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## Workplace Commitment and Employee Well-Being: A Meta-analysis and Study of Commitment Profiles

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A thesis submitted in partial fulfillment of the requirements for the Doctor of Philosophy degree in Psychology

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WORKPLACE COMMITMENT AND EMPLOYEE WELL-BEING:  
A META-ANALYSIS AND STUDY OF COMMITMENT PROFILES

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A thesis submitted in partial fulfillment  
of the requirements for the degree of  
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The School of Graduate and Postdoctoral Studies  
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THE UNIVERSITY OF WESTERN ONTARIO  
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entitled:

**Workplace Commitment and Employee Well-Being:  
A Meta-Analysis and Study of Commitment Profiles**

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Chair of the Thesis Examination Board

## Abstract

Employee commitments have been connected to a multitude of organizationally-relevant variables, including turnover, absenteeism, job performance, and organizational citizenship behaviours (e.g., Meyer, Stanley, Herscovitch, & Topolnytsky, 2002).

Research has repeatedly demonstrated that the form these commitments take matters; that is, research has shown that commitment based on a mindset of affective attachment has the strongest positive relations with desired outcomes, while commitment based on mindsets of social or economic costs has much weaker and sometimes even negative relations with these same outcomes.

Far less research exists on the connection between workplace commitments and their implications for employees themselves, although research is beginning to accumulate (see Meyer & Maltin, 2010, for a review). Some meta-analyses of the links between commitment and individual well-being variables (e.g. stress, Mathieu & Zajac, 1990; Dowden & Tellier, 2004; and engagement, Halbesleben, 2010) exist, but these, and the bulk of primary research in this area, focused almost exclusively on affectively-based commitment.

The research presented here aimed to provide a clear picture of what we know about the connection between commitment and well-being operationalized multidimensionally, and provide new information about their relation. Wellness research has often focused not on well-being but on the absence of illness; the studies presented here, in addition to ill-health, include both hedonic well-being (i.e., happiness, pleasure) and eudaimonic well-being (i.e., meaning, energy; Ryan & Deci, 2001). Study 1 provides a meta-analysis of links between organizational commitment and ill health and well-

being. Study 2 aims to go beyond what is known about commitment and well-being by taking a person-centered, multidimensional approach. Specifically, Study 2 is a primary study exploring the occupational and organizational commitment of 326 teachers. These teachers were classified into naturally-occurring commitment profile groups through latent profile analysis (Muthén & Muthén, 2000), and the groups were compared with regard to need support, need satisfaction, ill health, hedonic well-being, and eudaimonic well-being. Findings of both studies confirmed that the nature of the commitment does indeed count, and that employees whose commitment is characterized by strong affective attachment report higher levels of well-being. Directions for future research in this area and implications for practice are discussed.

Keywords: Organizational commitment, occupational commitment, employee well-being, person-centered research, latent profile analysis, self-determination theory.

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## CHAPTER 1: GENERAL INTRODUCTION

Scientists and practitioners alike have come to recognize employee commitment as one of the most important and influential attitudinal variables to be studied. Certainly, the available evidence demonstrating the numerous benefits of a committed workforce is substantial. Meta-analytic reviews of the commitment literature have demonstrated that employees who are committed to the organization for which they work are less likely to leave (e.g., Mathieu & Zajac, 1990; Tett & Meyer, 1993), and more likely to attend work regularly (e.g., Meyer, Stanley, Herscovitch, & Topolnytsky, 2002), perform effectively (e.g., Cooper-Hakim & Viswesvaran, 2005; Riketta, 2002), and be good organizational citizens (e.g., Meyer et al., 2002; Riketta, 2002). Not all commitments are equal, however; the nature of the commitment makes a considerable difference. Commitments reflecting an affective attachment and involvement with the organization have been shown to be more strongly associated with desired outcomes than those reflecting concerns based on social or economic costs (Meyer, et al., 2002).

Does strong organizational commitment benefit employees, as it does their employing organizations? While researchers have given far less attention to the implications of commitment for employees themselves, research on the links between commitment and employee well-being is becoming more common (Meyer & Maltin, 2010). For the most part, this research is cross-sectional in nature. Thus, although causal language is sometimes used in the following pages to describe the expected and observed relations between commitment and well-being, this discussion of causality should be read as assumed but not confirmed.

Accumulating evidence points to strong relations between organizational commitment and employee well-being. Just as with other hypothesized outcomes of commitment, however, the strength and direction of the commitment-well-being link depend on the nature of the commitment. The available research is overwhelmingly focused on attachment-based commitment, and this research points to relations that mirror those with organizational outcomes. That is, attachment-based commitment tends to be more beneficial for employees' well-being than does cost-based commitment. The strength and direction of the commitment-well-being link also depend on what is meant by well-being.

Although evidence of the connection between commitment and well-being is mounting, that evidence is somewhat scattered. This is, in part, because of the vast array of well-being outcomes that have been examined. Every study seems to operationalize the concept in a different way; indeed, the meaning of well-being is as complex, or more, than the meaning of commitment. The lack of a universal or agreed-upon definition of well-being and of an overarching theory of what it encompasses has made it challenging to conduct and review systematic research on the links between commitment and well-being (cf. Meyer & Maltin, 2010). Ryan & Deci (2001) offered an extensive review of two general perspectives on well-being, the hedonic and eudaimonic perspectives, which will be used as the general framework for the current research. The hedonic perspective focuses on happiness, whereas the eudaimonic perspective is more concerned with "living well" in all respects. I discuss these two perspectives in more detail below, and review connections between commitment and well-being defined both ways in Chapter 2.

The first main objective of the current research is, in short, to gather and present what is already known about the connection between workplace commitment and employee well-being. A meta-analytic review of the accumulated research examining relations between organizational commitment and widely-studied employee well-being variables serves this purpose, and is presented in Chapter 2.

After having addressed what we already know regarding workplace commitment-well-being links, the second study in this dissertation ventures into relatively uncharted territories. In other words, having gathered “what we know” about commitment and well-being, the second study will turn to “where we need to go.” Specifically, this second study addresses several limitations in the extant literature on commitment and employee well-being. It also examines two potentially important antecedents of commitment and well-being, managerial need support and need satisfaction.

The first limitation of the current literature addressed herein is that the vast majority of the commitment literature examines the construct unidimensionally, focusing almost exclusively on commitment characterized by affective attachment to the organization. Those studies that do examine commitment from a multidimensional perspective rarely examine the interactions among the components of commitment and their relations with hypothesized outcomes (for exceptions, see Sinclair, Tucker, Cullen, & Wright, 2005; Somers, 2009; Somers, 2010; Stanley, Vandenberg, Vandenberghe, and Bentein 2009; Tsoumbris & Xenikou, 2010; and Wasti, 2005). Meyer and Allen (1997) and Meyer and Herscovitch (2001), in their overviews of the three component model (TCM; see Appendix A for a list of acronyms) of commitment, strongly advised that researchers consider all three components of commitment *in combination*. The second

study included in this research is a primary study that examines commitment from this multidimensional perspective.

Most commitment research employs a variable-centered, or dimensional, approach (e.g., multiple regression or structural equation modeling). That is, this research focuses on examining how variables relate to each other, and uses these relations to infer psychological processes or causality (Vandenberg & Stanley, 2009; Wang & Hanges, 2011). Studies using the variable-centered approach, however, do not consider that these relations among variables may differ meaningfully among different subgroups of the sample (Morin, Morizot, Boudrias, & Madore, 2011). An equally valid approach is to classify individuals into relatively homogeneous subgroups, often called profile groups, that are believed to differ in the level of and/or relations among the variables under study. Because employees can feel differing levels of each component of commitment simultaneously, Meyer and Herscovitch (2001) recommended using this profile approach to detect groups of employees grouped together according to all three components of commitment. This person-centered or profile approach offers several methodological advantages for studying interactions among commitment constructs, and is gaining popularity in commitment research (e.g., Morin, et al., 2011; Sinclair & Sears, 2011; Vandenberg & Stanley, 2009). This approach is used in the second study.

A second limitation of the existing commitment-well-being literature is that researchers have, for the most part, examined commitment to the organization, with little attention to commitments to other foci. Those studies that have considered affective commitment to other foci such as occupations, careers, teams, supervisors, and customers, have demonstrated that it is positively related to many outcomes of relevance

to organizations and employees. These outcomes include, but are not limited to, turnover intention (e.g., Stinglhamber, Bentein, & Vandenberghe, 2002), performance (e.g., Becker, Billings, Eveleth, & Gilbert, 1996; Vandenberghe, Bentein, & Stinglhamber, 2004), organizational citizenship behaviours (OCBs; e.g., Becker & Kernan, 2003; Cohen, 2007), job stress (Yeh, Ko, Chang, & Chen, 2007), and burnout (e.g., Miller, Ellis, Zook, & Lyles, 1990; Reilly, 1994).

Occupational or professional commitment is the most studied of commitments to foci other than organizations, and researchers have debated its compatibility with organizational commitment. Two perspectives have been put forth, one arguing that professional commitment might conflict with organizational commitment (e.g., Gouldner, 1957; Kalleberg & Berg, 1987), the other that they can be mutually reinforcing (Steers, 1977). Moderate positive meta-analytic relations between organizational and occupational commitment (Cooper-Hakim & Viswesvaran, 2005; Meyer, et al., 2002; Wallace, 1993) support the perspective that they can be mutually reinforcing. However, because these relations are moderate, the possibility remains that these two commitments might conflict for some individuals but not for others. One of the advantages of the person-centered approach is that one can detect compatibility for some groups and conflict for others. Very little research has been done that examines organizational and occupational commitment in combination (for exceptions, see Maltin, Stanley, & Meyer, 2011; Tsoumbris & Xenikou, 2010). The second study presented here examines both organizational and occupational commitment, using the person-centered approach.

The second study, in addition to addressing all of the issues noted above, also gives attention to a potentially important antecedent of both commitment and well-being:



need support. Research has indicated that one of the most important antecedents of commitment is positive work experiences, particularly those reflecting support on the part of the target (Meyer and Allen, 1991, 1997). It is therefore logical to assert that support for employees' basic psychological needs, and satisfaction of these needs in turn, would be associated with commitment. Self-determination theory (SDT; e.g., Deci & Ryan, 1985; Ryan & Deci, 2000a) is a broad theory of human motivation and well-being that is supported by decades of research in contexts such as parenting, education, sport and exercise, health care, psychotherapy, religion, and politics. It has recently been gaining ground as a theory of work motivation, and calls have been made to apply it to more organizational behaviour research (Gagné & Deci, 2005; Meyer & Gagné, 2008; Meyer, Gagné, & Parfyonova, 2010). SDT's emphasis on the extent to which the social context fulfills our basic psychological needs, thereby fostering performance and well-being, makes it an ideal theory to guide the second study of the present research. Research has related both commitment and need satisfaction (as defined in SDT) to well-being (e.g., Deci & Ryan, 2000; Ryan & Deci, 2000a; Meyer & Maltin, 2010; Meyer et al., 2002). However, only one study to date (Meyer, Stanley, & Parfyonova, in press) has examined commitment, need satisfaction, and well-being together in one study, and it focused exclusively on organizational commitment.

Thus, the main objectives of the second study presented herein are to examine both a major, employee-relevant consequence of commitment (well-being), and the related antecedents of need support and satisfaction, all while utilizing a person-centered approach. Furthermore, this second study will treat both commitment and well-being

multidimensionally, and will explore commitment toward two different foci (the organization and the occupation).

In the remainder of this introduction, I examine relevant theories and research findings. First, I review commitment theory and its known connections to well-being will be reviewed. Following this, I provide a brief review of the conceptualization of well-being in organizational research.

### *Commitment from the Perspective of the Three Component Model*

As discussed above, the benefits of a committed workforce are numerous, including better retention (e.g., Mathieu & Zajac, 1990; Tett & Meyer, 1993), attendance (Meyer et al., 2002), performance (e.g., Cooper-Hakim & Viswesvaran, 2005; Riketta, 2002), and OCBs (Meyer et al., 2002; Riketta, 2002). The caveat to these benefits, however, is that it is not simply the *amount* of commitment that employees display, but the *form*, that is important. Commitments reflecting an affective attachment and involvement with the target (e.g., the organization) have been shown to have greater benefit to the recipient of the commitment than those based on concerns over social or economic costs (Meyer et al., 2002).

Commitment has been conceptualized in varying ways over the years (for reviews, see Klein, Molloy, & Cooper, 2009; Meyer & Allen, 1997; Mowday, Porter, & Steers, 1982). The present research adopts the approach taken by the well-established TCM and views commitment as a “force that binds an individual to a course of action of relevance to a particular target (Meyer & Herscovitch, 2001, p. 301). This binding force can be experienced in different ways; that is, it can be accompanied by different mindsets. *Affective commitment* (AC) entails a mindset of affective attachment and

involvement with a target; in other words, AC is said to be reflected in “wanting to” be involved with the target of commitment (e.g., wanting to stay in an organization).

*Normative commitment* (NC) is characterized by a mindset of obligation, and is therefore said to imply a feeling that one “ought to” remain connected to the target. *Continuance commitment* (CC) involves a mindset of awareness of the costs associated with discontinuing the course of action of relevance to the target. CC is therefore associated with a feeling of “having to” remain connected to a target.

While popular, the TCM of commitment has not been without controversy. Two major issues that have arisen are the discriminability of AC and NC, and the dimensionality of CC. AC and NC are quite strongly correlated (e.g.,  $\rho=.63$  in Meyer et al.’s 2002 meta-analysis); as a result, several researchers have argued that they are, in fact, redundant concepts (e.g., Jaros, 1997; Ko, Price, & Mueller, 1997). Evidence from other sources, however, has attested to their distinction. For example, Meyer et al.’s (2002) meta-analysis demonstrated that AC and NC relate differently to theoretical antecedents and consequences. Furthermore, confirmatory factor analyses in numerous studies have yielded better fit when AC and NC are modeled as two factors, as opposed to a single factor (e.g., Dunham, Grubé, & Castenada, 1994; Hackett, Bycio, & Hausdorf, 1994; Meyer, Allen, & Gellatly, 1990). Recent research on NC, reviewed briefly below, points to its differing implications for other variables depending on levels of AC and CC by which it is accompanied.

The second issue that theoretical analyses of the TCM have brought forward is the dimensionality of CC. Specifically, these analyses have provided evidence that CC actually contains two subcomponents (McGee & Ford, 1987). The first, called high

sacrifice CC (CCHiSac), reflects one's perception that severing the commitment (e.g., to one's organization) would require making considerable sacrifices. The second subcomponent, called low alternatives CC (CCLoAlt), involves a mindset that one has to maintain the commitment because there are so few available alternatives. A great deal of research has accumulated that corroborates the two-dimensional structure of CC, including factor analytic studies (e.g., Hackett et al., 1994; Meyer, Allen, & Gellatly, 1990; Somers, 1993). Furthermore, while CCHiSac relates positively to AC and NC, CCLoAlt is actually negatively related to these components (McGee & Ford, 1987; Meyer et al., 2002). In addition, CCHiSac is more strongly related to withdrawal and turnover intentions than is CCLoAlt (Meyer et al., 2002). Given this evidence, and given that CCHiSac is more closely aligned with Meyer and Allen's original definition of CC (based on Becker's 1960 definition), Powell and Meyer (2004) revised the CC scale to include only items tapping the CCHiSac conceptualization. Researchers continue to use both the original scales (sometimes separating the CCHiSac and CCLoAlt items) and the revised scale.

In terms of variables theoretically postulated as outcomes, research has generally shown that AC is has the strongest positive relation with desired outcomes, followed by NC (Meyer et al., 2002). These desired outcomes include both focal behaviours (i.e., those that are included within the terms of the commitment, such as staying and performing the job adequately) and discretionary behaviours (i.e., those that are not necessarily included within the terms of the commitment, such as OCBs and going "above and beyond" in terms of performance) (Meyer & Herscovitch, 2001). The effects of CC tend to be more limited; that is, CC typically correlates positively with behaviours

specified within the terms of a commitment, but is unrelated or negatively related to more discretionary acts of relevance to the target and to well-being (Meyer & Herscovitch, 2001; Meyer & Maltin, 2010).

Very little commitment research involves a person-centered approach, but a few studies have examined commitment profiles and their connections to relevant outcomes. Recent research using the profile approach to commitment (Gellatly, Meyer, & Luchak, 2006; Meyer & Parfyonova, 2010; Meyer et al., 2011), as well as recent theoretical work (Meyer & Parfyonova, 2010) has shed light on the somewhat inconsistent relations NC has had with hypothesized outcomes in past research. These scholars described the “two faces” of NC. That is, NC relates differently with other variables depending on the accompanying levels of AC and NC. Specifically, Gellatly et al. (2006) described the combination of strong AC and NC with weak CC as a *moral imperative profile*, connoting commitment to a course of action based not simply on desire but also out of a sense of that it is the “right” thing to do. In contrast, they referred to the combination of strong NC and CC with weak AC as an *indebted obligation profile*, implying a feeling of being trapped in a relationship or course of action for fear of the economic or social costs associated with discontinuation. I review other commitment profiles and studies incorporating the profile approach in Chapter 3.

While much of the extant research on the TCM focuses on organizational commitment, commitments to other workplace foci have also received some research attention. Researchers have applied the TCM to commitment to the occupation (e.g., Chang, Chi, & Miao, 2007; Meyer, Allen, & Smith, 1993); supervisor (e.g., Snape, Chan & Redman, 2006; Stinglhamber & Vandenberghe, 2003), work team (e.g., Becker &

Kernan, 2003; Den Hartog & Belschak, 2007), unions (e.g., Stinglhamber et al., 2002; Chan, Snape, & Redman, 2004), and customers (Stinglhamber et al., 2002; Vandenberghe, Bentein, Michon, Chebat, Tremblay, & Fils, 2007). These commitments have all been found to have outcomes of benefit to the target, and, in many cases, to the organization as a whole. Regardless of focus, however, it is the nature of the commitment (i.e., the mindset accompanying it) that has implications for the way it is enacted. I review specific research pertaining to “dual commitments” (e.g., to the organization and occupation), and their effects on outcomes, in Chapter 3.

Having reviewed the major concepts and controversies in the commitment literature, I now turn to a discussion of the meaning of health and well-being, particularly in the current studies.

#### *The Meaning of Health and Well-Being from Multiple Perspectives*

Although the concepts health and well-being seem to be clear, and most people have an understanding of what they mean, they are nevertheless very difficult to actually define (Larson, 1999). Indeed, because of their complex nature, our societal perceptions of health have been likened to a “receding mirage” whose substance disappears as we advance toward a definition (Dubos, 1961). Recent times have seen nothing less than a paradigm shift in our thinking about health, from a medical model emphasizing disease, to a new model emphasizing health, optimal functioning, and well-being (Larson, 1999; Tetrick, 2002). The emergence of positive psychology (Seligman & Csikszentmihalyi, 2000), which focuses on human strengths and optimal functioning, has been a large part of the push in this direction.

Various models of health have been proposed and outlined (e.g., Larson, 1999; Tetrick, 2002). The predominant model, the medical model, essentially defines health as the absence of illness or disease. Research guided by the medical model generally operationalizes well-being in terms of the absence of ill-health. Ill-health is the term used by Tetrick (2002) to encompass negative indicators of both physical and psychological health. The medical model has been criticized by proponents of positive psychology for not telling the whole story of human health, and for weighting psychological research toward an almost exclusive focus on ill-health (Seligman & Csikszentmihalyi, 2000; Tetrick, 2002). Other, more positively-oriented models take a more holistic view of health, including physical, mental, and social well-being over and above the simple absence of illness or disease (Larson, 1999; Tetrick, 2002).

Ryan and Deci (2001) defined well-being as “optimal psychological functioning and experience” (p. 142). Opinion differs widely, however, on how to operationalize the concept of well-being. Ryan and Deci (2001) detailed two perspectives on well-being that, while relatively distinct, overlap somewhat. These two perspectives stem from traditions with long histories dating back many centuries. The tradition of hedonism holds that well-being consists of pleasure or happiness and the absence of pain (Kahneman, Diener, & Schwartz, 1999). This philosophy refers not only to physical hedonism, but includes a broad sense of pleasure versus displeasure in mind and body, and in all areas of life (Diener, Sapyta, & Suh, 1998; Kubovy, 1999).

The philosophy of eudaimonism, in contrast, asserts that well-being is more than mere happiness. Instead, philosophers in this tradition define well-being as the actualization of human potential (Ryan & Deci, 2001)—fulfilling or realizing one’s

“daimon” or true nature (Waterman, 1993). From this perspective, some outcomes that may be pleasurable would not necessarily lead to well-being; only when these activities are in accordance with one’s true self would they truly promote wellness (Ryan & Deci, 2001). For example, while accomplishing a goal such as graduating from medical school might lead to happiness or pleasure for the graduate, if they were pursuing this line of work in order to please others (e.g., their parents), it would not necessarily lead to wellness. In contrast, accomplishing this same goal would likely lead to wellness for someone who felt that medicine was their true calling. This conceptualization of well-being as moving beyond the boundaries of lack of ill-health and hedonic pleasure is consistent with the positive psychology movement (Seligman & Csikszentmihalyi, 2000).

Research guided by the hedonic perspective of well-being, such as the large body of research on subjective well-being (e.g., Diener & Lucas, 1999), generally takes the view that well-being is comprised primarily of the presence of positive affect, the absence of negative affect, and the presence of life satisfaction; in other words, a positive state of mind. Researchers in the eudaimonic tradition have variously defined psychological well-being as having one’s life activities be fully congruent with one’s deeply held values (Waterman, 1993); experiencing a set of well-being indicators including autonomy, personal growth, self-acceptance, life purpose, mastery and positive relatedness (Ryff & Keyes, 1995); and experiencing other feelings such as self-actualization, meaning, and vitality (Ryan & Deci, 2000a). Each of these operationalizations points to a lifestyle associated with outcomes above and beyond happiness.

Research measuring well-being from both perspectives has found that hedonic and eudaimonic well-being are moderately correlated (e.g., Compton, Smith, Cornish, &



Qualls, 1996) but still conceptually distinct (McGregor & Little, 1998). Moreover, their relationship is not considered to be perfectly reciprocal: eudaimonia is believed to be a sufficient but not necessary condition for hedonic well-being, whereas hedonic well-being is neither sufficient nor necessary in order to experience eudaimonia (cf. Waterman, Schwartz, & Conti, 2008). Indeed, some conditions that foster hedonic well-being, such as succeeding at an activity while under pressure, do not result in eudaimonic well-being (Nix, Ryan, Manly, & Deci, 1999). However, SDT maintains that satisfaction of the basic psychological needs will typically foster both hedonic and eudaimonic well-being. Given this assertion, SDT research tends to focus on eudaimonic well-being, as operationalized by self-actualization and vitality, supplementing this focus with the measurement of subjective or hedonic well-being. Consistent with this practice, the present research will operationalize well-being as both eudaimonic well-being and hedonic well-being.

Having now provided an overview of the major concepts of interest, commitment and well-being, in the following chapters I will delve deeper into the connection between them. Chapter 2 presents a meta-analysis of relations between commitment and key well-being variables. Chapter 3 presents a study exploring relations between occupational and organizational commitment and need support, need satisfaction, and several well-being outcomes, using a person-centered (profile) approach. Chapter 4 constitutes a general discussion addressing the findings and limitations of both studies, and offering conclusions, implications for science and practice, and recommendations for future research in this area.

## CHAPTER 2: A META-ANALYTIC EXAMINATION OF RELATIONS BETWEEN COMMITMENT AND EMPLOYEE WELL-BEING

### Introduction

As discussed above, commitment is a key variable in organizational research, and volumes of studies attest to its connection to important organizational outcomes. This research has consistently shown that AC relates negatively to turnover and turnover intention (e.g, Mathieu & Zajac, 1990; Tett & Meyer, 1993), and positively to both focal job performance (e.g., Cooper-Hakim & Viswesvaran, 2005; Riketta, 2002) and organizational citizenship behaviours (OCBs; e.g., Meyer et al., 2002; Riketta, 2002), with the strongest relations occurring between AC and the latter. In contrast to AC, meta-analytic evidence suggests that while CC is negatively related to turnover and turnover intention, it is also negatively related to job performance and a near-zero relation with OCBs (Meyer, et al., 2002). Finally, NC tends to display relations in the same direction as AC, but weaker (Meyer, et al., 2002).

What, then, of employee-relevant outcomes? Much less of the research on the outcomes of workplace commitment has concentrated on relations between commitment and employee well-being. Nevertheless, evidence is beginning to accumulate showing that relations between commitment and well-being mirror relations between commitment and organizationally-relevant variables (Meyer & Maltin, 2010).

The remainder of this introduction is divided into three sections. In the first, I review the literature on the links between commitment and well-being and ill-health. Following this, I provide a brief overview of the advantages of meta-analyses over and

above narrative reviews. Finally, I offer hypotheses for the current meta-analytic study.

The reader is reminded that causal language is sometimes used in the following discussion of relations between commitment and well-being. This use of causal language is based on theoretical assumptions that commitment acts as an antecedent to employee well-being (see Meyer & Maltin, 2010, for a theoretical model postulating such relations). Because the findings reviewed here are bivariate correlations, the discussion of causality should be read as assumed but not confirmed.

### *Commitment-Well-Being Links*

There is a distinct absence of theory to guide the explanation of the link between commitment and well-being. Attempts to develop theory (cf. Meyer et al., 2010; Meyer & Maltin, 2010; Meyer, Maltin, & Thai, in press) have used the framework of self-determination theory (SDT), positing that commitment's links with well-being can be explained, at least in part, by its status as an indicator that employees' basic needs are being filled in the work context. The focus in Study 1 was to establish the empirical links between commitment and well-being; however, SDT and the basic needs it postulates will be explained more thoroughly in Chapter 3.

Research has shown that AC is positively related to mental health (e.g., Grawitch et al., 2007; Probst, 2003), positive affect (e.g., Thoresen, Kaplan, Barsky, Warren, & de Chermont, 2003), engagement (Hallberg & Schaufeli, 2006; Jackson, Rothmann, & van de Vijver, 2006), meaning at work (Clausen & Borg, 2010; Clausen, Christensen, & Borg, 2010), subjective relational experiences (composed of positive regard, mutuality, and relational vitality; Vinarski-Peretz, Binyamin, & Carmeli, 2011); zest, enthusiasm, and vitality (Lester, Parnell, & Carraher, 2010), and the professional efficacy dimension

of burnout (e.g., Leiter & Maslach, 1988; Otto & Schmidt, 2007). Researchers have also found negative relations between AC and measures of strain, such as psychosomatic symptoms and physical health complaints (e.g., Richardson et al., 2006; Wegge et al., 2006), negative affect (Thoresen, et al., 2003), and burnout (e.g., Grawitch, et al., 2007; Hakanen, Bakker, & Schaufeli, 2006).

Fewer studies have examined relations between CC and employee well-being, and the results of these have been somewhat inconsistent (see Meyer & Maltin, 2010, for a review). Studies have reported negative relations between CC and life satisfaction (Zickar, Gibby, & Jenny, 2004) as well as professional efficacy (Chuo, 2003). Others have found positive relations between CC and job-related tension (Irving & Coleman, 2003) and emotional exhaustion (Donovan, 2003; King & Sethi, 1997; Maltin, 2006). Other studies have found non-significant relations between CC and negative outcomes such as negative emotions and health complaints (Wegge et al., 2006) and job stress and carry-over stress (i.e., stress that persists outside of work; Somers, 2009). One study (Wasti, 2005) even found a small but significant negative correlation between CC and job stress (although this correlation was positive in a second sample in this study). It is not difficult to imagine that an employee reporting strong CC, with its connotation of being trapped, would not experience feelings of wellness, and might, in fact, experience strain. The little evidence that exists does appear to support this notion; however, because of the inconsistent findings, further research is clearly needed for clarification.

Recall from Chapter 1 that theoretical distinctions have been made between two aspects of CC (McGee & Ford, 1987; Powell & Meyer, 2004): CCHiSac, connoting a feeling of having to sacrifice a great deal in severing one's bond with the commitment

target; and CCLoAlt, characterized by a mindset of having few alternatives should one choose to sever that bond. While most research exploring the links between CC and employee well-being has used the original three-component model (TCM) scales without differentiating between the two aspects of CC, two studies did make the distinction (Herrbach, 2006; Panaccio & Vandenberghe, 2009). Both of these studies found that while CCHiSac had a weak positive correlation with positive affect and a near-zero correlation with negative affect, the relations between CCLoAlt and these variables were in the opposite direction.

