completed only one of the surveys and therefore are not

included in the analyses herein), 77.8% (n = 7) were female, while 22.2% (n = 2) were

male. 88.9% (n = 8) characterized themselves as Caucasian, while only one individual

(11.1%) identified him or herself to be Hispanic. No other races were evident in this sub-

sample. Ages of participants ranged from 17 to 25 ($M = 20.0$, $SD = 2.69$). Seventy-eight

(n = 7) of participants were single, while 22.2% (n = 2) were in a relationship but not

married. No one in this sample reported being wed. Fifty-six percent (n = 5) of this sub-

sample reported being employed, with 22.2% (n = 2) employed in the restaurant industry.

Two individuals (22.2%) failed to respond to this question.

Finally, the undergraduate student sample that completed the surveys alone and

did not participate in any type of an intervention – that is, they were part of the control

group – can be characterized as follows. There were 11 participants in this group that

completed both Time 1 and Time 2 surveys (an additional five participants completed

only one of the surveys and therefore their data is not included herein). Of these, 90.9% (n = 10) were female, with only 9.1% (n = 1) being male. Seventy-three percent (n = 8) characterized themselves as Caucasian, while 18.2% (n = 2) identified as Hispanic, and 9.1% (n = 1) as African American. Ages of participants ranged from 18 to 23 (*M* = 20.18, *SD* = 1.47). Sixty-four percent (n = 7) reported being single, 27.3% (n = 3) were in romantic relationships but not married, and 9.1% (n = 1) reported being married. Eighty-two percent (n = 9) of this sub-sample was employed, with 27.3% (n = 3) employed in the restaurant industry, 36.4% (n = 4) employed as Certified Nursing Assistants, 9.1% (n = 1) employed in childcare, and 9.1% (n = 1) employed in jobs that could not be categorized into one of the aforementioned categories.

Demographics for this participant group as a whole (the undergraduate student samples; n = 34) are as follows. Seventy-seven percent (n = 26) were female, while 23.5% (n = 8) were male. Seventy-nine percent (n = 27) characterized themselves as Caucasian, while 11.8% (n = 4) identified themselves as Hispanic, 5.9% (n = 2) identified themselves as African American, and 2.9% (n = 1) identified him or herself as 'Other.' Ages of participants in this undergraduate sample ranged from 17 to 48, with a mean age of 22.74 (SD = 7.04) and a mode age of 19 years (n = 8). The majority of the sample (55.9%; n = 19) reported being single, followed by 29.4% (n = 10) who reported being involved in romantic relationships but not married, followed by 14.7% (n = 5) who reported that they were married. As previously noted, 76.5% (n = 23) of this student sample reported being simultaneously employed, with 20.6% (n = 7) reporting jobs in the restaurant industry, 17.6% (n = 6) reporting jobs as a CNA, or Certified Nursing Assistant, 2.9% (n = 1) employed in the childcare industry, and 26.5% (n = 9) employed

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in other types of jobs that did not fit neatly into one of the above categories (e.g., insurance adjuster). Three individuals left the question about employment blank.

Demographics for each of the intervention groups (subsamples combined) follow. While ideally subsample groups could have been analyzed separately or t-tests would have first been conducted between groups prior to combining them (in order to determine whether differences between the groups existed), such a step was impractical here given the small subsample sizes which may have resulted in evident but relatively meaningless differences. Therefore, the groups were combined, however sample source was controlled for in analyses. Demographics for each are as follows.

Overall, 20 participants took part in the resilience interventions. However, only 18 of these participants completed both the pre-intervention and the post-intervention surveys in addition to attending their respective intervention session. Therefore, theirs are the only demographics and responses recorded and analyzed here. Of these individuals, 77.8% (n = 14) were undergraduates, and 22.2% (n = 4) were employed by the City. Due to low participation rates in Study 3 by extension agents, no extension agents were assigned to resilience interventions. Of all participants in the resilience interventions, 38.9% (n = 7) were male, and 61.1% (n = 11) were female. Eighty-three percent (n = 15) self-reported as Caucasian, 5.6% (n = 1) as African-American, 5.6% (n = 1) as Hispanic, and 5.6% (n = 1) as 'other.' Ages ranged from 19 to 54 ($M = 29.78$, $SD = 11.61$). Forty percent (n = 7) were married, 33.3% (n = 6) were single, and 27.8% (n = 5) were not married but were otherwise involved in a romantic relationship.

Overall, 23 participants took part in the well-being interventions. However, only 17 of these participants completed both the pre-intervention and the post-intervention

surveys in addition to attending their respective intervention session. Therefore, theirs are the only demographics and responses recorded and analyzed here. Of these individuals, 52.9% (n = 9) were undergraduates, 23.5% (n = 4) were extension agents, and 23.5% (n = 4) were employed by the City. Of all participants in the well-being interventions, 47.1% (n = 8) were male, and 52.9% (n = 9) were female. Ninety-four percent (n = 16) self-reported as Caucasian, and 5.9% (n = 1) was Hispanic. Ages ranged from 17 to 62 (M = 33.06, SD = 15.41). Thirty-five percent (n = 6) were married, 41.2% (n = 7) were single, and 23.5% (n = 4) were not married but were otherwise involved in a romantic relationship. Those participants employed as extension agents and City workers that partook in the well-being intervention worked an average of 43.75 hours per week (SD = 4.43), and had been employed by their respective organization for anywhere between 3.3 and 23 years (M = 10.26, SD = 7.24).

Demographics for the control group are as follows. Again, these individuals in the control group (n = 53) completed both Time 1 and Time 2 surveys, but did not undergo any sort of intervention in between those two survey administrations. An additional 107 participants completed *either* the Time 1 *or* the Time 2 survey for the control group, but not both, and were therefore excluded from analysis. Therefore, the following demographics and analyses represent only those individuals (n = 53) who completed surveys at *both* Time 1 *and* Time 2, in order to allow for sufficient comparison and measures of (potential) change. Of these individuals, 20.8% (n = 11) were undergraduates, 35.8% (n = 19) were extension agents, and 43.4% (n = 23) were employed by the City. Of all participants in this control group, 35.8% (n = 19) were male, and 64.2% (n = 34) were female. Ninety-four percent (n = 50) self-reported as

Caucasian, 3.8% (n = 2) as Hispanic, and 1.9% (n = 1) as African American. Ages

ranged from 18 to 63 (M = 39.42, SD = 14.34). Fifty-seven percent (n = 30) were

married, 26.4% (n = 14) were single, and 17.0% (n = 9) were not married but were

otherwise involved in a romantic relationship. Those participants employed as extension

agents and City workers that were part of the control group reported working an average

of 44.21 hours per week (SD = 7.19), and had been employed by their respective

organization for anywhere between three months and 38.5 years (M = 12.39, SD = 11.09).

As a whole, participants in Study 3 can be characterized by the following

demographics. Two hundred and three participants completed at least one of the surveys

associated with Study 3. However, those participants who did not complete both surveys

were eliminated from analyses, as their inclusion would have prevented the measurement

of accurate change between administration times. Therefore, the final sample size for

Study 3 was N = 88. Thirty-nine percent (n = 34) were undergraduates, 26.1% (n = 23)

were extension agents, and 35.2% (n = 31) were employed by the City. Of all

participants in Study 3, 38.6% (n = 34) were male, and 61.4% (n = 54) were female.

Ninety-two percent (n = 81) self-reported as Caucasian, 4.5% (n = 4) as Hispanic, 2.3%

(n = 2) as African-American, and 1.1% (n = 1) as 'other.' Ages ranged from 17 to 63 (M

= 36.18, SD = 14.48). Forty-nine percent (n = 43) of participants were married, 30.7% (n

= 27) were single, and 20.5% (n = 18) were not married but were otherwise involved in a

romantic relationship. Those participants employed as extension agents and City workers

that partook in various aspects of this study reported working an average of 44.04 hours

per week (SD = 6.64), and had been employed by their respective organization for

anywhere between three months and 38.5 years (M = 11.74, SD = 10.34).

Procedure

Intervention Design

Each intervention was conducted in small group sessions. Participants were blinded to the study design and were therefore unaware of the particular target construct of their intervention, or that there was another ongoing intervention aimed at targeting an alternate construct. Most previous developmental interventions (e.g., Luthans, Avey, et al., 2006) have utilized a one-time intensive intervention. However, the present intervention utilized multiple time points in hopes of encouraging more enduring changes in resilience and well-being. Although practical restrictions put in place by the participating organizations in addition to the workloads and availability of participants required that only one face-to-face meeting could take place, the present interventions deviate from previous one-time interventions in that participants are presented with follow-up information and exercises via e-mail in the days following the intervention meeting.

Another way in which the present interventions deviate from some previous research is the in-person nature of the intervention. While some past interventions (e.g., Fordyce, 1977, 1983; Luthans, Avey, et al., 2006) have indeed been conducted in-person, others (e.g., Luthans, Avey, & Patera, 2008; Seligman, et al., 2005) have been conducted over the internet. The present intervention was conducted in-person, in hopes that the human interaction inherent in such a situation served to further increase the interventions' effectiveness. Nevertheless, the nature of extension agents' and city employees' work in particular (subsamples 1 and 2) may prove somewhat problematic for an in-person

intervention, in that, regardless of supervisor and agency support of the intervention, these participants' respective workloads would not change. Therefore, I was forced to consider whether having to devote several hours to participate in this intervention would only serve to increase the participants' stress levels (work-related and otherwise). However, it is for this reason in particular that I felt as though an online intervention would be inappropriate, since otherwise-busy participants (particularly extension agents) may feel as though they lack sufficient time to sit down at the computer and fully engage in and thoughtfully process such an online intervention.

As previously stated, participants were divided into three groups: A PsyCap-resilience group, a well-being group, and a control group. Each of these is described in greater detail as follows. It should be noted that both the resilience and well-being interventions can be seen as being comprised of three overarching component parts: Education (about the constructs themselves – e.g., definitions, examples), reflection (about the nature and extent of the construct in one's past and present life as evidenced by example situations), and action-taking steps (targeting actions that the individual participants can take and/or changes that they can make to their lives that will positive impact their felt levels of these constructs).

Intervention Groups

Intervention: Resilience

One of the three interventions focused on developing the PsyCap dimension of resilience, the only dimension of PsyCap that has not been the subject of many developmental interventions. In fact, various researchers (e.g., Luthans, Vogelgesang, &

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Lester, 2006; Tugade & Fredrickson, 2004) note that information on resilience

development is severely lacking (and, where it does exist, it is fragmented and

disjointed), and that this is a gap in both the literature and actual practice that needs

mending. The present study attempts to contribute toward filling this gap.

This resilience intervention group pieced together previous attempts at tapping

this construct and expanding on it as a valuable personal resource. The intervention

began with a version of Luthans, Youssef, and Avolio's (2007) personal reflections

exercise described earlier. However, making use of the in-person nature of the present

intervention, said exercise was now able to be facilitated, including follow-up questions,

group participation, and the like. Following that the intervention melded the most

successful elements of previous resilience interventions into a cohesive intervention with

the intent that it would be more impactful than previous such attempts that lacked such

consideration of other interventions.

What has been termed a 'reactive' focus by Luthans, Vogelgesang, and Lester

(2006) was incorporated throughout the entire intervention. Again, this approach focuses

more heavily on positive emotions in and of themselves, and how we can leverage such

emotions to help us cope with (and 'bounce back' from) adverse situations. However, the

most adaptive and sustainable results can be yielded when training in such reactivity is

conducted not in isolation from (or without regard for) a proactive focus, but rather in

conjunction with it. That is, the two best function as a synergistic dyad.

Therefore, this reactive focus is one of two prongs employed throughout the

intervention. The other prong, that of proactivity, focuses on the three components of

resilience outlined previously. While the reactive focus spanned the entirety of the

intervention and follow-ups, each of the 3 proactive prongs were addressed in turn during the intervention.

After completion of the activity mentioned earlier, the intervention continued with a focus on the proactive prong of identifying assets and strengths. Each participant completed this individually, after which the group participated as a whole and individuals were asked to share their strengths with the group. This allowed participants to hear others' self-reported strengths, giving them the opportunity to adopt such strengths into their own repertoire of assets. Thereby, individuals could come away from the exercise with a more extensive list of personal assets and resources.

Once these assets had been identified, individuals were then asked to consider how they might best leverage those assets for the highest personal and professional gain. For instance, have some assets heretofore been overlooked or underutilized? What steps can be taken to remedy that situation and to make use of our reserve assets? After this was done individually, again group sharing and discussion was encouraged, under the theory that hearing others' action plans for leveraging resources would hopefully lead others to adopt additional plans that they had not previously considered. Likewise, this group aspect of the exercise had the capacity to provide a mentoring component for participants who themselves felt unable to develop an action plan for leveraging their resources.

The intervention then turned to a focus on the second proactive prong - that of avoiding and limiting risks. The structure of this second focus proceeded much the same as the structure of the first. That is, it included individual brainstorming followed by a facilitated and guided group discussion. It also included a discussion not only about how

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risks might be avoided and also managed, but the facilitator also encouraged participants to recognize the opportunities inherent in many risky situations. The expectation is that facilitated group discussion on that issue would then further engrain that possibility into participants' minds, and would encourage them to look for it in their future encounters with adversity.

The final aspect of the intervention focused on the third proactive prong, that which is process- and cognition-focused. Individuals were asked to respond to a series of questions based loosely on Luthans, Youssef, and Avolio's (2007) aforementioned personal reflections exercise. For instance, in general, participants were asked to think of past work situations or problems that they had encountered, review how the situation turned out, and then replay the situation considering what they could have done to better cope with the problem, and how those actions may have changed the outcome of the situation. Specifically in regard to the present, participants were asked to imagine things that could 'go wrong' on current projects on which they are presently working, big or small. They were then asked what strategies they would take in order to overcome the problem. They were then told to imagine that their solution had failed, and to develop one or more alternate solutions to the problem.