Fewer studies still have examined the connection between NC and employee well-being. Just as with organizationally-focused outcomes, the few studies that have been conducted generally find that relations between NC and well-being variables are in the same direction as but weaker than the relations between AC and the same variables. For instance, NC has been found to be positively related to life satisfaction (e.g., Huff, 2001; Redman & Snape, 2006), engagement (Wefald, 2008), and professional efficacy (Chuo, 2003). Like AC, NC has also been found to be negatively related to burnout (e.g., Bakker, Demerouti, de Boer, & Schaufeli, 2003; Chuo, 2003), job tension (e.g., Arbour, 2008; Johnson, Groff, & Tang, 2009), psychological ill-health (Arbour, 2008), and depression (Minzenmayer, 2007). Interestingly, the one study examining relations between NC and affect found that NC was positively related to both positive and negative affect (Panaccio & Vandenberghe, 2009).

A few meta-analytic studies have been conducted that include examinations of commitment and well-being links. The bulk of these have measured commitment unidimensionally, using primary studies that measured commitment in terms of AC or

other unidimensional conceptualizations (e.g., the Organizational Commitment Questionnaire, OCQ; Porter, Steers, Mowday, & Boulian, 1974; Mowday, Steers, & Porter, 1979) that are typically very similar to AC. For example, Mathieu and Zajac (1990) found that organizational commitment (largely affective-based) was negatively related to stress, as did Dowden and Tellier (2004). Both of these meta-analyses operationalized stress as an outcome. A meta-analysis of positive and negative affect (Thoresen, Kaplan, Barsky, Warren, & de Chermont, 2003) yielded a positive correlation between AC and positive affect, and a negative correlation between AC and negative affect. Halbesleben (2010) found moderate positive relations between commitment and both overall/composite measures of engagement and its individual components (vigour, dedication, and absorption). In the latter meta-analysis, commitment was measured unidimensionally, but Halbesleben did not make clear whether that included only affective-based measures, any measures of any components, or measures collapsing two or more of the components of commitment. The only meta-analysis that employed the TCM (Meyer, et al., 2002) found that AC was negatively related to stress. As expected, the Meyer et al. (2002) meta-analysis found that NC was negatively related to stress, but with a weaker correlation than AC, and that CC was positively related to stress.

#### *Narrative Reviews and Meta-analyses*

As is evident from the preceding discussion, no meta-analysis to date has examined the relations between all three components of commitment and well-being. Furthermore, no meta-analysis of commitment and well-being has examined the concept of well-being beyond a single, somewhat vague variable—stress. Meyer and Maltin (2010) provided a fairly comprehensive narrative review of the connections between the

three components of commitment and well-being defined broadly. However, it is well-known that, while they are useful and important, narrative reviews have many potential limitations (e.g. over- or under-weighting of specific studies, failure to account for study artifacts and/or measurement error; Hunter & Schmidt, 1990). Because the subjective accounting of study results in narrative reviews can lead to errors (e.g., Judge, Piccolo, & Ilies, 2004), an analysis of the “actual size” of the relation between variables, taking into account sampling and measurement error, and correcting for unreliability, is valuable (Judge, Piccolo, Podsakoff, Shaw, & Rich, 2010). Particularly given the scattered and somewhat inconsistent findings in previous research connecting commitment and well-being, a meta-analysis would allow for much more precise estimates of the magnitude of relations between commitment and well-being at both broad (e.g., ill-health) and more narrow (e.g., emotional exhaustion) levels of operationalization. Finally, a meta-analysis provides the opportunity to identify the impact of potential moderators.

AC has commonly been measured in previous research with two different scales: the OCQ (Porter, Steers, Mowday, & Boulian, 1974; Mowday, Steers, & Porter, 1979) and the TCM organizational commitment scales (Allen & Meyer, 1990; Meyer, Allen, & Smith, 1993). While both of these scales measure commitment based on an affective attachment to the organization, they are nevertheless different and might therefore relate differently to well-being and ill-health measures. Thus, operationalization of AC was the first moderator I examined here. I also explored several other variables that are commonly targeted as potential moderators. These were all methodological in nature.

The present research therefore aimed to provide a systematic review of what we know to date about the connections between commitment under the TCM and well-being

as operationalized in accord with the categories discussed in Chapter 1: ill-health, hedonic well-being, and eudaimonic well-being.

### *Study Hypotheses*

#### *Ill-health*

In addition to well-being, the present study also examined relations between commitment and the more traditional conceptualization of well-being (or rather, lack thereof), ill-health. In this meta-analysis, the following specific ill-health variables were examined in connection with commitment: omnibus measures of burnout, emotional exhaustion, cynicism, stress/tension, psychological ill-health, anxiety, depression, and psychosomatic symptoms. Analyses were conducted at three levels. First, I calculated relations between commitment and overall ill-health, including all of the specific variables listed above. Next, I examined links between commitment and overall psychological ill-health (a combination of all psychologically-oriented indicators of ill-health). Finally, I analyzed the correlations between commitment and each of the specific indicators of ill-health.

As described above, the bulk of the extant research concerning the links between commitment and well-being concerns its antipode, ill-health, and provides evidence for moderate negative relations between AC and ill-health and weak negative relations between NC and CCHiSac and ill-health. The existing research also indicates weak positive correlations between omnibus CC measures and CCLoAlt and ill-health. Based on this existing research, and on the existing theoretical frameworks modelling relations between commitment and well-being, I expected that relations found in the current meta-analysis would all be in the same direction as in previous research. In the following



hypotheses, the magnitude of the expected correlations are labeled in keeping with Cohen's (1992) distinction between small ( $\rho=.10$ ), medium/moderate ( $\rho=.30$ ), and large/strong ( $\rho=.50$ ) effect sizes.

*Hypothesis 1:* AC will have moderate negative correlations with ill-health.

*Hypothesis 2:* NC will have weak negative correlations with ill-health.

*Hypothesis 3:* CC (omnibus and LoAlt) will have weak positive correlations with ill-health. CCHiSac will have weak negative correlations with ill-health.

### *Hedonic Well-Being*

As discussed in Chapter 1, the hedonic perspective on well-being has defined it broadly as pleasure or happiness. The dominant model in this perspective, that of subjective well-being, asserts that well-being is comprised of the presence of positive affect, the absence of negative affect, and a general satisfaction with life. Accordingly, all three of these variables were examined in the present study. Meta-analytic correlations were calculated both for the overall category of hedonic well-being, and for the individual variables of positive affect, negative affect, and life satisfaction. AC, NC, and CCHiSac are expected to have positive relations with hedonic well-being (moderate for AC, weak for NC and CCHiSac). CCLoAlt, in contrast, is expected to have a weak negative correlation with hedonic well-being.

*Hypothesis 4:* AC will have moderate positive correlations with hedonic well-being.

*Hypothesis 5:* NC will have weak positive correlations with hedonic well-being.

*Hypothesis 6:* CC (omnibus and LoAlt) will have weak negative correlations with hedonic well-being. CCHiSac will have weak positive correlations with hedonic well-being.

### *Eudaimonic Well-Being*

From the eudaimonic perspective, well-being is more than pleasure or happiness; it is “optimal psychological functioning” (Ryan & Deci, 2001, p. 142), or in other words, the actualization of human potential. It has variously been operationalized as a combination of autonomy, personal growth, self-acceptance, life purpose, mastery, and positive relatedness (Ryff & Keyes, 1995); self-actualization and mastery (Ryan & Deci, 2000a); personal expressiveness (Waterman, 1993); and vitality (Ryan & Frederick, 1997). SDT researchers have generally supplemented subjective well-being scales with measures of eudaimonic indicators such as self-actualization, vitality, and mental health (Ryan & Deci, 2001). This conceptualization of well-being is in line with the positive psychology movement that asserts that well-being exists beyond lack of ill-health and beyond pleasure.

Very little research exists connecting workplace commitment and any specific indicators of eudaimonic well-being discussed by Ryan and Deci (2001; e.g., vitality, personal expressiveness, personal growth). However, if we move beyond those specific measures and look at eudaimonic well-being as encompassing well-being beyond happiness or affect, a few studies do exist. For example, as mentioned above, research has found that AC directed at the organization is positively related to meaning at work (Clausen & Borg, 2010; Clausen, Christensen, & Borg, 2010); subjective relational experiences (composed of positive regard, mutuality, and relational vitality; Vinarski-

Peretz, Binyamin, & Carmeli, 2011); and zest, enthusiasm, and vitality (Lester, Parnell, & Carragher, 2010). Furthermore, the professional efficacy dimension of burnout could be argued to represent an indicator of eudaimonic well-being, given that it represents a feeling of well-being beyond mere happiness. Professional efficacy has been shown to be positively related to AC in the past (e.g., Leiter & Maslach, 1988; Otto & Schmidt, 2007). Only one study has related the other two components of commitment to professional efficacy (Chuo, 2003); in that study, NC was found to be positively related and CC negatively related.

In addition to these variables, it has been argued that both engagement (e.g., absorption, dedication, and vigour in the Schaufeli et al. 2002 model) and positive psychological capital (PsyCap; hope, resilience, optimism, and self-efficacy; e.g., Luthans, Youssef, & Avolio, 2007) could be used as indicators of eudaimonic well-being (Meyer & Maltin, 2010). Very little research exists connecting commitment to PsyCap. However, Youssef and Luthans (2007) found that employees who reported more organizational commitment were also more resilient (one of the components of PsyCap). Although they collapsed the three components of commitment to form a single indicator of employee commitment, McMurray, Pirola-Merlo, Sarros, and Islam (2010) nevertheless found a positive relation between commitment and a composite PsyCap scale. In terms of engagement, research has found that all three components of commitment correlate with the three components of engagement: AC positively (e.g., Demerouti, Mostert, & Bakker, 2010; Parzefall & Hakanen, 2010), NC positively (Louison, 2007; Wefald, 2008), and CC positively in one study (Wefald, 2008) and negatively in another (Louison, 2007).

In the present analysis, eudaimonic well-being was represented by professional efficacy, omnibus measures of engagement, and the three components of engagement. Analyses were conducted both for the omnibus category of eudaimonic well-being and for these individual variables. Although substantially less research exists connecting commitment and measures of eudaimonic well-being, the existing evidence suggests that AC and NC are positively related to these variables. Because there has been very little research connecting CC and well-being, and because that research is somewhat inconsistent, I expected weak negative or near-zero relations between CC and eudaimonic well-being here. As above, the magnitude of the expected correlations are labeled in keeping with Cohen's (1992) distinction between small ( $\rho=.10$ ), moderate ( $\rho=.30$ ), and strong ( $\rho=.50$ ) effect sizes.

*Hypothesis 7:* AC will have moderate positive correlations with eudaimonic well-being.

*Hypothesis 8:* NC will have weak positive correlations with eudaimonic well-being.

*Hypothesis 9:* CC will have weak negative or near-zero correlations with eudaimonic well-being.

## Method

### *Literature Search*

I conducted electronic searches in PsycINFO, Business Source Complete, and Social Sciences Citation Index (SSCI). Keywords included *affective commitment*, *normative commitment*, *continuance commitment*, *organizational commitment*, *burnout*,

*emotional exhaustion, engagement, vigour, absorption, hedonic well-being, subjective well-being, life satisfaction, positive affect, negative affect, PANAS, eudaimonic well-being, stress, strain, tension, anxiety, depression, health, psychosomatic, symptoms, and ill-being.* In SSCI, I conducted a search for key commitment papers, and then cross-referenced this search with the outcome (i.e., non-commitment) keywords from the list above. The key commitment papers were Allen and Meyer (1990; 1996); Meyer, Allen, and Smith (1993); and Meyer and Allen (1997). I conducted all searches from the earliest available date to January 2011. All database searches included published articles as well as unpublished doctoral dissertations.

The initial search included all three components of burnout. This search revealed that while many studies used the words cynicism and professional efficacy in contexts other than research on burnout, any study that did measure these components of burnout also included the words “burnout” and/or “emotional exhaustion”. The same issue arose for the third component of engagement (dedication); the word is used extensively in research on a wide variety of topics, but is never used as a component of engagement in absence of the word “engagement”. Thus, I did not include these extraneous words in further searches.

Because they are the two languages I comprehend, only articles and dissertations written in English or French were included in this review. Furthermore, I only included studies using the most well-established and commonly used measures of commitment, i.e., the OCQ (Porter, et al. (1974); Mowday, et al., 1979) and the TCM organizational commitment scales (Allen & Meyer, 1990; Meyer, et al., 1993). This criterion was adopted to ensure with reasonable certainty that I could compare organizational

commitment scales across studies. Because the current study focused on well-being outcomes, and not the working conditions that may influence them, I did not include stressors such as role ambiguity and role conflict. Very specific stress or strain variables such as traumatic stress, promotion stress, and technostress, were also not included, as it could not be unequivocally determined that these variables measured outcomes (i.e., as conditions experienced by individuals as opposed to conditions of the work environment). Thus, I included only studies that measured stress as an outcome (i.e., strain, tension, etc.). The full list of criteria used for selecting studies for this review is given in Appendix B.

#### *Data Analysis*

If data were missing from a study, I contacted the primary authors to ask for clarification on the missing information. In cases where the contact information listed for the primary author in the article was incorrect or out of use, I searched electronically for more recent contact information. If the Cronbach alpha was still missing for a variable after contacting the primary author, then I imputed the missing alpha using the *N*-weighted average alpha for a given construct. I derived this *N*-weighted average alpha using the data in the present study (these values are listed in Table 1). I followed this procedure for all variables except the commitment variables (AC, NC, CC, CCHiSac, and CCLoAlt); for these variables, I took meta-analytic alphas from Meyer et al. (2002) (these appear in parentheses in Table 1). I took this approach for the commitment variables because the Meyer et al. (2002) meta-analysis calculated average alphas based on samples much larger than the current study. Missing OCQ alphas were imputed using

Table 1

*Reliabilities for All Variables*

<i>Construct</i>	<i>Average N-weighted reliability</i>	<i>k</i>	<i>N</i>
AC	.82 (.82)	74 (144)	29,006 (47,073)
OCQ	.83 (.90)	72 (7)	33,218 (3,438)
NC	.78 (.73)	15 (61)	4,017 (22,080)
CC	.74 (.76)	20 (102)	9,714 (34,424)
CC-HiSac	.78 (.70)	2 (12)	957 (4,283)
CC-LoAlt	.77 (.70)	2 (12)	957 (4,283)
<b>Ill-health</b>	.85	118	52,547
Over. Psych. IH	.85	102	45,064
Emot. Exh.	.87	36	9,657
Cynicism	.74	18	5,320
Burnout (O)	.91	6	2,381
Strain/Tension	.86	28	13,710
Mental Ill-Health	.88	24	12,207
Anxiety	.74	12	6,168
Depression	.84	6	4,053
Phys. Symptoms	.80	28	10,299
<b>Hedonic WB</b>	.85	29	10,545
Life Satisfaction	.87	23	5,735
Positive Affect	.83	6	4,863
Negative Affect	.82	6	4,863
<b>Eudaimonic WB</b>	.83	24	7,834
Prof. Efficacy	.74	13	3,538
Vigour	.79	4	1,301
Dedication	.86	4	1,301
Absorption	.82	2	595
Engagement (O)	.93	8	3,203

*Note:* AC=Affective Commitment; OCQ=Organizational Commitment Questionnaire; NC=Normative Commitment; CC=Continuance Commitment; CC-HiSac=High Sacrifices Continuance Commitment; CC-LoAlt=Low Alternatives Continuance Commitment; WB=Well-Being; Prof. Efficacy = Professional Efficacy; (O)=Omnibus Measure; Over. Psych. IH=Overall psychological ill-health; Emot. Exh.=Emotional Exhaustion; Phys. Symptoms=Physical Symptoms; *N*=total number of respondents; *k*=number of independent samples in analysis. Data in parentheses were taken from Meyer et al. (2002).

the *N*-weighted average of the primary studies included here that employed the OCQ, rather than the alpha for the overall AC construct from this study.

I estimated the meta-analytic relations examined in this study using psychometric meta-analysis (Hunter & Schmidt, 2004). All variables were corrected for both sampling and measurement error. I used Piers Steel's Microsoft Excel-based meta-analysis program (<http://webapps2.ucalgary.ca/~steel/Procrastinus/metanalysis.php>) to calculate the meta-analytic statistics presented here. Several other published meta-analyses have made use of this program (e.g., Gelade, Dobson, & Gilbert, 2006; Steel, 2007).

#### *Coding Commitment Variables*

As previously mentioned, the TCM scales (Allen & Meyer, 1990; Meyer, Allen, & Smith, 1993) and the OCQ (Porter, et al., 1974; Mowday, et al., 1979) were included in this meta-analysis. I considered including primary studies employing several other commitment scales (e.g., the Healthy Organization Barometer; Lindström, Hottinen, & Bredenberg, 2000; Cook & Wall, 1980), but made the decision to retain only studies that used the established, well-validated, and commonly used scales cited above.

In previous meta-analyses (e.g., Jackson, 2010; Meyer, et al., 2002) of the TCM, researchers differentiated between the eight-item (Allen & Meyer, 1990) and six-item (Meyer et al., 1993) versions of the NC scale. The former focuses on antecedents of NC (e.g., socialization), while the latter highlights a sense of obligation to the organization and does not include any mention of antecedents (see Meyer & Parfyonova, 2010). However, making a distinction between the two versions would require between-study comparisons. Because there are so few primary studies in the current meta-analysis that

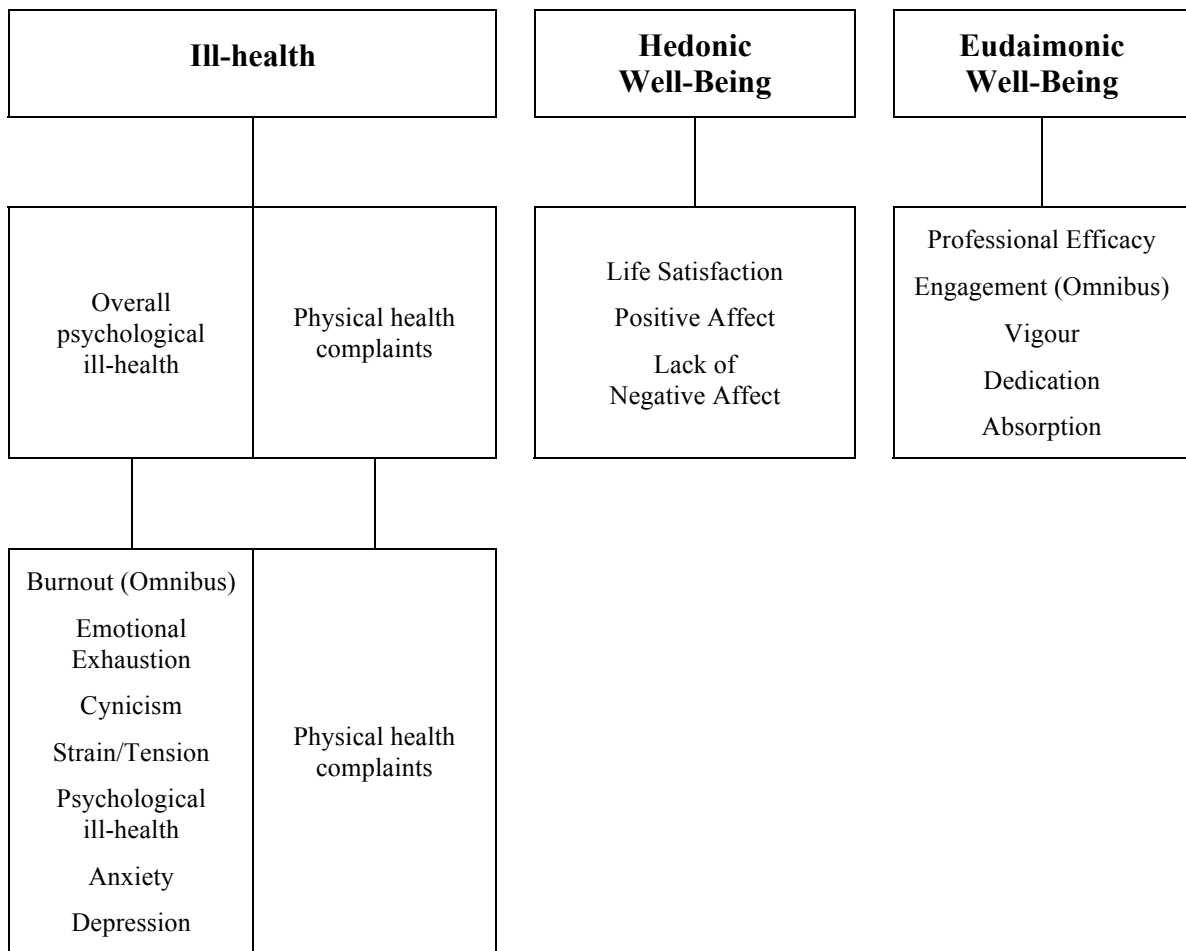


included NC at all, there simply wouldn't be enough studies to make such a distinction meaningful.

Similarly, previous studies and meta-analyses (e.g., Jackson, 2010, Meyer, et al., 2002) have differentiated between the two forms of CC, CCHiSac and CCLoAlt. These two subscales have been found to be distinct in factor analyses of Meyer and Allen's six- and eight-item CC scales (Hackett, et al., 1994; McGee & Ford, 1987; Meyer, Allen, & Gellatly, 1990; Somers, 1993), and have been found to correlate differently with antecedents and consequences. Only two studies identified in the present literature search differentiated between the two subscales (Herrbach, 2002; Panaccio & Vandenberghe, 2009). Because comparisons involving these two subscales are actually within-study, meta-analyses involving these two studies are reported here despite the low number of primary studies.

#### *Coding Ill-health and Well-Being Variables*

*Ill-health.* A visual representation of the breakdown of levels of analysis (i.e., overall ill-health, overall psychological ill-health, and individual ill-health variables) is presented in Figure 1. Based on a cursory review of the included studies, I identified the variables listed in Figure 1 a priori as the construct categories into which studies would be classified. In order to be included in a category (e.g., depression), the study did not have to have used the same measure as the other studies in that category. It simply needed to have shown clearly that it belonged in that category, either through inspection of the actual measures, or by definitions provided in the study. I discuss classification of studies based on these categories below.



*Figure 1.* Breakdown of levels of all included well-being and ill-health variables.

The first ill-health indicator category was burnout. While burnout is generally measured and reported in terms of its separate subscales, a few studies in this analysis either combined subscales or used other measures of burnout that tap several dimensions (e.g., Gillespie & Numerof, 1984; Pines & Aronson, 1988). Thus, I included studies here that correlated commitment with the emotional exhaustion and cynicism subscales, as well as “omnibus” (i.e., combined Maslach Burnout Inventory [MBI] or other scales) measures of burnout. In the case of studies that combined the MBI subscales, professional efficacy was scored such that higher values reflected lower efficacy.

When categorizing the other ill-health variables, which included stress/tension, psychological ill-health, anxiety, depression, and physical health complaints, some subjective judgment was needed. Many of the primary studies included in this analysis reported measuring general variables such as “well-being”, “health”, or “strain”. In any case where the well-being outcome variable was not perfectly clear (e.g., depression), I examined the description of the variable, the example items, and (where available) the original scale. I categorized any outcome variable that described feelings of tension, stress (as an outcome, not as an antecedent), feelings of being strained, etc., as *stress/tension*. If a variable was simply described as “stress”, no other description was given, and the original scale was not available, I did not include the study (so as to exclude studies that measured stressors, or sources of strain/tension/lack of well-being residing in the environment). I categorized any outcome variable that described non-specific mental/psychological health, ill-health, or distress (e.g., coping with difficulties, self-worth), or that combined indicators of mental health (e.g., anxiety and depression), as *psychological ill-health*. In the rare case that these measures were reported positively

(i.e., reflecting lack of ill-health), statistics and correlations were appropriately reversed to reflect ill-health as measured. I coded variables as *anxiety* or *depression* if they very clearly indicated that they measured these outcomes, and did not combine these outcomes with any others. Finally, I labeled any physically-oriented outcome measure as *physical health complaints*. I chose to combine variables labeled as “physical” health, well-being, or symptoms, and those labeled as “psychosomatic” symptoms, because all of these studies, regardless of label, tapped into the same type of symptoms; namely, those that have been used as psychosomatic indicators in the past (e.g., colds, flus, trouble sleeping, indigestion). Appendix C indicates all of the “other” outcome scales included in the study (i.e., other than burnout, engagement, life satisfaction, and positive/negative affect), and their categorization under the study variables.

*Hedonic Well-Being.* I analyzed hedonic well-being at two levels: overall hedonic well-being (including life satisfaction, positive affect, and lack of negative affect), and the “lower level” variables individually. Life satisfaction was very straightforward to code. Positive and negative affect measures included only state-type (not trait) measures of positive or negative emotions and/or affect, job-specific or not, and were all adjective-based measures (e.g., interested, inspired, distressed, upset). Negative affect was reverse-scored when combined with positive affect and life satisfaction to form analyses concerning overall hedonic well-being.

*Eudaimonic Well-Being.* Like hedonic well-being, I analyzed eudaimonic well-being both at the higher level of overall eudaimonic well-being (including studies measuring professional efficacy, engagement (omnibus), vigour, dedication, and absorption), and at the lower level of each of the included individual variables. As with

commitment, researchers have operationalized engagement in many ways. The popular Utrecht Work Engagement Scale (Schaufeli et al., 2002; 2006) treats engagement as a three-dimensional construct. As such, most studies employing this scale report results of the subscales (vigour, dedication, and absorption) separately. However, quite a few of the studies tapping engagement included in this analysis reported statistics for “engagement” as a whole, and not the separate dimensions. I conducted analyses for both overall engagement, and when information was available, the separate subscales.

As mentioned above, researchers also consider burnout to be a three-dimensional construct (e.g., Maslach, Schaufeli, & Leiter, 2001), and the subscales are generally measured and reported separately. Where they were reported separately, I categorized the professional efficacy subscale of the Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996; Schaufeli, Leiter, Maslach, & Jackson, 1996) as an indicator of eudaimonic well-being. When studies reported relations with “lack of professional efficacy”, I reversed the correlations.

PsyCap (e.g., Luthans, et al., 2007) was mentioned above as a possible indicator of eudaimonic well-being. Although one study has connected PsyCap with organizational commitment (a combination of all three components; McMurray et al., 2010), this one study was insufficient to include PsyCap as an indicator of eudaimonic well-being in the current study.

### *Moderator Analyses*

As recommended by Cortina (2003), I specified several construct- and method-oriented moderators a priori. If warranted by significantly heterogeneous effect sizes, I analyzed these moderators following the main-effects analyses. The only construct-

oriented moderator examined here was the operationalization of AC (i.e., Meyer and Allen vs. OCQ). Methodological moderators included the type of organization represented in the sample (private; public/government; education; healthcare; prison, police, security guard, or military; “other”), survey language (English vs. other), continent (North America vs. other) and publication type (published vs. unpublished). Prison, police, security guard, and military were combined into one category because these professions share similarities, and there were not enough primary studies in any of the individual categories in any analysis to warrant separating them. Moderator analyses were conducted for higher-level variables (i.e. hedonic well-being, eudaimonic well-being, and ill-health), and, where warranted, lower-level variables. It should be acknowledged here that this is a lengthy list of moderators, and they were not likely to be independent. Non-independence is of particular concern in regards to continent and language as moderators, an issue which I discuss further below.

The  $Q$  statistic (Hedges & Olkin, 1985) was used to determine whether enough heterogeneity was present to justify employing moderator analyses. The main advantage of using this statistic over other methods of exploring whether moderators are present (such as Hunter & Schmidt’s 75 percent rule, 1990) is that it is a formal statistic that is based on a well-known distribution (i.e., chi-square; Huffcutt, 2002). If sufficient heterogeneity was found, I conducted moderator analyses using weighted least squares (WLS) regression. WLS was recommended by Steel and Kammeyer-Mueller (2002) as the most effective technique for examining meta-analytic moderators, and was found to be more effective than bivariate correlation, ordinary least squares, and hierarchical subgroup approaches.

All of the moderator variables included here were categorical in nature, and were dummy-coded for use in the WLS regression. Moderator analyses were conducted using David Wilson's SPSS macro (see Lipsey & Wilson, 2001), which was created specifically for use with meta-analytic data. The procedure is as follows: first, the moderator variable (e.g., operationalization of AC) is entered as the X variable in the regression. Next, the correlations between the commitment and well-being variables of interest are entered as the Y variable. These correlations were corrected for unreliability with the commonly-used formula [corrected  $r = \text{raw } r / \sqrt{(r_{XX} * r_{YY})}$ ]. The corrected correlations are regressed onto the moderator variable, with a predetermined weight. In this case, studies were weighted by sample size (i.e.,  $N-1$ ; Hunter & Schmidt, 2004) and by the reliability of the correlated variables (Jackson, 2010). The calculation used to create these weights for the WLS regression was:  $w = (N-1) * (r_{XX} * r_{YY})$  (Jackson, 2010; Lipsey & Wilson, 2001). The results of this test for moderation are distributed as a chi-square, so the test generates a  $Q$  statistic analogous to the  $F$  statistic used in regression. Because both the test for heterogeneity and the test of moderation generate  $Q$  statistics, for clarity, the former will be referred to as  $Q_H$  (H=heterogeneity) in the Results section, while the latter will be referred to as  $Q_M$  (M=moderation).

Power, while always a concern, is of particular concern in tests of moderation in meta-analytic research (Hedges & Pigott, 2004). Steel (2007), in keeping with Tabachnick and Fidell's (2001) recommendation, created a rule to conduct moderator analyses only when at least five cases ( $k$ ) per moderator were present. Jackson (2010) adopted a much more stringent rule, conducting moderator analyses only when at least

twenty cases per moderator were present. The current study strikes a balance between the two, conducting moderator analyses when at least ten cases were present.

## Results

### *Relations between Commitment and Well-Being*

The corrected bivariate correlations ( $\rho$ ) between the three components of commitment and the well-being criteria are presented in Tables 2-4. These correlations have been corrected for sampling error and unreliability in both the predictor and criterion. Table 5 contains the uncorrected raw correlations between commitment and well-being variables for relations for which only one primary study was found.

In addition to the corrected correlations, Tables 2-4 also contain several other statistics. The  $SD_o$  is the observed standard deviation of the corrected correlations, *before* removing the effects of sampling error. The  $SD_\rho$ , on the other hand, is the estimated true/residual standard deviation of the corrected correlations, *after* parceling out the effects of sampling error. The 95% *CR*, or credibility interval, is an indicator of generalizability, and a large interval indicates that moderator effects are likely present (Steel, 2007). Credibility intervals are calculated using  $SD_\rho$ , that is, the corrected standard deviation around the mean corrected correlation (Whitener, 1990). The 95% *CI*, or confidence interval, is an indicator of the precision or accuracy of the measurement of the mean effect, and is calculated using  $SD_o$ , the standard error of the mean uncorrected correlation. It indicates “the extent to which sampling error remains in the sample-size weighted mean effect size” (Whitener, 1990, p. 316). A confidence interval that includes zero indicates that one cannot justifiably conclude that the “true” mean correlation for the



Table 2

## Corrected Correlations between Affective Commitment and Well-Being Outcomes

Well-Being Outcome	Affective Commitment							
	<i>k</i>	<i>N</i>	$\rho$	<i>SD<sub>o</sub></i>	<i>SD<sub>p</sub></i>	95% CR	95% CI	<i>Q<sub>H</sub></i>
<b>Ill-health</b>	161	69,019	<b>-.340</b>	.17514	.16667	-.67 - -.01	-.35 - -.33	1707.50**
General Psych. Ill-health	134	56,900	<b>-.370</b>	.16401	.15525	-.67 - -.07	-.38 - -.36	1290.06**
Emotional Exhaustion	38	10,214	<b>-.393</b>	.16992	.15774	-.70 - -.08	-.45 - -.34	271.32**
Cynicism	19	5,644	<b>-.418</b>	.12520	.10720	-.63 - -.21	-.47 - -.36	68.72**
Burnout (Omnibus)	6	2,381	<b>-.472</b>	.17624	.16932	-.80 - -.14	-.61 - -.33	68.82**
Stress/Tension	28	13,710	<b>-.395</b>	.15091	.14282	-.68 - -.12	-.45 - -.34	262.84**
Psychological Ill-health	25	14,730	<b>-.316</b>	.13981	.13258	-.58 - -.06	-.37 - -.26	242.23**
Anxiety	12	6,168	<b>-.306</b>	.13929	.12801	-.56 - -.06	-.39 - -.21	72.92**
Depression	6	4,053	-.397	.26924	.26578	-.92 - .12	-.62 - -.17	217.17**
PHC w outlier	27	12,119	-.189	.15091	.13970	-.46 - .08	-.25 - -.13	184.75**
PHC w/o outlier	26	11,605	-.210	.12311	.10901	-.42 - .00	-.26 - -.16	117.48**
<b>Hedonic Well-Being</b>	38	16,003	.331	.21208	.20521	-.07 - .73	.31 - .35	591.79**
Life Satisfaction	26	6,277	<b>.342</b>	.13647	.11703	.11 - .57	.30 - .39	95.95**
Positive Affect	6	4,863	<b>.555</b>	.07000	.06198	.43 - .68	.50 - .61	24.24**
Negative Affect	6	4,863	-.089	.10814	.09973	-.28 - .11	-.17 - .00	35.13**
<b>Eudaimonic Well-Being</b>	32	10,262	<b>.483</b>	.16567	.15623	.18 - .79	.46 - .50	243.31**
Prof. Efficacy w outlier	14	3,862	<b>.335</b>	.14326	.12620	.09 - .58	.26 - .41	59.49**
Prof. Efficacy w/o outlier	13	3,739	<b>.353</b>	.10122	.07701	.20 - .50	.30 - .41	29.08**
Vigor	4	1,301	<b>.504</b>	.12650	.11277	.28 - .73	.34 - .65	15.36**
Dedication	4	1,301	<b>.610</b>	.09561	.08261	.45 - .72	.49 - .72	12.16**
Absorption	2	595	<b>.536</b>	.13614	.12432	.29 - .78	.34 - .73	5.46*
Engagement (Omnibus)	8	3,203	<b>.572</b>	.12191	.11465	.35 - .80	.47 - .67	63.01**

Note: *k* = number of studies in the analysis; *N* = total number of respondents;  $\rho$  = weighted average corrected correlation; *SD<sub>o</sub>* = observed standard deviation of corrected correlations; *SD<sub>p</sub>* = estimated true/residual standard deviation of corrected correlation; 95% CR = 95% credibility interval; 95% CI = 95% confidence interval; *Q<sub>H</sub>* = *Q* test of heterogeneity. PHC = physical health complaints.  $\rho$  values for which the CR does not include zero are presented in bold. \**p* < .05 \*\**p* < .01

Table 3

## Corrected Correlations between Normative Commitment and Well-Being Outcomes

Well-Being Outcome	<i>k</i>	<i>N</i>	$\rho$	Normative Commitment				$Q_H$
				$SD_\rho$	$SD_o$	95% CR	95% CI	
<b>Ill-health</b>	15	3,085	<b>-.098</b>	.10024	.05271	-.15 - -.05	-.14 - -.06	16.50
General Psych. Ill-health	11	1,808	<b>-.121</b>	.11713	.07206	-.22 - -.02	-.18 - -.07	14.63
Emotional Exhaustion	2	284	-.095	.20499	.18064	-.45 - .26	-.39 - .18	3.21
Cynicism	2	284	-.182	.22195	.19538	-.56 - .20	-.50 - .12	3.46
Stress/Tension	3	634	-.106	.12359	.09506	-.29 - .08	-.25 - .03	2.38
Anxiety	2	306	-.031	.19647	.16753	-.36 - .30	-.03 - -.03	1.19
Physical Health Complaints	4	1,277	-.061	.09096	.05593	-.17 - .05	-.15 - .03	0.25
<b>Hedonic Well-Being</b>	6	1,776	.246	.23962	.23032	-.18 - .67	.20 - .30	69.44**
Life Satisfaction	4	1,336	.312	.20592	.19643	-.07 - .70	.12 - .51	35.95**
<b>Eudaimonic Well-Being</b>	8	2,237	<b>.389</b>	.16840	.15366	.10 - .67	.33 - .43	43.55**
Vigor	2	595	<b>.365</b>	.19242	.18063	.01 - .72	.06 - .65	10.21**
Dedication	2	595	<b>.477</b>	.17947	.16829	.15 - .81	.17 - .76	9.85**
Absorption	2	595	.404	.22937	.21918	-.03 - .83	.01 - .76	16.44**

Note: *k* = number of studies in the analysis; *N* = total number of respondents;  $\rho$  = weighted average corrected correlation;  $SD_o$  = observed standard deviation of corrected correlations;  $SD_\rho$  = estimated true/residual standard deviation of corrected correlation; 95% CR = 95% credibility interval; 95% CI = 95% confidence interval;  $Q_H$ ,  $Q$  test of heterogeneity.  $\rho$  values for which the CR does not include zero are presented in bold. \* $p < .05$  \*\* $p < .01$

Table 4

## Corrected Correlations between Continuance Commitment and Well-Being Outcomes

Well-Being Outcome	k	N	$\rho$	Continuance Commitment (Omnibus)				$Q_H$
				$SD_o$	$SD_p$	95% CR	95% CI	
<b>Ill-health</b>	24	9,172	.144	.12478	.10625	-.06 - .35	.12 - .17	84.96**
General Psych. Ill-health	22	5,821	.193	.12583	.09996	.00 - .38	.16 - .22	57.83**
Emotional Exhaustion	4	501	.187	.18307	.14919	-.11 - .48	.01 - .37	8.51**
Cynicism	2	284	.182	.18995	.15788	-.13 - .49	-.08 - .45	.04
Stress/Tension	5	961	<b>.200</b>	.12106	.08809	.03 - .37	.10 - .31	7.18
Anxiety	8	3,769	<b>.222</b>	.07123	.04047	.14 - .30	.17 - .27	7.01
Depression	2	1,626	<b>.211</b>	.08412	.07149	.07 - .35	.09 - .33	0.12
Physical Health Complaints	2	3,351	.050	.07129	.06340	-.07 - .17	-.05 - .15	2.75
<b>Hedonic Well-Being</b>	6	7,415	-.019	.15560	.15123	-.30 - .26	-.05 - .01	95.69**
Life Satisfaction	4	1,195	<b>-.287</b>	.09396	.06610	-.42 - .16	-.38 - .19	3.37
<b>Eudaimonic Well-Being</b>	8	2,237	<b>-.114</b>	.23505	.22309	-.53 - .07	-.17 - .07	73.66**
Vigor	2	595	.085	.28612	.27720	-.46 - .63	-.34 - .50	24.87**
Dedication	2	595	-.073	.28504	.27586	-.61 - .47	-.49 - .33	23.75**
Absorption	2	595	.030	.23015	.21853	-.40 - .46	-.31 - .36	13.12**
<b>High Sacrifices Continuance Commitment</b>								
Positive Affect	2	957	<b>.210</b>	.11139	.09602	.02 - .40	.06 - .36	0.87
Negative Affect	2	957	-.025	.11402	.09897	-.22 - .17	-.18 - .13	1.20
<b>Low Alternatives Continuance Commitment</b>								
Positive Affect	2	957	<b>-.304</b>	.10445	.08865	-.48 - .13	-.45 - .16	0.10
Negative Affect	2	957	.184	.11958	.10572	-.02 - .39	.02 - .35	2.39

Note: k = number of studies in the analysis; N = total number of respondents;  $\rho$  = weighted average corrected correlation;  $SD_o$  = observed standard deviation of corrected correlations;  $SD_p$  = estimated true/residual standard deviation of corrected correlation; 95% CR = 95% credibility interval; 95% CI = 95% confidence interval;  $Q_1$ ,  $Q$  test of heterogeneity.  $\rho$  values for which the CR does not include zero are presented in bold. \* $p < .05$  \*\* $p < .01$

Table 5

*Uncorrected Raw Correlations for Commitment-Well-Being Relations Reported in a Single Primary Study*

<i>Well-Being Outcome</i>	<i>NC</i>	<i>CC</i>	<i>HiSac</i>	<i>LoAlt</i>
Professional Efficacy	.156 (70)	-.247 (70)		
Engagement (Omnibus)	.227 (382)	-.220 (382)		
Life Satisfaction			.168 (220)	-.292 (220)
Positive Affect	.260 (220)	.090 (3110)		
Negative Affect	.140 (220)			

*Note:* Numbers in brackets are the N for primary studies associated with the reported correlations.

population is not zero (Huffcutt, 2005). The final statistic reported in Tables 2-4 is  $Q_H$ , the estimate of heterogeneity in the distribution of correlations for each meta-analytic bivariate relation. If this  $Q_H$  value is statistically significant, it suggests that moderator variables may be present (Lipsey & Wilson, 2001).

It should be noted that one study (Haley, 2003) reported a negative correlation between AC and professional efficacy; it was the only primary study to do so. In addition, two studies (De Boer, Bakker, Syroit, & Schaufeli, 2002; Begley & Czajka, 1993) reported positive correlations between AC and physical health complaints, contrary to all other studies. These correlations were triple-checked for accuracy, and attempts were made to contact the primary authors, to no avail. The statistics for these correlations are reported in Table 2 for both analyses including and excluding these outliers.

### *Tests of Hypotheses*

Recall that for the purposes of these hypothesis tests, predicted correlations described as weak, moderate, and strong, were expected to be in the ranges of  $\rho=.10$ ,  $\rho=.30$ , and  $\rho=.50$ , respectively (as per Cohen's distinctions; 1992).

*Ill-health.* Analyses for Hypothesis 1, which predicted moderately negative relations between AC and ill-health, revealed that AC was negatively related to overall ill-health ( $\rho=-.34$ , overall psychological ill-health ( $\rho=-.37$ ), burnout (omnibus;  $\rho=-.47$ ), emotional exhaustion ( $\rho=-.39$ ), and cynicism ( $-.41$ ). Neither the credibility nor the confidence intervals for these relations included zero. Further analyses showed that AC was also negatively related to strain/tension ( $\rho=-.39$ ), psychological ill-health ( $\rho=-.31$ ), anxiety ( $\rho=-.31$ ), depression ( $\rho=-.40$ ), and physical health complaints ( $\rho=-.19$ ); the latter correlation was weaker than hypothesized. The confidence intervals for all of these

variables did not include zero. Only the credibility intervals for depression and physical health complaints included zero, suggesting that moderators may be influencing these relations. The  $Q_H$  statistics for overall ill-health, general psychological ill-health, and emotional exhaustion were all significant, suggesting that moderators may also be influencing these relations. Hypothesis 1 was therefore fully supported.

Only six studies were available that reported relations between AC and depression; it is possible that as more studies are conducted, variability among the observed correlations will lessen. In any case, until more primary studies are available, moderators of this relation cannot be examined. Given that the meta-analysis of the relation between AC and physical health complaints included a moderate number of studies ( $k=27$ ), it is unlikely that the small sample size contributed to the variability in the magnitude of correlations in the primary studies. Another possible source is the variability in the measurement of psychosomatic and physical health complaints. Indeed, 16 different scales were used in the primary studies that included AC-physical health complaints correlations, and they covered a wide range of symptoms. Because it was so variable, I did not examine scale type as a possible moderator of the relation between AC and physical health complaints; I did test for other moderators, and discuss these below.

Hypothesis 2 predicted that NC would have a weak negative correlation with ill-health. As hypothesized, NC was negatively related to overall ill-health ( $\rho=-.10$ ), overall psychological ill-health ( $\rho=-.12$ ) emotional exhaustion ( $\rho=-.10$ ), cynicism ( $\rho=-.18$ ), strain/tension ( $\rho=-.11$ ), anxiety ( $\rho=-.31$ ), and physical health complaints ( $\rho=-.06$ ). Some of these relations were weaker, and one stronger, than was predicted. No studies reported correlations between NC and an omnibus burnout measure. Neither the credibility nor the

confidence intervals for ill-health or overall psychological ill-health included zero. However, the confidence intervals for the remaining examined relations (i.e., all of the individual variables) all included zero, suggesting that it cannot be reasonably concluded that they are non-zero. Furthermore, although none of the  $Q_H$  statistics were significant, some of credibility intervals for the individual ill-health variables were quite wide and included zero, suggesting that these relations may be moderated. Unfortunately, because so few primary studies were available relations between NC and ill-health could not be explored for moderators in this study. Thus, Hypothesis 2 was partially supported.

Hypothesis 3 predicted weak positive relations between CC (omnibus and LoAlt) and ill-health, and weak negative relations between CCHiSac and ill-health. CC (omnibus) was found to be positively related to overall ill-health ( $\rho=.14$ ), overall psychological ill-health ( $\rho=.19$ ), emotional exhaustion ( $\rho=.19$ ), and cynicism ( $\rho=.18$ ). The credibility intervals for all of these correlations included zero, indicating the potential presence of moderators; however, only the  $Q_H$  statistics for overall ill-health, general psychological ill-health, and emotional exhaustion were significant. Only the confidence interval for the relation between CC (omnibus) and cynicism included zero; it can therefore be concluded that CC (omnibus) is positively related to ill-health, overall psychological ill-health, and emotional exhaustion, in support of Hypothesis 3. No studies were found that reported relations between CC and omnibus burnout measures, or between CCHiSac/CCLoAlt and any burnout measures (including omnibus or the individual components).

CC (omnibus) was also found to be positively related to strain/tension ( $\rho=.20$ ), anxiety ( $\rho=.22$ ), depression ( $\rho=.21$ ), and physical health complaints ( $\rho=.05$ ). No studies

were available that examined the relation between CC (omnibus) and psychological ill-health, or between CCHiSac or CCLoAlt and any ill-health variables. Only the credibility and confidence intervals for relations between CC (omnibus) and physical health complaints included zero; the rest did not. The meta-analysis for the relation between CC (omnibus) and physical health complaints, like all of the analyses concerning CC and individual ill-health variables, were based on a very low sample size (between two and eight studies). This makes it difficult to assert with any confidence the true magnitude of the relation between CC and physical health complaints, or whether or not moderators are actually present. Overall, then, Hypothesis 3 was partially supported.

*Hedonic Well-Being.* Hypothesis 4 predicted the expected bivariate relations between AC and hedonic well-being. This hypothesis was supported by the corrected correlation for overall hedonic well-being ( $\rho=.33$ ), as well as by the correlations with both life satisfaction ( $\rho=.34$ ) and positive affect ( $\rho=.56$ ). The latter relation was slightly stronger than expected. Hypothesis 4 was also partially supported by the negative correlation between AC and negative affect ( $\rho=-.09$ ), although the relation was much weaker than expected. The credibility intervals for the overall hedonic well-being and negative affect correlations did include zero, and all of the  $Q_H$  statistics were significant, indicating the potential presence of moderators. One study (which I triple-checked for accuracy) did report a very weak positive relation between AC and negative affect, and would thus have been largely responsible for the width of that credibility interval. Nevertheless, I examined these relations for moderators. Only the confidence interval for the relation between AC and negative affect included zero. Thus, overall, Hypothesis 4 was partially supported.



Hypothesis 5 predicted the expected relations between NC and hedonic well-being. NC was positively correlated with overall hedonic well-being ( $\rho=.25$ ) and life satisfaction ( $\rho=.31$ ), and as with AC, this latter relation was slightly stronger than expected. Neither of the confidence intervals for these relations included zero, however, the credibility interval for both of these relations did, and the  $Q_H$  statistics were both significant. Although this suggests the presence of moderators, these could not be examined due to the limited number of primary studies. Only one primary study (Panaccio & Vandenberghe, 2009) examined the connection between NC and affect; unexpectedly, this study found it to be positively related to both positive ( $r=.26$ ) and negative ( $r=.14$ ) affect. Thus, Hypothesis 5 was fully supported, although relations were stronger than expected, and moderators may be present.

Hypothesis 6 anticipated negative relations between CC (omnibus and LoAlt) and hedonic well-being, and positive relations between CCHiSac and hedonic well-being. This hypothesis was supported by the correlations between CC (omnibus) and overall hedonic well-being ( $\rho=-.02$ ) and life satisfaction ( $\rho=-.29$ ). The credibility interval for the former relation was fairly wide and included zero, and the  $Q_H$  statistic was significant, indicating that this relation may be moderated. The confidence interval for this former relation also included zero, suggesting that it cannot be concluded with certainty that this relation is non-zero. The credibility interval for the relation between CC (omnibus) and life satisfaction was fairly narrow and excluded zero; furthermore, the  $Q_H$  statistic was not significant, suggesting that this relation is not moderated. The confidence interval for this relation also excluded zero. The single study that reported a correlation between CC

(omnibus) and positive affect recorded a weak positive correlation ( $r=.09$ ), which was in the opposite direction from that hypothesized. Hypothesis 6 was thus partially supported. The single primary study that reported a correlation between CCHiSac and CCLoAlt and life satisfaction supported Hypothesis 6 ( $r=.17$  and  $r=-.22$ , respectively). In terms of positive affect, the meta-analytic correlations for CCHiSac and CCLoAlt also supported Hypothesis 3 ( $\rho=.21$  and  $\rho=-.30$ , respectively). Neither the credibility nor the confidence intervals for these correlations included zero, and the  $Q_H$  statistic was not significant. Thus, moderators do not appear to be influencing these relations, and it can be concluded with reasonable certainty that they are non-zero. Also in support of Hypothesis 6, CCHiSac was found to have a very weak negative correlation with negative affect ( $\rho=-.03$ ), while CCLoAlt was found to be positively related ( $\rho=.184$ ). The credibility intervals for both of these relations were fairly wide and included zero; only the confidence interval for the relation between CCLoAlt and negative affect included zero. Thus, Hypothesis 6 was partially supported.

*Eudaimonic Well-Being.* Hypothesis 7 forecast that AC would be moderately positively related to all indicators. This hypothesis was supported on all counts: AC was found to be positively related to overall eudaimonic well-being ( $\rho=.48$ ), professional efficacy ( $\rho=.36$  with the outlier;  $\rho=.35$  without), engagement (omnibus;  $\rho=.57$ ), vigour ( $\rho=.50$ ), dedication ( $\rho=.61$ ) and absorption ( $\rho=.54$ ). Although none of the credibility intervals for these relations included zero, the  $Q_H$  statistics were all significant, indicating that moderators might be present. The confidence intervals for these relations did not include zero. Thus, Hypothesis 7 was fully supported, although relations with engagement were stronger than predicted.

Although very few studies were found that examined the relations between NC and indicators of eudaimonic well-being, those that existed confirmed Hypothesis 8 (although the relations were all stronger than expected). Specifically, NC was positively related to overall eudaimonic well-being ( $\rho=.39$ ), vigour ( $\rho=.37$ ), dedication ( $\rho=.48$ ), and absorption ( $\rho=.40$ ). Only the credibility interval for absorption included zero; however, the others were quite wide, and the  $Q_H$  statistics were all significant, indicating that these relations may be moderated. None of the confidence intervals included zero. Only single studies reported correlations between NC and professional efficacy ( $r=.16$ ) and engagement (omnibus;  $r=.23$ ), but both were in the direction and of the magnitude predicted. Thus, Hypothesis 8 was fully supported, although relations were stronger than expected.

Finally, Hypothesis 9 concerned relations between CC and eudaimonic well-being, hypothesizing weak negative or near-zero relations between CC and all indicators. The correlations between CC and overall eudaimonic well-being ( $\rho=-.11$ ), vigour ( $\rho=.09$ ), and CC and absorption ( $\rho=.03$ ) supported this hypothesis. The correlation between CC and dedication was weakly negative ( $\rho=-.07$ ). Only the credibility interval for overall eudaimonic well-being included excluded zero; the others were all quite wide and included zero, and all of the  $Q_H$  statistics were significant. This suggests that these relations may be moderated. Unfortunately, because of the limited number of studies, moderator analyses for these relations could not be conducted. While the confidence interval for overall eudaimonic well-being did not include zero, the confidence intervals for all of the individual components of engagement did, indicating that more research is needed connecting CC with engagement before conclusions can be drawn as to the

magnitude of the relations between them. Only single studies reported correlations between CC and professional efficacy ( $r=-.25$ ) and CC and engagement (omnibus;  $r=-.22$ ), both in the direction but stronger than the magnitude hypothesized. Thus, Hypothesis 9 was partially supported.

### *Moderator Analyses*

#### *Operationalization of Affective Commitment*

As mentioned previously, the only construct-oriented moderator I examined here was the operationalization of AC. Primary studies were dummy-coded as using either a Meyer and Allen AC scale (Allen & Meyer, 1990; Meyer et al., 1993) or the OCQ (e.g., Porter et al., 1974; Mowday et al., 1979). In order to be included in this analysis, I adopted a moderately stringent rule of conducting moderator analyses only for relations for which at least 10 primary studies existed. These are all the relations for which significant  $Q_H$  statistics suggested that sufficient heterogeneity existed to justify a search for moderators (see Table 2 for relevant  $Q_H$  values). Table 6 contains the results of these tests of moderation.

As can be seen, the operationalization of AC was a significant moderator for only one of the relations examined; that between AC and overall eudaimonic well-being. Subgroup analyses revealed that studies employing the OCQ demonstrated a weaker correlation with overall eudaimonic well-being ( $\rho=.34$ ,  $k=14$ ) than studies using Meyer and Allen's measure of AC ( $\rho=.57$ ,  $k=18$ ). Operationalization of AC was not a significant moderator of any of the remaining relations between AC and well-being or ill-health. This included relations between AC and emotional exhaustion, cynicism, professional efficacy, life satisfaction, psychological ill-health, strain/tension, anxiety, and physical

Table 6

*Tests of Construct-Oriented Moderators using Weighted Least Squares Regression*

<i>Correlation Examined</i>	<i>Moderator Tested</i>	<i>df (Model, Residual)</i>	<i>Q<sub>M</sub> statistic</i>
<b>AC-IH</b>	Operationalization of Affective Commitment	1, 159	0.0060
AC-EE		1, 36	0.3954
AC-Cyn		1, 17	0.7093
AC-PIH		1, 23	0.2905
AC-S/T		1, 26	2.9597
AC-AX		1, 10	1.7646
AC-PS		1, 25	1.5242
<b>AC-HWB</b>		1, 36	0.4836
AC-LS		1, 24	0.7983
<b>AC-EWB</b>		1, 30	19.4725**
AC-PE		1, 12	3.3625

*Note:* AC=affective commitment; HWB=Hedonic Well-Being; LS=Life Satisfaction; EWB=Eudaimonic Well-Being PE=Professional Efficacy; IH=Ill-health; EE=Emotional Exhaustion; Cyn=Cynicism; PIH=Psychological ill-health; S/T=Strain/Tension; AX=Anxiety; PS=Physical health complaints. df=degrees of freedom; Q<sub>M</sub>=Q statistic indicating the significance of the weighted least squares regression test for a moderating effect.

\**p*<.05    \*\**p*<.01

health complaints. Two of these tests of moderation, however, approached significance at the  $p < .05$  level (i.e., AC-professional efficacy, AC-strain/tension). Examinations of subgroups for these relations found that studies employing Meyer and Allen AC measures demonstrated a stronger relation with professional efficacy ( $\rho = .53$ ,  $k = 2$ ), and a weaker relation with strain/tension ( $\rho = -.33$ ,  $k = 10$ ) than those utilizing the OCQ ( $\rho = .32$ ,  $k = 12$  and  $\rho = -.41$ ,  $k = 18$  for professional efficacy and strain/tension, respectively). Thus, although one test of moderation was significant, and two others approached significance, overall, operationalization of AC did not appear to moderate relations between AC and outcomes. Although these scales are not identical, they do tend to operate similarly, and thus researchers could use either when concentrating solely on AC and not the other components of commitment.

#### *Methodological Moderators*

Next, several methodological moderators were tested, also using WLS regression. The methodological moderators tested here were sample type (private, government/public, health, education, police/prison/military, other), survey language (English vs. other), continent (North America vs. other), and publication status (published vs. not). As with the construct-oriented moderator tests discussed above, I only conducted these tests of methodological moderators when at least 10 primary studies were available for a given relation. Furthermore, I only conducted tests of moderation when the  $Q_H$  values for these correlations indicated sufficient heterogeneity to warrant them (see Tables 2-4 for relevant  $Q_H$  values). All moderators were dummy-coded in order to be entered into the WLS regression. Table 7 contains the results of these tests of methodological moderation.