After completion of such exercises, a group discussion ensued categorizing coping methods and examples into approach- and avoidance- based coping. These two coping methods were also described in and of themselves, and through facilitated discussion the benefits of the former (versus the latter) were highlighted. Individuals were asked to return to the exercise they completed earlier and think of times when they used avoidance-based coping methods, and how they could have employed approach-

based methods in that situation more effectively, and how the outcome may have differed if they had. This cognition-focused aspect of the session also attempted to expand individuals' perceptions of influence by both example situations and also self-enhancement strategies, the latter of which have heretofore been overlooked in much research and practice but which some research (e.g., Taylor & Brown, 1988) has suggested might be functional when used carefully and realistically.

Again, it is important to keep in mind that a 'reactive' focus on the benefits of positive emotions was employed throughout the entire intervention, and included very basic instruction on the benefits of positive emotions as well as a focus on positive-speak throughout. The intervention closed with a review of reactivity and the three prongs of proactivity, in addition to an overview discussion on what was learned. Participants were encouraged to continue employing what they have learned in their everyday lives, both at work and otherwise.

The intervention facilitator remained in e-mail contact with the participants for one week after the close of the in-person intervention. Such contact included reminders as to the nature of resilience and its importance in participants' everyday and work lives, in addition to providing participants with information on work-related resources available to them that could aide them in resilience strategies when dealing with current or future problems at work. Such information had been provided by the employers at my request, and was included in e-mail follow-ups in the form of attachments.

Intervention: Well-Being

The second of the three intervention groups was targeted at developing well-being. As previously noted, there is some controversy in the research regarding whether or not well-being can be meaningfully developed. Theories such as the hedonic treadmill theory (Brickman & Campbell, 1971) suggest that any change in (hedonic) well-being is merely temporary and that individuals will always regress back toward their happiness set point. However, the present intervention attempts to challenge this theory through the ideas set forth by Broaden and Build Theory (Fredrickson, 1998), as previously discussed.

This well-being intervention group was targeted at developing both hedonic and eudaimonic well-being simultaneously. Although well-being interventions are scarce, as previously mentioned, and although any agreement as to their structure is even rarer, the present intervention attempted to integrate best practices from across interventions in addition to new foci for activities and discussion points. This is particularly true when addressing eudaimonic well-being, which heretofore has been put aside in favor of hedonic well-being as the focus of any well-being interventions.

Similar to the resilience intervention, the well-being intervention had several distinct foci: a) action-taking steps, b) positive thoughts and reflection, and c) a eudaimonic (developmental) focus. The intervention began with a very brief introduction about the nature of well-being, including definitional and practical distinctions to be drawn between hedonic and eudaimonic conceptualizations of the construct. This is included for purposes of participant background knowledge and understanding, but is

limited as suggested by the relative failure of Fordyce's (1977) 'insight' well-being intervention, which involved an extensive instructional component.

After the group had an awareness of the construct of well-being and its constituent parts, the facilitator incited discussion regarding the nature of well-being in participants' lives. This discussion was designed to begin relatively open-ended, but the facilitator then directed it into a discussion of various activities that are associated with increased well-being for each participant, with a particular focus on such activities in the workplace. As part of this, the facilitator incorporated Fordyce's (1977) suggestion of the '14 fundamental' activities found to increase hedonic well-being.

However, the facilitator omitted a discussion and suggestion of Fordyce's (1977) activity of 'lowering expectations and aspirations.' This is because, while Fordyce (1977) focused solely on hedonic well-being, the present researcher believes that this particular 'lowering expectations…' activity may actually serve to limit or bound the experience of *eudaimonic* well-being. Therefore, since the goal of the current intervention was to positively affect *both* hedonic and eudaimonic well-being, versus Fordyce's (1977) goal of affecting hedonic well-being alone, this activity suggestion was eliminated in the present intervention, although participants were encouraged to be *realistic* about their expectations. Nevertheless, this discussion of the other 13 fundamental activities flows logically into a discussion about the importance of positive thoughts and emotions, and how participants can empower themselves with a sense of agency regarding not only their actions, but also their momentary thoughts.

Finally, the facilitator turned the discussion toward a focus on eudaimonic well-being, and the nature of that construct in participants' work lives. Participants were

asked to think about their own strengths and how they can channel those into actions that will ultimately increase their eudaimonic well-being. The facilitator asked for examples from participants' past experiences as well as the present, with a focus on steering participants toward work-related examples.

Participants were then asked to make a list of activities that they currently do or have done in the past that have increased their levels of felt happiness, or hedonic well-being, and also a similar list for eudaimonic well-being. A facilitated discussion of participants' lists ensued, with the goal that such a discussion would hopefully lead individuals not only to realize additional action plans for the activities they had listed, but also to recognize and adopt additional potential activities from others' lists. Participants also discussed how their lists matched with (or deviated from) Fordyce's (1977) '14 fundamentals' (which now consisted of 13 activities, as previously mentioned), and the facilitator also discussed various types of activities that may increase well-being. These included suggesting to participants that they might consider becoming more open to novel experiences and trying new activities or becoming more familiar with aspects of the jobs of others with whom they work, in addition to initiating or expanding upon their social activities and volunteer activities in particular, including performing random acts of kindness both in- and outside of the workplace.

These latter activities naturally lead into a discussion of eudaimonic well-being in that they indicated actions taken to better the world around you by utilizing one's capabilities in order to make a positive contribution. As such, participants were then encouraged to channel their resources toward increasing eudaimonic well-being in addition to solely hedonic well-being. Doing this is arguably less appealing to many

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individuals, since a focus on eudaimonic well-being generally requires more of a long-term outlook and commitment than does a focus on hedonic well-being. (An example is education, which requires several years of cognitive, financial, emotional and sometimes physical exertion prior to yielding its ultimate reward, which includes a eudaimonic sense of accomplishment, fulfillment, and success.) That said, participants were encouraged to invest in worthwhile causes contributing to a sense of fulfillment and positive contribution. This includes investing in oneself in addition to investing in other causes of importance to the individual (e.g., volunteer activities).

Finally, the importance of positive cognition was reiterated, and some suggestions for managing it were given and discussed, including requests for examples from the group. Participants were encouraged to reflect on positive experiences in both their past and present, and to envision (realistically) positive events occurring in their future. The facilitator also encouraged participants to recognize and challenge negative thoughts rather than suppressing them.

Follow-up e-mails to participants encouraged them to continue with more exercises designed to increase both their hedonic and eudaimonic well-being. First, as a follow-up to the list that participants completed during the meeting (which asked participants to list things that they currently or have previously done to increase well-being), they were then requested to make lists of things that they could *start* doing that would increase both areas of well-being. For eudaimonic well-being, participants were asked to make both a short-term list in addition to a long-term list, since such a distinction seems necessary due to the nature of the construct. Participants were encouraged to make these latter lists challenging and yet realistic, so as not to incite

disappointment (and therefore possibly have the opposite effect of lessening well-being). Worksheets were distributed on which participants could make their lists, both for convenience and also to serve as a reminder to complete the assignment.

Likewise, participants were encouraged to begin keeping a personal journal targeted toward such positive cognitions, including the possibility of listing five positive things that happened each day. The purpose of the journal was not only to help participants reflect on and replay positive experiences, but was also expected to lead the participant to seek out and recognize positive experiences throughout the day that they otherwise may have overlooked. Participants were also encouraged to notate negative experiences in their journal, but were encouraged to challenge their negative cognitions about that event in their journal, thereby employing a sense of agency over their thoughts and perhaps even over their actions if they journal regarding positive actions that they could take to mitigate the negative effects of the experience or event. Worksheets were distributed on which participants were asked to list the aforementioned five positive things daily.

Nevertheless, participants were asked to reflect on last week's journaling assignment, including whether participants recognized themselves looking for positive experiences throughout the day, and whether they felt it helped them manage their negative cognitions. That said, it was crucial for the participant to realize that the goal is not to negate such negative cognitions, but rather to examine them and mitigate their impact, for as Held (2004) rightly notes, overlooking negative emotions can be dysfunctional, as they are a natural aspect of life. Therefore, the present intervention

suggested that such emotions not be overlooked, but rather recognized and functionally dealt with.

An e-mail was also distributed to participants including information as to work-related resources that participants could opt to access either at the present time or in the future. Such resources included an employer-sponsored wellness program, and employee assistance program, and information on tuition reimbursement. Participants were reminded that resources such as these may be very beneficial in targeting specific aspects of both hedonic and eudaimonic well-being as discussed in the intervention and as recounted in an earlier follow-up e-mail, and may aide them in reaching their well-being targets that they outlined during the in-person intervention.

A final e-mail encouraged participants to continue acting on both the hedonic and eudaimonic well-being activities and goals they discovered at the beginning of the intervention, and were also encouraged to continue managing negative and enhancing positive cognitions, for instance through the journaling exercise.

Intervention: Control

Finally, the third of the three intervention groups served as a control group, as suggested by past research (e.g., Fordyce, 1977, 1983; Luthans, Avey, et al., 2006). That is, no work attempting to enhance either resilience or well-being was done with this group. The challenge, then, was to find a task or idea on which to focus with this group that is unlikely to result in (positive *or* negative) changes in either of these constructs, in addition to associated constructs (e.g., gratefulness), the development of which may in turn indirectly enhance resilience and/or well-being.

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Recognizing this issue to some degree, some researchers (e.g., Luthans, Vogelgesang, & Lester, 2006) have suggested employing a team-building exercise as the focus of a control group. However, the present researcher was suspicious of this focus, and questioned whether it too might suffer from the aforementioned problem. That is, I foresaw a team-building exercise as potentially building social resources or social support, which previous research (e.g., Luthans, Youssef, & Avolio, 2007) has suggested may be a great contributor to resilience. Likewise, social support and positive relations with others can also contribute toward well-being. This is particularly true when we look at Ryff's (1989) conceptualization of eudaimonic well-being, in which she includes the dimension 'positive social relations,' or 'positive relations with others.'

Another issue with employing a control group is the practical problem of whether an organization would agree to sacrifice employees to any intervention that was expected to have no substantial measurable beneficial outcomes for either the employee or the organization. Relatedly, the likelihood that employees would agree to sign up for a time-intensive intervention in which they had a 33% chance of being in a control group versus a positively-oriented group was believed to be relatively low, particularly considering that participation was low overall. Likewise, one is forced to wonder if employees who, after the in-person intervention session, suspected they were in the control group, would continue to participate in any e-mail follow-ups and the second survey.

Therefore, given these issues, the control group for Study 3 was simply a subset of employees from the aforementioned organizations. Control group participants were comparable to participants in the resilience and well-being interventions in terms of job title and other demographics. While this arrangement was admittedly not ideal, it posed

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less problems, both practically and theoretically, than did the alternative option of having a control group as another intervention group.

Materials

Participants in all three intervention groups were administered both pre-tests (before the intervention) and post-tests (after the intervention). All measures for participants participating through their organizations were administered in a secure online format. All measures for student participants were administered in paper-and-pencil format. Measurement equivalence for online and paper-and-pencil formatted surveys was recently established in a large-scale ($N = 52,461$), multi-national (16 countries) study by De Beuckelaer and Lievens (2009).

All participants were administered the same surveys. As previously mentioned, each participant completed one pre-test and one post-test before and after the intervention, respectively. These surveys were identical (bar two open-ended questions present on post-test only for only the intervention groups) and each included the following measures:

Resilience was measured by way of two separate measurement instruments. First, in order to remain consistent with the previous survey administrations, it will once again be measured using the resilience subscale (six items) of the Luthans and colleagues (2007) PsyCap measure. The entire 24-item PsyCap scale was administered, per the scale usage conditions outlined by the authors. However, because of the questionable reliability of the PsyCap resilience dimension indicated in Study 1, in these subsequent

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administrations resilience was also be measured using Wagnild and Young's (1993) Resilience Scale (RS).

Wagnild and Young's (1993) scale is in fact the older, more well-established resilience scale on which Luthans and colleagues (2007) based their PsyCap resilience subscale. The full version of Wagnild and Young's (1993) scale consists of 26 items, and the more parsimonious version used in the present study is comprised of 14 items (RS-14). Response options are presented on a seven-point Likert scale anchored by 1 (*strongly disagree*) and 7 (*strongly agree*), with 4 allowing for a *neutral* response. Substantial research has supported both the reliability and validity of Wagnild and Young's (1993) scale (e.g., Wagnild & Young, 1993; Wagnild, 2009; Wilks, 2008).

Eudaimonic well-being was measured using the Psychological Well-Being Scale (Ryff, 1989), which was also used in the previous study and has therefore been outlined more extensively earlier in this manuscript. In the present study hedonic well-being was measured using the popular Positive and Negative Affectivity Schedule (PANAS; Watson, Clark, & Tellegen, 1988). The PANAS is comprised of both a positive affectivity subscale and a negative affectivity subscale. Both of these subscales are used herein, although given past research indicating that positive affectivity and negative affectivity are indeed different constructs (as opposed to antipodes of a singular affectivity continuum), herein these subscales are analyzed independently as opposed to being analyzed as a composite.

The positive subscale of the PANAS is comprised of ten adjectives describing positive affect, and the participant is asked to indicate the extent to which he or she feels that way. Response options are on a five-point Likert scale ranging from 1 (*very slightly*

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/ *not at all*) to 5 (*extremely*). Examples of positive descriptors included in the scale are "determined," "proud," "enthusiastic," and "attentive." For purposes of completeness it should also be noted that the PANAS also includes a scale referencing negative affectivity. Measured on the same Likert scale as the positive items, examples of negative descriptors in the scale are "distressed," "upset," "ashamed," and "nervous." Past research has provided strong support for the PANAS and it is commonly used as a psychometrically sound measure of hedonic well-being (e.g., Avey, Wernsing, & Luthans, 2008; Tugade & Frederickson, 2004). Such research has likewise found internal consistency reliabilities to be in the acceptable range for this measure: $\alpha = .86 - .95$ for positive affectivity, and $\alpha = .84. - .89$ for negative affectivity (e.g., Avey, Wernsing, & Luthans, 2008; Hetty van Emmerik & Jawahar, 2006; Ilies et al., 2007; Watson et al., 1988).