Table 7

*Tests of Methodological Moderation, using Weighted Least Squares Regression*

<i>Correlation Examined</i>	<i>Moderator Tested</i>	<i>df (Model, Residual)</i>	<i>Q<sub>M</sub> statistic</i>
<b>AC-HWB</b>	Sample type	--	--
<b>AC-EWB</b>	Sample type	--	--
<b>AC-IH</b>	Sample type	6, 154	4.9942
<b>NC-IH</b>	Sample type	--	--
<b>CC-IH</b>	Sample type	--	--
<b>AC-HWB</b>	Survey language	1, 36	0.0026
<b>AC-EWB</b>	Survey language	1, 30	0.6648
<b>AC-IH</b>	Survey language	1, 159	1.5342
<b>NC-IH</b>	Survey language	1, 14	0.0004
<b>CC-IH</b>	Survey language	1, 22	0.0047
<b>AC-HWB</b>	Continent	1, 36	0.5421
<b>AC-LS</b>	Continent	1, 24	3.9415*
<b>AC-EWB</b>	Continent	1, 30	0.1919
<b>AC-PE</b>	Continent	1, 12	3.7723
<b>AC-IH</b>	Continent	1, 159	0.8248
<b>NC-IH</b>	Continent	--	--
<b>CC-IH</b>	Continent	--	--
<b>AC-HWB</b>	Publication status	1, 36	0.1463
<b>AC-EWB</b>	Publication status	1, 30	0.4013
<b>AC-IH</b>	Publication status	1, 159	0.8070
<b>AC-Cyn</b>	Publication status	1, 17	8.2094**
<b>AC-S/T</b>	Publication status	1, 26	3.9430*
<b>NC-IH</b>	Publication status	1, 13	0.0004
<b>CC-IH</b>	Publication status	1, 22	0.0000

*Note:* AC= affective commitment; HWB=Hedonic Well-Being; EWB=Eudamonic Well-Being; IH=Ill-health; Cyn=Cynicism; PE=Professional Efficacy; LS=Life Satisfaction; S/T=Strain/Tension; df=degrees of freedom; Q<sub>M</sub>=Q statistic indicating the significance of the weighted least squares regression test for a moderating effect.

\**p*<.05    \*\**p*<.01

The first methodological moderator to be examined was sample type. Because of issues with  $k$  to moderator levels ratios and potential collinearity, the only relation for which this analysis could be conducted was that between AC and ill-health. Specifically, moderator analyses often cannot produce interpretable results if there are very few studies included in the analyses, but a fairly large number of levels of a moderator. The same problem can occur if the correlations from the primary studies being analyzed might be related to each other. Because some primary studies included here measured more than one variable of interest, this collinearity could have been problematic. In the one case where sample type could be tested for moderation (AC and ill-health), sample type was not found to be a significant moderator.

The next methodological moderator to be tested was survey language. Because there were not enough studies in any language other than English to warrant separating out other languages, this moderator was dummy-coded as English vs. “other”. Surveys were conducted in 10 languages other than English, including French, Chinese, Dutch, German, Spanish, Finnish, Swedish, Norwegian, Turkish, and Hebrew. Language was not a significant moderator of any of the following examined relations: AC and overall ill-health, emotional exhaustion, cynicism, psychological ill-health, strain/tension, and physical health complaints, overall hedonic well-being, life satisfaction. The test for moderation of the relation between AC and professional efficacy, however, did approach significance. Subgroup examinations for this moderation analysis indicated that studies conducted in English ( $\rho=.31$ ,  $k=10$ ) displayed a weaker relation with professional efficacy than did studies conducted in other languages ( $\rho=.42$ ,  $k=4$ ).



Following this, I conducted tests of moderation to determine whether continent was a significant moderator of AC-well-being relations. Similarly to language, there were too few studies from continents other than North America to consider examining them separately. Therefore, for this analysis, I dummy-coded studies as either coming from North America or not. Studies were conducted in over 30 different countries across almost every continent in the world. Continent was not a significant moderator of relations with overall ill-health, overall hedonic well-being, or overall eudaimonic well-being. Continent was, however, a significant moderator of the relation between AC and one of the examined “lower level” variables—life satisfaction. North American studies displayed a weaker relation between AC and life satisfaction ( $\rho=.13$ ,  $k=20$ ) than did non-North American studies ( $\rho=.41$ ,  $k=7$ ). In one other case (that of the relation between AC and professional efficacy), the test of moderation approached significance. North America ( $\rho=.31$ ,  $k=10$ ) displayed a weaker relation with professional efficacy than did studies conducted in other continents ( $\rho=.415$ ,  $k=4$ ). In all other instances, continent did not moderate the relations significantly. It should be noted that in most, but not all, cases, studies conducted outside of North America were conducted in languages other than English. The tests of language and continent as moderators therefore overlapped quite significantly (and in some cases, totally).

In the final tests of moderation, I explored whether publication status (published or not published) moderated AC-well-being relations. Although publication status did not significantly moderate the relations between AC and overall ill-health, overall hedonic well-being, or overall eudaimonic well-being, it did significantly moderate two of the relations between AC and lower-level variables: that between AC and cynicism and that

between AC and strain/tension. Exploration of the two subgroups involved in these relations (published vs. not) indicated that published sources reported stronger negative relations between AC and cynicism ( $\rho=-.44$ ,  $k=16$ ) and between AC and strain/tension ( $\rho=-.44$ ,  $k=19$ ) than unpublished sources ( $\rho=-.16$ ,  $k=3$  and  $\rho=-.31$ ,  $k=9$  for cynicism and strain/tension, respectively). One other test of moderation approached significance: that of the relation between AC and physical health complaints. Examination of these subgroups similarly indicated that published sources demonstrated a stronger negative relation between AC and emotional exhaustion ( $\rho=-.40$ ,  $k=35$ ) and a weaker negative relation between AC and physical health complaints ( $\rho=-.18$ ,  $k=20$ ) than did unpublished sources ( $\rho=-.29$ ,  $k=3$  and  $\rho=-.25$ ,  $k=7$  for emotional exhaustion and physical health complaints, respectively). The relations between AC and all other variables were not significantly moderated by publication status, nor did those tests approach significance. Specifically, publication status did not moderate the relation between AC and emotional exhaustion, professional efficacy, life satisfaction, psychological ill-health, or anxiety.

There were not sufficient primary studies for any relations involving NC or CC and hedonic or eudaimonic well-being to warrant moderator analyses of these relations.

In summary, the operationalization of AC was a significant moderator of the relation between AC and overall eudaimonic well-being, and approached significance as a moderator of relations between AC and professional efficacy and strain/tension. The only methodological variables that were found to significantly moderate AC-well-being relations were continent, which moderated relations between AC and life satisfaction, and publication status, which moderated relations between AC and cynicism and AC and strain/tension.

## Conclusions and Implications

The aim of the research presented herein was to provide a systematic, empirical review of what is currently known about the connections between commitment under the TCM and well-being as operationalized in a specific, multi-faceted way. To date, the vast majority of studies connecting commitment and employee well-being have utilized a unidimensional view of commitment. This meta-analysis aimed to collect all available studies concerning AC, NC, and CC, and their relations with well-being, and to provide accurate estimations of these relations. Furthermore, this meta-analysis sought to expand the concept of well-being beyond the popular but vague variable of stress, and beyond the common conceptualization of well-being as lack of strain or ill-health. Specifically, the current research employed Ryan and Deci's (2001) two-dimensional view of well-being, and examined many variables that could be categorized as hedonic or eudaimonic well-being, as well as other commonly studied indicators of well-being (or lack thereof). Thus, this meta-analysis provides the most comprehensive review of organizational commitment and employee well-being known to date.

What follows is a very brief general summary and interpretation of the findings from this meta-analysis. I then discuss the implications of these findings for theory and future research. I review limitations of the study, more general directions for future research, practical implications, and general conclusions in the general discussion in Chapter 4.

### *Summary and Interpretation of Findings*

AC is clearly negatively related to ill-health, both in overall analyses and analyses with individual ill-health variables. AC also clearly displayed positive relations with

hedonic well-being. The only exception to this is the relation between AC and negative affect, which was weaker than expected and had credibility and confidence intervals that included zero. Because the meta-analytic correlation between AC and negative affect was based on a relatively small number of primary studies ( $k=6$ ), more primary research investigating this relation would help to gain a more accurate understanding of its true magnitude and whether or not moderators are influencing it. AC was even more strongly related (in a positive direction) to eudaimonic well-being than hypothesized. Thus, it is evident that employees who are committed to their organizations out of a sense of emotional attachment are likely to experience less ill-health, more happiness and general satisfaction with life, and more engagement and professional efficacy (eudaimonic well-being) than those employees who are not committed in this way.

Findings regarding NC were also supportive of the hypotheses offered, albeit based on many fewer studies than conclusions regarding AC. NC is undoubtedly negatively related to overall ill-health and overall psychological ill-health, and has positive relations with both hedonic and eudaimonic well-being. Thus, employees whose commitment to their organization is primarily based on a sense of social obligation are likely to experience less ill-health and more hedonic and eudaimonic well-being. However, more research is needed before conclusions can be drawn as to the true magnitude of relations between NC and individual indicators of ill-health. This further research would also be helpful in clarifying whether relations between NC and ill-health/well-being are influenced by moderators, as this could not be determined here due to the limited number of available studies.

In its omnibus form, CC demonstrated positive relations with overall ill-health, overall psychological ill-health, and almost all individual indicators of ill-health, although moderators may influence these relations. Relations between CC and hedonic well-being were somewhat uncertain, with the exception of the clearly negative relation between CC (omnibus) and life satisfaction. The relation between CC (omnibus) and overall eudaimonic well-being was also clearly negative. Employees who report being committed to their organization because of an awareness of the costs associated with leaving are thus more likely to experience ill-health and less likely to be generally satisfied with their lives. As with NC, much more research is needed connecting CC in all of its forms (omnibus, LoAlt, and HiSac) with positive and negative affect, and individual indicators of eudaimonic well-being, before the true magnitude of these relations can be stated with certainty. Finally, although the presence of moderators is indicated in many of the relations between CC and ill-health/well-being, more primary studies are required before these moderators can be explored.

While there was clearly heterogeneity in the magnitude of relations between commitment and well-being and ill-health, particularly in the case of NC and CC, the moderators examined here did not account for much of it. It is quite possible that a severe lack of power given by small sample sizes hampered these moderator analyses. As future research accumulates, the same moderators can be examined further, and/or new moderators not explored here can be considered. These other potential moderators could include scale type (for some of the ill-health indicators measured by several different scales), age, and gender of participants. The country in which primary studies were

conducted is a potential moderator that would be of great interest when more studies are available including samples from outside of North America.

*Implications for Theory and Research*

*NC, CC, and the Person-Centered Approach*

In all cases, the meta-analytic relations between NC and individual indicators of well-being and ill-health presented here were based on only two to four primary studies; these results should therefore be interpreted with great caution. As mentioned above, NC was positively related to hedonic and eudaimonic well-being, and negatively related to ill-health. However, it is clear that more research is needed, especially given the variability of these relations indicated by the wide confidence intervals.

Theoretical refinements in our understanding of the nature of NC (e.g., Meyer & Parfyonova, 2010) have highlighted that relations between NC and other variables must be contextualized in terms of the other components. The correlations included in the meta-analysis presented above reflect a variable-centered approach to research. This traditional approach assumes that the variables under study have the same meaning for the entire population (Morin et al., 2011). Recent person-centered (or profile) studies, however, challenge that assumption. For example, NC experienced in combination with strong AC (the aforementioned moral imperative profile, characterized by a desire to do the right thing) has been associated with higher levels of staying intentions and OCBs (Gellatly et al., 2006) than NC experienced in combination with strong CC and weak AC (the indebted obligation profile).

Contrary to Meyer & Herscovitch's (2001) proposition that strong CC would mitigate the effects of strong AC, evidence now exists that CC, like NC, might be

experienced differently depending on the context created by the other components in the profile (also see Somers, 2009, 2010; Stanley et al., 2009; and Wasti, 2005). Specifically, Meyer et al. (in press) found that when combined with strong AC and NC, CC was associated with higher autonomous regulation, need satisfaction, OCBs, and well-being. In this case, CC may reflect the potential loss of valued resources (Powell & Meyer, 2004). In contrast, when it dominated the profile (i.e. was combined with weak AC and NC), CC was associated with less autonomous regulation, need satisfaction, OCBs, and well-being. In this case, CC may reflect the threat of economic or other costs (Becker, 1960).

Thus, to gain a better understanding of how commitment relates to well-being, it would be beneficial to complement the variable-centered approach taken in this chapter with a person-centered approach. In the primary study presented in the next chapter, I do just that: I examine the links between profiles of commitment and employees' need support, need satisfaction, and well-being.

#### *Multiple Foci of Commitment*

The meta-analysis presented in this chapter focused only on the implications of employees' commitment to their organizations. This was, in large part, because so much fewer studies exist connecting commitment to other foci with ill-health and well-being. However, as I discussed in Chapter 1 and will discuss further in Chapter 3, commitment to other foci has been shown to have implications for both organization- and employee-relevant outcomes. The study presented in Chapter 3 not only employed the person-centered approach described above, but examined commitment to two important foci: the organization and the occupation.

*Expanding the concept of eudaimonic well-being*

The meta-analysis presented in this chapter was also limited in that very few studies connecting commitment with any indicators of eudaimonic well-being were available. This is because very little research involving eudaimonic well-being has been conducted in organizational settings, let alone concerning its links with commitment. In this study, eudaimonic well-being was constituted by the professional efficacy component of burnout (keyed positively), and engagement. In the study presented in Chapter 3, I attempted to go beyond this limited definition by including other measures of eudaimonic well-being that have been used in past research in this area (namely, vitality and personal expressiveness).

*Antecedents of commitment and well-being*

Finally, this meta-analysis focused exclusively on theoretical outcomes of commitment, specifically ill-health and well-being. Previous meta-analyses have demonstrated that a multitude of theoretical antecedents are related to commitment, including work experiences such as leadership (Jackson, 2010; Meyer et al., 2002), organizational support (Meyer et al., 2002), role stressors such as ambiguity and conflict (Mathieu & Zajac, 1990; Meyer et al., 2002), and organizational justice (Colquitt, Conlon, Wesson, Porter, & Ng, 2001; Meyer et al., 2002). Two important antecedents that have yet to receive much research attention are leaders' support for employee needs, and experienced satisfaction of those needs. I review the theoretical connection between these antecedents and commitment in more detail in Chapter 3. The study presented in Chapter 3 also took a person-centered approach to examining whether commitment profiles are related to need support and need satisfaction.



Having reviewed in detail “what we know” in regards to relations between commitment and employee ill-health and well-being, I present in Chapter 3 a study that moved beyond this current understanding. Specifically, in Study 2, I took a multidimensional, multi-foci, person-centered approach to examining relations between commitment profiles and employees’ need support, need satisfaction, ill-health, and well-being.

## CHAPTER 3: COMMITMENT PROFILES, NEED SUPPORT AND SATISFACTION, AND EMPLOYEE WELL-BEING

### Introduction

The extensive review provided in the previous chapter presents a broad look at what is currently known regarding the connections between organizational commitment and employee well-being. What is presented here is a primary study exploring many of the questions still left unanswered by the meta-analysis presented in Chapter 2. The bulk of the research reviewed and analyzed in Chapter 2 focused on AC toward the organization and its connection with theoretical outcomes (specifically, ill-health and well-being). Furthermore, this research employed a variable-centered approach. That is, it focused on the relations between the individual variables of commitment and employee well-being. In contrast, the study presented here aimed to examine the interplay among multiple components and foci of commitment using a person-centered approach. Specifically, naturally-occurring groups based on *combinations* of commitment components and foci were compared in terms of the theoretical antecedents of need support and satisfaction, and the theoretical consequences of ill-health and well-being. This person-centered approach is complementary to the more traditional variable-centered approach, and allows for a more nuanced understanding of the implications of commitment.

The remainder of this introduction is divided into seven sections. First, I discuss the advantages of the person-centered approach. Second, I review previous person-centered research focused on organizational commitment. Third, I review the research

connecting commitment to other foci and employee well-being, as well as previous person-centered multiple-foci research. Fourth, I review research on basic psychological needs from the perspective of self-determination theory (SDT; Deci & Ryan, 1985, Ryan & Deci, 2000a). In the fifth and sixth sections, I offer hypotheses regarding the connection between commitment profiles and ill-health and well-being, and other outcomes. Finally, I provide a discussion of the connection between commitment and employee need support and need satisfaction in previous research, concluding with a hypothesis and research question regarding the implications of need support and satisfaction for commitment profiles to be addressed in the current study.

### *The Person-Centered Approach*

The vast majority of commitment research has been conducted using a variable-centered approach. Using analytic techniques such as multiple regression and structural equation modeling, variable-centered research addresses how variables relate to each other. These relations are then used to infer psychological processes or causality (Wang & Hanges, 2011). Variable-centered commitment research has focused on using a set of commitment variables (i.e., multiple forms, commitments to multiple foci) to explain as much variance as possible in outcomes such as turnover intentions and job performance. This traditional approach is obviously very useful, and has allowed commitment researchers to address important questions pertaining to the correlations among, and independent and additive effects of, various forms and foci of commitments. While some variable-centered commitment research has used regression techniques to explore how the different forms of components might interact, this approach is not well-suited to addressing questions regarding complex interactions (Vandenberg & Stanley, 2009). As

questions about the combinations of commitment components and/or commitments to multiple foci become more complex, the power to detect interactions may become more and more challenging to reach (Aguinis & Gottfredson, 2010). Furthermore, variable-centered strategies do not take into account the fact that these relations among variables may differ meaningfully among different subgroups of the sample (Morin et al., 2011; Vandenberg & Stanley, 2009).

In contrast, the person-centered approach accounts for the possibility that for different subgroups within a sample, variables may combine differently, and relate differently with other variables (Marsh, Lüdtke, Trautwein, & Morin, 2009; Vandenberg & Stanley, 2009). The person-centered approach allows researchers to classify individuals into relatively homogeneous subgroups that differ in their combinations and levels on a set of variables (i.e., they differ both quantitatively and qualitatively; Marsh et al., 2009). These subgroups, often called profile groups, can then be compared with regard to other variables (Wang & Hanges, 2011). This approach is gaining popularity in commitment research because of its methodological advantages and superior suitability for studying interactions among commitment constructs (e.g., Meyer et al., in press; Morin et al., 2011; Sinclair & Sears, 2011; Vandenberg & Stanley, 2009; Wang & Hanges, 2011).

Specifically, it appears based on previous profile research that the components of commitment are experienced differently *in combination* than they are individually. Furthermore, these combinations of components (profiles) clearly have different implications for theoretical outcomes of commitment. The present study aims to deepen the current understanding of the implications of commitment profiles by considering

combinations of commitment components *and* commitment foci. By treating individuals in this more holistic manner, and considering the interplay among components and foci, this person-centered approach complements what we already know about the relations between individual components and theoretical outcomes from variable-centered research (Vandenberg & Stanley, 2009).

As will be seen from the profile research described below, there are numerous ways of creating profile groups. The most “seductively easy” (Pastor, Barren, Miller, & Davis, 2007) way to identify common patterns is the median-split technique, whereby participants are split into “high” and “low” on the grouping variables, and placed into profile groups based on these splits. These groups, however, can be of questionable homogeneity (Pastor et al., 2007). Furthermore, because it relies on the median, which varies widely across studies, this method is very sample-dependent and thus problematic in terms of comparing results across studies (Pastor et al. 2007).

Another method of creating profile groups is cluster analysis. The goal of cluster analysis is to identify clusters of cases (or participants) with similar scores on the variables of interest (in this case, components of commitment), maximizing between-cluster differences and minimizing within-cluster variance (Vandenberg & Stanley, 2009; Wasti, 2005). The selection of a solution in this process is somewhat subjective, with researchers typically examining a variety of solutions and using theory and their own judgment to reach a decision (Pastor et al., 2007). Thus, cluster analysis is often criticized for its lack of rigorous guidelines to aid in decision-making.

Latent profile analysis (LPA; Muthén & Muthén, 2000) has the same goal as cluster analysis: to distinguish groups of participants who are relatively homogeneous in

terms of a given set of variables (Muthén, 2004; Nylund, Asparouhov, & Muthén, 2007). LPA is so termed because cluster membership is considered to be a latent categorical variable (with  $k$  number of clusters/categories); a person's value on this latent variable is understood to cause their levels on the observed variables (the cluster indicators; Pastor et al., 2007; Vandenberg & Stanley, 2009). Unlike cluster analysis, LPA offers much more rigorous criteria for deciding on the number of clusters to retain (Hagenaars & McCutcheon, 2002; Marsh et al., 2009; Pastor et al., 2007). Furthermore, LPA typically produces a probabilistic classifying approach, taking into account that there is a degree of uncertainty to the categorization of individuals into a single latent class or profile group (Wang & Hanges, 2011). One limitation of LPA is that few simulation studies have been run, so the sample size needed for adequate power is uncertain (Pastor et al., 2007). Despite this, LPA provides a much more sophisticated approach to creating profile groups, with several methodological advantages (Vandenberg & Stanley, 2009), and is thus the method I employed in the current study.

The previous discussion outlined the advantages of the person-centered approach to commitment research, particularly research exploring combinations of various forms and foci of commitment. In the following section, I review previous commitment research employing this person-centered approach.

#### *Organizational Commitment Profile Research*

Commitment theorists began to call more than a decade ago (Meyer & Allen, 1997) for research on commitment to consider all three components from the three-component model (TCM) *in combination*. Despite this, very little research has been conducted that has gone beyond examining the effects of individual components.

Commitment theorists (Meyer & Allen, 1991, 1997; Meyer & Herscovitch, 2001) explained that employees experience differing levels of all three components simultaneously, and that they therefore have what might be termed a commitment “profile”. Meyer and Herscovitch (2001) posited the existence of eight profiles, from the combinations of high or low AC, NC, and CC. Following this postulation, research employing the profile (or person-centered) approach to commitment began to appear in the literature. This approach allowed for the possibility that the components of commitment “might be experienced differently, and have different implications, in combination than they do individually” (Meyer, Stanley, & Parfyonova, in press, p. 33).

Using a median split approach to create profiles, Gellatly et al. (2006) found that employees with strong AC and NC (and weak CC) had even greater intentions to stay and displayed more organizational citizenship behaviours (OCBs) than those in the AC-dominant profile group. Both of these groups reported stronger staying intentions and higher levels of OCBs than those in the NC/CC-dominant group. This interesting phenomenon of NC relating differently to other variables depending on its contextualization with high AC versus high CC led Gellatly et al. to propose that NC has “two faces”: the aforementioned moral imperative profile (AC/NC-dominant) and indebted obligation profile (NC/CC-dominant). Recall that the former is characterized by a mindset of wanting to the right thing, while the latter is experienced as a feeling of having to do something in order to avoid social costs (cf. Meyer & Parfyonova, 2010).

Another study using the median-split approach (Marcovits, Davis, & van Dick, 2007), found that participants in fully-committed, AC-dominant, and AC/NC-dominant profile groups reported the highest levels of intrinsic job satisfaction. Although these

studies were important as some of the first few to take a profile approach to the study of commitment, among other limitations (see Morin et al., 2011; Pastor et al., 2007), the median-split technique forces profile groups instead of finding naturally-occurring groups in the sample.

One of the first researchers to examine the effects of naturally-occurring commitment profile groups was Wasti (2005). Using *k*-means cluster analysis with data from two sample of Turkish employees, she found six profiles in each sample. In the first sample, these were the Highly Committed (those displaying strong levels of all three components), the Non-committed (low levels of all three), the “Neutrals” (average levels of all three), AC-dominant (high AC, low NC, low CC), CC-dominant (low AC, low NC, high CC), and AC/NC-dominant (high AC, high NC, low CC). The second study largely replicated these profiles, with the exception that there was a NC/CC-dominant profile group instead of a neutral group. In the first study, Wasti found the highest levels of OCBs and lowest levels of turnover intention among the employees in the Highly committed and AC/NC-dominant profile groups. The Non-committed group reported the highest levels of turnover intention and lowest levels of OCBs in both studies. In addition, AC-NC dominant group reported lower job stress than the Non-committed and CC-dominant groups in Study 1, and the Highly Committed group experienced lower job stress than the CC-dominant group in Study 2.

Somers (2009), also using *k*-means cluster analysis, found the lowest levels of turnover intention among Highly committed and AC/NC-dominant (i.e., moral imperative) profile group members; their levels were lower than both the AC-dominant and CC/NC-dominant (i.e., indebted obligation) groups. Somers (2010) and Stanley et al.



(2009) also reported similar findings. Meyer et al. (in press), using the more sophisticated LPA technique, found that profile groups characterized by strong AC and NC (i.e., the Highly committed and AC/NC-dominant groups) displayed higher levels of need satisfaction, OCB, and well-being than the Uncommitted and CC-dominant groups. In this case, well-being was measured by general health, positive and negative affect, and engagement.

Having reviewed the existing research on organizational commitment using the profile approach, I now turn to a discussion of commitment to other foci. Specifically, in the next section, I discuss the connection between commitment to foci other than the organization and employee well-being. Following this, I review the few studies that have employed a person-centered approach to the study of commitment toward multiple foci.

#### *Commitment to Multiple Foci: Connections with Well-Being and Profile Studies*

As has been mentioned previously, research concerning commitments to foci other than organizations has demonstrated connections with important outcomes of relevance to both organizations and employees themselves. For example, Vandenberghe et al. (2004) found that AC directed towards supervisors and work groups was negatively related to turnover intention and actual turnover, while another study (Becker & Kernan, 2003) reported a positive relation between AC to one's supervisor and in-role performance as well as courtesy. Cohen (2007) found that employees who were strongly committed to their occupations demonstrated stronger in-role performance and OCBs, and Klassen & Chiu (2011) found negative relations between occupational commitment and intentions to leave the occupation. Stinglhamber, Bentein, and Vandenberghe (2002)

also found that commitments to the occupation, supervisors, work group, and customers were related to turnover intentions.

In terms of employee-relevant outcomes, less research exists; however, occupational AC has been found to be related to lower job stress (Yeh et al., 2007) and burnout (Miller et al., 1990; Reilly, 1994). Maltin (2006) also reported negative relations between occupational AC and role ambiguity and emotional exhaustion, and positive relations with life satisfaction; this study also revealed relations in the opposite direction between occupational CC and the same outcomes. Finally, teachers in Klassen & Chiu's (2011) study who reported stronger occupational AC experienced lower classroom and overall stress.

The studies reviewed above all took a variable-centered approach to the study of commitment and its implications for employee well-being. Four studies have examined combinations of commitments to different foci using a person-centered approach. The first two used median splits to create four profile groups based on organizational and career commitment (i.e., occupational commitment). Carson et al. (1999) labeled these four groups the "Dually committed" (i.e., strong commitment to both foci), the "Uncommitted" (i.e., weak commitment to both foci), the "Organizationists" (i.e. strong organizational and weak career commitment), and the "Careerists" (i.e., strong career and weak organizational commitment). Dually committed employees in this study experienced more empowerment and job satisfaction, and less job and career withdrawal intentions, than employees in the other profile groups. Somers & Birnbaum (2000), also using median splits, created the same four profiles and found similar results: in their study, the Dually committed employees reported higher job satisfaction and job

involvement than those in other groups. As has been stated previously, the median split technique is limited in that it does not allow for naturally-occurring groups.

Two studies have compared profile groups based on commitment toward the organization and occupation in terms of employee well-being using more advanced techniques. Tsoumbris and Xenikou (2010) used *k*-means cluster analysis to create profile groups based on organizational and occupational commitment. Interestingly, they found that scores on the three components of occupational commitment paralleled scores for the corresponding components of organizational commitment in all four profile groups. Specifically, their analyses produced a Highly-committed cluster (strong in all three components toward both foci), an AC/NC-dominant cluster, a CC-dominant cluster, and a Non-committed cluster. Employees in the non-committed and CC-dominant profile groups showed significantly greater intentions of leaving the organization, and of changing occupations. In contrast, employees who were highly committed performed more OCBs than members of the non-committed and CC-dominant profile groups. Because there was such a high correspondence between the comparable components of organizational and occupational commitment, the authors concluded that their findings did not support the study of clusters based on commitment foci.

Maltin et al. (2011) used LPA to create profile groups of teachers using measures of AC and CC directed towards both the organization (school) and the occupation. These analyses produced four profile groups: an occupational CC-dominant group (strong occupational CC, relatively weak occupational AC and organizational AC and CC); an Occupation-dominant group (strong occupational AC and CC, weak organizational AC and CC); a Dual AC-dominant group (strong occupational and organizational AC, weak

CC toward both foci); and a Highly committed group (strong on all four commitments). Teachers in the dual AC-dominant and Highly committed groups were more satisfied with their lives than those in the Occupational CC-dominant group, and the Dual AC-dominant teachers reported more life satisfaction than the Occupation-dominant group. Furthermore, Dual AC-dominant teachers experienced less emotional exhaustion than those in the Occupational CC-dominant and Occupation-dominant groups. Thus, this study suggests that occupational and organizational commitment might be compatible and even mutually reinforcing for some, but conflicting for others. The ability to discover findings such as these is one of the major advantages of the person-centered approach to the study of commitment. Furthermore, the fact that Tsoumbris & Xenikou (2010) did not find evidence for any incompatibility across the two foci of commitment, but Maltin et al. (2011) did, indicates the need for further person-centered research on this topic.