Finally, there were two open-response questions, present on the post-test only for the intervention groups (not included in the control versions). The first of these asked whether participants anticipated using the strategies provided in the intervention in the future. The second of these asked the participant about anything out-of-the-ordinary (positive or negative) that has happened in their life during the time of the intervention. It further requested that, if the participant feels comfortable doing so, he or she make note of what that event was, how he or she dealt with it, and how he or she felt in response to the event. This additional question is intended to tap into the possibility of mediating events (positive or negative) that may contribute to any given participant's changes (positive or negative, respectively) in response patterns post-intervention. While these two open-ended questions were not analyzed in the present research, they were included

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in the survey and mentioned here a) as recognition that these are important variables to measure herein, and b) so that this information would be available should further studies evolve from this dataset that might warrant use of this information via either content coding and/or qualitative analyses.

Results

Data Screening

Prior to analysis the data were screened for missing values, and also to determine if there were any violations of the assumptions underlying the general linear model, as explicated in Study 1.

Missing data were missing completely at random (MCAR; Tabachnick & Fidell, 2007). This was established through Little's (1988) MCAR test, discussed in Study 1. The results of this dataset on Little's (1988) MCAR test were indeed nonsignificant: χ^2 $(1) = 3.198$, $p = .074$, and therefore are considered to be MCAR.

Whereas MCAR may typically prompt researchers to employ listwise or pairwise deletion, or to replace values with the mean of the respective item across all participants, none of these were employed in the present research. Cases with missing data were not deleted (neither listwise nor pairwise) due to the already-small sample size. Furthermore, due to the present study's goal of measuring degree of construct change (if any) across individuals, replacing values with the mean of other individuals in the group (or, worse, entire dataset) would be counterproductive in that doing so may serve to mask existing differences, or change.

Therefore, missing values were not replaced. This was not expected to meaningfully affect results, given the considerations listed in Study 1: Namely, that a) there were few missing data points, b) those data points that were missing were missing randomly as opposed to systematically, and c) that where construct scores were computed from compiling responses to all items on the respective measure, such scores were computed by way of a mean rather than a sum.

Subsequently, data were screened in order to identify any possible violations of the assumptions underlying the general linear model as previously mentioned, in addition to being screened for multicollinearity and singularity. All variables at both Time 1 and Time 2 were found to be free from skew. Four variables (PsyCap Efficacy, Resilience, EWB autonomy, and EWB personal growth) in the Time 1 dataset and three variables (PsyCap Efficacy, Resilience, and EWB autonomy) in the Time 2 dataset were found to be positively kurtotic, otherwise known as leptokurtic or peaked. However, transformations were not employed here due to a) the fact that most analyses are relatively robust to the violation of this assumption, b) the relatively minor violations evidenced herein, and c) the T1-T2 nature of this dataset itself and the intent to measure construct change.

Initial screening for outliers was conducted via a visual scan of a box plot. The box plot revealed the potential presence of two outliers – Case 31 and Case 71. These potential outliers were then further investigated via statistical examination of their potential influence on the data. In these analyses, it was determined that Case 31 (Mahalanobis' $D = 80.52$) should be removed from the dataset, while Case 71 (Mahalanobis' $D = 76.30$) should remain included in further analyses. This final

determination was made via an analysis of Cook's distance values, which revealed that the only case evidencing a Cook's value greater than 1.0 – and thus an undue influence over the data – was Case 31 (Cook's D = 1.89). No other case in the dataset had a Cook's value exceeding or even approximating 1.0, as the second highest Cook's value in the dataset was D = .11. Therefore, Case 31 was removed from the dataset, while all other cases remained. Subsequently, further analyses revealed no violations of the assumptions of linearity, normality, and homoscedasticity (with the exception of leptokurtosis noticed on the distributions of some variables and discussed previously). Note that Case 31 was removed for these and all further analyses, thus yielding a new sample size, N = 87.

Cronbach's alpha reliabilities were conducted on all measures. The reliabilities of each scale and subscale are available in Tables G.1 and G.2 for Time 1 and Time 2, respectively. All reliabilities were acceptable at $\alpha \geq .70$ with the exception of the following. However, no items were omitted from any scale, for reasons to be discussed as follows. First, in both Time 1 and Time 2 administrations, alpha reliability for the PsyCap subscale measuring resilience was subpar (α = .53 and α = .65 for Time 1 and Time 2, respectively). This is particularly problematic because this is one of the primary target constructs for the present interventions. Item analyses revealed that, for the Time 1 administration of this subscale, Item 15 could be omitted for increased reliability (from α = .53 to α = .59). Item analyses for Time 2 indicated that removing the reverse-coded Item 13 from analyses would result in a significantly improved reliability (from α = .65 to α = .74). However, given that the problematic items were different between the Time 1 and Time 2 administrations, no items were omitted from this subscale. Fortunately,

however, given the questionable reliability of this subscale in Study 1, an alternate measure of resilience was used to measure change herein, as seen in the diagonals of Tables G.1 and G.2. Wagnild and Young's (1993) resilience measure yielded a Cronbach's alpha reliability of $\alpha = .88$ (Table G.1) and $\alpha = .91$ (Table G.2) in Time 1 and Time 2 administrations, respectively.

The two other subscales that raised reliability concerns were the EWB subscale for personal growth, and the EWB subscale for self-acceptance. The personal growth subscale yielded reliabilities of $\alpha = .66$ and $\alpha = .53$ on the Time 1 and Time 2 administrations, respectively. Item analyses for Time 1 revealed no faulty items in this subscale. In fact, all items contributed positively to the alpha reliability to the degree that removing any one item would reduce alpha reliability to anywhere from $\alpha = .57$ to $\alpha = .65$. Item analyses of this personal growth subscale for Time 2 once again failed to indicate any faulty items, although to a slightly lesser degree. In Time 2, removing Item 9 would have resulted in a slightly increased reliability (from $\alpha = .53$ to $\alpha = .54$), but no increase so substantial as to warrant altering the scale.

Finally, the self-acceptance subscale of EWB had a subpar reliability of $\alpha = .63$ during Time 1, but had an acceptable reliability of $\alpha = .80$ during the Time 2 administration. An item analysis of the subscale at Time 1 indicated that removing Item 30 would increase reliability (from $\alpha = .63$ to $\alpha = .70$). However, the decision was made not to remove Item 30 nor to alter the scale in any other way as a result of the fact that no faulty items were found to arise in *both* the Time 1 and the Time 2 administration. Since the goal is to measure degree of change (if any) between the two administrations, it is necessary that measures at both time periods be identical to one another.

Moving on, it is important to note that the in-person nature of the intervention almost necessarily limits participation to individuals in the relatively immediate area, which was particularly problematic for the extension agent sample, which is distributed across the entire state. Therefore, it was not possible to limit participation in the intervention to only one type of extension agent, and therefore all agent types were recruited for participation (e.g., 4-H and Youth Development, Family and Consumer Services, Agricultural), in addition to individuals from two other sources, as aforementioned. Recognizing that certain differences are likely to exist between members of these different samples, prior to analyzing results it was necessary to control for sample source (e.g., extension agent, City employee, undergraduate student), so as to prevent that demographic from unduly influencing results.

Analysis of Covariance

The available methods of data analysis for this study were limited to those amenable to small sample sizes such as that in the present study. Employing the wrong data analytic technique in a small sample may yield unrepresentative and misleading results in a dataset that already risks compromised power. Therefore, the data were analyzed via an analysis of covariance (ANCOVA). While the author recognizes that ANCOVA is a relatively simple analytic technique, it is used here with the understanding that the contribution of Study 3 is not due to its statistical sophistication but rather to its highly practical and application-oriented nature and its demonstrable implications.

One of the benefits of ANCOVA in regard to the present sample is that it is arguably more amenable to small sample sizes than are many other analytical techniques.

This benefit results from the fact that including covariates within the ANCOVA analysis can account for some of the extraneous variance in the criterion score (here, the post-test score) and can remove the influence of inappropriate variables (here, the pre-test score and sample source), thereby increasing statistical power.

The ANCOVA in this research examined post-test scores, employing participants' pre-test scores and their sample source (e.g., extension agents, city employees, undergraduate students) as covariates, thereby controlling for any inherent group differences. Such a procedure is suggested by Girden (1992) as preferable to a one-way ANOVA (versus an AN*C*OVA) on the post-test scores, as the latter ignores the pre-test data and thus may yield compromised or biased results. Pretest scores were chosen because, although the research design does not control for these scores, they are indeed a source of variation that are likely to affect individuals' resulting post-test scores. Therefore, employing pre-test scores as a covariate removes their influence to the degree that resulting data will indicate degree of change (primarily hypothesized improvement) in scores, therefore resulting in less biased and more precise estimates of the effects of the respective interventions.

These analyses were first employed to examine the efficacy of the resilience intervention as compared to the control group, that is, Hypotheses 4a and 4b. Unfortunately, initial analyses revealed that the intervention did not have an effect on resilience as measured by Wagnild and Young's (1993) scale, as Levene's test of equality of error variances, or homogeneity of variance, revealed the following: $F (1, 68) = 1.59$, $p > .05$. However, although the intervention did not appear to impact resilience, nor did it appear to impact eudaimonic well-being as a composite, $F (1, 68) = 2.36$, $p > .05$,

Levene's test did indicate significance when evaluated for the eudaimonic well-being component of self-acceptance: $F(1, 68) = 6.29$, $p = .01$. The subsequent ANCOVA for self acceptance, however, revealed no meaningful difference between change from Time 1 to Time 2 between the control group and the group subjected to the intervention, $F = 1.69$, $p > .05$ (see Table G.3). Thus, in sum, neither Hypothesis 4a nor Hypothesis 4b was supported herein.

Subsequently, analyses were conducted to determine the efficacy of the well-being intervention as compared to the control group, testing Hypotheses 5a and 5b. In at test of Hypothesis 5a, initial analyses using Levene's test of equality of error variances revealed that the intervention had no meaningful impact on hedonic well-being as measured by both the presence of positive affect, $F(1, 67) = .61$, $p > .05$, and also by the relative absence of negative affect, $F(1, 67) = .75$, $p > .05$. Levene's tests likewise revealed that the intervention did not appear to impact the overarching composite construct of eudaimonic well-being, $F(1, 67) = 1.05$, $p > .05$, although the test was indeed significant for both the self acceptance dimension of EWB, $F(1, 67) = 4.37$, $p < .05$, and also for the personal growth dimension of EWB, $F(1, 67) = 4.65$, $p < .05$, thereby indicating that the possible change in these two constructs is worth further investigating with ANCOVAs. These ANCOVAs indicated that while the difference between the control and intervention groups was nonsignificant for the EWB self-acceptance dimension, $F = 2.11$, $p > .05$ (see Table G.4), it was indeed significant for the EWB personal growth dimension, $F = 11.40$, $p = .001$ (see Table G.5). In sum, Hypothesis 5a was partially supported herein.

Finally, in a test of Hypothesis 5b, initial analyses using Levene's test of equality of error variances indicated that the well-being intervention had not meaningful impact on resilience as measured by Wagnild and Young's (1993) resilience measure, $F(1, 68) = .325$, $p > .05$. Given this nonsignificance, follow-up ANCOVAs were unnecessary, and Hypothesis 5b was fully supported.

Discussion

While not all of the hypotheses associated with Study 3 were fully supported, there are still some important theoretical and practical implications to be derived from these interventions. Theoretically, it is worthy of note that the resilience intervention was designed in large part around a PsyCap conceptualization of resilience. While this is similar to – and in fact derived from – Wagnild and Young's (1993) conceptualization and associated measure, the latter of which was used as the resilience measure in Study 3, it is important to consider this as a possible operationalization issue. As previously stated, it was necessary to employ Wagnild and Young's measure here as a result of consistently low alpha reliability scores for the Psychological Capital Questionnaire (PCQ) resilience scale. As a result of these theoretical issues, two subsequent steps can be recommended. First, it may be necessary to reconceptualize the construct of resilience as measured by the PCQ, and to redesign that scale. Second, it is recommended that future researchers redesign the resilience intervention outlined herein in order to better target this reconceptualized resilience.

The well-being intervention fared somewhat better than did the resilience intervention, at least in regard to eudaimonic well-being. It is important to note that there

is considerable research evidencing why organizations should care about their employees' well-being. Much of this is discussed previously, such as the benefits evidenced through Barbara Frederickson's broaden and build theory (1998, 2001), but is briefly expanded upon here in order to reemphasize the importance of initiatives aimed at improving employee well-being. There is of course the obvious point that if employees are absent from their jobs because of compromised well-being, they simply cannot do the work required of them. In turn, then, they must be sustained by at least a moderate degree of well-being in order to perform their duties to an acceptable degree. Higher levels of employee well-being can also serve to reduce accidents and errors, keep insurance rates in check, and contribute to both internal and external corporate reputation. Internal corporate reputation can be linked to the concept of perceived organizational support, which has been shown to have considerable impact on crucial and measurable business outcomes (e.g., Butts, Vandenberg, DeJoy, Schaffer, & Wilson, 2009; Mills & Culbertson, 2009; Steele, Rupayana, Mills, Smith, Wefald, & Downey, 2010). Having a high-quality corporate reputation has also become increasingly sought-after and valued, as is evidenced by the popularity of annual corporate rankings such as the *Great Places to Work* listing.

Hedonic well-being did not seem to be altered therein, neither by increased positive affect nor by decreased negative affect. This finding may speak to the consideration that hedonic well-being may be more fleeting and may be impacted by more immediate actions. That is, for example, while individuals would not necessarily have seen an increase in positive affect between the Time 1 administration and the Time 2 administration, many reported having implemented some of the recommended

strategies to increase hedonic well-being. In such a case, it is likely that their hedonic well-being increased during the time that they were engaging in that activity. This may not, however, have been reflected some time later when they completed the Time 2 administration, at which point they were not actively engaged in that activity.

The eudaimonic aspect of the well-being intervention was relatively more successful than was the hedonic aspect of the intervention, as is consistent with Staudinger and Kuhbander's (2004) findings from their own well-being intervention. The relative success of this aspect of the present intervention may speak to the consideration that such an intervention is more likely to improve one or more of the various aspects of one's desire for personal growth, development, and contribution, than it is to improve some fleeting happiness. The results herein did indeed show that individuals in the well-being intervention groups reported significantly greater change between their Time 1 and Time 2 personal growth than did those individuals in the control groups, thus indicating the well-being interventions' likely success at positively impacting upon this variable.

It is particularly beneficial that the present study analyzed EWB not only as an overarching construct, but also delved into each of its component parts. This supports Lindfors and colleagues (2006b) finding that different dimensions of EWB may have differential relationships with a variety of constructs, and therefore they recommend going beyond an overall evaluation of EWB to looking at its component parts, as was done in the present study. It is important to note that, were the present study to have overlooked EWB's component parts in favor of analyzing solely the composite EWB construct (which was found to be nonsignificant), the important finding regarding the

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personal growth dimension mentioned previously would have been masked. Nevertheless, it is important to keep in mind that the personal growth dimension of EWB, which was the dimension that yielded the most favorable results, also suffered from compromised alpha reliability, and that that may have impacted results herein. Future research would do well to replicate such research in order to determine whether the results found herein hold up in alternative samples. Depending on the results of such future research, it may be necessary to reconsider the measurement criteria and items within the personal growth dimension of Ryff's (1989; Ryff & Keyes, 1995) Psychological Well-Being (EWB) scale.

In keeping with the practice of delving into natural breakdowns within the data, it would have been interesting to subsequently analyze similarities and differences between the various samples (extension agent, city employee, undergraduate student) for both interventions. Unfortunately, this was not possible with the present samples in that each alone was too small for effective analyses, and therefore could only be meaningfully analyzed on an aggregate level. However, this is a ripe area of fodder for future research in that differential relationships or outcomes may exist for each group, thereby helping intervention designers and facilitators to better understand their target population and design such an appropriate intervention. Likewise, it is also true that research comparing blue- and white-collar workers' reactions to such interventions would be warranted, as would research conducted with employees from other countries and cultures, particularly from collectivistic cultures as opposed to Western individualistic cultures, which may react differently to such interventions.

Another interesting consideration for future research is whether interventions such as those resilience and well-being interventions specified herein – or some variation of them – could ultimately be utilized within organizations either in place of or in conjunction with stress management interventions, which have become increasingly prevalent (e.g., Collins, 2005). If future research indicates that such interventions are able to indirectly impact upon employee stress levels, it is possible that they would serve the organization better that stress interventions alone in that they could ultimately impact multiple constructs within employees, thus yielding maximum impact and return on investment.

CHAPTER 4 - General Discussion

Review and Implications

Taken together, the three studies herein have taken a progressive approach to theoretically and empirically investigating various aspects of some of the most utilized (e.g., well-being) and most recent (e.g., PsyCap) constructs within the rising sphere of Positive Organizational Behavior, or POB. Among those aspects of each that are investigated thoughout these three studies are: Measurement, psychometric properties, theoretical and empirical relations with other variables over time, and interventions aimed at targeting each.

The first study analyzed the structure and psychometric properties of the Psychological Capital Questionnaire, which is proposed to be best conceptualized as consisting of the four psychological capacities of efficacy, optimism, hope, and resilience. The present research found that this measure – and its four subdimensions – may need to be respecified in order to most effectively capture the new POB construct of PsyCap. The second study utilizes the resilience factor of PsyCap as a proposed moderator variable in the respective relations hypothesized between workload and hedonic and eudaimonic well-beings. The same relations are also hypothesized to be moderated by work role salience. While the HWB hypotheses herein were unable to be explored due to lack of a relation between workload and HWB, the EWB hypotheses showed a significantly negative relation between workload and EWB, although moderator relations were not found for this relation.

Study 2, including the finding that workload has a positive relation with EWB when measured over time, served as a backdrop for Study 3, wherein interventions were

designed and implemented with the expectation of meaningfully impacting both well-being and resilience in hopes of positively impacting both the employee experience and, in turn, the employees' positive impact on the organization. Once again, neither resilience nor HWB were found to be significantly impacted by the interventions, however EWB again was significant. Specifically, the personal growth dimension of EWB was particularly impacted by the intervention, indicating that participants in the well-being intervention used the opportunity in order to explore their capabilities and devise ways to improve those capabilities, thus growing and developing both personally and professionally.

The relatively recent emergence of positive psychology into the I/O field via POB and POS has led to an enhanced focus on people's mental states and internal processes as they relate to their work and performance outcomes, and this, in turns guides the implications of the present series of studies. The present research could have very meaningful implications for both individual employees and also for the organizational context within which those employees necessarily work. Substantial research as outlined previously has supported the immense value of a number of POB constructs, not the least of which are resilience and well-being. The present series of studies progressively explores the nature of these POB constructs themselves, how they fit within an organizational context, and, finally, how such positive internal resources can be harnessed and developed.

While basic, Study 1 acts as an important supplement to already-existing research on both the PsyCap construct and also the PCQ as its measurement instrument. As previously mentioned, PsyCap is a relatively new construct but, with the zeitgeist ripe for

such a construct, it has generated substantial interest within the field. However, while more established constructs generally have multiple measures purporting to tap them, PsyCap relies upon the PCQ alone. Therefore, it is crucial that before further research proceeds using this increasingly-popular construct, further exploration of the measure and its properties – as well as the nature of the construct itself – is necessary. Study 1 serves to contribute to filling this gap in the literature.

The hypotheses in Study 2 – including the fact that some went unsupported – yield particularly meaningful information regarding the role that POB constructs play within the organizational context. In particular, these findings have the potential to yield implications for how individuals' personal resources can play an important role in molding employees' work experiences, even to the extent of influencing how they react to or deal with organizational pressures (e.g., via resilience). In fact, Study 2 explores POB constructs both as an outcome (well-being) and also as a resource (resilience) that, when leveraged, can play an important part in determining the extent to which (and, moreover, *how*) organizational demands impact the employee. In this way, another contribution of Study 2 is that it explicates specific examples and conditions in which such positive resources can be of benefit to both organizations and their employees.

Relatedly, Study 3 aimed to develop interventions that can increase this benefit by further enhancing employees' positive internal resources. The hypotheses in the third and final study herein build upon the findings of the previous 2 studies in that they have implications for how organizations (and those who act on their behalf, such as consulting and action-planning firms) can go about building such positive resources within their employees, thereby enhancing their ability to endure work challenges, and indeed also to

succeed despite such challenges. As is evident in the results section for Study 3, this was found to be the case for EWB's personal growth dimension, but not for HWB nor resilience.

As compared to the previous two studies, Study 3 yields the most actionable information in an applied forum. That is, while the information from Study 1 is important, it is arguably most important to a theoretical end. Likewise, while Study 2 also examines issues of crucial import, it has limited implications for organizations insofar as how they might best develop the employees that they already have (this is in comparison to delving into the realm of selection via personal psychological resources, which would necessitate not only a discussion of practicality, but also of potential bias and therefore also legality). Study 3, however, yields some actionable steps for organizations by way of intervention techniques. Detailed intervention plans were explicated, as were the implications of the interventions on the POB constructs that are of such import within the human capital realm of organizations. In this way, organizations could then use similar intervention techniques to directly enhance their employees' POB. This may be especially true for the personal growth dimension of EWB, which yielded significance, but should also not be discounted for the interventions that failed to yield significant changes herein. That is, just as the present research utilized some past interventions as guides, the techniques outlined for use within the current interventions can also be used as guides upon which future intervention designers and facilitators can build and expand.

Likewise, another potential avenue for application of expected findings is manager training. That is, organizational constraints such as size and finances may limit

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the feasibility of directly involving a substantial number of employees in interventions such as those outlined herein. However, a related implication deriving from the present study is using the interventions outlined here in order to train managers regarding POB and its development, and the personal growth aspect of EWB in particular. In such interventions, the focus would be not only development of one's own resources and personal growth, but also how to promote and facilitate such positive development among their respective subordinates. In this way, a utilitarian effect can be realized in that the intervention may ultimately impact many employees while the organizational investment in development was directly targeted at a comparably minimal number of (management-level) employees.

Finally, while I mentioned earlier that the zeitgeist for constructs such as PsyCap is ripe, this is equally as true for POB constructs as a whole (and their implications for both managerial success and organizational performance). The economic downturn that began in earnest in 2008 and continues to impact most of the Western world is a clear sign of a near-universal cry for more extensive and action-oriented POB research.

This is particularly true as we recognize that an all-too-common side effect of such an economy is the enforcement of layoffs. Such an action negatively impacts not only those workers most directly affected (e.g., those laid off, or "victims"), but can also have somewhat of an unexpected impact on the remaining employees ("survivors"). For these employees, a reduced workforce often means not only the psychological and emotional loss of colleagues and friends (Brockner, 1990; Brockner, et al., 1987), but also an increase in workload (Virick, et al., 2007) and perhaps even an unsolicited change in work content (Pfaff, 2004). Essentially, this means a negative change in the (human)

resources that the organization has at its disposal, and also associated changes in outcomes such as organizational commitment (Brockner, Spreitzer, Mishra, Hochwarter, Pepper, & Weinberg, 2004; Grunberg, Anderson-Connolly, & Greenberg, 2000).

Correspondingly, while most business sectors will likewise suffer an associated reduction in business (generally the catalyst for the layoffs), such a reduction is likely to be disproportionately lower than the workforce cut. That is, the remaining employees will likely experience an increased workload despite the fact that organization-wide business has decreased (even if that workload now consists primarily of soliciting and/or up-selling business). Therefore, such remaining employees are often subjected to increased strain on multiple fronts. Such widespread employee strain in turn places overall organizational performance at risk of further demise. Implementing interventions as outlined herein may serve to enhance employees' personal resources, thereby buffering the negative impact of layoffs, the resulting workload increase, and other such organizationally-driven factors.

The catch-22 here is that, while this is the time organizations need such interventions the most, it is likely also the time when they find it most difficult to justify the monetary output necessary for the successful implementation of such an intervention (intervention costs themselves in addition to employee time, which is arguably more valuable than ever). Convincing organizations otherwise may in fact be the most challenging part of such interventions. In order to succeed at this endeavor, organizations will likely demand direct evidence of associated organizational enhancement and, more clearly, a positive impact on their bottom line. Such a result may be almost impossible to produce in the current economy.

Therefore, organizations should be encouraged to focus company performance on a long-term outlook, as opposed to envisioning, for instance, the hit that intervention costs will undoubtedly immediately deliver to the organization's fiscal bottom line in the short term. Stress-management interventions during times of layoffs have also been espoused by other researchers (e.g., Armstrong-Stassen, 2005), and could potentially be encapsulated within management discussions of downsizing, thereby increasing communication with employees at a time when it is most critical.

Limitations

Nevertheless, despite the various theoretical and practical implications of the present series of studies, they too, like any study, also have their limitations.

One limitation is in regard to psychometric properties of two of the scales herein. In particular, the shortened version of Ryff's (1989; Ryff & Keyes, 1995) Psychological Well-Being Scale that was used during the daily survey administrations in Study 2 was found to have questionable internal consistency. However, given that Ryff's scale is the most frequently utilized and empirically-supported measure of eudaimonic well-being, and given also that it is comprised of six dimensions that may well have differential outcome relations with the predictor variable of workload (Lindfors et al., 2006b), it seemed appropriate nonetheless. This decision is supported by substantial other research, including by Ryff herself, that has successfully used the shortened version of the scale regardless of its somewhat compromised validity.

Likewise, resilience as measured by the Psychological Capital Questionnaire also evidenced questionable reliability. This was somewhat ameliorated in Study 3 with the

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use of Wagnild and Young's (1993) scale as a more established and more reliable measure of resilience, however Study 1 and Study 2 utilized the PCQ measure only and therefore suffered from this limitation.

A second limitation of the present series of studies is that all measures were self-reported. Therefore, common method variance, also known as mono-method bias, may be problematic. Nevertheless, in recent years some research has countered such criticisms of single-method studies, and has brought these problems into question. For instance, Goffin and Gellatly (2001) found substantial redundancy in self- and peer-report measures, and likewise noted that self-reported responses appear to be driven primarily by experience, rather than by systematic bias, as had previously been suggested in criticisms against this method. More recently, in an oft-cited article, Spector (2006) also questioned the issue of common method variance, contending that self-report measures are unlikely to result in the drastic biases of which they are often accused.

Data collection for both Studies 2 and 3 could also have been improved were more long-term longitudinal analyses possible. While it can be somewhat difficult to convince organizations to agree to participating in such long-term research, the resulting data is likely to be quite rich and fruitful. Therefore, the two-week time periods utilized in the present series of analyses are both a strength (beyond simply cross-sectional administrations) and a limitation (time periods exceeding two weeks would undoubtedly be preferable).

Finally, another limitation within the present series of studies is the nature of the sample. Extension agents in particular – which was the sole sample used in Study 1 and Study 2 and was one of the three samples used in Study 3 – have a unique job, in that it is

very self-directed, has very variable (and often long) work hours, and often also yields a somewhat unclear work-nonwork distinction. This latter criticism is arguably true particularly for the Family and Consumer Sciences (FCS) agents and the 4-H and Youth Development (4HYD) agents, whose work life may necessarily interact with their home life at various junctures. Extension agents' work is also conducted within the public domain in that they work in service to their communities, another consideration that makes the present sample somewhat unique.