In summary, commitments to foci other than the organization clearly have implications for both organization- and employee-relevant outcomes. When exploring the effects of multiple forms *and* foci of commitments *and* commitments toward multiple foci, the advantages of using the person-centered approach become even more apparent and important. Indeed, the current study uses the person-centered approach to study the connections between multi-form/multi-foci commitment profiles and antecedents and outcomes.

Given that only two studies to date have examined profiles of both multiple foci and multiple forms of commitment in the same research (Maltin et al., 2011; Tsoumbris & Xenikou, 2010), and that only one of those (Maltin et al., 2011) employed LPA to

determine these profile groups, it is very difficult to make any predictions in advance as to what profile groups may be found in the current study.

In addition to identifying and comparing commitment profile groups in terms of well-being, a second objective of this research was to examine two important antecedents to commitment, and their association with commitment profile groups. Therefore, I now turn to a review of these antecedents: basic psychological needs and their satisfaction. I first review these needs and research pertaining to their satisfaction in the work context. Following this, I review their connections with commitment in past research, and offer a hypothesis regarding their connection with commitment in the current study.

#### *Basic Psychological Needs and their Satisfaction in the Work Context*

The discussion heretofore has focused on commitment and its (theoretical) outcomes, particularly well-being. Well-being has been considered from the viewpoint of Ryan and Deci (2001), who reviewed two major perspectives: those of hedonic and eudaimonic well-being. Ryan and Deci (2000) explained that their previous research on SDT is rooted in the eudaimonic perspective of well-being. SDT is a broad theory of human motivation and personality that centers around the conditions and experiences considered to be essential to optimal functioning (Ryan & Deci, 2000a). In other words, SDT is expressly concerned with the facilitation of eudaimonic well-being, through the satisfaction of basic psychological needs.

Needs have enjoyed a long history in work motivation research. In fact, needs have been called “one of the most pervasive notions in the area of work motivation” (Steers & Porter, 1983, p. 27). From the perspective of SDT, needs specify the “what” and “why” of optimal human functioning. SDT identifies three basic psychological needs

that all human beings are said to possess: the needs for *autonomy*, *competence*, and *relatedness* (Deci & Ryan, 2000). Briefly, the need for autonomy reflects the need to feel like the agent of our own actions (deCharms, 1968); the need for competence refers to our need to be effective in our interactions with our environment (White, 1959); and the need for relatedness concerns our need to be connected with others who care for us and for whom we care (Baumeister & Leary, 1995). Years of research have shown that satisfaction of the needs postulated by SDT is related to more autonomous forms of motivation, greater behavioural persistence, better performance, and greater well-being (see Deci & Ryan, 2000, for a review).

The needs for autonomy, competence, and relatedness are considered to be innate, universal, and essential to optimal human functioning (Ryan & Deci, 2000a, 2000b; Deci & Ryan, 2000). Just as a plant will naturally flourish so long as it has the essential nutrients of water and light, so human beings will flourish if their basic needs for autonomy, competence, and relatedness are satisfied on an ongoing basis. All three of these needs must be satisfied for optimal psychological health to occur; according to SDT, “one or two are not enough” (Deci & Ryan, 2000, p. 229).

According to SDT, supportive experiences in important social contexts are the key determinant of need satisfaction, and in turn, its positive consequences (Ryan & Deci, 2000b). A handful of studies exist to support this proposition in the workplace context. In Baard, Deci, and Ryan’s (2004) study, perceived autonomy support of the work climate was fairly strongly related to need satisfaction, which in turn was related to both performance and adjustment (a combination of vitality and reverse-scored anxiety and somatization). Deci, Connell, and Ryan (1989) trained managers to be more

autonomy supportive; the subordinates of managers who received the training displayed greater trust in the corporation and greater overall work satisfaction. Gagné, Koestner, and Zuckerman (2000) found that employees who were given a rationale for doing a task, who were offered some choice in how to do it, and whose feelings about the task were acknowledged (i.e., autonomy support) showed greater acceptance of organizational change. Deci, Ryan, Gagné, Leone, Usunov, & Kornazheva (2001) found that autonomy support of managers in both the U.S. and Bulgaria predicted satisfaction of the needs for autonomy, competence, and relatedness. This need satisfaction, in turn, positively predicted engagement and general self-esteem and negatively predicted anxiety. Ilardi, Leone, Kasser and Ryan (1993) demonstrated that both employees' and supervisors' ratings of employees' autonomy, competence, and relatedness were related to employees' work satisfaction, psychological health, and self-esteem. Finally, in a study at a psychiatric hospital, staff reported greater well-being and job satisfaction, and less controlling attitudes towards their patients, when they felt their basic needs were being satisfied on the job (Lynch, Plant, & Ryan, 2005).

In the following sections, I now turn to hypotheses and research questions. I first address the expected relations between commitment profiles and outcomes, followed by expected associations between need support and satisfaction and commitment profiles.

#### *Commitment Profiles and Well-Being Outcomes: Hypotheses*

Although research has shown that CC relates negatively to well-being (Meyer & Maltin, 2010), and the CC-dominant profile group has been associated with lower well-being than other profile groups in past research (e.g., Maltin et al., 2011; Somers, 2009; Wasti, 2005), well-being tends to be quite high when strong CC is part of a fully-

committed profile (e.g., Maltin et al., 2011; Meyer et al., in press). Similarly, research has demonstrated that associations between NC and other variables differ depending on the context created by the other components of commitment. Therefore, it is important to consider how the components are experienced in context, and hypotheses given here are thus centered around commitment profile groups.

As discussed above, the profile-based research connecting commitment and well-being is somewhat sparse, particularly when it comes to research on dual commitments (see Maltin et al., 2011; Tsoumbris & Xenikou, 2010). Given this, and without knowing which profile groups would be found in this study, it was difficult to postulate the relations that might be found between the different potential profile groups and employee well-being. Therefore, based on the existing literature, I offer relatively broad initial hypotheses. After discovering the profile groups present in the current sample, I refine the hypotheses before testing them.

I expected that members of profile groups characterized by strong organizational and occupational AC would report experiencing higher levels of both hedonic well-being (operationalized by strong positive affect, weak negative affect) and eudaimonic well-being (operationalized by higher levels of engagement, vitality, and personal expressiveness), as well as lower levels of ill-health (operationalized by burnout, physical health complaints, and sick days). In contrast, I expected that those with conflicting profiles (e.g., strong AC toward one foci but not the other), the Uncommitted, and teachers who are members of profile groups characterized by strong CC to both foci in the absence of AC (e.g., CC-dominant and NC/CC-dominant), would experience lower levels of both hedonic and eudaimonic well-being and higher levels of ill-health.



*Hypothesis 1:* Profiles characterized by high levels of AC toward both foci will be associated with higher levels of hedonic and eudaimonic well-being, and lower levels of ill-health, than all other profile groups.

*Hypothesis 2:* Conflicting profiles, and profiles dominated by strong CC (and low AC), and the Uncommitted, will be associated with the lowest levels of well-being and highest levels of ill-health.

*Commitment Profiles and Other Outcomes: Hypotheses*

The existing commitment literature, including research using a profile approach, provides evidence that relations with outcomes such as job satisfaction and organizational staying intentions mirror those with well-being and ill-health. In the single profile study that examined associations between dual-target commitment profiles and other outcomes (Tsoumbris & Xenikou, 2010), the AC/NC-dominant and High Commitment profile groups exhibited lower levels of both organizational and occupational turnover intentions than the Uncommitted and Dual CC-dominant profile groups. Thus, I expected that the same relations as predicted above for well-being would hold true for the outcomes of job satisfaction and staying intentions (to both foci) in this study.

*Hypothesis 3:* Profiles characterized by high levels of AC toward both foci will be associated with higher levels of job satisfaction, organizational staying intentions, and occupational staying intentions than all other profile groups.

*Need Support, Need Satisfaction, and Commitment: Hypotheses*

Researchers have highlighted positive work experiences, particularly those reflecting support on the part of the target, as one of the most important antecedents of commitment (Meyer and Allen, 1991, 1997). It is thus logical to assert that managerial

support for the basic psychological needs posited by SDT, and satisfaction of these needs in turn, would be associated with commitment, particularly organizational commitment. As has been previously discussed, both commitment and need satisfaction have been related to well-being (e.g., Deci & Ryan, 2000; Ryan & Deci, 2000a; Meyer & Maltin, 2010). While one study did demonstrate the link between need satisfaction and AC (Greguras & Diefendorff, 2009), only one empirical study to date has examined need satisfaction, commitment, and well-being together in one study. As mentioned above, Meyer et al. (in press) found that employees in profile groups characterized by strong AC and NC reported experiencing greater need satisfaction, OCBs, and well-being (general health, positive affect and lack of negative affect, engagement).

In addition to the single empirical study discussed above, other research can be used to bolster the argument that satisfaction of the three basic needs relate differently to the three components of commitment. A meta-analysis (Meyer et al., 2002) examining over 10 years of research on the TCM confirmed that perceived organizational support, transformational leadership, and organizational justice are the three strongest positive contributors to the development of AC, and these work experiences are all also very likely to satisfy the basic psychological needs for autonomy, competence, and relatedness. For example, items from the Perceived Organizational Support Scale (Eisenberger, Huntington, Hutchison, & Sowa, 1986) can easily be linked to at least one of the needs. For example, “The organization takes pride in my accomplishments at work” clearly reflects competence support; “The organization really cares about my well-being” can easily be connected to relatedness support. A strong argument can also be made for the transformational leadership behaviours (Bass & Avolio, 1993) being

supportive of the basic needs. For example, the open communication and empathy characterizing the individualized consideration component of transformational leadership would support the need for relatedness. The encouragement of creativity and self-reflection found in the intellectual stimulation component would support autonomy, and the coaching aspect of individualized consideration would support competence. Research has linked transformational leadership behaviours to autonomous motivation (Gagné & Goodridge, 2006), likely because of their support of the three basic needs.

Given the strong conceptual connections that can be made between need support and the strongest antecedents of AC, and previous empirical evidence (Meyer et al., in press), I expected that satisfaction of the needs for autonomy, competence, and relatedness, would be positively related AC.

In contrast to AC, CC is negatively related to perceived organizational support and transformational leadership (Meyer et al., 2002). Employees whose needs are satisfied through these and other positive work experiences are very unlikely to experience the cost-based mindset associated with CC. This statement is corroborated by Meyer et al.'s (2011) finding that employees in the CC-dominant profile group experienced less need satisfaction than groups with high AC and NC and low CC. Thus, I expected that need satisfaction would be negatively related to CC.

NC tends to be fairly highly correlated with AC, and as discussed previously, tends to be related to the same variables (and in the same direction) as AC, albeit to a lesser degree. Similarly to AC, NC is positively related to both organizational support and transformational leadership; these relations are of lesser magnitude than those between AC and these antecedents. Furthermore, positive work experiences such as those

that support the three basic needs are likely to elicit feelings of reciprocity, one of the main theoretical antecedents of NC (Meyer & Allen, 1991, 1997). Finally, the single empirical study examining relations between commitment and need satisfaction (Meyer et al., in press) reported positive relations between NC and need satisfaction. Thus, I expected that NC would relate positively to need support and need satisfaction.

The relations discussed above all pertain to the individual components of commitment. However, the goal of the current study was to examine the relations between commitment profiles and outcomes and antecedents. Only one previous study has explored associations between commitment profiles and need satisfaction (Meyer et al., in press), and this study only examined organizational commitment. The implications of need support and satisfaction for organizational commitment are fairly straightforward based on previous (albeit sparse) findings. Thus, for “compatible” profile groups in which occupational commitment parallels organizational commitment (e.g., a high commitment profile in which all components of both foci are strong), specific predictions can be made based on earlier evidence. However, the implications of need support and satisfaction for occupational commitment are less clear, and no research exists to guide the formulation of hypotheses. Therefore, it is difficult to make specific predictions regarding “conflicting” commitment profiles where occupational commitment does not parallel organizational commitment (e.g., an occupation-dominant profile in which all components of organizational commitment are weak, and all components of occupational commitment are strong). I therefore present this as an open research question.

*Hypothesis 4:* Strong need support and satisfaction will be associated with membership in profiles characterized by strong AC toward both foci.

*Research Question 1:* How will need support and need satisfaction relate to conflicting commitment profiles?

## Method

### *Participants*

Participants in this study were 353 educators in two Ontario school boards who were invited by various methods to participate in an online survey. Both school boards included a mixture of rural and urban schools. After data cleansing, the final sample of participants consisted of 326 educators.

Of the 326 participants, 237 were female (74.1%), and 72 were male (22.5%); 17 participants did not report their gender. The participants' average age was 42.64 years old ( $SD=9.03$ ), and they ranged in age from 25 to 66 years old. The majority of participants were elementary teachers, with 91 working at the primary level, 41 working at the junior level, and 31 working at the intermediate level. The remainder (112) were secondary school teachers, and teachers in "other" positions (42), including teacher librarians, resource teachers, core French language teachers, music teachers, etc. Participants had been in their occupation for an average of 15.18 years ( $SD=8.26$ ), with occupational tenure ranging from 1 to 49 years. They had been working for their current school for an average of 8.26 years ( $SD=6.56$ ), with experience ranging from zero to 39 years. Three teachers did not report their position type, school board, or tenure. Demographic variables are summarized in Table 8.

The participants were split unevenly across boards, with 269 coming from one board (84.1%) and 48 coming from the other (15.1%). An independent samples  $t$  test to

Table 8

*Frequencies and Descriptive Statistics for Demographic Variables*

			<i>Mean</i>	<i>SD</i>
1.	Age	Participants	42.72	9.02
		Observer Respondents	42.73	10.86
2.	Org. Tenure		8.29	6.52
3.	Occ. Tenure		15.25	8.93
			<i>N</i>	<i>%</i>
4.	Gender	Female Participants	242	74.0
		Male Participants	73	22.0
		Female Observer Respondents	24	40.7
		Male Observer Respondents	35	59.3
5.	Position	Elementary Primary	93	28.5
		Elementary Junior	41	12.6
		Elementary Intermediate	31	9.5
		Secondary	116	35.6
		Other	42	12.9
6.	Relationship of Observer Respondents	Partner (unmarried)	6	10.0
		Spouse	30	50.0
		Friend	5	8.3
		Coworker	5	8.3
		Family Member	13	23.3

compare means on all self-reported study variables (including demographics) for teachers from the two different boards was conducted. Participants from the two boards differed on only one variable (Organizational CCLoAlt;  $M_1 = 3.9852$ ,  $M_2 = 3.4439$ ,  $t(315) = -.2430$ ,  $p=.016$ ), and were therefore collapsed into one sample for all further analyses.

Sixty-two observer health assessment surveys were collected that could be matched successfully with main survey participants. Two of these were matched with multivariate outliers, and were thus removed, leaving a final sample of 60 matched observer respondents. The observer respondents were mostly spouses of the participants ( $N=30$ , 50%), with unmarried partners ( $N=6$ , 10%), close friends ( $N=5$ , 8.33%), coworkers ( $N=5$ , 8.33%), and family members ( $N=14$ , 23.33%) comprising the rest of the sample. Observer respondents ranged in age from 25 to 77, with an average age of 42.73 ( $SD=10.855$ ). Twenty-four of the observer respondents were female (40.7%), while 35 were male (59.3%).

### *Procedure*

Educators were invited to participate in the survey in a variety of ways. In one school board, a school board administrator sent an email containing a link to the survey to all educators in the board to their board-issued email addresses. In the other school board, the elementary and secondary school district union president sent emails containing links to the survey to union representatives at each school, and asked these representatives to forward the email to all educators in their school. A link to the survey was also placed on the websites for both the elementary and secondary union districts. Follow-up emails were sent to the teachers in the first board, and the union representatives in the other

board, one week following the initial invitation, and several weeks later following holidays.

The survey included measures of need support on the part of the school leadership team (i.e., the principal and vice principals), need satisfaction, organizational commitment (to the school), occupational commitment, emotional exhaustion, cynicism, physical health complaints, self-reported sick days, positive and negative affect, personal expressiveness, vitality, vigour, dedication, job satisfaction, staying intentions for both organization (school) and occupation, acquiescence bias, and demographic variables. These measures are described in more detail below.

Participants were also invited to ask someone close to them (i.e., a partner, close friend, family member, or coworker) to provide an outside observer's review of their health. If they chose to accept this invitation, they created a six-digit ID to link their survey with their observer's survey, which they reported and shared with their observer. They were given a body of text, including a link to the peer health survey and a place to record their ID, to copy and paste into an email to the observer.

### *Measures*

#### *Need Support*

Revised versions of the Need Supportive Management Scales (Parfyonova, 2009) were used to assess the extent to which educators felt their leadership team (i.e., principals and vice principals) support their basic psychological needs. In the interests of survey length, the original Need Supportive Management scales were shortened for this study based on recommended practices for reducing the length of self-report scales (Stanton, Sinar, Balzer, & Smith, 2002). The three best items from each subscale were



selected, based on item-total correlations, item efficiency indices, and factor loadings from Parfyonova (2009). In addition, new autonomy support subscales were added. These additions are described in more detail below.

*Autonomy Support.* The Autonomy Support Scale consists of three subscales. These subscales were provision of choice (three items; e.g., “My current leadership team allows me to choose how to do my work where possible”), acknowledging employee perspective (five items; e.g., “My current leadership team asks me for my perspective on issues that affect me”), and non-controlling behaviour (five items; e.g., “My current leadership team refrains from the use of sanctions or rewards to exert influence”). Although Parfyonova (2009) originally had two subscales that focused on autonomy support, provision of choice and provision of rationales, only the former loaded on the autonomy factor in her analyses. She reassigned the latter to competence support. Therefore, on Parfyonova’s recommendation, I wrote additional autonomy support subscales based on an extensive review of the SDT need support literature. Items tapping the concept of *acknowledging employee perspective* were written based on the following definition: acknowledging an employee’s perspective involves a manager taking an employee’s perspective, at least initially; attempting to understand that perspective; and explicitly acknowledging it (Baard, 2002; Baard, Deci, & Ryan, 2004; Stone, Deci, & Ryan, 2009). Items tapping the concept of *non-controlling behaviour* were written based on this definition: non-controlling behaviour involves a manager refraining from the use of coercion (i.e., rewards or punishments, comparisons to others) or aggressive language to exact desired performance from employees (Baard, 2002; Baard et al., 2004; Stone et al., 2009). The Cronbach’s alpha for the autonomy support scale in this study was .965.

*Competence Support.* The Competence Support Scale is composed of three subscales of three items each: setting expectations (e.g., “My current leadership team provides clear guidelines that I can use to direct my performance”), provision of rationale (e.g., “My current leadership team provides a meaningful rationale for my work activities”), and provision of feedback (e.g., “My current leadership team makes useful comments about my performance”). The Cronbach’s alpha for the competence support scale in this study was .948.

*Relatedness Support.* The Relatedness Support Scale includes two subscales of three items each: acknowledgement of employees’ feelings (e.g., “My current leadership team sympathizes with me when I have problems”), and expression of concern for employees’ needs (“e.g., My current leadership team takes into account my situation when making decisions that affect me”). The Cronbach’s alpha for the relatedness support scale in this study was .943.

The original Need Supportive Management items referred to “my manager”; I changed them here to refer to “my current leadership team”. Responses to the scales were made on a 7-point Likert-type scale with anchors ranging from “strongly disagree” to “strongly agree”.

#### *Need Satisfaction*

Need satisfaction was measured using the Work-related Basic Need Satisfaction Scale (Van den Broeck, Vansteenkiste, De Witte, Soenens, & Lens, 2010). This 16-item scale has been found in multiple Dutch-speaking samples to have adequate factor structure, reliability, discriminant and criterion-related validity. I chose 12 of the 16 items (four each for autonomy, competence, and relatedness satisfaction, respectively) based on

factor loadings, item-total correlations, and balancing the scale in terms of need satisfaction and need thwarting. Example items include: “I feel like I can be myself at my job” (autonomy); “I really master my tasks at my job” (competence); and “At work, I feel part of a group” (relatedness). The original response scale is a 5-point Likert-type scale with anchors ranging from “strongly disagree” (1) to “strongly agree” (5); however, I used a 7-point scale with the same anchors in the present research to remain consistent with the response scales for other measures. The Cronbach’s alphas for the autonomy satisfaction, competence satisfaction, and relatedness satisfaction subscales were .964, .844, and .847, respectively.

#### *Organizational Commitment*

AC, NC, and CCHiSac to the organization were measured using short versions of Meyer, Allen, and Smith’s (1993) scales. In this study, the organization referred to the school, and I modified items to reflect this. The 1993 scales are six-item measures (for a total of 18 items); these scales were reduced to three items each using the same procedures described above. Both CCHiSac and CCLoAlt were included in this study. Example items include: “This school has a great deal of personal meaning for me” (AC); “I would feel guilty if I left my school now” (NC); “I would not leave this school because of what I would stand to lose” (CCHiSac); and “I feel that I have too few options to consider leaving this school” (CCLoAlt). Responses were made on a 7-point Likert-type scale with anchors ranging from “strongly disagree” to “strongly agree”. The Cronbach’s alpha for the four scales were: .846 (AC), .791 (NC), .707 (CCHiSac), and .725 (CCLoAlt).

### *Occupational Commitment*

AC, NC, and CC to the occupation of teaching were measured using short versions of Meyer et al.'s (1993) scales. I chose three of the six items from each component, again based on procedures recommended by Stanton et al. (2002). Example items include: "Being a teacher is an important part of my identity" (AC); "I feel a responsibility to continue teaching" (NC); and "It would be costly for me to change my occupation now" (CC). Participants respond on a 7-point Likert-type scale with anchors ranging from "strongly disagree" to "strongly agree". Cronbach's alphas for occupational AC, NC, and CC were .706, .783, and .818, respectively.

### *Ill-health*

*Burnout.* In the interests of survey length, I measured only two components of burnout in this study. Emotional exhaustion and cynicism are considered to be the primary indicators of burnout, and were each measured with five items from the MBI (Maslach et al., 1996; Schaufeli et al., 1996). Emotional exhaustion included such items as "I feel emotionally drained from my work", and cynicism included such items as "I have become less interested in my work since I started this job". Using a time frame of the past academic year, participants responded to these items on a 7-point frequency scale ranging from "never" to "very often". The Cronbach's alpha for emotional exhaustion and cynicism in this study were .876 and .848, respectively.

*Physical health complaints.* The Physical Health Questionnaire (Schat, Kelloway, & Desmarais, 2005) is a self-report measure of somatic symptoms including gastrointestinal problems, headaches, sleep disturbance, and respiratory infections (i.e., colds, flus). The scale is comprised of 14 items; respondents used a 7-point Likert-type

frequency scale ranging from “never” to “very often”. The time frame given in the instructions for this scale was the past academic year. The Cronbach’s alpha for this scale in this study was .863.

*Sick Days.* Participants self-reported the number of sick days they took in the last academic year while working for their current board, ranging from zero to 10 or more.

#### *Hedonic Well-Being*

In this study, hedonic well-being was operationalized in terms of state positive and negative affect.

*Positive and Negative Affect.* Positive and negative affect were measured in this study using the short-form version of the International Positive and Negative Affect Schedule (Thompson, 2007), based closely on the Positive and Negative Affect Schedule (Watson, Clark, & Tellegen, 1988). The short version of the international scale is comprised of two scales, each containing five mood adjectives (e.g., “inspired” for positive affect and “upset” for negative affect). The instructions for this scale ask participants to indicate the extent to which they currently feel this way, and the response scale is a 7-point scale ranging from “very little or not at all” to “very much”. The Cronbach’s alphas for positive and negative affect in this study were .864 and .801, respectively.

#### *Eudaimonic Well-Being*

Eudaimonic well-being was operationalized in this study by engagement, personal expressiveness, and vitality.

*Engagement.* As with burnout, only two components of engagement were measured here to conserve space (vigour and dedication). These components were each

measured with three items from the short version of the Utrecht Work Engagement Scale (Schaufeli et al., 2006). Example items include “At my work, I feel bursting with energy” (vigour) and “I find the work that I do full of meaning and purpose” (dedication). The engagement scale also used a time frame of the past academic year, and a 7-point frequency response scale ranging from “never” to “very often”. Cronbach’s alphas for vigour, dedication, and the overall engagement scale were .819, .832, and .907, respectively.

*Personal expressiveness.* Personal expressiveness, one of the variables mentioned by Ryan and Deci (2001) as representing eudaimonic well-being, was measured using Waterman’s (1993) six-item scale. An example item is: “My job gives me my greatest feeling of really being alive”. Personal expressiveness was measured using the same time frame and response scale as burnout and engagement. The Cronbach’s alpha for personal expressiveness in this study was .858.

*Vitality.* Vitality, the most commonly used measure of eudaimonic well-being in SDT research, was measured here using Ryan and Frederick’s (1997) six-item scale (e.g., “I have energy and spirit”). Participants responded to on a 7-point Likert-type scale ranging from “not at all true” to “very true” in terms of how the items applied to them and their lives at the present time. The Cronbach’s alpha for vitality in this study was .939.

#### *Other Outcomes*

*Job Satisfaction.* Job satisfaction was measured with a single item (“How satisfied are you with your job?”) to which respondents replied on a seven-point scale ranging from “very dissatisfied” to “very satisfied”.

*Organizational Staying Intentions.* Participants were asked how long they anticipated staying with their current school, and the response categories were less than a year, one-three years, four-six years, seven-nine years, and ten or more years.

*Occupational Staying Intentions.* Participants were asked how long they anticipated staying in their current occupation, and the response categories were less than a year, one-three years, four-six years, seven-nine years, and ten or more years.

#### *Demographic Variables*

Participants were asked to report their age, gender, board, position (elementary junior, intermediate, or senior; secondary, other), and occupational and organizational tenure.

#### *Observer Well-Being and Ill-health Assessments*

Participants were invited to ask someone close to them (their partner, a close friend, a family member, or a close coworker) to assess their health. Observer respondents gave their assessments of participants' health in terms of emotional exhaustion ( $\alpha=.906$ ), cynicism ( $\alpha=.814$ ), vigour ( $\alpha=.868$ ), dedication ( $\alpha=.758$ ), personal expressiveness ( $r=.862$ ), positive ( $\alpha=.842$ ) and negative affect ( $\alpha=.840$ ), physical health complaints ( $\alpha=.865$ ), vitality ( $\alpha=.937$ ), and sick days. The Cronbach's alpha for the omnibus engagement scale was .908. Observer respondents also assessed participants' job satisfaction. All of these measures were identical to those completed by participants themselves, except observers were asked to respond based on how, to their knowledge, the target individual felt or experienced. Finally, observer respondents were asked to indicate their own age and gender.

## *Analyses*

### *Data Cleaning*

*Missing Values.* I first screened the data for missing values by searching for items and cases for which more than 10 percent of the data was missing. In the initial sample of 353 participants, no items had more than 10% missing data. However, 21 cases were missing more than 10% of their data and were thus removed, leaving 332 participants. Following this screening, I imputed any remaining missing values for continuous variables using the expectation maximization method (Tabachnick & Fidell, 2001). This method is an iterative procedure in which expected values for missing data are computed based on the current parameters; these values are substituted and parameters re-estimated, resulting in new values, which are then substituted in a continuing cycle until the parameter estimates no longer change from iteration to iteration.

*Acquiescence.* I measured acquiescence using three items. These three items were polar opposites to items from the autonomy support, competence satisfaction, and cynicism scales. An example item is “My leadership team tells me how to do my work”, which is the opposite of “My leadership team allows me to choose how to do my work where possible”. Participants were scored dichotomously for acquiescence on the three pairs of items (i.e., the acquiescence items and the items to which they corresponded). They were given a score of one for each pair if they responded “strongly agree” or “agree” or “strongly disagree” and “disagree” on *both* items in an opposing pair. Their acquiescence bias score was the sum of their dichotomous scores on these three pairs. No participants received a score higher than one on acquiescence bias, and thus none were removed in this stage of the data screening.



*Outliers.* Next, I conducted a search for univariate and multivariate outliers. First, I examined item z scores to detect cases that exceeded a recommended cut-off of 3.29 (Tabachnick & Fidell, 2001). I flagged any cases identified as univariate outliers, but did not remove them unless they were also identified as multivariate outliers. In order to identify multivariate outliers, I used Mahalanobis distance values and measures of influence (Cook's distance and standardized DFFITS; Fox, 1997; Tabachnick & Fidell, 2001). The Mahalanobis distance follows a  $\chi^2$  distribution. The most commonly used cutoffs for Cook's distance are one (Tabachnick & Fidell, 2001) and  $4/n$ . I used the more conservative  $4/n$  (.01227 for this sample) was used as the cutoff here. Standardized DFFITS uses a cutoff of  $2\sqrt{(k+1)/(n-k-1)}$  where  $k$  is the number of variables (1.51 in this sample). Six cases exceeded the critical values for all three criteria, and were thus removed from the sample. This resulted in a final sample of 326 participants.

#### *Psychometric Evaluation of Scales*

All measures were examined for internal consistency. Next, all scales were subjected to confirmatory factor analyses, comparing the full models (e.g. the four-factor model for organizational commitment) to more parsimonious models (e.g., three-factor and one-factor for organizational commitment). Because I modified the need supportive management scales and added new items, these scales were instead subjected to exploratory factor analyses.

#### *Latent Profile Analyses*

I conducted LPAs using *Mplus* version 5.0, and analysed three-, four-, five-, six-, seven-, and eight-profile solutions. As is standard procedure, I limited these analyses to the most parsimonious model, allowing variances to differ across indicators within a

cluster but constraining them to be equal across clusters (see Pastor et al., 2007, for an exception). I used several criteria to aid in deciding which solution to retain, the first of which were a series of goodness-of-fit indices.

The logarithmic value of the likelihood (log-likelihood or LL) is an indicator of the probability of observing the sample data assuming the set of parameter estimates associated with the model being tested, and higher values (e.g., closer to zero) indicate better fit than lower values (Pastor et al., 2007). The Lo-Mendell-Rubin likelihood ratio test (LMR; Lo, Mendell, & Rubin, 2001) is a significance test used to compare the fit of models that specify different number of clusters but that use the same parameters (Pastor et al., 2007). A significant LMR test indicates that the number of profiles specified in the current model is a better fit than a model with fewer profiles. Alternatively, bootstrapped log-likelihood ratio tests (BLRT; McLachlan & Peel, 2000) can be used (Marsh et al., 2009). Researchers have also relied on information criterion indices such as the Bayesian Information Criterion (BIC; Schwartz, 1978), which is a form of the LL, as well as Akaike's Information Criterion (AIC; e.g., Collins, Fidler, Wugalter, & Long, 1993; Magidson & Vermunt, 2004) and the sample-size-adjusted BIC (SSA-BIC; Yang, 2006). These indices were all examined here.

Following an inspection of the goodness-of-fit indices, I used several other criteria in deciding which solution to retain. Marsh et al. (2009) suggested that profiles or profiles with a number of cases greater than one to five percent of the sample are acceptable; thus, the next criterion was a cluster size of at least 16 participants. The next criterion I utilized was a set of profiles that were theoretically interpretable. While fit

indices may indicate the best-fitting model, Vandenberg and Stanley (2009) recommend that theory be the driving force in making decisions regarding the number of clusters.

Following an examination of these criteria, I inspected posterior probabilities. Posterior probabilities indicate an individual's probability of belonging to any one profile group (Pastor et al., 2007; Vandenberg & Stanley, 2009). Individuals are assigned to the profile group for which they have the highest posterior probability, and an ideal solution is indicated by individuals having high posterior probabilities for one profile, and low posterior probabilities for all others. Posterior probabilities are then used to calculate a classification table and entropy statistics, which are indicators of the classification accuracy of the model (Pastor et al., 2007). Ideally, the average posterior probability for a profile group should be highest (close to 1.0) for the group to which individuals were assigned, and lower for all other groups (e.g., Pastor et al., 2007). If this is not the case, some overlap may exist between profiles. The information captured in the classification table can also be given in a single statistic, the entropy statistic. The entropy statistic ranges from 0 to 1, with higher values indicating higher classification accuracy.

### *Hypothesis Testing*

Once an optimal profile solution was determined, I compared profile groups on the relevant outcome variables. ANOVAs were conducted using the outcome variables (e.g., well-being) as dependent variables and profile membership as the independent variable. I followed these ANOVAs with post hoc *t*-tests to compare means on outcome variables between specific pairs of profile groups. Following this, I tested the associations of the antecedents of need support and satisfaction with commitment profile groups using multinomial logistic regression analyses (Norusis, 2007). Specifically, I conducted

multinomial logistic regression analyses to detect whether the theoretical antecedents (need support and need satisfaction) could predict profile membership.

## Results

### *Psychometric Evaluation of Scales*

In almost all cases, an examination of the results of the reliability analyses and confirmatory factor analyses (comparing full with more parsimonious models) led to the decision to retain the measures in their original form. Where this was not the case, I provide a brief review of revisions made to the measures that required it. For all variables, alphas are reported in Table 11 with the correlations among variables.

#### *Organizational Commitment*

I removed one organizational NC item due to an inadequate factor loading. Following this, a four-factor model (AC, NC, CCHiSac, and CCLoalt) was retained.

#### *Occupational Commitment*

I removed a single occupational AC item due to an inadequate factor loading. A three-factor model (AC, NC, CC) was retained.

#### *Outcome Measures*

*Physical Health Complaints.* The four-factor model (sleep disturbances, headaches, digestive issues, colds/flu) fit the data better ( $\chi^2 = 178.48$ ,  $p < .001$ ;  $df = 71$ ; CFI = .95; RMSEA = .07; factor loadings all over .60) than a one-factor model ( $\chi^2 = 1074.36$ ,  $p < .001$ ;  $df = 77$ ; CFI = .57; RMSEA = .20). Nevertheless, because the internal consistency of the overall scale was good ( $\alpha = .863$ ), and because the different types of symptoms are not of theoretical interest in this study, I report results for the overall scale.

*Engagement.* The fit of both the one-factor model ( $\chi^2 = 96.96$ ,  $p < .001$ ;  $df = 9$ ; CFI = .93; RMSEA = .17; factor loadings all over .65) and the two-factor model ( $\chi^2 = 96.47$ ,  $p < .001$ ;  $df = 8$ ; CFI = .93; RMSEA = .18; factor loadings all over .60) was relatively equal, although neither model fit the data particularly well. A principal axis exploratory factor analysis produced one factor with an eigenvalue over 1.0 (with the others all below 0.6) that accounted for 68.55% of the common variance. Past research using the 9-item Utrecht Work Engagement Survey (e.g., Schaufeli et al., 2006) also found that the items for the individual dimensions of engagement did not load on distinct factors in factor analyses. Thus, like in these earlier studies, I conducted the hypothesis tests involving engagement in this study with one omnibus engagement scale.

#### *Observer Well-Being and Ill-Health Assessments*

The sample size for the observer assessments was very small ( $N=60$ ). Thus, psychometric evaluation of the scales would not likely yield meaningful results. Because these scales were all internally consistent (alphas over .75), I made the decision to retain the same scales as for the self-reported measures.

#### *Need Supportive Management Scales*

The internal consistency analyses for the autonomy ( $\alpha=.965$ ), competence ( $\alpha=.948$ ), and relatedness ( $\alpha=.943$ ) support scales were all adequate. I conducted individual exploratory principal axis factor analyses for each scale (i.e., autonomy, competence, and relatedness) and subscale (e.g., providing choice, perspective-taking), and found each to be adequately unidimensional. In the exploratory principal axis factor analysis with direct oblimin rotation of the full Need Supportive Management scale, three factors with eigenvalues over 1.0 were extracted, explaining a cumulative 65.38 % of the

common variance. Almost all of the autonomy support items loaded on the first factor. One autonomy support item (from the perspective-taking subscale), along with all of the relatedness support items and two of three provision of feedback subscale items (from the competence support scale) had their highest loading on the second factor. The remainder of the items from the competence support scale (i.e., the provision of rationale and setting expectations items) loaded highest on the third factor. This factor structure is not ideal, and although the three need support scales did display more than adequate unidimensionality, the Need Supportive Management scales were combined in this study. In the section below in which I discuss correlations, I provide further support for this decision. The Cronbach's alpha coefficient for the overall need support scales in this study was .980.

#### *Work-Based Need Satisfaction Scales*

A three-factor model was retained, with Cronbach's alpha coefficients for the autonomy, competence, and relatedness satisfaction scales of .964, .844, and .847, respectively.

#### *Correlations*

##### *Demographic Variables*

Bivariate Pearson correlations among the demographic variables are presented in Table 9, and correlations between the demographic and all other variables are presented in Table 10. As would be expected, age was positively related to organizational ( $r=.822$ ) and occupational tenure ( $r=.545$ ), and both types of tenure were positively related to each other ( $r=.617$ ).

Table 9

*Correlations Among Demographic Variables*

	<i>Age</i>	<i>Gender</i>	<i>Org. Tenure</i>	<i>Occ. Tenure</i>
1. Age	--			
2. Gender	.014	--		
4. Organizational Tenure	.822**	.050	--	
5. Occupational Tenure	.545**	-.015	.617**	--

*Note:* For gender, female=1 and male=0.

\*p<.05 \*\*p<.01

Table 10

*Correlations Between Demographic and Other Study Variables*

	<i>Age</i>	<i>Gender</i>	<i>Org. Tenure</i>	<i>Occ. Tenure</i>
1. Overall Need Support	-.028	.080	-.080	-.018
2. Autonomy Need Satisfaction	.021	-.054	-.025	.015
3. Competence Need Satisfaction	.161*	.011	.129*	.166*
4. Relatedness Need Satisfaction	-.022	-.057	.070	.096
5. Affective Org. Com.	.034	-.023	.069	.229**
6. Normative Org. Com.	-.041	-.044	-.063	.092
7. Continuance Org. Com. (HiSac)	.010	-.015	.030	.207**
8. Continuance Org. Com. (LoAlt)	.016	.028	.040	.034
9. Affective Occ. Com.	.008	-.039	-.044	-.064
10. Normative Occ. Com.	-.069	-.115*	-.102	-.011
11. Continuance Occ. Com.	.025	.032	-.012	.021
12. Job Satisfaction	-.008	-.015	-.028	.007
13. Positive Affect	.134*	-.038	.069	.012
14. Negative Affect	-.079	-.047	-.044	-.032
15. Physical health complaints	-.095	-.212**	-.075	-.116*
16. Emotional Exhaustion	-.113*	-.005	-.062	-.111*
17. Cynicism	.021	.073	.076	.058
18. Engagement	.133*	-.059	.078	.038
19. Personal Expressiveness	.089	-.121*	.034	.006
20. Vitality	.129*	-.007	.103	.068
21. Sick Days	-.007	-.101	.041	.043
22. Organizational Staying Intention	-.300**	.033	-.309**	-.119*
23. Occupational Staying Intention	-.647**	-.027	-.685**	-.363**
24. Observer-Rated Job Satisfaction	-.063	-.074	-.151	-.242
25. Observer-Rated Positive Affect	-.031	-.054	.035	-.059
26. Observer-Rated Negative Affect	-.110	-.046	-.001	.115
27. Observer-Rated Physical health complaints	-.126	.076	-.048	-.025
28. Observer-Rated Emotional Exhaustion	-.035	-.024	-.034	.023
29. Observer-Rated Cynicism	.095	-.067	.104	.044
30. Observer-Rated Engagement	-.151	-.090	-.134	-.144
31. Observer-Rated Personal Expressiveness	-.024	-.047	-.024	-.007
32. Observer-Rated Vitality	-.057	-.143	-.023	.036
33. Observer-Rated Sick Days	.169	.245	.228	.317*

Note: For gender, female=1 and male=0.

\*p<.05    \*\*p<.01



In terms of relations between demographic variables and study variables, several significant relations are worth noting. Older teachers were more likely to report experiencing support for the need for competence ( $r=.161$ ), positive affect ( $r=.134$ ), engagement ( $r=.133$ ), and vitality ( $r=.129$ ). They also reported less emotional exhaustion ( $r=-.113$ ). Finally, and not surprisingly, age was negatively related to occupational ( $r=-.647$ ) and organizational staying intention ( $r=-.300$ ). Male participants were less likely to report experiencing occupational NC ( $r=-.115$ ), physical health complaints ( $r=-.212$ ), and personal expressiveness ( $r=-.121$ ).

Teachers who had been teaching longer (both in general and at their respective schools) were more likely to report experiencing satisfaction of their need for competence ( $r=.129$  for organizational tenure,  $r=.166$  for occupational tenure), and teachers with longer occupational tenure also reported stronger organizational AC ( $r=.229$ ) and CCHiSac ( $r=.207$ ), as well as less physical health complaints ( $r=-.116$ ) and emotional exhaustion ( $r=-.111$ ). Interestingly, observers of teachers with longer occupational tenure reported that they had taken more sick days in the last year than observers of teachers who had not been teaching as long. Both organizational (i.e., school) and occupational tenure were negatively related to occupational staying intentions ( $r=-.685$  and  $r=-.363$ ) and organizational staying intentions ( $r=-.309$  and  $r=-.119$ ). Finally, occupational tenure was found to be positively related to observer-rated sick days ( $r=.331$ ).

### *Main Study Variables*

Means, standard deviations, Cronbach's alphas, and intercorrelations for all other study variables are presented in Table 11.

Table 11

*Means, Standard Deviations, and Intercorrelations Among Study Variables*

Variables	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Overall Need Supp	5.1741	1.3041	(.980)				
2. Aut Need Sat	4.8070	1.3704	.580**	(.843)			
3. Comp Need Sat	5.8155	1.0011	.241**	.598**	(.844)		
4. Rel Need Sat	5.2409	1.4202	.320**	.440**	.230	(.847)	
5. Org AC	5.3039	1.3196	.373**	.388**	.136	.640**	(.846)
6. Org NC	4.2069	1.6369	.208*	.187	-.019	.087	.455**
7. Org CCHiSac	4.6078	1.4319	.098	.028	-.096	.180	.380**
8. Org CCLoAlt	3.9011	1.4263	-.315**	-.597**	-.336*	-.259	-.307*
9. Occ AC	6.4128	0.7768	.263**	.565**	.630**	.289*	.424**
10. Occ NC	4.8675	1.4532	.141*	.162	-.011	.192	.359**
11. Occ CC	5.7035	1.3377	.003	-.319*	-.329*	-.043	-.041
12. Emot Exh	3.9149	1.4144	-.295**	-.556**	-.404**	-.192	-.190
13. Cynicism	2.8072	1.3352	-.385**	-.765**	-.632**	-.365**	-.434**
14. Phys Symptoms	3.0753	1.01518	-.188*	-.384**	-.421**	-.223	-.122
15. Sick Days	3.9800	2.9170	-.221**	-.238	-.120	-.042	-.037
16. Pos Affect	5.3902	1.1195	.378**	.634**	.639**	.054	.103
17. Neg Affect	1.8390	0.9881	-.354**	-.548**	-.645**	-.288*	-.299
18. Engagement	5.1665	1.2144	.414**	.683**	.674**	.244	.334*
19. Pers Express	4.7554	1.3085	.319**	.530**	.509**	.215	.363**
20. Vitality	4.9557	1.3403	.317**	.587**	.601**	.345**	.237
21. Job Sat	5.6600	1.8020	.380**	.747**	.596**	.337*	.435**
22. Org Stay Int	3.5300	1.3200	.033	-.020	-.221	.013	.274*
23. Occ Stay Int	4.1400	1.2170	.044	-.183	-.281*	.041	.161
24. OR Emot Exh	3.8200	1.6218	-.299*	-.471**	-.420**	-.191	-.224
25. OR Cyn	2.7292	1.3493	-.325*	-.460**	-.371**	-.234	-.349**
26. OR Phys Symptoms	3.0750	0.9974	-.252*	-.295**	-.300*	.027	.002
27. OR Sick Days	2.9200	0.2197	.060	-.105	.030	.073	.059
28. OR Pos Affect	5.4533	1.1708	.341**	.406**	.473	.245	.191
29. OR Neg Affect	2.0417	1.1582	-.331*	-.391*	-.518**	-.041	.014
30. OR Engagement	5.0056	1.2910	.373**	.479**	.358**	.334*	.342**
31. OR Pers Express	4.6806	1.3038	.226	.309*	.270*	.373**	.209
32. OR Vitality	4.8733	1.3788	.288*	.457**	.413**	.221	.202
33. OR Job Sat	5.5500	1.7890	.331**	.448**	.442**	.229	.195

Note: OR=Observer Rated; Reliability (Cronbach's alphas) are presented on the diagonal.

\*p<.05 \*\*p<.01

Table 11 Continued

Variables	6	7	8	9	10	11	12	13
6. Org NC	(.798)							
7. Org CCHiSac	.558**	(.707)						
8. Org CCLoAlt	-.067	.106	(.725)					
9. Occ AC	.149	-.085	-.550**	(.706)				
10. Occ NC	.690**	.408**	.049	.207	(.783)			
11. Occ CC	.186	.307*	.379**	-.298*	.410**	(.818)		
12. Emot Exh	-.030	-.012	.382**	-.401**	.028	.338*	(.876)	
13. Cynicism	-.161	-.016	.629**	-.697**	-.187	.317*	.643**	(.848)
14. Phys Symptoms	.020	-.059	.254	-.334*	.074	.212	.677**	.347**
15. Sick Days	-.048	-.016	.310*	-.164	.062	.314*	.312*	.263*
16. Pos Affect	.124	-.168	-.445**	.577**	.034	-.405**	-.445**	-.558**
17. Neg Affect	.025	.037	.447**	-.590**	.053	.488**	.631**	.678**
18. Engagement	.269*	.000	.502**	.693**	.201	-.363**	-.493**	-.711**
19. Pers Express	.271*	-.113	-.429**	.677**	.239	-.336*	-.261	-.612**
20. Vitality	.138	.042	-.395**	.551**	.043	-.274*	-.620**	-.510**
21. Job Sat	.263*	.065	-.540**	.731**	.177	-.256	-.691**	-.757**
22. Org Stay Int	.234	.428**	-.059	-.041	-.007	.202	-.118	.016
23. Occ Stay Int	.058	.007	.070	-.116	-.047	.148	.084	.026
24. OR Emot Exh	-.073	.024	.408**	-.541**	.084	.323*	.725**	.587**
25. OR Cyn	-.204	.037	.436**	-.536**	-.112	.289*	.334*	.498**
26. OR Phys Symptoms	.063	.111	.409**	-.344**	.279*	.393**	.494**	.211
27. OR Sick Days	-.076	.069	.155	-.223	-.081	.061	.045	.059
28. OR Pos Affect	.138	-.083	-.286*	.528**	.063	-.241	-.251	-.309*
29. OR Neg Affect	.199	.291*	.303*	-.450**	.230	.408**	.448**	.374**
30. OR Engagement	.275*	-.018	-.349**	.607**	.213	-.235	-.314*	-.468**
31. OR Pers Express	.051	-.015	-.137	.384**	.125	-.002	-.148	-.184
32. OR Vitality	.232	.024	-.264*	.468**	.064	-.242	-.419**	-.384**
33. OR Job Sat	.151	-.068	-.463**	.590**	-.013	-.318*	-.419**	-.609**

Note: OR=Observer Rated; Reliability (Cronbach's alphas) are presented on the diagonal.

\*p<.05 \*\*p<.01

Table 11 Continued

	14	15	16	17	18	19	20	21
14. Phys Symptoms	(.863)							
15. Sick Days	.342**							
16. Pos Affect	-.401**	-.301*	(.864)					
17. Neg Affect	.514**	.300*	-.511**	(.801)				
18. Engagement	-.488**	-.332*	.800**	-.535**	(.907)			
19. Pers Express	-.225	-.182	.671**	-.442**	.801**	(.858)		
20. Vitality	-.658**	-.330*	.554**	-.526**	.678**	.441**	(.939)	
21. Job Sat	-.533**	-.339**	.699**	-.598**	.775**	.637**	.730**	--
22. Org Stay Int	-.062	-.058	-.203	.024	-.156	-.214	-.010	.100
23. Occ Stay Int	.244	.033	-.261*	.183	-.201	-.179	-.174	-.095
24. OR Emot Exh	.472**	.343**	-.465**	.573**	-.508**	-.317*	-.660**	-.645**
25. OR Cyn	.220	.101	-.285*	.359**	-.377**	-.394**	-.481**	-.505**
26. OR Phys Symptoms	.647**	.302*	-.345**	.335**	-.343**	-.169	-.445**	-.379
27. OR Sick Days	.041	.266*	-.126	-.112	-.141	-.111	-.244	-.183
28. OR Pos Affect	-.218	-.127	.513**	-.304*	.399**	.445**	.427**	.491**
29. OR Neg Affect	.368**	.214	-.515**	.515**	-.472**	-.358**	-.488**	-.437**
30. OR Engagement	-.200	-.138	.465**	-.339**	.477**	.582**	.515**	.606**
31. OR Pers Express	-.159	.019	.204	-.167	.229	.357**	.373**	.327*
32. OR Vitality	-.390**	-.219	.542**	-.298*	.487**	.481**	.551**	.569**
33. OR Job Sat	(.863)	-.265*	.432**	-.522**	.493**	.414**	.456**	.568**

Note: OR=Observer Rated; Reliability (Cronbach's alphas) are presented on the diagonal.

\*p<.05 \*\*p<.01

Table 11 Continued

Variables	22	23	24	25	26	27	28	29
22. Org Stay Int	--							
23. Occ Stay Int	.515**	--						
24. OR Emot Exh	-.178	-.088	(.906)					
25. OR Cyn	-.060	-.088	.610**	(.814)				
26. OR Phys Symptoms	-.170	.050	.502**	.319*	(.865)			
27. OR Sick Days	-.098	-.145	.201	.211	.263*	--		
28. OR Pos Affect	-.016	-.031	-.386**	-.453**	-.310*	-.063	(.842)	
29. OR Neg Affect	-.012	-.064	.645**	.462**	.523**	.211	-.494**	(.840)
30. OR Engagement	.141	.155	-.553**	-.599**	-.316*	-.306*	.715**	-.383
31. OR Pers Express	.065	.081	-.254	-.320*	-.182	.004	.616**	-.229
32. OR Vitality	.145	.043	-.611**	-.501**	-.501**	-.278*	.681**	-.467**
33. OR Job Sat	.176	.181	-.657**	-.536**	-.312*	-.114	.472**	-.539**

Note: OR=Observer Rated; Reliability (Cronbach's alphas) are presented on the diagonal.

\*p<.05 \*\*p<.01

Variables	30	31	32	33
30. OR Engagement	(.908)			
31. OR Pers Express	.741**	(.862)		
32. OR Vitality	.799**	.581**	(.865)	
33. OR Job Sat	.581**	.372**	.476**	--

Note: OR=Observer Rated; Reliability (Cronbach's alphas) are presented on the diagonal.

\*p<.05 \*\*p<.01

*Need Support.* Support for the needs for autonomy (Aut), competence (Comp), and relatedness (Rel) were very strongly interrelated ( $r=.870$  for Aut-Comp,  $r=.932$  for Aut-Rel, and  $r=.827$  for Comp-Rel relations), which is not surprising given their unclear factor structure. In addition, all three of these variables correlated in the same direction and with roughly the same magnitude for most other variables. All of the relations between need support and other study variables were in the direction that would be expected (i.e., positive for AC, NC, and outcomes with positive valence; negative for CC and negatively-valenced outcomes). Although autonomy support was more strongly related to autonomy satisfaction ( $r=.718$ ) than satisfaction of the needs for competence ( $r=.407$ ) and relatedness ( $r=.216$ ), so were competence and relatedness support. Thus, although previous research has recommended treating the needs separately (Parfyonova, 2009), it appears that in this study at least, support for the three needs could not be adequately differentiated. Thus, as mentioned above, I used the combined scale for all tests of hypotheses.

*Need Satisfaction.* Satisfaction of the needs for autonomy, competence, and relatedness also displayed correlations in the expected directions with all other study variables. Autonomy satisfaction's and competence satisfaction's relations with other variables were very similar in direction and magnitude, while relatedness satisfaction's relations were in the same direction but slightly weaker.

*Organizational Commitment.* Relations between AC and NC and AC and CCLoAlt were relatively close to the meta-analytic correlations given in past research ( $r_{NC}=.455$  and  $r_{CCLoAlt}=-.307$  vs.  $\rho=.64$  and  $\rho=-.24$  in Meyer et al., 2002). However, the correlation between AC and CCHiSac ( $r=.380$ ) in this study was much higher than was

expected ( $\rho=.06$ ). That said, these variables did display different patterns of correlations with other study variables. The relation between NC and CCHiSac ( $r=.558$ ) was much higher than the meta-analytic average ( $\rho=.16$ ), but the relation between NC and CCLoAlt ( $r=-.067$ ) was relatively close. Organizational AC was related in the expected direction with all outcome variables (i.e., positively with positively-valenced variables, and negatively with negatively-valenced variables), although some of these relations were weaker than expected. Like in past research, NC displayed relations in the same direction as, but of a weaker magnitude than, AC for almost all variables. CCLoAlt exhibited much stronger relations with most outcome variables than did CCHiSac. These relations were mostly in the opposite direction (e.g., with job satisfaction, emotional exhaustion, vitality), but some were in the same direction (e.g., positive and negative affect).

*Occupational Commitment.* Occupational AC was most strongly related to organizational AC and CCHiSac ( $r_{OgAC}=.424$ ;  $r_{OgNC}=.149$ ;  $r_{OgCCHiSac}=-.550$ ,  $r_{OgCCLoAlt}=-.085$ ), while occupational NC was most strongly related to organizational NC ( $r_{OgAC}=.359$ ;  $r_{OgNC}=.690$ ;  $r_{OgCCHiSac}=.408$ ;  $r_{OgCCLoAlt}=.049$ ). Occupational CC was not significantly related to organizational AC or NC ( $r=-.041$  and  $r=.186$ ), but was positively related to organizational CCHiSac and CCLoAlt ( $r=.307$  and  $r=.379$ ). The relations between occupational AC and outcome variables were in the direction expected (i.e., positive with positively-valenced variables, negative with negatively-valenced variables), as were relations between occupational CC and outcomes (i.e., in the opposite direction). Relations between occupational NC and outcome variables were mostly close to zero, and almost all non-significant, with the exception of observer-rated physical health complaints, to which it was positively related ( $r=.279$ ).

Having given a brief review of the major correlational findings of interest, I now present the results of the main analyses (i.e., the latent profile analyses).

### *Profile Analyses*

#### *Latent Profile Analyses*

Using LPAs, a series of successively reduced models was tested. For each set of LPAs conducted with a different number of commitment components, models with seven, six, five, four, and three profiles were compared. None of the seven-profile models fit the data well or were theoretically interpretable. Furthermore, none of the three-profile models provided better fit than the six-, five-, or four-profile models. Thus, results of these analyses are not reported here, except the three-profile, four-component model. Fit indices and entropy statistics for all other models tested are presented in Table 12.

The first set of latent profile analyses were conducted using all seven commitment components: AC, NC, CCHiSac, and CCLoAlt toward the organization, as well as AC, NC, and CC toward the occupation. None of the models using all seven components resulted in adequate fit to the data, regardless of how many profiles were included in the model. While too many factors with a small sample can be a cause of potential convergence problems, this did not appear to be the case here; instead, seven factors simply did not appear to fit the data well. Therefore, I made the decision to explore the removal of one of the components/factors.

Based on Powell and Meyer (2004)'s argument that CCHiSac more clearly reflects Becker's (1960) concept of side-bet commitment, I made the decision to remove CCLoAlt from analyses. Thus, the next set of models tested included six components.