Furthermore, criticisms of the utilized sample might be most heavily levied on the sample in Study 3. That is, one might argue that individuals who are self-selecting into an intervention may be significantly different on the constructs that the intervention is targeting than are individuals who choose not to participate in the intervention. This is certainly plausible, and the most ready explanation is they may, at the very least, be more open to self exploration and enhancement than are individuals who did not elect to participate in the intervention.

Future Research Directions

The first of the suggestions for future research outlined herein is one that does not necessarily follow from the findings of the present series of studies. Rather, it follows from the theoretical basis outlined toward the beginning of this manuscript wherein the similarities and differences between hedonic and eudaimonic well-being were noted and discussed, as were the definitions of these two related constructs. While researching the relevant literature for these well-beings, I encountered an article by Norrish and Vella-Brodrick (2008) that very briefly mentioned Abraham Maslow's (1954) hierarchy of

needs, but only insofar as to discuss that lower order needs (e.g., sustenance, safety) should take precedence over higher order needs (e.g., self-esteem, self-actualization).

While Maslow's (1954) conceptualization of human needs is commonly questioned in the field of I/O psychology as of late, its brief inclusion in the aforementioned positive psychology article led me to consider an interesting avenue for future research. That is, given the aforementioned respective natures of HWB and EWB, an interesting and perhaps fruitful study might address the following hypotheses: That HWB is primarily associated with the satisfaction of lower order needs, while EWB is primarily associated with satisfaction of higher order needs. Future research may find such a question of some interest and value.

A second recommendation for future research likewise does not necessarily stem directly from the results of the present series of studies, but rather from considerations regarding the construct of well-being as discussed herein, particularly the distinction between hedonic and eudaimonic well-being that has at times been overlooked in the literature. Specifically, from a trait perspective, it is worthwhile to consider whether individuals' personalities or need strengths predispose them to being most satisfied by either eudaimonic or hedonic well-being. For instance, initial speculation may presume that individuals with high growth need strength (GNS; Hackman and Lawler, 1971) or need for achievement (nAch; McClelland, Atkinson, Clark, & Lowell, 1953) may be more likely to be satisfied or fulfilled by eudaimonic well-being, whereas individuals low on those characteristics may be more satisfied by a more immediate sense of hedonic well-being. Future research would do well to empirically consider this possibility

through targeted research aligning various personality characteristics with predilection to eudaimonic versus hedonic well-being.

Moving on, throughout this paper, it has been assumed – and is generally accepted – that, in short, having positive experiences and thoughts can lead to improved (whether short-term or longer-term) happiness and well-being. When research has made mention of negative experiences (e.g., paralysis; see Brickman et al., 1978), it has done so in regard to whether or not such experiences have negatively affected an individual's well-being for any sustainable period of time. However, I would urge researchers to consider the possibility that such negative experiences can ultimately be beneficial to an individual's state of mind. That is, while I would certainly contend that negative experiences are surely likely to decrease one's *short-term* happiness (particularly hedonic well-being), it is possible that in some circumstances certain negative experiences can ultimately lead to an individual's *increased* well-being (particularly eudaimonic).

For instance, falling victim to a car accident or house fire is undoubtedly devastating on a variety of levels. However, with the right perspective *and resilience*, the victim may ultimately emerge from the disaster feeling very blessed, and very grateful to have survived. Somewhat similarly, it seems likely that if an individual is caught breaking the law, again this will likely result in at least short-term devastation, but if the encounter causes the individual to self-reflect and correspondingly turn around the course of his or her life, that otherwise-negative experience could in fact lead to increased ultimate happiness. Investigations into these propositions and considerations are beyond the scope of the present research and the associated samples. However, they are interesting fodder for future research, and warrant such investigation.

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Relatedly, as the concept of gratitude arose in the previous paragraph, it is worth noting that, while much theoretical consideration has led to the ultimate inclusion of the four criteria of efficacy, hope, optimism, and resilience within the current conceptualization of PsyCap, other constructs were also explored for inclusion, as discussed previously in this manuscript. However, Luthans, Youssef, and Avolio (2007) have conceded that such consideration of other constructs, while extensive, was neither comprehensive nor conclusive. Therefore, further consideration of these and other constructs for possible inclusion within the PsyCap domain may be worthwhile.

An additional suggestion for future research is in response to one of the limitations outlined previously. That is, in order to strengthen the findings herein and ward off any criticism based solely on the present studies' sole use of self-report measures, other-report measures should be considered for use in future related studies. Fortunately, while many psychological constructs can arguably be measured only via self-reports, some of the variables utilized herein can in fact be measured from external sources. For instance, workload could arguably be measured by coworker and superior reports or by time cards in which employees must clock in and out of work (for objective workload), and (hedonic) well-being could be measured from coworker, peer, and/or spouse reports, depending upon the context. Regardless of the aforementioned support levied for single-method studies (Goffin & Gellatly, 2001; Spector, 2006), having such other-report or otherwise external methods to corroborate these findings could only be beneficial.

Another of the aforementioned limitations is regarding the sample, and indeed this too is another consideration for future research. That is, due to the relative specificity of

the sample, future researchers would do well to replicate the present research and/or conduct similar research with a sample of workers with more 'traditional' occupations, including occupations with more clear-cut work hours and more definitive work-nonwork boundaries.

Extending future samples to include workers outside of the Midwest United States would also be of benefit. Likewise, international and cross-cultural research is also warranted, since, as Luthans, Youssef, and Avolio (2007) note, PsyCap in particular is likely to be largely influenced by culture considering its developmental nature, and it is easy to speculate how certain cultural differences may alter expected results. For instance, given that optimism and resilience are purported to be externally-based whereas efficacy and hope are self-based, one might consider how cultural differences such as individualistic versus collectivistic orientations may affect the expression of such PsyCap dimensions, including how much development in each of these (particularly manifest efficacy) is encouraged in these different cultural orientations. Of course, any researchers attempting such cross-cultural replication or extension of any of the constructs involved in this work should be sure to use (or develop, if necessary) cross-culturally-appropriate versions of the scales utilized herein, if available – for instance, Thompson's (2007) international form of the PANAS.

Understanding that the ultimate goal of any research should be the utilization and practical application of the results, scientist-practitioners would also do well to explore the practical implications of this research even beyond those workplace variables measured herein. For instance, Fredrickson (2000) suggests that more explicitly including questions regarding positive emotions may lead to better measurement of

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employee engagement.[6] However, her assertion has not been empirically tested, and thus is a potential avenue for future research. In fact, it stands further supported by the current series of studies, particularly Study 2, which might serve to also instigate research on the relation between engagement, workaholism, and positive well-being.

Likewise, Study 2 also holds further promise for future research. For instance, the introduction of Hobfoll's (1989, 2002) conservation of resources theory as peripheral theoretical support for the workload-well-being hypothesis suggests that as workload usurps resources that would otherwise be directed elsewhere, it may therefore stand that the workload-well-being relation hypothesized in the present study may be moderated not only by the variables hypothesized herein, but also by work-family conflict. Such investigation is outside the scope of the present study, but should be considered a fruitful direction for future research.

Finally, and similarly to the measurement issue encountered with PsyCap resilience in Study 2, the HWB construct did not function as expected in either Study 2 or Study 3 – therefore, while this may certainly be due to sample-specific findings, or to the fact that the hypotheses are genuinely not supported (and would likewise not be supported in a more representative sample), it is also necessary to consider the possibility that the available measures of HWB are not comprehensive or fully indicative of the construct. HWB is a popular construct in the literature, and there are a variety of scales to measure it, two of which were used in the studies herein. Given this extensive

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[6] Note that engagement in turn has been shown to lead to a variety of positive organizational outcomes such as increased organizational commitment and in- and extra-role performance, and decreased withdrawal behaviors such as absenteeism and turnover (see Bakker, Demerouti, & Verbeke, 2004; Demerouti & Bakker, 2006; Schaufeli, Bakker, & Salanova, 2006). Some research (e.g., Bakker & Demerouti) has suggested that the heightened positive emotions experienced by engaged employees may be the reason for such enhanced performance outcomes.

measurement of HWB, at this time it is not appropriate to recommend that future research modify the existing HWB scales. Rather, future research should consider how HWB functions in analyses as compared to expectations. Future research should likewise consider whether, if there becomes a consistent pattern of the construct failing to meet otherwise logical and supported hypotheses, either the construct or its measurement need to be revisited at that time.

Similarly, another issue to consider within the context of the present research is whether the HWB versus EWB distinction used consistently herein may somewhat mirror the distinction that Barbara Frederickson draws between the immediate effects of negative emotions versus the longer-term, longer-lasting effects of positive emotions. Obviously, this is not to propose that HWB is qualitatively negative. In fact as interest in EWB is increasing, Ryan and colleagues (2008) emphasize that HWB remains important and should be neither overlooked nor viewed as trivial (Ryan et al., 2008). Rather, the comparison is temporal in that HWB (whether as measured by the presence of positive affect or the absence of negative affect, or both), like negative emotions, may often be comparatively fleeting, while the effects of EWB, like Frederickson's positive emotions, are often richer, more rewarding, and more enduring.

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Appendix A - Informed Consent (Studies 1 & 2)

This survey is part of research intended to gather information about the relationship between work engagement and family balance. We are attempting to determine which work tasks are most engaging for the extension agent, and how engagement in one's work might be enhanced while maintaining an enjoyable family life.

This 2-week research study requests that you participate in two short surveys each day, one about your work experiences and one about your family experiences. Additionally, there will be two somewhat longer surveys, one at the beginning of the study (this survey will immediately follow this consent form), and one at the end of the two weeks. Participation is voluntary and you may stop at any time without penalty.

Your responses are completely confidential. Although we will ask for your name at the beginning of each survey, such information is only used in order to link all of your surveys to one another. When that has been done, we will replace your name with a number, and no one other than the researchers will see your name or individual responses to the survey. In reporting survey results, all responses will be aggregated and no individual results will be analyzed or presented at any time.

If you have any questions about the survey or would like more information about our study, please do not hesitate to contact the principal researcher, XXXXX XXXXX at XXXXXXX@ksu.edu or XXX-XXX. You may also contact XXXX XXXXXXX, Chair of the Institutional Review Board, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, at XXX-XXXX.[7]

By clicking NEXT you are acknowledging that you understand that your participation is entirely voluntary, and that you will incur no penalty as a result of refusal to participate in this study or withdrawal from the study at a later date. However, as an incentive to complete the study, after having done so you will be given a gift card in appreciation for your participation.

By clicking NEXT you are also acknowledging that you have read and understand this consent form, and willingly agree to participate in this study under the terms described.

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[7] Note this information has been omitted in this replica of the informed consent form, with the understanding that such contact information may not endure over time. However, the information was present on the version of the informed consent furnished to the participants.

Appendix B - Study 1 Tables

Table B.1 - PsyCap - Means (M), Standard Deviations (SD), Reliability Coefficients, and Correlations

	M	*SD*	1	2	3	4	5
1. PsyCap Overall	4.45	0.37	(.92)				
2. Efficacy	4.86	0.61	.83**	(.86)			
3. Hope	4.71	0.56	.86**	.64**	(.79)		
4. Resilience	4.55	0.38	.70**	.43**	.52**	(.64)	
5. Optimism	3.65	0.40	.54**	.25*	.30**	.24*	(.86)

Cronbach's α reliability coefficients are presented in the main diagonal in parentheses

* $p < .05$ (two-tailed), ** $p < .01$ (two-tailed)

Table B.2 - Confirmatory Factor Analysis

Measure	Construct	χ^2	df	RMSEA	NFI	CFI
PCQ	PsyCap	459.09	246	.094	.65	.79

Appendix C - Study 2 Figures and Tables

Figure C.1 - Resilience as a Moderator
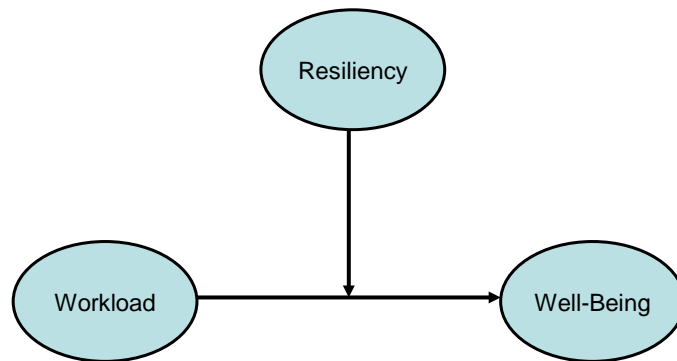
Figure C.2 - Role Salience as a Moderator
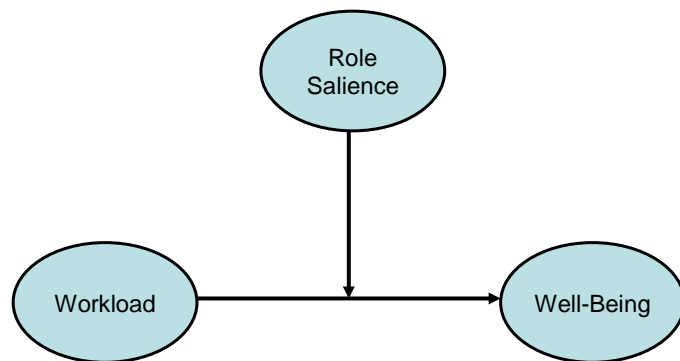
Table C.1 - Eudaimonic Well-Being - Means (M), Standard Deviations (SD), Reliability Coefficients, and Correlations