Table 12

## Fit Indices and Entropy Statistics for Models Tested with Latent Profile Analyses

Components/ Factors	Profiles	Fit Indices							Entropy
		LL	AIC	BIC	SSA-BIC	LMR	BLRT		
7 (All)	6	-3497.745	7103.490	7306.979	7135.701	64.158 ( $p=.2143$ )	-3530.519 ( $p=.0000$ )	.821	
7	5	-3530.519	7153.038	7326.381	7180.477	65.473 ( $p=.5322$ )	-3563.965 ( $p=.0000$ )	.796	
7	4	-3563.965	7203.930	7347.126	7226.597	83.726 ( $p=.0956$ )	-3606.735 ( $p=.0000$ )	.776	
6 (No OrgCCLoAlt)	6	-2950.850	5995.699	6172.810	6023.734	60.279 ( $p=.2095$ )	-2981.735 ( $p=.0000$ )	.825	
6	5	-2981.735	6043.471	6194.203	6067.330	62.727 ( $p=.4408$ )	-3013.875 ( $p=.0000$ )	.798	
6	4	-3013.875	6093.751	6218.106	6113.435	79.024 ( $p=.2415$ )	-3054.366 ( $p=.0000$ )	.767	
5 (No OrgCCLoAlt, no OrgNC)	6	-2382.882	4845.764	4996.497	4869.624	50.454 ( $p=.4471$ )	-2408.838 ( $p=.0000$ )	.880	
5	5	-2408.838	4885.676	5013.798	4905.956	59.148 ( $p=.0080$ )	-2439.266 ( $p=.0000$ )	.880	
5	4	-2439.266	4934.532	5040.045	4951.234	77.504 ( $p=.6445$ )	-2479.137 ( $p=.0000$ )	.859	
5 (No OrgCCLoAlt, no OccNC)	6	-2422.706	4925.412	5076.144	4949.272	54.988 ( $p=.5188$ )	-2450.994 ( $p=.0000$ )	.811	
5	5	-2450.994	4969.989	5098.112	4990.270	55.218 ( $p=.0722$ )	-2479.401 ( $p=.0000$ )	.877	
5	4	-2479.401	5014.803	5120.316	5031.504	71.471 ( $p=.3769$ )	-2516.169 ( $p=.0000$ )	.854	
4 (No OrgCCLoAlt, no Org or Occ NC)	6	-1845.590	3757.180	3881.534	3776.864	38.744 ( $p=.1520$ )	-1865.644 ( $p=.0000$ )	.881	
4	5	-1865.633	3787.267	2892.780	3803.969	54.299 ( $p=.0063$ )	-1893.724 ( $p=.0000$ )	.877	
4	4	-1893.724	3833.449	3920.120	3847.168	70.493 ( $p=.0613$ )	-1930.193 ( $p=.0000$ )	.853	
4	3	-1930.193	3896.385	3964.215	3907.122	80.675 ( $p=.1562$ )	-1971.929 ( $p=.0000$ )	.882	

Note. *LL* = Log Likelihood; *AIC* = Akaike Information Criterion; *BIC* = Bayesian Info Criterion (BIC); *SSA-BIC* = Sample Size Adjusted Bayesian Information Criterion; *LMR* = Lo Mendell Rubin (LMR); *BLRT* = Bootstrapped Log Likelihood Ratio Test.

These, too, failed to yield a model with adequate fit to the data. I therefore decided to remove another component.

Based on its somewhat inconsistent relations with the other components and other variables, and an examination of the levels of NC in the profile groups found in the models tested above, I decided to remove NC. Although most of the profiles in the six-component model tests were theoretically interpretable, the decision was made to remove NC based on two lines of evidence: first, the six-component models did not fit the data as well as models with fewer components included; second, NC did not contribute anything to this interpretation (i.e., the profiles were distinguished by the differing levels of AC and CC, and for the most part, levels of NC mirrored levels of AC).

I tested two sets of five-component models: one removing OrgNC and retaining OccNC, and the other removing OccNC and retaining OrgNC. For all of these analyses, the models did not fit as well as models with fewer components, were not theoretically interpretable, had profile groups with far too few cases in them, and/or, as above, NC did not contribute anything to the interpretation. The final set of models I tested contained four factors (OrgAC, OrgCCHiSac, OccAC, and OccCC). As can be seen from Table 12, a model with five profiles clearly fit the data best based on the fit indices presented. It showed higher LL and BLRT values, as well as lower AIC, BIC, and SSA-BIC values, and a lower (and significant) LMR value. However, an examination of the five profiles revealed that one profile group only contained two cases. Given that the rough guide for a minimum number of cases in this study was  $n=16$  (1-5% of N; Marsh et al., 2009), this was clearly not adequate, nor were the five profiles theoretically interpretable. Thus, the next best-fitting model, the four-profile model, was examined. It demonstrated adequate

fit to the data and superior fit over the three-profile model based on the four commitment components. It also yielded an adequate number of cases per profile (with a lowest  $n$  of 15), and was theoretically interpretable. The four-component, four-profile model was therefore retained. Average posterior probabilities for the retained model are presented in Table 13. The columns represent the average posterior probability of belonging to each cluster, and the values highlighted in bold therefore represent the average posterior probability associated with the profile group to which participants were actually assigned. These values are all highest for their appropriate profile groups, demonstrating the accuracy of classification of the model selected. This accuracy of classification is also captured in the entropy statistic, which is .853 for the selected model.

Mean levels of organizational AC and CCHiSac, and occupational AC and CC for the full sample and the four profile groups, as well as the number of cases in each profile group, are presented in numerical form in Table 14 and graphical form in Figure 2. An examination of these means revealed that the four profile groups found in the selected model were almost exactly the same four found in Maltin et al.'s (2011) study. Specifically, the first profile group is characterized by high levels of AC and low levels of CC toward both foci; this group is thus labeled "Dual AC-dominant". The second profile group displayed high levels of occupational AC and CC, and low levels of organizational AC and CC, and was thus designated the "Occupation-dominant" profile. The third profile group is characterized by relatively high levels of CC and moderate-to-low levels of AC toward both foci; it was therefore named the "Dual CC-dominant" profile. This profile group had the fewest cases ( $n=15$ ) of any of the four groups. This

Table 13

*Classification Table*

Cluster	<i>n</i>	Average posterior probability associated with cluster			
		1	2	3	4
1	43	<b>0.879</b>	0.037	0.000	0.084
2	52	0.009	<b>0.888</b>	0.009	0.094
3	15	0.000	0.023	<b>0.920</b>	0.057
4	210	0.022	0.036	0.002	<b>0.941</b>

*Note:* Values in bold represent the average posterior probability associated with the clusters to which participants were assigned.

Table 14

*Component Means for the Selected Model*

<i>Profile Group</i>	<i>Component</i>				<i>n</i>
	Org AC	Org CCHiSac	Occ AC	Occ CC	
Full Sample	5.304	4.608	6.413	5.704	320
Dual AC-dominant	5.564 (H)	3.857 (L)	6.638 (H)	3.179 (L)	43
Occupation-dominant	3.308 (L)	3.536 (L)	6.280 (H)	5.756 (H)	52
Dual CC-dominant	4.630 (M-L)	5.110 (H)	4.021 (M-L)	6.397 (H)	15
Highly Committed	5.834 (H)	5.016 (H)	6.570 (H)	6.163 (H)	210

*Note: H = High; L = Low; M-L = Moderate-Low.*

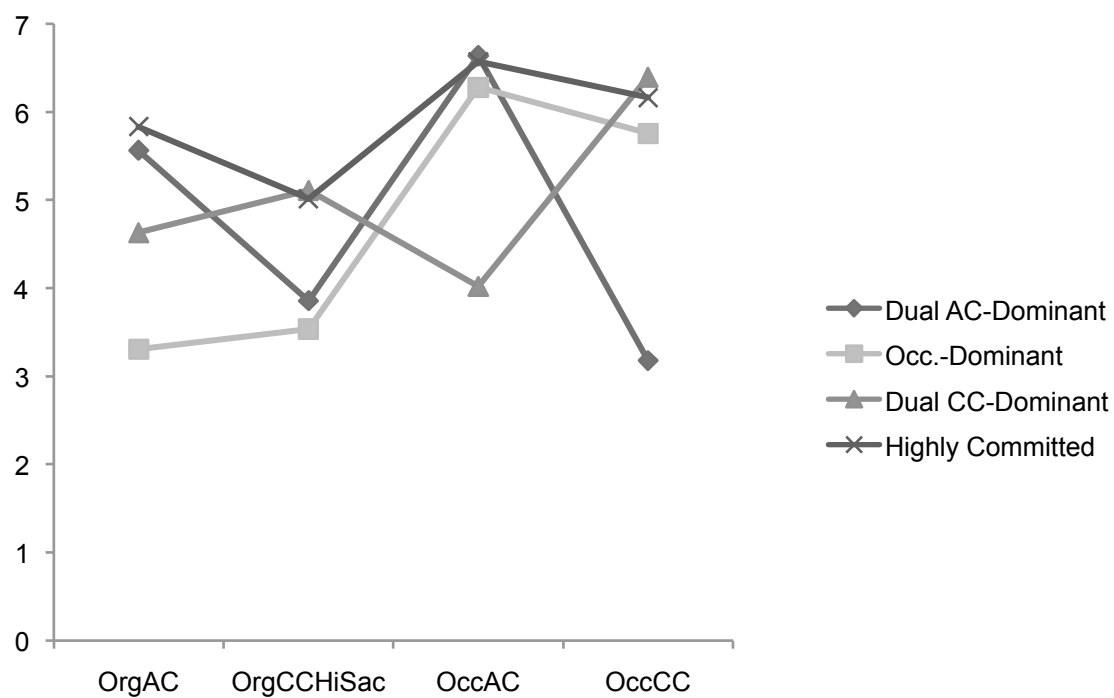


Figure 2. Commitment Component Means across Profile Groups

profile group was the only one different from those identified by Maltin et al. (2011); in their study, the third profile was strong on occupational CC only, and was labeled the “Occupational CC-dominant” profile. The fourth and final profile group, with high levels of AC and CC toward both the organization and the occupation, was labeled the “Highly Committed” profile, and had the most cases of any group.

#### *Uniqueness of Profiles*

I conducted a series of one-way ANOVAs to determine whether the profile groups did differ significantly in their mean levels of AC and CC toward the organization and occupation (means are presented in Table 14). These tests yielded significant results for all four components of commitment ( $F_{OgAC} (3, 316) = 138.473, p=.000$ ;  $F_{OgCCHiSac} (3, 316) = 44.623, p=.000$ ;  $F_{OcAC} (3, 316) = 31.359, p=.000$ ;  $F_{OcCC} (3, 316) = 114.483, p=.000$ ).

#### *Tests of Hypotheses*

Prior to testing individual hypotheses with one-way ANOVAs and post-hoc t-tests, I conducted two overall MANOVAs: the first included all of the self-reported well-being outcomes as dependent variables, and the second, all of the peer-reported well-being outcomes. Profile group membership was the independent variable in both cases. The MANOVA for self-reported outcomes was significant ( $F (23, 897) = 5.832, p=.000$ ; Wilk’s  $\lambda = .657$ ), and the MANOVA for peer-reported well-being was very close ( $F (20, 144) = 1.587, p=.060$ ; Wilk’s  $\lambda = .550$ ).

#### *Hypotheses 1 and 2: Well-Being Outcomes*

Hypothesis 1 predicted that profiles characterized by high levels of AC toward both foci (i.e., the Dual AC-dominant and Highly Committed profile groups) would be

associated with higher levels of both hedonic and eudaimonic well-being and lower levels of ill-health than all other profile groups. Hypothesis 2 predicted that conflicting profiles, or those characterized by strong AC toward one target (in this study, the Occupation-dominant profile group) as well as the Uncommitted and CC-dominant profiles, would be associated with the lowest levels of well-being and highest levels of ill-health. Based on the results of the LPAs, these hypotheses can be refined to apply directly to the current sample. Specifically, they can be combined into one hypothesis, denoted by the subscript *R* for revised:

*Hypothesis 1<sub>R</sub>*: The Dual AC-dominant and Highly Committed profile groups will be associated with the higher levels of both hedonic and eudaimonic well-being and lower levels of ill-health than the Dual CC-dominant and the Occupation-dominant profile groups.

The results of the tests of these hypotheses are presented in Table 15, and discussed by outcome variable below.

*Hedonic Well-Being.* The ANOVAs testing for mean differences between profile groups were significant for both indicators of self-reported hedonic well-being, operationalized by positive affect ( $F_{PA}(3, 316) = 12.212, p=.000$ ) and negative affect ( $F_{NA}(3, 316) = 13.603, p=.000$ ). Post hoc analyses showed that participants in the Dual AC-dominant and Highly Committed profile groups reported more positive affect than participants in the other two groups. In terms of negative affect, participants in both the Dual AC-dominant and Highly Committed reported lower levels than those in the Dual CC-dominant group. Only the Highly Committed group experienced less negative affect than the Occupation-dominant group. Finally, the Occupation-dominant group did



Table 15

*ANOVAs of Profile Group Means for Outcome Variables*

<i>Variables</i>	Profile Groups				<i>F</i>	<i>p</i>	Profile Comparisons
	Dual AC Dominant	Prof Dominant	Dual CC Dominant	Highly Committed			
PA	5.7119	4.9042	4.2133	5.5287	12.212	.000	1,4>2,3
NA	1.7386	2.0769	3.2133	1.7025	13.603	.000	1,4<3, 4<2; 2<3
Eng	5.5930	4.4263	3.1000	5.4101	33.232	.000	1,4>2,3; 2>3
PE	4.9341	3.8494	2.9222	5.0741	28.342	.000	1,4>2,3; 2>3
Vit	5.2471	4.4135	2.9556	5.1731	19.336	.000	1,4>2,3; 2>3
EE	3.4651	4.3731	5.5200	3.7789	11.364	.000	1,4<2,3; 2<3
Cyn	2.3581	3.5038	4.8133	2.5834	23.794	.000	1,4<2,3; 2<3
PHC	2.8576	3.3314	3.8946	2.9979	5.663	.001	1,4<3
SDs	3.8800	4.2700	6.6700	3.7300	5.096	.002	1,2,4<3
JS	6.0000	4.7300	3.0700	6.0000	21.401	.000	1,4>2,3; 2>3
Sch SI	3.1900	3.2500	3.2000	3.7000	3.329	.020	--
Occ SI	3.7900	3.9600	4.4000	4.2400	2.244	.083	--
OR PA	5.7818	5.2571	3.9667	5.6389	4.589	.006	1,4>3
OR NA	1.3182	1.8571	3.4583	2.0625	5.516	.002	1,2,4<3
OR Eng	5.2727	4.6667	3.2222	5.287	5.870	.001	1,4>3
OR PE	4.6667	4.2143	3.2500	5.0139	4.029	.012	4>3
OR Vit	5.1455	4.7429	3.5667	5.0333	2.257	.092	--
OR EE	3.3091	3.5143	5.9667	3.6778	4.831	.005	1,2,4<3
OR Cyn	2.4091	2.9286	4.4167	2.5069	4.342	.008	1,4<3
OR PS	2.5779	3.1531	3.9048	3.0734	2.484	.007	1<3
OR SDs	3.0900	2.5700	4.0000	2.7500	0.624	.602	--
OR JS	6.0900	6.0000	2.8300	5.7500	6.787	.001	1,2,4>3

*Note:* PA=Positive Affect; NA=Negative Affect; PHC=Physical health complaints; EE=Emotional Exhaustion; Cyn=Cynicism; Eng=Engagement; PE=Personal Expressiveness; Vit=Vitality; JS=Job Satisfaction; Sch SI=School Staying Intentions (1=less than a year; 2=1-3 yrs.; 3=4-6 yrs.; 4=7-9 yrs.; 5=10 or more yrs.); Occ SI=Occupational Staying Intentions (see Sch SI); SDs=Sick Days (ranges from 0-10; 10=10 or more sick days in the last yr.); OR=Observer-Rated.

experience less negative affect than participants in the Dual CC-dominant group. Thus, Hypothesis 1<sub>R</sub> was almost fully supported in terms of self-reported hedonic well-being.

The ANOVAs for observer-reported hedonic well-being were also significant ( $F_{PRPA}(3, 56) = 4.589, p=.006, F_{PRNA}(3, 56) = 5.516, p=.002$ ). Post hoc analyses for observer-rated hedonic well-being demonstrated that observers of teachers in the Dual AC-dominant and Highly Committed profile groups rated those teachers as showing higher positive affect than did observers of teachers in the Dual CC-dominant group. Observers of those in the Dual CC-dominant profile group rated those teachers as showing higher negative affect than teachers in all other groups. Thus, Hypothesis 1<sub>R</sub> was partially supported in terms of observer-rated hedonic well-being.

*Eudaimonic Well-Being.* The ANOVAs for all self-reported indicators of eudaimonic well-being measured in this study were significant, including for engagement ( $F_{Eng}(3, 316) = 33.232, p=.000$ ), personal expressiveness ( $F_{PE}(3, 316) = 28.342, p=.000$ ), and vitality ( $F_{Vit}(3, 316) = 19.336, p=.000$ ). Post hoc analyses of the profile group means for these outcomes confirmed that teachers in the Dual AC-dominant and Highly Committed profile groups felt more engagement, personal expressiveness, and vitality than those in the Occupation-dominant and Dual CC-dominant profile groups (supporting Hypothesis 1<sub>R</sub>). Furthermore, teachers in the Occupation-dominant profile group reported higher levels of engagement, personal expressiveness, and vitality than those in the Dual CC-dominant profile group. Thus, Hypothesis 1<sub>R</sub> was fully supported in terms of self-reported eudaimonic well-being.

In terms of observer-reported eudaimonic well-being, the ANOVAs were also almost all significant or very close to it ( $F_{PREng}(3, 56) = 5.870, p=.001; F_{PRPE}(3, 56) =$

4.029,  $p=.012$ ;  $F_{PRVii}(3, 56) = 2.257, p=.092$ ). Observers of teachers in the Dual AC-dominant and Highly Committed profile groups reported that those teachers felt more engagement than did observers of teachers in the Dual CC-dominant group, partially supporting Hypothesis 1<sub>R</sub>. The only significant difference in profile group means for observer-reported personal expressiveness or vitality was that observers of teachers in the Highly Committed profile group indicated that those teachers felt more personally expressed in teaching than did observers of teachers in the Dual CC-dominant group. Thus, Hypothesis 1<sub>R</sub> was partially supported in terms of observer-reported eudaimonic well-being.

*Ill-health.* All of the ANOVAs for self-reported indicators of ill-health were significant, including for emotional exhaustion ( $F_{EE}(3, 316) = 11.364, p=.000$ ), cynicism ( $F_{Cyn}(3, 316) = 23.794, p=.000$ ), physical health complaints ( $F_{PS}(3, 316) = 5.663, p=.001$ ), and sick days ( $F_{SDs}(3, 316) = 5.096, p=.002$ ). Post hoc comparisons for these analyses indicated that teachers in the Dual AC-dominant and Highly Committed profile groups were less emotionally exhausted and cynical than teachers in the Occupation-dominant and Dual CC-dominant profile groups. Furthermore, teachers in the Occupation-dominant subgroup reported lower levels of both emotional exhaustion and cynicism than teachers in the Dual CC-dominant profile group. Teachers in the Dual AC-dominant and Highly Committed profile groups also reported fewer physical health complaints and sick days than those in the Dual CC-dominant profile group, and teachers in the Occupation-dominant profile also reported taking fewer sick days than those in the Dual CC-dominant profile group. Thus, Hypothesis 1<sub>R</sub> was almost fully supported for self-reported ill-health.

The ANOVAs for observer-reported ill-health were also all significant or very close to it ( $F_{PREE}(3, 56) = 4.831, p=.005$ ;  $F_{PRCyn}(3, 56) = 4.342, p=.008$ ;  $F_{PRPS}(3, 56) = 2.484, p=.070$ ), except for observer-reported sick days ( $F_{PRSDs}(3, 56) = 0.624, p=.602$ ). Observers of teachers in the Dual CC-dominant profile group indicated that those teachers felt more emotional exhaustion than those in all other groups. Observers of teachers in the Dual AC-dominant and Highly Committed profile groups reported that those teachers felt less cynicism than observers of those in the Dual CC-dominant group. Finally, observers of teachers in the Dual AC-dominant profile group indicated that those teachers experienced less physical health complaints than did observers of teachers in the Dual CC-dominant profile group. Thus, Hypothesis 1<sub>R</sub> was partially supported in terms of observer-reported ill-health.

### *Hypothesis 3: Other Outcomes*

Recall that Hypothesis 3 predicted that profiles characterized by strong AC toward both foci would be associated with higher levels of all other outcomes (organizational and occupational staying intentions, job satisfaction) than all other profiles groups. This hypothesis was refined as follows:

*Hypothesis 3<sub>R</sub>*: The Dual AC-dominant and Highly Committed profile groups will be associated with higher levels of job satisfaction and organizational and occupational staying intentions than the Occupation-dominant and Dual CC-dominant profile groups.

I conducted ANOVAs for organizational (i.e., school) staying intentions ( $F_{SchSt}(3, 316) = 3.329, p=.020$ ), occupational staying intentions ( $F_{OccSt}(3, 316) = 2.244, p=.083$ ), self-reported job satisfaction ( $F_{JS}(3, 316) = 21.401, p=.000$ ), and observer-reported job

satisfaction ( $F_{PRJS}(3, 316) = 6.787, p=.001$ ). No significant between-groups differences were found for staying intentions (either to the school or the occupation) in post hoc analyses. Partially confirming Hypothesis 3<sub>R</sub>, members of the Dual AC-dominant and Highly Committed profile groups reported higher job satisfaction than those in the Occupation-dominant and Dual CC-dominant profile groups, and those in the Occupation-dominant profile group had higher satisfaction than those in the Dual CC-dominant group. Hypothesis 3<sub>R</sub> was also partially supported by the results of the post hoc analyses for observer-reported job satisfaction. Specifically, observers of teachers in the Dual CC-dominant profile group indicated that they felt less satisfied with their jobs than observers of teachers in all other profile groups.

*Hypothesis 4 and Research Question 1: Need Support and Need Satisfaction*

*Need Support.* Hypothesis 4 predicted that higher levels of need support and satisfaction would be associated with membership in profiles characterized by high levels of AC toward both foci. Research Question 1 inquired as to how need support and satisfaction would relate to conflicting commitment profiles. In light of the LPA findings, these were refined as follows:

*Hypothesis 4<sub>R</sub>:* Strong need support and satisfaction will be associated with membership in the Dual AC-dominant and Highly Committed profile groups.

*Research Question 1<sub>R</sub>:* How will need support and need satisfaction relate to membership in the Occupation-dominant profile group?

Parameter estimates for the multinomial logistic regression analyses for both need support and satisfaction are presented in Table 16. Multinomial logistic regression analyses using the highly committed profile group as the reference category for

Table 16

*Parameter estimates for Multinomial logistic regression analyses with Need Support and Need Satisfaction predicting Commitment Profile Group Membership*

	Reference Category	Comparison Group	B	Std. Error	Sig.	OR	95% Confidence Interval for OR	
							Lower	Upper
Need Support	Highly Committed	Dual AC	-.190	.138	.169	.827	.631	1.084
		Occ -dom.	-.526	.602	.038	<b>.591</b>	.467	.748
		Dual CC	-.701	.188	.000	<b>.496</b>	.343	.717
	Dual AC	Occ.-dom.	-.336	.157	.033	<b>.714</b>	.525	.973
		Dual CC	-.511	.213	.016	<b>.600</b>	.395	.910
	Dual CC	Occ-dom.	.175	.195	.369	1.191	.813	1.746
Autonomy Need Satisfaction	Highly Committed	Dual AC	.108	.139	.440	1.114	.848	1.463
		Occ -dom.	-.416	.103	.000	<b>.659</b>	.538	.808
		Dual CC	-.690	.168	.000	<b>.501</b>	.360	.698
	Dual AC	Occ.-dom.	-.524	.157	.001	<b>.592</b>	.435	.806
		Dual CC	-.798	.206	.000	<b>.450</b>	.301	.675
	Dual CC	Occ-dom.	.274	.176	.120	1.315	.931	1.858
Competence Need Satisfaction	Highly Committed	Dual AC	.221	.213	.300	1.247	.821	1.894
		Occ -dom.	-.313	.152	.040	<b>.731</b>	.543	.985
		Dual CC	-.927	.202	.000	<b>.396</b>	.266	.588
	Dual AC	Occ.-dom.	-.534	.240	.026	<b>.586</b>	.366	.938
		Dual CC	-1.148	.277	.000	<b>.317</b>	.184	.546
	Dual CC	Occ-dom.	.614	.217	.005	<b>1.848</b>	1.209	2.826
Relatedness Need Satisfaction	Highly Committed	Dual AC	-.085	.139	.543	.919	.700	1.206
		Occ -dom.	-.917	.129	.000	<b>.400</b>	.310	.514
		Dual CC	-.595	.188	.002	<b>.552</b>	.382	.797
	Dual AC	Occ.-dom.	-.833	.168	.000	<b>.435</b>	.313	.604
		Dual CC	-.510	.217	.019	<b>.600</b>	.393	.919
	Dual CC	Occ-dom.	-.323	.199	.104	.724	.491	1.069

*Note.* Odds ratios for significant differences are highlighted in bold.

likelihood comparisons are presented first, followed by results from multinomial logistic regression analyses using the Dual AC-dominant profile group as the reference category, and then the Dual CC-dominant profile group as the reference category. What this means is that all other groups are first compared to the Highly Committed profile group; significant negative weights in these comparisons indicate that teachers higher in the predictor (i.e., need support) are more likely to be in the reference category than the comparison category, while significant positive weights would mean that they are more likely to be in the comparison category. The specific likelihood of this category/profile group membership is represented by the odds ratio (OR) for positive weights, and the inverse of the odds ratio for negative weights (i.e., 1/OR).

The loglikelihood ratio test for the multinomial logistic regression analysis for the overall Need Supportive Management indicated that need support is significantly related to commitment profile group membership ( $\chi^2 = 28.543$ ,  $df=3$ ,  $p=.000$ ). Parameter estimates for this analysis revealed that those who experienced more need support from their school's leadership team were 1.69 times more likely to be in the Highly Committed group than the Occupation-dominant group, 2.02 times more likely to be in the Highly Committed group than the Dual CC-dominant group, 1.40 times more likely to be in the Dual AC-dominant group than the Occupation-dominant group, and 1.67 times more likely to be in the Dual AC-dominant group than the CC-dominant group. Thus, Hypothesis 4<sub>R</sub> was fully supported in terms of need support. For Research Question 1<sub>R</sub>, while it appears that those high in need support are less likely to be in a conflicting commitment profile group (i.e., the Occupation-dominant profile in this study) than in a group characterized by strong AC toward both foci, need support does not appear to be

related to the separation of this conflicting commitment profile group from other profiles (i.e., the Dual CC-dominant profile group in this study).

*Need Satisfaction.* Satisfaction of the needs for autonomy, competence, and relatedness also proved to be significantly related to profile group membership ( $\chi^2 = 32.476$ ,  $df=3$ ,  $p=.000$  for autonomy;  $\chi^2 = 25.284$ ,  $df=3$ ,  $p=.000$  for competence; and  $\chi^2 = 70.299$ ,  $df=3$ ,  $p=.000$  for relatedness). Teachers who experienced more satisfaction of their need for autonomy were 1.52 times more likely to be in the Highly Committed profile group than the Occupation-dominant profile group, 1.99 times more likely to be in the Highly Committed profile group than in the Dual CC-dominant group, 1.69 times more likely to be in the Dual AC-dominant group than in the Occupation-dominant group, and 2.00 times more likely to be in the Dual AC-dominant group than the Dual CC-dominant group. Teachers who felt more satisfied in their need for competence were 1.37 times more likely to be in the Highly Committed profile group than the Occupation-dominant group, 2.53 times more likely to be in the Highly Committed profile group than the Dual CC-dominant group. They were also 1.37 times more likely to be in the Dual AC-dominant group than the Occupation-dominant group, 2.53 times more likely to be in the Dual AC-dominant group than the Dual CC-dominant group, and 1.85 times more likely to be in the Occupation-dominant group than the Dual CC-dominant group.

Finally, teachers who reported higher satisfaction of their need for relatedness were 2.50 times more likely to be in the Highly Committed profile group than the Occupation-dominant group, 1.81 times more likely to be in the Highly Committed profile group than the Dual CC-dominant group, 2.30 times more likely to be in the Dual AC-dominant group than the Occupation-dominant group, and 1.67 times more likely to



be in the Dual AC-dominant group than in the Dual CC-dominant group. Interestingly, those high in satisfaction of their need for autonomy were also 1.38 times more likely to be in the Dual CC-dominant profile group than in the Occupation-dominant subgroup (although this relation was only marginally significant, at  $p=.104$ ). Thus, Hypothesis 4<sub>R</sub> was also fully supported in terms of need satisfaction. For Research Question 1<sub>R</sub>, while satisfaction of the three needs did decrease likelihood of being in a conflicting commitment profile group in comparison to profiles characterized by strong AC toward both foci, only competence satisfaction related significantly to the separation of this profile group from other groups (i.e., the Dual CC-dominant group).