	M	SD	1	2	3	4	5	6	7
1. EWB Overall	2.50	0.12	(.88)						
2. Autonomy	2.60	0.18	.48**	(.77)					
3. Environmental Mastery	2.72	0.20	.36**	.11	(.68)				
4. Personal Growth	2.29	0.23	.59**	.24*	-.01	(.56)			
5. Positive Relations with Others	2.63	0.24	.65**	.17	.21*	.09	(.73)		
6. Purpose in Life	2.21	0.24	.50**	-.07	-.08	.39**	.16	(.69)	
7. Self-Acceptance	2.56	0.23	.60**	.26**	.03	.14	.41**	.05	(.77)

Cronbach's α reliability coefficients are presented in the main diagonal in parentheses

* $p < .05$ (two-tailed), ** $p < .01$ (two-tailed)

Table C.2 - HLM Parameter Estimates for Hedonic Well-Being

Model	Parameter Estimates[8]							
	γ_{00}	γ_{01}	γ_{10}	γ_{11}	σ^2	τ_{00}	τ_{11}	ICC
One-Way ANOVA (Null)								
L1: $HWB_{ij} = \beta_{0j} + r_{ij}$	3.220	---	---	---	0.400	0.312	---	0.438
L2: $\beta_{0j} = \gamma_{00} + U_{0j}$								
Random-Coefficient Regression								
L1: $HWB_{ij} = \beta_{0j} + \beta_{0j} (Workload_{ij}) + r_{ij}$								
L2: $\beta_{0j} = \gamma_{00} + U_{0j}$	3.200	---	0.140	---	0.366	0.264	0.039	---
L2: $\beta_{1j} = \gamma_{10} + U_{1j}$								
Intercepts-as-Outcomes (Resilience)								
L1: $EWB_{ij} = \beta_{0j} + \beta_{0j} (Workload_{ij}) + r_{ij}$								
L2: $\beta_{0j} = \gamma_{00} + \gamma_{01} (Resilience_{j}) + U_{0j}$	4.752	-0.344	0.141	---	0.365	0.246	0.041	---
L2: $\beta_{1j} = \gamma_{10} + U_{1j}$								
Intercepts-as-Outcomes (Work Role Salience)								
L1: $EWB_{ij} = \beta_{0j} + \beta_{0j} (Workload_{ij}) + r_{ij}$								
L2: $\beta_{0j} = \gamma_{00} + \gamma_{01} (WRS_{j}) + U_{0j}$	3.917	-0.198	0.137	---	0.366	0.259	0.0385	---
L2: $\beta_{1j} = \gamma_{10} + U_{1j}$								

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[8] Parameters are defined as follows: γ_{00} = Intercept of level 2 regression predicting β_{0j}; γ_{01} = Slope of level 2 regression predicting β_{0j}; γ_{10} = Intercept of level 2 regression predicting β_{1j}; γ_{11} = Slope of level 2 regression predicting β_{1j}; σ^2 = variance in level 1 residual (r_{ij}); τ_{00} = variance in level 2 residual for models predicting β_{0j} (U_{0j}); τ_{11} = variance in level 2 residual for models predicting β_{1j} (U_{1j}); ICC = intra-class correlation.

Table C.3 - HLM Parameter Estimates for Eudaimonic Well-Being

Model	Parameter Estimates [9]							
	γ_{00}	γ_{01}	γ_{10}	γ_{11}	σ^2	τ_{00}	τ_{11}	ICC
One-Way ANOVA (Null)								
L1: $EWB_{ij} = \beta_{0j} + r_{ij}$	1.390	---	---	---	0.001	0.001	---	0.371
L2: $\beta_{0j} = \gamma_{00} + U_{0j}$								
Random-Coefficient Regression								
L1: $EWB_{ij} = \beta_{0j} + \beta_{0j} (Workload_{ij}) + r_{ij}$								
L2: $\beta_{0j} = \gamma_{00} + U_{0j}$	1.390	---	-0.010	---	0.001	0.001	0.000	---
L2: $\beta_{1j} = \gamma_{10} + U_{1j}$								
Intercepts-as-Outcomes (Resilience)								
L1: $EWB_{ij} = \beta_{0j} + \beta_{0j} (Workload_{ij}) + r_{ij}$								
L2: $\beta_{0j} = \gamma_{00} + \gamma_{01} (Resilience_j) + U_{0j}$	1.260	0.026	-0.008	---	0.001	0.001	0.000	---
L2: $\beta_{1j} = \gamma_{10} + U_{1j}$								
Intercepts-as-Outcomes (Work Role Salience)								
L1: $EWB_{ij} = \beta_{0j} + \beta_{0j} (Workload_{ij}) + r_{ij}$								
L2: $\beta_{0j} = \gamma_{00} + \gamma_{01} (WRS_j) + U_{0j}$	1.310	0.021	-0.007	---	0.001	0.001	0.000	---
L2: $\beta_{1j} = \gamma_{10} + U_{1j}$								
Slopes-as-Outcomes (Resilience)								

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[9] Parameters are defined as follows: γ_{00} = Intercept of level 2 regression predicting β_{0j}; γ_{01} = Slope of level 2 regression predicting β_{0j}; γ_{10} = Intercept of level 2 regression predicting β_{1j}; γ_{11} = Slope of level 2 regression predicting β_{1j}; σ^2 = variance in level 1 residual (r_{ij}); τ_{00} = variance in level 2 residual for models predicting β_{0j} (U_{0j}); τ_{11} = variance in level 2 residual for models predicting β_{1j} (U_{1j}); ICC = intra-class correlation.

L1: $EWB_{ij} = \beta_{0j} + \beta_{0j}(Workload_{ij}) + r_{ij}$

L2: $\beta_{0j} = \gamma_{00} + \gamma_{01}(Resilience_j) + U_{0j}$ 1.259   0.028   -0.004   -0.001   0.001   0.001   0.000   ---

L2: $\beta_{1j} = \gamma_{10} + \gamma_{11}(Resilience_j) + U_{1j}$

Slopes-as-Outcomes (Work Role Salience)

L1: $EWB_{ij} = \beta_{0j} + \beta_{0j}(Workload_{ij}) + r_{ij}$

L2: $\beta_{0j} = \gamma_{00} + \gamma_{01}(WRS_j) + U_{0j}$ 1.312   0.021   -0.027   0.005   0.001   0.001   0.000   ---

L2: $\beta_{1j} = \gamma_{10} + \gamma_{11}(WRS_j) + U_{1j}$

Table C.4 - HWB - Null Model - Final Estimation of Variance Components

Random Effect		Standard Deviation	Variance Component	df	χ^2	p-value
Intercept1	U0	0.558	0.312	74	571.277	0.000
Level-1	R	0.633	0.400			

Table C.5 - HWB - Random Coefficient Regression Model - Final Estimation of Variance Components

Random Effect		Standard Deviation	Variance Component	df	χ^2	p-value
Intercept1	U0	0.514	0.265	74	327.551	0.000
Workload Slope	U1	0.198	0.039	74	112.307	0.003
Level-1	R	0.605	0.366			

Table C.6 - EWB - Null Model - Final Estimation of Variance Components

Random Effect		Standard Deviation	Variance Component	df	χ^2	p-value
Intercept1	U0	0.029	0.001	74	479.911	0.000
Level-1	R	0.038	0.001			

Table C.7 - EWB - Random Coefficient Regression Model - Final Estimation of Variance Components

Random Effect		Standard Deviation	Variance Component	df	χ^2	p-value
Intercept1	U0	0.027	0.001	74	339.871	0.000
Workload Slope	U1	0.013	0.000	74	119.131	0.001
Level-1	R	0.036	0.001			

Table C.8 - Level 2 - Means (M), Standard Deviations (SD), Reliability Coefficients, and Correlations

	M	*SD*	1	2
1. Resilience	4.53	0.39	(.64)	
2. Work Role Salience	3.64	0.50	0.16	(.64)

Cronbach's α reliability coefficients are presented in the main diagonal in parentheses

* *p* < .05 (two-tailed), ** *p* < .01 (two-tailed)

Table C.9 - HWB - Resilience Controlled - Intercepts-as-Outcomes - Final Estimation of Variance Components

Random Effect		Standard Deviation	Variance Component	*df*	χ^2	*p*-value
Intercept1	U0	0.496	0.246	73	298.041	0.000
Workload Slope	U1	0.203	0.041	74	112.478	0.003
Level-1	R	0.604	0.365			

Table C.10 - HWB - Work Role Salience Controlled - Intercepts-as-Outcomes - Final Estimation of Variance Components

Random Effect		Standard Deviation	Variance Component	*df*	χ^2	*p*-value
Intercept1	U0	0.509	0.259	73	317.017	0.000
Workload Slope	U1	0.196	0.038	74	112.298	0.003
Level-1	R	0.605	0.366			

Table C.11 - EWB - Resilience Controlled - Intercepts-as-Outcomes - Final Estimation of Variance Components

Random Effect		Standard Deviation	Variance Component	df	χ^2	p-value
Intercept1	U0	0.025	0.001	73	293.335	0.000
Workload Slope	U1	0.012	0.000	74	119.431	0.001
Level-1	R	0.036	0.001			

Table C.12 - EWB - Work Role Salience Controlled - Intercepts-as-Outcomes - Final Estimation of Variance Components

Random Effect		Standard Deviation	Variance Component	df	χ^2	p-value
Intercept1	U0	0.025	0.001	73	304.606	0.000
Workload Slope	U1	0.012	0.000	74	118.731	0.001
Level-1	R	0.036	0.001			

Table C.13 - EWB - Resilience Moderator - Slopes-as-Outcomes - Final Estimation of Variance Components

Random Effect		Standard Deviation	Variance Component	*df*	χ^2	*p*-value
Intercept1	U0	0.025	0.001	73	293.124	0.000
Workload Slope	U1	0.013	0.000	73	119.338	0.001
Level-1	R	0.036	0.001			

Table C.14 - EWB - Work Role Salience Moderator - Slopes-as-Outcomes - Final Estimation of Variance Components

Random Effect		Standard Deviation	Variance Component	*df*	χ^2	*p*-value
Intercept1	U0	0.025	0.001	73	303.919	0.000
Workload Slope	U1	0.012	0.000	73	115.990	0.001
Level-1	R	0.036	0.001			

Table C.15 - HLM Parameter Estimates for Eudaimonic Well-Being: Post-Hoc Slopes-as-Outcomes (Moderator) Models

Model	Parameter Estimates[10]							
	γ_{00}	γ_{01}	γ_{02}	γ_{10}	γ_{11}	σ^2	τ_{00}	τ_{11}
1. Slopes-as-Outcomes (Resilience)								
L1: $EWB_{ij} = \beta_{0j} + \beta_{0j} (Workload_{ij}) + r_{ij}$								
L2: $\beta_{0j} = \gamma_{00} + \gamma_{01} (Resilience_j) + U_{0j}$	1.255	0.029	---	-0.006	0.000	0.001	0.001	0.000
L2: $\beta_{1j} = \gamma_{10} + \gamma_{11} (Resilience_j) + U_{1j}$								
2. Slopes-as-Outcomes (Work Role Salience)								
L1: $EWB_{ij} = \beta_{0j} + \beta_{0j} (Workload_{ij}) + r_{ij}$								
L2: $\beta_{0j} = \gamma_{00} + \gamma_{01} (WRS_j) + U_{0j}$	1.300	0.024	---	-0.024	0.005	0.001	0.001	0.000
L2: $\beta_{1j} = \gamma_{10} + \gamma_{11} (WRS_j) + U_{1j}$								
3. Slopes-as-Outcomes (Resilience)								
L1: $EWB_{ij} = \beta_{0j} + \beta_{0j} (Workload_{ij}) + r_{ij}$								
L2: $\beta_{0j} = \gamma_{00} + \gamma_{01} (Resilience_j) + \gamma_{02} (EWB\_avg_{ij}) + U_{0j}$	0.979	-0.000	0.137	-0.006	0.000	0.001	0.000	0.000
L2: $\beta_{1j} = \gamma_{10} + \gamma_{11} (Resilience_j) + U_{1j}$								
4. Slopes-as-Outcomes (Work Role Salience)								
L1: $EWB_{ij} = \beta_{0j} + \beta_{0j} (Workload_{ij}) + r_{ij}$								
L2: $\beta_{0j} = \gamma_{00} + \gamma_{01} (WRS_j) + \gamma_{02} (EWB\_avg_{ij}) + U_{0j}$	0.979	-0.000	0.137	-0.024	0.005	0.001	0.000	0.000
L2: $\beta_{1j} = \gamma_{10} + \gamma_{11} (WRS_j) + U_{1j}$								

[10] Parameters are defined as follows: γ_{00} = Intercept of level 2 regression predicting β_{0j}; γ_{01}, γ_{02} = Slopes of level 2 regressions predicting β_{0j}; γ_{10} = Intercept of level 2 regression predicting β_{1j}; γ_{11} = Slope of level 2 regression predicting β_{1j}; σ^2 = variance in level 1 residual (r_{ij}); τ_{00} = variance in level 2 residual for models predicting β_{0j} (U_{0j}); τ_{11} = variance in level 2 residual for models predicting β_{1j} (U_{1j}); ICC = intra-class correlation.

Table C.16 - Level 1 - Means (M), Standard Deviations (SD), Reliability Coefficients, and Correlations

	M	*SD*	1	2	3
1. Workload	2.85	0.96	(.93)		
2. Eudaimonic Well-Being	2.98	0.34	-0.21**	(.65)	
3. Hedonic Well-Being	3.23	0.82	0.27**	-0.43**	(.90)

Cronbach's α reliability coefficients are presented in the main diagonal in parentheses

* *p* < .05 (two-tailed), ** *p* < .01 (two-tailed)

Figure C.3 - Box-Cox Graph for Lambda Estimation of Hedonic Well-Being

RMSE versus Lambda
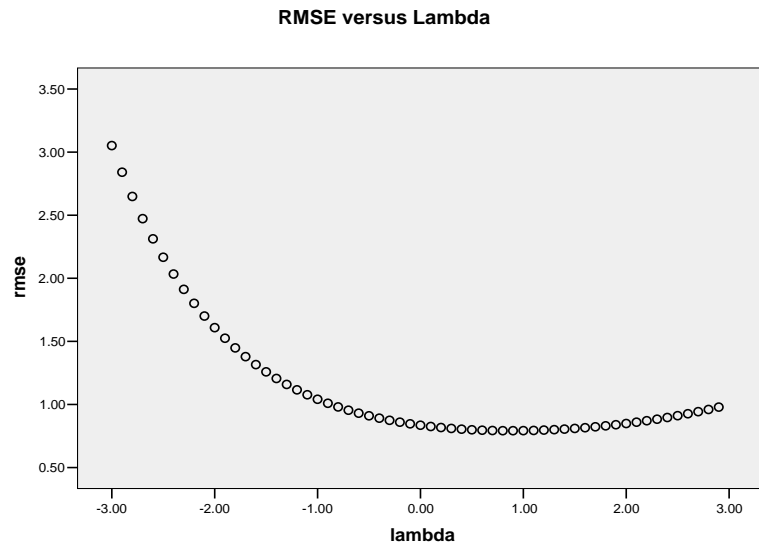
Figure C.4 - Box-Cox Graph for Lambda Estimation of Eudaimonic Well-Being

RMSE versus Lambda
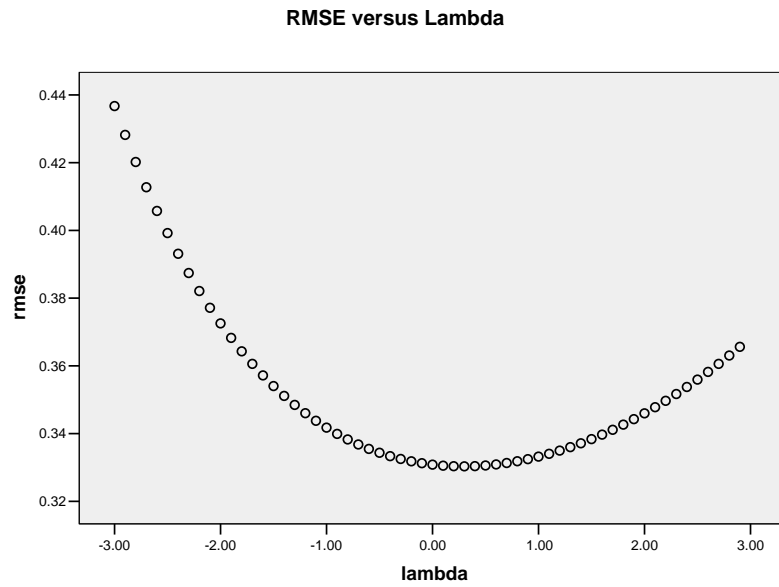
Figure C.5 - Random Regression Coefficient Model: Workload-HWB Relation
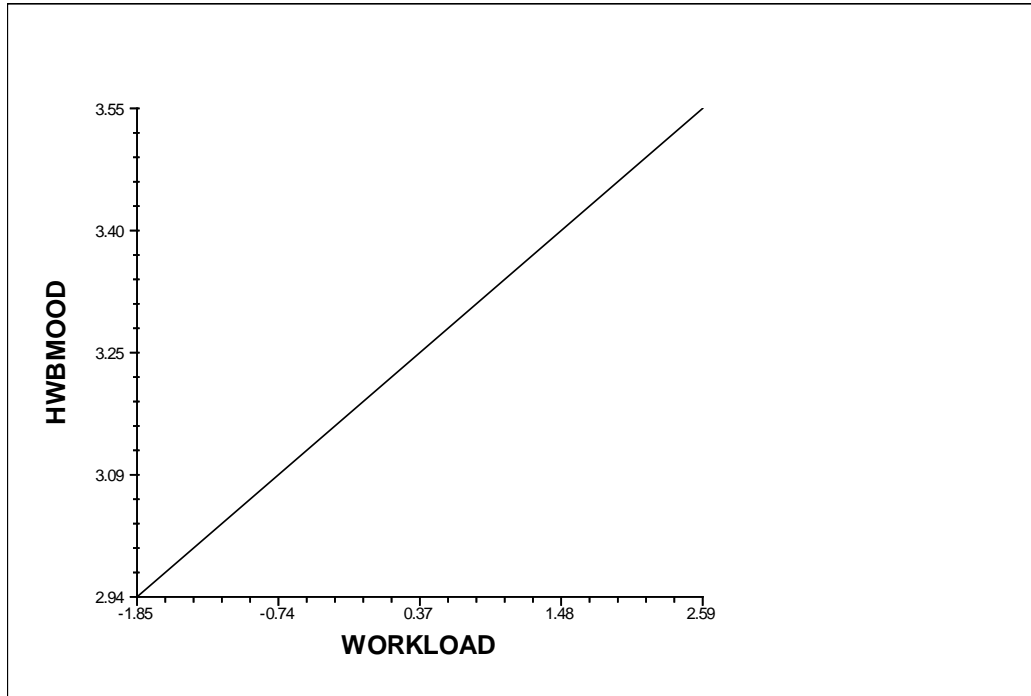
Figure C.6 - Random Regression Coefficient Model: Workload-EWB Relation
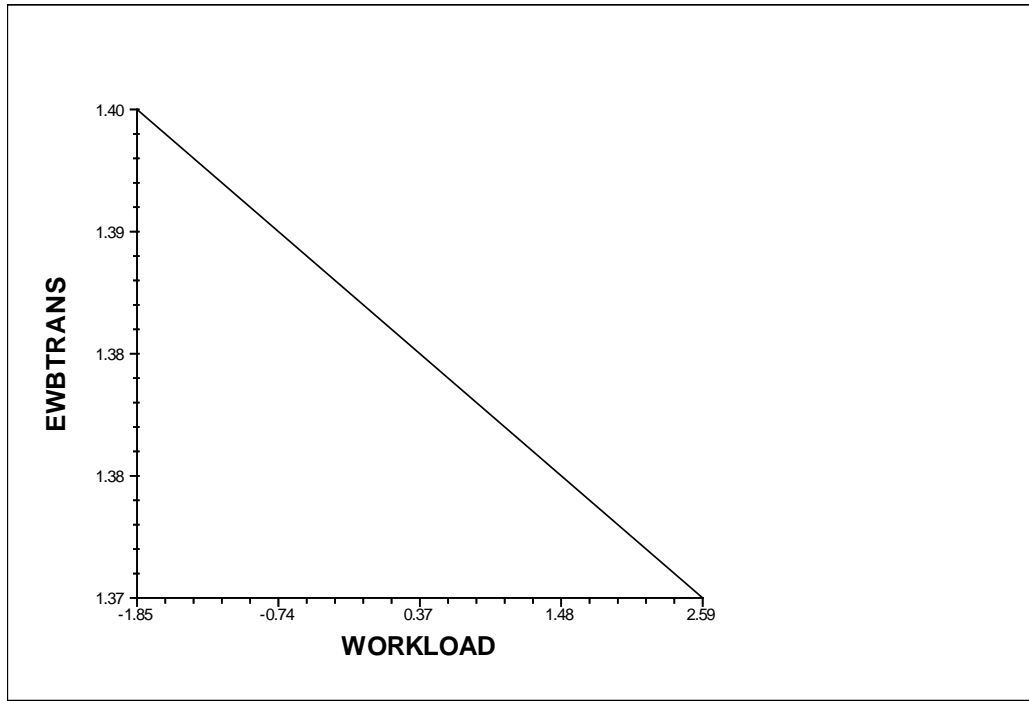
Figure C.7 - Slopes-as-Outcomes Model: Workload-EWB Moderated by Resilience
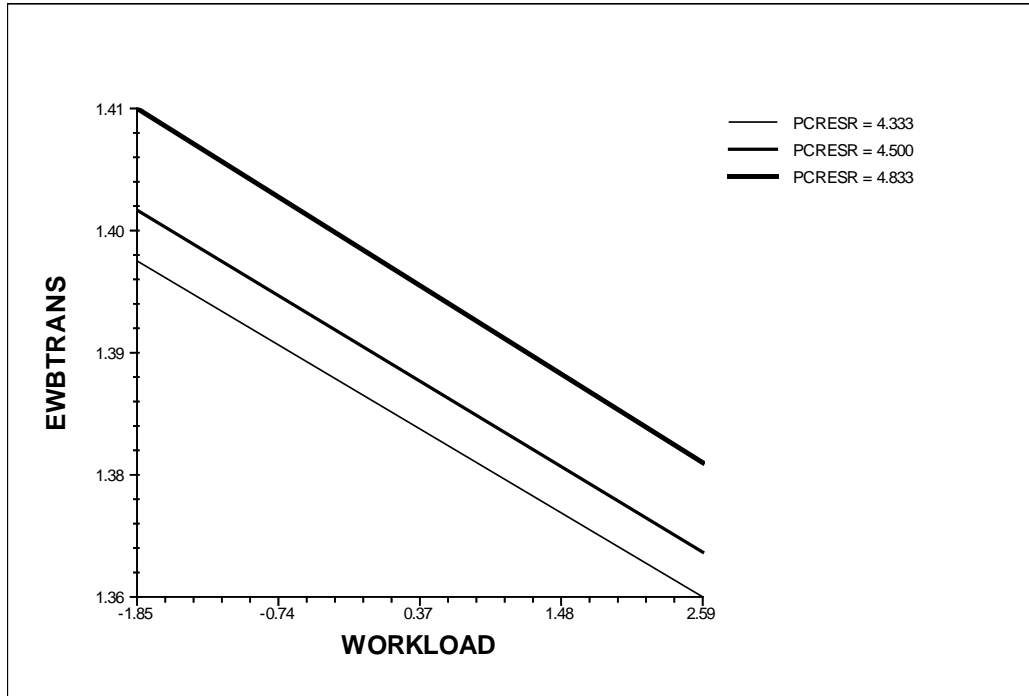
Figure C.8 - Slopes-as-Outcomes Model: Workload-EWB Moderated by Work Role Salience
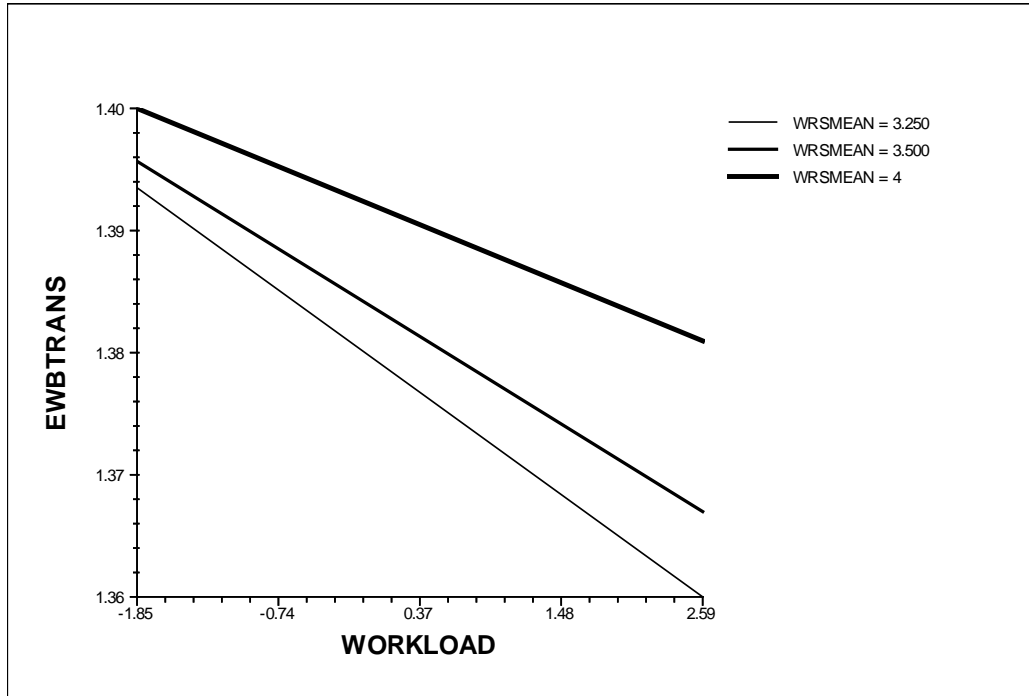
Figure C.9 - Slopes-as-Outcomes Model: Workload-EWB Moderated by both Resilience and Work Role Salience
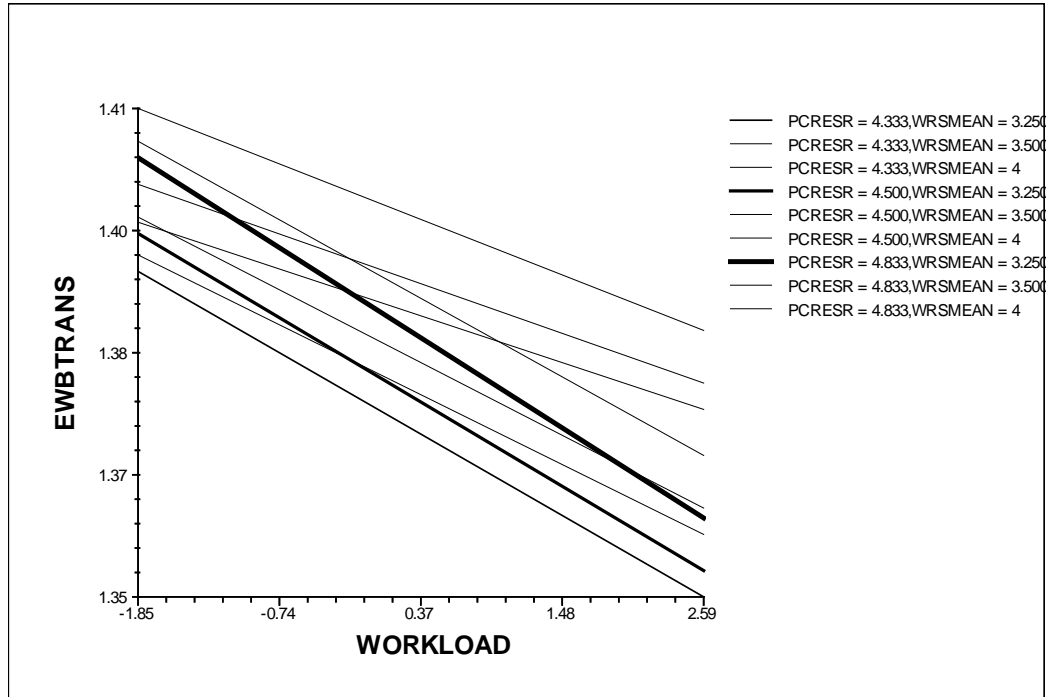
Table C.17 - Means (M), Standard Deviations (SD), Reliability Coefficients, and Correlations

	M	*SD*	1	2	3	4	5
1. EWB	2.98	0.23	(.88)				
2. HWB	3.20	0.61	-.61**	(.90)			
3. Workload	2.86	0.64	-.36**	.37**	(.93)		
4. Resilience	4.53	0.39	.37**	-.18	.03	(.64)	
5. Work Role Salience	3.64	0.50	.37**	.-.23*	-.13	.16	(.64)

Cronbach's α reliability coefficients are presented in the main diagonal in parentheses

* *p* < .05 (two-tailed), ** *p* < .01 (two-tailed)

Appendix D - Organizational Recruitment Letter (Study 3)

491 Bluemont Hall
Kansas State University
Mid-Campus Drive
Manhattan, KS 66506

To Whom It May Concern:

I am writing to request your support of an employee positivity project that I am undertaking under the auspices of Kansas State University.

Based upon past research that colleagues and I have done, as part of my dissertation I am undertaking the development and implementation of two employee-positivity-focused interventions, one focused on building employee well-being and the other focused on enhancing employee resilience (e.g., the ability to 'bounce back and beyond' when one encounters challenges).

The workplace well-being intervention targets both "hedonic" and "eudaimonic" well-being, which represent one's happiness in the workplace and one's sense of contribution, worth, and growth in the workplace, respectively. Similar interventions have been successfully implemented by various researchers (e.g., Fordyce, 1977, 1983; Seligman et al., 2005).

The employee resilience intervention targets one's ability to 'bounce back and beyond' when one encounters challenges at work. Similar interventions have been successfully implemented by various researchers (e.g., Luthans, Avey, et al., 2006; Masten & Reed, 2002). Likewise, the United States military has recently recognized the importance of employee resilience to the maintenance of organizations' human capital, and as such has just committed to a multi-million dollar training project designed to increase resilience in its Army employees.

Both of the above issues – that is, employee well-being and resilience – are currently "hot topics" in employee relations in a variety of industries, and both have meaningful outcomes for maintaining the quality of organizations' human capital, arguably any company's greatest resource.

Therefore, I am hoping that you will be agreeable to encouraging some of your employees to participate in these meetings. Each intervention will consist of one meeting, to be followed up with e-mail communication for the subsequent two weeks.

Please contact me regarding the possible participation of your employees in these meetings. Please note that I am planning to conduct these interventions on a pro-bono basis and that there will be no charge for these services.

Many thanks and I look forward to hearing from you.

Sincerely,

Maura Mills, M.S.
Department of Psychology
Kansas State University

Appendix E - Informed Consent (Study 3: Interventions)

This survey is intended to measure the effects of targeted programs to increase various positive feelings. Your participation in this research will include 4 online surveys over the course of one month as well as participation in 3 group meetings (held once per week for 3 weeks) designed to increase various aspects of positivity. The present research is being conducted as part of a dissertation, and the goal is to determine the impact of these new programs on participants' thoughts and feelings.

There are no foreseeable risks involved in the present study.

Your responses are completely confidential. Although we will ask for your name at the beginning of each survey, such information is only used in order to link all of your surveys to one another. When that has been done, we will replace your name with a number, and no one other than the researchers will see your name or individual responses to the survey. In reporting survey results, all responses will be aggregated and no individual results will be analyzed or presented at any time.

If you have any questions about the survey or would like more information about our study, please do not hesitate to contact XXXXX XXXXX at XXXXXXX@ksu.edu or XXX-XXXX. You may also contact XXXX XXXXXXX, Chair of the Institutional Review Board, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, at XXX-XXXX.[11]

By clicking NEXT you are acknowledging that you understand that your participation is voluntary, that failing to participate will result in no penalty to you, and that you may withdraw at any time.

By clicking NEXT you are also acknowledging that you have read and understand this consent form, and willingly agree to participate in this study under the terms described.

---

[11] Note that this information has been omitted in this replica of the informed consent form, with the understanding that such contact information may not endure over time. However, the information was present in full on the version of the informed consent furnished to the participants.

Appendix F - Informed Consent (Study 3: Control)

This survey is intended to measure the effects of targeted programs to increase various positive work-related experiences and feelings. Your participation in this research will consist of completing 2 online surveys.

There are no foreseeable risks involved in the present study.

Your responses are completely confidential. Although we will ask for your name at the beginning of each survey, such information is only used in order to link all of your surveys to one another. When that has been done, we will replace your name with a number, and no one other than the researchers will see your name or individual responses to the survey. In reporting survey results, all responses will be aggregated and no individual results will be analyzed or presented at any time.

If you have any questions about the survey or would like more information about our study, please do not hesitate to contact XXXXX XXXXX at XXXXXXX@ksu.edu or XXX-XXXX. You may also contact XXXX XXXXXXX, Chair of the Institutional Review Board, 203 Fairchild Hall, Kansas State University, Manhattan, KS 66506, at XXX-XXXX.[12]

By clicking NEXT you are acknowledging that you understand that your participation is voluntary, that failing to participate will result in no penalty to you, and that you may withdraw at any time.

By clicking NEXT you are also acknowledging that you have read and understand this consent form, and willingly agree to participate in this study under the terms described.

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[12] Note that this information has been omitted in this replica of the informed consent form, with the understanding that such contact information may not endure over time. However, the information was present in full on the version of the informed consent furnished to the participants.

Appendix G - Study 3 Tables

Table G.1 - Time 1 - Means (M), Standard Deviations (SD), Reliability Coefficients, and Correlations

	M	*SD*	1	2	3	4	5	6	7
1. PsyCap – Efficacy	4.95	0.54	(.77)						
2. PsyCap – Hope	4.86	0.56	.34**	(.72)					
3. PsyCap – Resilience	4.88	0.48	.53**	.27**	(.53)				
4. PsyCap – Optimism	4.61	0.60	.47**	.33**	.52**	(.75)			
5. PsyCap – Overall	4.83	0.41	.78**	.66**	.76**	.79**	(.86)		
6. Resilience	5.98	0.50	.56**	.44**	.56**	.58**	.72**	(.88)	
7. HWB – Positive Affect	3.54	0.65	.38**	.33**	.29**	.59**	.54**	.65**	(.92)
8. HWB – Negative Affect	1.51	0.48	-.39**	-.01	-.38**	-.28**	-.35**	-.40**	-.23*
9. EWB – Autonomy	4.25	0.41	.39**	.18	.26*	.31**	.38**	.38**	.26*
10. EWB – Env. Mastery	4.41	0.37	.42**	.36**	.48**	.54**	.60**	.52**	.38**
11. EWB – Personal Growth	5.28	0.40	.58**	.31**	.44**	.48**	.59**	.55**	.45**
12. EWB – PrwO	4.42	0.46	.29**	.32**	.36**	.51**	.50**	.36**	.40**
13. EWB – Purpose in Life	5.21	0.42	.44**	.36**	.35**	.53**	.57**	.47**	.47**
14. EWB – Self-Acceptance	4.38	0.37	.51**	.38**	.34**	.60**	.62**	.53**	.53**
15. EWB – Overall	4.66	0.30	.58**	.43**	.50**	.67**	.73**	.63**	.56**

Cronbach's α reliability coefficients are presented in the main diagonal in parentheses

* $p < .05$ (two-tailed), ** $p < .01$ (two-tailed)

	8	9	10	11	12	13	14	15
1. PsyCap - Efficacy								
2. PsyCap - Hope								
3. PsyCap - Resilience								
4. PsyCap - Optimism								
5. PsyCap – Overall								
6. Resilience								
7. HWB – Positive Affect								
8. HWB – Negative Affect	(.86)							
9. EWB – Autonomy	-.17	(.73)						
10. EWB – Env. Mastery	-.20	.36**	(.76)					
11. EWB – Personal Growth	-.29**	.37**	.54**	(.66)				
12. EWB – PrwO	-.25*	.34**	.64**	.35**	(.83)			
13. EWB – Purpose in Life	-.23*	.14	.50**	.62**	.43**	(.76)		
14. EWB – Self-Acceptance	-.27*	.43**	.61**	.49**	.56**	.56**	(.63)	
15. EWB – Overall	-.32**	.59**	.82**	.75**	.75**	.73**	.82**	(.91)

Cronbach's α reliability coefficients are presented in the main diagonal in parentheses

* $p < .05$ (two-tailed), ** $p < .01$ (two-tailed)

Table G.2 - Time 2 - Means (M), Standard Deviations (SD), Reliability Coefficients, and Correlations

	M	SD	1	2	3	4	5	6	7
1. PsyCap – Efficacy	5.05	0.57	(.87)						
2. PsyCap – Hope	4.99	0.58	.65**	(.86)					
3. PsyCap – Resilience	5.00	0.48	.63**	.56**	(.65)				
4. PsyCap – Optimism	4.69	0.61	.61**	.56**	.60**	(.79)			
5. PsyCap – Overall	4.93	0.47	.86**	.83**	.81**	.84**	(.92)		
6. Resilience	6.05	0.54	.61**	.62**	.75**	.71**	.80**	(.91)	
7. HWB – Positive Affect	3.63	0.75	.55**	.62**	.50**	.56**	.67**	.64	(.94)
8. HWB – Negative Affect	1.53	0.59	-.28**	-.30**	-.34**	-.40**	-.40**	-.59**	-.44**
9. EWB – Autonomy	4.33	0.41	.51**	.40**	.38**	.38**	.50**	.45**	.37**
10. EWB – Env. Mastery	4.48	0.40	.53**	.61**	.59**	.59**	.69**	.60**	.50**
11. EWB – Personal Growth	5.30	0.33	.48**	.44**	.47**	.41**	.54**	.53**	.53**
12. EWB – PRWO	4.43	0.43	.57**	.54**	.38**	.59**	.63**	.48**	.49**
13. EWB – Purpose in Life	5.24	0.39	.53**	.60**	.52**	.58**	.67**	.62**	.66**
14. EWB – Self-Acceptance	4.43	0.39	.47**	.61**	.42**	.62**	.64**	.64**	.58**
15. EWB – Overall	4.70	0.31	.66**	.68**	.58**	.68**	.78**	.70**	.66**

Cronbach's α reliability coefficients are presented in the main diagonal in parentheses

* $p < .05$ (two-tailed), ** $p < .01$ (two-tailed)

	8	9	10	11	12	13	14	15
1. PsyCap - Efficacy								
2. PsyCap - Hope								
3. PsyCap - Resilience								
4. PsyCap - Optimism								
5. PsyCap – Overall								
6. Resilience								
7. HWB – Positive Affect								
8. HWB – Negative Affect	(.90)							
9. EWB – Autonomy	-.26*	(.79)						
10. EWB – Env. Mastery	-.37**	.53**	(.80)					
11. EWB – Personal Growth	-.33**	.40**	.51**	(.53)				
12. EWB – PRWO	-.31**	.31**	.69**	.36**	(.83)			
13. EWB – Purpose in Life	-.38**	.43**	.71**	.66**	.53**	(.75)		
14. EWB – Self-Acceptance	-.45**	.48**	.70**	.48**	.59**	.70**	(.80)	
15. EWB – Overall	-.45**	.67**	.89**	.70**	.76**	.85**	.84**	(.93)

Cronbach's α reliability coefficients are presented in the main diagonal in parentheses

* $p < .05$ (two-tailed), ** $p < .01$ (two-tailed)

Table G.3 - ANCOVA Summary Table - Tests of Between-Subjects Effects for Resilience Intervention - Self-Acceptance

	SS	df	MS	F	p
Corrected Model	5.286	3	1.762	23.239	0.000
Intercept	0.445	1	0.445	5.866	0.018
Sample	0.000	1	0.000	0.006	0.937
EWB – Self-Acceptance	5.137	1	5.137	67.748	0.000
Group	0.128	1	0.128	1.690	0.198
Error	5.004	66	0.076		
Total	1380.702	70			
Corrected Total	10.290	69			

Table G.4 - ANCOVA Summary Table - Tests of Between-Subjects Effects for Well-Being Intervention - Self-Acceptance

	SS	df	MS	F	p
Corrected Model	4.675	3	1.558	21.445	0.000
Intercept	0.934	1	0.934	12.851	0.001
Sample	0.009	1	0.009	0.118	0.732
EWB – Self-Acceptance	4.303	1	4.303	59.214	0.000
Group	0.154	1	0.154	2.114	0.151
Error	4.724	65	0.073		
Total	1358.430	69			
Corrected Total	9.399	68			

Table G.5 - ANCOVA Summary Table - Tests of Between-Subjects Effects for Well-Being Intervention - Personal Growth

	SS	df	MS	F	p
Corrected Model	4.125	3	1.375	23.515	0.000
Intercept	2.009	1	2.009	34.360	0.000
Sample	0.027	1	0.027	0.466	0.497
EWB – Personal Growth	3.230	1	3.230	55.244	0.000
Group	0.667	1	0.667	11.403	0.001
Error	3.801	65	0.058		
Total	1944.773	69			
Corrected Total	7.926	68			

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