## Discussion

The aims of the current study were to explore the connection between commitment and well-being from a multidimensional, multi-foci, person-centered perspective. Specifically, in this study I set out to examine relations between different subgroups' profiles of AC, NC, and CC toward the organization and occupation, hedonic and eudaimonic well-being, and ill-health. Furthermore, in this study I did not simply look at the relations between variables (i.e., a variable-centered approach), but employed a person-centered approach, using LPA (Muthén & Muthén, 2000) to identify naturally-occurring subgroups of employees with varying levels of commitment toward both foci. This approach allowed for the examination of how membership in profile groups based on similar configurations of commitment toward multiple foci were related to need support and satisfaction, well-being, and ill-health.

In the following section, I briefly summarize and interpret the findings of this study. I then discuss the implications of these findings for theory and future research. Limitations of the study, more general directions for future research, practical implications, and general conclusions are all presented in the general discussion in Chapter 4.

### *Summary and Interpretation of Findings*

#### *Latent Profile Analyses*

After numerous sets of LPAs were conducted with varying numbers of commitment components and profiles, a four-factor, four-profile model was found to fit the data best, have an adequate number of cases in each profile group, and was theoretically interpretable. The four profile groups were labeled Dual AC-dominant (strong AC toward both foci, weaker CC toward both foci), Occupation-dominant (strong occupational AC and CC, weaker organizational AC and CC), Dual CC-dominant (strong CC toward both foci, weaker AC toward both foci), and the Highly Committed (strong AC and CC toward both foci). Interestingly, these four profile groups were almost exactly the same as those found in Maltin et al. (2011). In that study, no Dual CC-dominant group was found; instead, the researchers found an Occupational CC-dominant group wherein occupational CC was the strongest/most dominant factor. Like in Tsoumbris & Xenikou's (2010) study involving profile groups based on both organizational and occupational commitment, Dual CC-dominant and Highly Committed profile groups were found in this study. However, unlike in their study, no Uncommitted or Dual AC/NC-dominant profiles groups were found.

*Commitment Profiles and Well-Being/Ill-health and Other Outcomes*

Teachers who were affectively committed to both their schools *and* teaching, and those whose commitment was strong on both components to both foci, were generally happier (i.e., reported more positive and less negative affect) and felt more vigorous, dedicated, personally expressed, fulfilled, vital, and satisfied with their jobs than teachers whose commitment was primarily toward teaching (and not their schools) or teachers whose commitment to both foci was dominated by a sense of cost-avoidance. In the case of most outcomes, teachers in the latter group (i.e., the Dual CC-dominant profile group) were the “worst off”. That is, they reported even lower levels of well-being and job satisfaction, and higher levels of ill-health, than teachers whose commitment profile was dominated by occupational commitment. Teachers in the Dual CC-dominant group also reported more physical health complaints and taking more sick days than teachers in other groups. No group differences were found for occupational or organizational staying intentions.

Interestingly, the results for observer-reported outcomes very closely mirrored the results for self-reported outcomes. This is particularly impressive given the very small sample size of observers.

*Commitment Profiles and Need Support and Satisfaction*

As hypothesized, teachers who reported experiencing more support for and satisfaction of their needs for autonomy, competence, and relatedness, were more likely to be members of the more “desirable” commitment profile groups. In other words, when their needs were supported and satisfied, teachers were more likely to feel strong commitment toward both their schools and the occupation of teaching, particularly AC.

## *Implications for Theory and Research*

### *The Person-Centered Approach*

One of the major goals of this study was to apply a person-centered approach to the examination of the connection between commitment and employee well-being. While the variable-centered approach employed in much of the past research in this area has been integral in learning about the relation between the two concepts, a person-centered approach allows researchers to address additional interesting questions.

Specifically, one of the most interesting questions that person-centered research can address in commitment research is the interplay among the commitment components. Meyer and Allen (1997) made the argument that the commitment components are experienced *in combination*, and should be examined as such. In the years since, research has begun to accumulate (e.g., Gellatly et al., 2006; Meyer et al., 2011; Somers, 2009, 2010; Stanley et al., 2009; Wasti, 2005) providing evidence that employees' commitment profiles do have implications for hypothesized outcomes beyond the relations between these outcomes and the individual components.

Past profile-based or person-centered research has found that NC in particular has different implications depending on the context provided by the other components in a commitment profile. Members of profile groups dominated by strong AC and NC, with weak CC, have been shown to have lower job stress (Wasti, 2005), stronger staying intentions and more OCBs (Gellatly et al., 2006), more intrinsic job satisfaction (Marcovits et al., 2007), and lower turnover intentions (e.g., Somers, 2009, 2010) than members of other profile groups such as those that combined strong NC with strong CC and weak AC, those dominated by strong CC, or the uncommitted. I hoped that the

current study could shed some light on the well-being implications of profiles in which strong NC was paired with strong AC versus strong CC. Unfortunately, the LPAs conducted in this study were limited by a relatively small sample size, and thus questions involving the contextualized implications of NC could not be explored. I discuss this issue further in the section on the limitations of LPAs below.

One question that could be addressed by the person-centered approach taken here, that could not have been addressed by a variable-centered approach, pertains to the contextualized implications of CC. When they postulated the implications of different potential commitment profiles, Meyer and Herscovitch (2001) proposed that strong CC would mitigate the positive effects of strong AC. However, the research that has been conducted since contradicts this, providing evidence that CC, like NC, can be experienced differently depending on the context created by the other components in the profile (Meyer, et al., in press; Somers, 2009, 2010; Stanley et al., 2009; Wasti, 2005). When combined with strong AC and NC (in a Highly Committed profile), CC may reflect the potential loss of valued resources (Powell & Meyer, 2004). When combined with weak AC and NC, however, CC may reflect the threat of economic or other costs (Becker, 1960). The former profile has been connected with higher autonomous regulation, need satisfaction, OCBs, and well-being, whereas the latter profile has the opposite associations (Meyer et al., 2011). This same pattern was reflected in the current study (albeit without NC), where the Highly Committed profile group was associated with much greater well-being than the Dual CC-dominant profile group.

Another very interesting issue I explored in the current study is the interplay not just among commitment components, but among those components directed at multiple

foci. Specifically, the current study examined commitment toward both the organization and the occupation. While variable-centered research has certainly considered commitment toward both of these foci in the past, only two other studies exist that have taken a person-centered approach toward them. Tsoumbris and Xenikou (2010) did not find any profiles in which commitment toward the two foci differed. That is, organizational and occupational commitment mirrored each other in their study. Maltin et al. (2011), however, did find an Occupation-dominant group like that found in the current study, as well as an Occupational CC-dominant group. As in the current study, the well-being implications of these profiles were worse than were the implications of the Dual AC-dominant and Highly Committed profiles. The person-centered approach applied in this study allowed for the comparison of groups whose commitment was strong toward both foci and the group whose commitment was primarily toward their occupation. Interestingly, the group whose commitment was “split” (i.e., the Occupation-dominant group) experienced poorer well-being than the group whose profiles included AC toward both foci, but in many cases experienced better well-being than the group whose commitment was dominated by CC toward both foci.

Thus, the person-centered approach taken in the current study made it possible to explore several questions that both complemented and went beyond the questions that could be addressed using a variable-centered approach. These questions were, however, somewhat limited by the analytic technique employed. These limitations are discussed below.

*Limitations of Latent Profile Analyses*

There are several clear advantages of using LPA, the primary advantage being that it involves rigorous criteria (e.g., fit indices) for determining the number of profiles. However, one of the major limitations of LPA that became apparent in the current study was that it is challenging to conduct with smaller sample sizes. Specifically, the inclusion of too many variables can cause convergence problems when working with small samples (e.g., Bauer & Curran, 2003), and it appears that relatively large sample sizes are needed to have the power to produce interpretable solutions. Indeed, because few simulation studies have been run to examine this issue, it is unclear just how large samples might need to be in order to have adequate power (Pastor, et al., 2007).

The exclusion of NC from the LPA analyses in the current study, though necessary, was unfortunate, as it prevented the exploration of the contextual effects of NC. It is quite possible that with larger sample sizes, more variables (i.e., NC) could be included, and thus more (interpretable) profile groups would be found. In particular, relations with profile groups characterized by the “two faces” of NC (i.e., the moral imperative and indebted obligation mindsets, AC/NC and NC/CC respectively) could be explored. Thus, researchers wishing to apply LPA to the study of commitment should do everything possible to increase sample size in order to have the power to detect other theoretically interesting profiles not found here.

In Chapter 2, the broad state of the commitment-well-being literature was reviewed through a meta-analysis of relations between commitment and well-being and ill-health from a multidimensional perspective. The study presented in Chapter 3 extended what is currently known regarding these relations by taking a person-centered

approach to the study of multiple foci and forms of commitment and their relations with need support and satisfaction, well-being, and ill-health. In Chapter 4, I discuss limitations to the research presented in Chapters 2 and 3, and offer directions for future research, implications for practice, and conclusions.



## CHAPTER 4: GENERAL DISCUSSION

As one of the most widely studied variables in organizational psychology, researchers have connected commitment to an extensive array of organization- and employee-relevant outcomes. This list includes but is not limited to meta-analytic relations that have been found between commitment and turnover (e.g., Mathieu & Zajac, 1990; Tett & Meyer, 1993), attendance (e.g., Meyer, et al., 2002), focal job performance (e.g., Cooper-Hakim & Viswesvaran, 2005; Riketta, 2002), organizational citizenship behaviours (e.g., Meyer, et al., 2002; Riketta, 2002), stress (Dowden & Tellier, 2004; Mathieu & Zajac, 1990), and engagement (Halbesleben, 2010). However, most of these meta-analyses have examined commitment unidimensionally, focusing almost exclusively on affective commitment. Other research employing the three-component model (TCM) of commitment has demonstrated repeatedly that it is not simply the amount, but the nature of the commitment that counts. Commitments characterized by an affective attachment to and involvement with the target have, in past research, been associated more strongly with desired outcomes than commitments based on concern for social or economic costs (e.g., Meyer, et al., 2002). Furthermore, recent research has found that when strong AC is accompanied by strong NC and/or CC (as in AC/NC-dominant and Highly Committed profiles), desired outcomes may be even greater (e.g., Gellatly et al., 2006; Wasti, 2005).

Commitment research has given much less attention to the implications of commitment for employees themselves. However, research evidence is mounting that just as with organizationally-relevant outcomes, the nature of employees' commitments has implications for their well-being. The most recent narrative review of the commitment-

well-being literature (Meyer & Maltin, 2010) provided some organization for what is otherwise a somewhat scattered body of research, and was guided by a framework that differentiates between hedonic and eudaimonic well-being (Ryan & Deci, 2001). I employed this same framework here.

The remainder of this chapter is divided into three sections. First, I offer very brief general summaries of the findings of the two studies. Second, I discuss limitations of the two studies contained herein, along with directions for future research. Finally, I discuss the practical implications of the current research.

### Summary of Findings

#### *Meta-Analytic Findings*

The meta-analysis presented in Chapter 2 found that relations between organizational commitment and well-being largely mirror relations between organizational commitment and widely studied organizationally-relevant outcome variables (e.g. turnover and performance). That is, AC displayed the strongest positive relations with positive indicators of hedonic and eudaimonic well-being and strongest negative relations with negative affect (the only negative indicator of hedonic well-being studied here) and ill-health. The relations between NC and these same variables, while based on far fewer studies, were generally in the same direction as, but weaker than relations with AC (although direct comparisons of meta-analytic correlations were not made). Also based on very few studies, CC was generally positively related to negative indicators of well-being and to ill-health, and negatively related to positive indicators of well-being.

### *Commitment Profile Findings*

Based on the findings of the second study, it appears overall that teachers who felt strongly affectively attached to both their schools and the occupation of teaching, and those whose commitment was strong on both components toward both foci, experienced greater well-being. Specifically, these teachers fared better in terms of almost every indicator of well-being studied here than teachers whose commitment was dominated by a mindset of cost-avoidance, and, in many cases, than teachers whose commitment was primarily toward the occupation of teaching but not their schools. The mindset of cost-avoidance that characterizes CC is not necessarily detrimental, then, as teachers in the Highly Committed profile group did experience this and yet fared no worse than teachers in the Dual AC-Dominant group. It is only when this mindset is the dominant one, and is experienced in the absence of strong AC, that it appears to be detrimental.

Teachers who experienced greater support for and satisfaction of their basic psychological needs for autonomy, competence, and relatedness were more likely to be in the profile groups associated with better well-being outcomes. That is, those who reported stronger support for and satisfaction of their needs were much more likely to be in either profile groups dominated by AC toward both their organization and occupation, or by strong commitment toward both foci.

### Limitations of the Current Studies and Directions for Future Research

#### *Study 1: Meta-Analysis of Commitment and Well-Being*

The most important limitation of the meta-analytic study presented in Chapter 2 was the lack of primary studies for many of the relations I planned to examine,

particularly those involving NC and CC. Future research concerning commitment and well-being would thus do well to examine commitment from a multidimensional perspective, in order to give a more well-rounded view. Until more primary studies exist, the magnitude of relations between NC, CC, and well-being outcomes cannot be expressed with any certainty. Furthermore, research measuring all three components of commitment can begin to address calls for examining the relations of commitment with other variables *in context* (e.g., Meyer & Allen, 1997; Meyer & Herscovitch, 2001; Gellatly, et al., 2006). That is, while more primary studies examining the links between all three components of commitment will bolster future meta-analyses, they will also be able to answer more nuanced questions about the interplay among the components, as well their connection with antecedents and outcomes. As has been discussed, recent research has begun to confirm that the effects of any given component of commitment will depend on the relative levels of the other components (e.g., the “two faces” of NC mentioned previously and in Gellatly, et al., 2006), and future research will add knowledge to our nascent understanding of these relations.

Not only would future research do well to include all three components of organizational commitment, the only focus of commitment examined in this study; I also recommend that this research take a closer look at the connection between commitments to other work-related foci and well-being. The dearth of research on the well-being effects of commitment to other foci made it impossible to include these relations in the currently meta-analysis. However, given that employees can and do develop commitments towards other targets such as their occupations (e.g., Vandenberghe, 2009), supervisors and work groups/teams (e.g., Becker, 2009), and goals (e.g., Neubert & Wu,

2009), to name a few, and that these commitments have consequences for organizationally-relevant outcomes, it is well worth continuing to examine whether strong relations between commitment to other foci and well-being also exist.

The same argument for adopting a multidimensional perspective can be applied to the measurement of well-being. The current study was limited by the conceptualizations of well-being employed in the primary studies analyzed here. Specifically, more studies measuring well-being in terms of both hedonic and eudaimonic well-being are needed. While there are quite a few studies connecting AC with life satisfaction, more studies connecting NC and CC with life satisfaction, in addition to studies linking positive and negative affect with all three components, are needed. Taken together, these studies would provide a more accurate overall picture of relations between commitment and hedonic well-being.

No studies of commitment and eudaimonic well-being in its true sense (i.e., of growth, mastery, well-being beyond happiness/pleasure) were available to be incorporated in this meta-analysis. The closest variable available was engagement, for which very few studies connecting it with commitment exist, particularly from a multidimensional perspective. Thus, future research connecting commitment and engagement, both measured in multidimensional ways, would be a helpful addition to the literature. In addition, more research connecting commitment with eudaimonic well-being is needed. I discuss limitations of the current conceptualization of eudaimonic well-being further below.

It should be noted that even though there were indications that moderators may be present in several NC-well-being and CC-well-being relations, an adequate number of

studies to examine these potential effects was not available. Once more research has accumulated examining these relations, future meta-analytic research will be able to explore the moderators specified here, as well as other potential moderators (e.g., operationalization of CC as CCHiSac vs. LoAlt). The accumulation of more research from sources outside of North America and in languages other than English may allow for more complex future tests of moderation than the binary-coded tests (i.e., English vs. not, North America vs. not) conducted here. Finally, in one case (the relation between emotional exhaustion and AC), the credibility interval was quite wide, and the test for heterogeneity yielded a significant result. Despite this, none of the moderators examined here were found to have a significant effect on this relation. Future research may look into other potential moderators of this relation, including but not limited to gender and tenure.

*Study 2:*

*Commitment Profiles, Need Support and Satisfaction, and Employee Well-Being*

Although scale evaluation was not the focus of the Study 2, it did reveal some problems in the use of the Need Supportive Management Scales (Parfyonova, 2009). The factor structure of the scales was not as expected. There could be a few possible explanations. First, the scales used in this study were reduced in length; it is possible that use of the full scales would allow for greater coverage of the content area of the construct, and thus for clearer distinctions between the items tapping support for the needs for autonomy, competence, and relatedness. Second, because of the scarcity of items focused on autonomy support following Parfyonova's factor analyses, I wrote and

included additional items here. These items, as well as the rest of the scale, are in need of further validation if they are to be used confidently in future research.

The purpose of examining well-being in terms of two viewpoints was to create a more well-rounded view of what it means to be “well.” The hedonic viewpoint has equated wellness with happiness, but proponents of the eudaimonic perspective have argued that wellness goes beyond this to take a broad view of the “fully functioning person” (Ryan & Deci, 2001, p. 161). While hedonic well-being has formally been defined as including greater positive affect, less negative affect, and greater life satisfaction (e.g., Diener & Lucas, 1999), eudaimonic well-being has been operationalized in a multitude of ways. These include a set of six dimensions (autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance; Ryff, 1989; Ryff & Keyes, 1995), happiness plus meaningfulness (McGregor & Little, 1998), personal expressiveness (Waterman, 1993), and a host of other variables including self-actualization and vitality (Ryan & Deci, 2000a). I therefore recommend that future research continue to refine and clarify the definition of eudaimonic well-being.

The sample size of this study was adequate to find a meaningful latent profile analysis solution. It is unclear whether power was an issue in finding a meaningful solution that included the full complement of commitment components to multiple targets in this study. Because few simulation studies have been run to examine this issue, it is also unclear just how large samples might need to be in order to have adequate power (Pastor, et al., 2007).

This study was cross-sectional in nature, and thus was limited in that it could not provide evidence for making causal conclusions regarding the effects of theoretical antecedents like need support/satisfaction on membership in commitment profiles, and the effects of membership in those commitment profiles on well-being. Experimental research examining these relations is largely impossible (except perhaps in the case of need support) or impractical. However, future research examining the interplay among antecedents, commitment profiles, and well-being outcomes could adopt a longitudinal approach that would allow for a stronger basis for causal conclusions. This research could also make use of sophisticated techniques such as latent profile analysis (e.g., Chan, 1998, 2002; Vandenberg & Stanley, 2009) that would allow researchers to explore the relations among changes in antecedents, commitment, and well-being outcomes over time. This technique can be particularly fruitful with organizational and occupational newcomers just beginning to develop their commitments.

This study was also mostly based on self-reported data, leaving potential for criticisms of common method bias. The inclusion of peer-reported well-being measures should help to allay fears that common method bias was a problem in this study. While I found fewer significant mean differences among the profile groups in terms of observer-reported well-being and ill-health, I did find many significant differences, lending evidence to the validity of the current study. Furthermore, past research comparing self-reported versus peer-reported commitment ratings (Goffin & Gellatly, 2001) found that these measures were largely redundant in predicting job performance, suggesting that relations between self-reported commitment and outcome variables are unlikely to be affected by common method variance.



### Implications for Practice

One thing that is clear from the current research is that just as employees' organizational AC is positively associated with outcomes of interest to those organizations, it also has positive links to outcomes of relevance to employees themselves. Furthermore, previous research has demonstrated that employees experiencing strong AC may also be better able to withstand stressors (see Meyer & Maltin, 2010, for a review). This makes AC to the organization a potentially powerful lever for creating a win-win situation for all involved. Research abounds concerning antecedents of AC that could point to methods of creating this win-win situation, all involving creating a positive quality of work life (see Meyer, et al., 2002, for the major antecedents supported by meta-analytic research). Potential methods include but are certainly not limited to fostering organizational support and justice, training leaders in transformational leadership, and addressing stressors such as role conflict and role ambiguity where possible. In addition, although causal conclusions cannot be drawn from the findings concerning need support and satisfaction presented here, these variables offer a very good place to start. Supporting employees' needs for autonomy, competence, and relatedness through actions such as providing choice, feedback, setting appropriate expectations, refraining from controlling language and behaviour, and expressing concern for employees' feelings and needs, should have positive implications for their commitment, and, in turn, their well-being.

In terms of NC and CC toward the organization, the current meta-analysis confirmed, albeit tenuously, that the former is positively related to employee well-being (though to a weaker degree than AC), and that the latter is either not related or even

negatively related to employees' well-being. The meta-analytic correlations reported herein should be interpreted with caution, given the very small sample size on which they were based and the width of the associated credibility intervals. However, in contemplating the current research and a previous narrative review of the connection between commitment and well-being (Meyer & Maltin, 2010), it is relatively safe to say that fostering these types of commitment, particularly CC, may not be of benefit to organizations or employees, particularly in the absence of AC. Much more research is needed concerning relations between NC and well-being, particularly in the context of other commitment components. It is quite possible that fostering a sense of moral imperative (that is, bolstering NC in combination with strong AC) can be as beneficial for employees' well-being as it has sometimes been shown to be for organizations (e.g., Gellatly, et al., 2006; Wasti, 2005).

There has been considerable debate in the past regarding the compatibility of organizational and occupational commitment. Some scholars have argued that professional or occupational commitment could undermine organizational commitment (e.g., Kalleberg & Berg, 1987); others have maintained that that they can and do reinforce each other (e.g., Steers, 1977). Moderate positive meta-analytic relations between occupational and organizational commitment (Cooper-Hakim & Viswesvaran, 2005; Meyer, et al., 2002; Wallace, 1993) support the notion that these commitments are mutually reinforcing, but are sufficiently modest to suggest that conflict is also a possibility. The findings of the few studies that examine organizational and occupational commitment in combination (Maltin, et al., 2011; Tsoumbris & Xenikou, 2010) have the advantage of having used a person-centered approach. The findings of these studies

revealed that while these dual commitments can reinforce each other for some employees, for others, they may actually be in conflict. The present study added evidence to this position, demonstrating that employees whose commitment is characterized by strong AC (or strong AC and CC) toward both their organizations and occupations are likely to experience greater well-being. In contrast, those employees whose commitment was dominated by their occupational commitment experienced less well-being than those employees with more compatible commitment profiles.

Citing the current work context that might make it difficult or impossible for organizations to create long-term AC toward themselves on the part of their employees (Baruch, 1998; Cappelli, 1999), several researchers have argued that fostering commitments to other foci may be of immense benefit to both organizations and their employees, so long as those targets have compatible goals (e.g. Meyer, 2009; Meyer, Becker, & Vandenberghe, 2004; Meyer & Maltin, 2010). The present study did not assess goal compatibility, so I cannot speak to that part of the recommendation. However, although in this study employees whose commitment was directed primarily at their occupation experienced poorer well-being than those who felt strongly affectively committed to both targets, they did fare better than those who felt strong CC toward both their organizations and occupation. These findings may or may not hold true for more organizationally-relevant outcomes (e.g., performance and retention), or for other targets (e.g., supervisors, teams, or goals). Based on the current research, therefore, I recommend that organizations tread carefully in fostering commitment toward other targets. Specifically, the focus should be on bolstering AC, accompanied by other components where possible, and on ensuring that the other targets share compatible goals.

## Conclusions

The first objective of the current research was to gain a more accurate estimation of the relation between organizational commitment and employee well-being. The meta-analysis of relations between the three components of commitment and employee ill-health, hedonic well-being, and eudaimonic well-being presented in Chapter 2 addressed this objective, taking a variable-centered approach.

The second study presented in Chapter 3 sought to further explore the commitment-well-being link using a multidimensional, multi-foci, person-centered approach, and to examine two potentially important theoretical antecedents—support and satisfaction of the needs for autonomy, competence, and relatedness.

The results of both studies suggest that employees who experience commitments based on affective attachment are more likely to be well. Commitments based on other mindsets, such as social or other types of costs, can be associated with detrimental consequences. However, when accompanied by strong AC, as in a High Commitment profile, they may not be. The results also suggest that one lever for fostering commitment associated with greater well-being is leaders' support for employees' needs.

These findings have implications for practice in that there is now systematic evidence that certain forms of commitment are related to greater employee well-being, just as they are to organizationally-relevant outcomes. This gives one more reason for leaders and organizations to implement high-commitment work practices designed to foster those particular forms of commitment.

The findings also have implications for commitment theory, in that they add to the burgeoning literature employing the person-centered approach to the study of

commitment. Many questions remain as to the complex nature of commitment mindsets, particularly those involving multiple forms *and* foci of commitment. Future person-centered research in this area should continue to explore the different combinations of forms and foci in order to address questions such as conflicting profiles and the implications of NC for commitment profiles.

My hope was that by summarizing what we currently know about the connection between commitment and well-being, and venturing into relatively new territory, the current research would provide an added value to the current state of theory, research, and practice concerning commitment and well-being, as well as additional questions to be answered by future research in this area.

## References

*Note:* References included in the meta-analysis are marked with an asterisk (\*).

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## Appendices

## APPENDIX A

*Acronyms used throughout the document*

OCB	Organizational Citizenship Behaviour
SDT	Self-Determination Theory
AC	Affective Commitment
NC	Normative Commitment
CC	Continuance Commitment
CCHiSac	Continuance Commitment High Sacrifices
CCLoAlt	Continuance Commitment Low Alternatives
TCM	Three-Component Model [of commitment]
OCQ	Organizational Commitment Questionnaire
MBI	Maslach Burnout Inventory
LPA	Latent Profile Analysis
ANOVA	Analysis of Variance
LL	Logarithmic Value of the Likelihood
AIC	Akaike's Information Criterion
BIC	Bayesian Information Criterion
SSA-BIC	Sample-Size-Adjusted Bayesian Information Criterion
LMR	Lo-Mendell-Rubin Likelihood Ratio Test
BLRT	Bootstrapped Log-likelihood Ratio Test



## APPENDIX B

*Study Eligibility Criteria*

1. Distinguishing features. Candidate studies should:
  - a. Include a measure of employee commitment and a measure of a well-being construct (see item 3 from this list, 'Key Variables').
  - b. Report an empirical association among the commitment and well-being variables, as well as measure reliabilities, sample size, and other important statistical information.
  - c. Include a well-being *outcome* variable. Stressor variables that may be a cause of well-being or lack thereof, but are not in and of themselves *responses* to a situation, are not of interest.
  - d. If including a variable called *stress*, *strain*, or *tension*, should include a definition of said variable, and/or at least two example items, so that the outcome variable can be properly categorized.
  - e. Include individual-level associations.
  
2. Research respondents:
  - a. Can include employees in any kind of organization, including public (e.g., government, schools), private, military, hospital/healthcare, education, and non-profit. Respondents from a single study need not all work for the same organization.
  - b. Can occupy various positions and levels within an organization, including frontline, middle management, or upper management.
  - c. Can speak any language, and be from any culture, country, or region.
  
3. Key variables
  - a. Commitment: Affective, Normative, Continuance.
  - b. Burnout: Burnout (omnibus), Emotional Exhaustion, Cynicism, (Lack of) Professional Efficacy/Personal Accomplishment.
  - c. Engagement: Engagement (omnibus), Vigour, Dedication, Absorption.
  - d. Hedonic Well-Being: Life Satisfaction, Positive Affect/Emotion, Negative Affect/Emotion.
  - e. Stress/Tension: Stress, Strain, Job Tension, Perceived Stress, Felt Stress.
  - f. Mental Ill health: General Health, Psychological Distress, Mental Well-Being, Psychological Strain.
  - g. Anxiety: Anxiety.
  - h. Depression: Depression, Depressive Symptoms.
  - i. Psychosomatic Ill health: Physical Symptoms, Illness, Psychosomatic Symptoms, Physical Health, Psychosomatic Stress.
  - j. Moderators/Covariates: Average age, proportion of women in sample, mean organizational tenure, response rate, country, operationalization of affective commitment (i.e., OCQ vs. OCS), type of organization/job (military, public, private, education, healthcare, various, other), item language, published or unpublished.
  
4. Research designs:

- a. Can include cross-sectional, longitudinal, or quasi-experimental designs.
5. Cultural and linguistic range
    - a. All cultures, countries, and languages will be included. Inclusion of non-English studies is limited to studies written in French or studies for which the author can provide the needed information to create a full record of the study in the database.
  6. Time frame
    - a. No particular time periods are more important than others.
    - b. In cases where more than one time point is measured, the time point with the largest N was entered, except in situations involving the sampling of newcomers. In this case, the last time period for the study was entered, given that it was at least 3 months after hire. This was done to allow employees sufficient time to develop attitudes such as commitment, and feel their effects.
  7. Publication type
    - a. Published and unpublished studies were eligible, including refereed journals, non-refereed journals, dissertations, government reports, conference presentations, unpublished or archival data sets. In cases of a dissertation that was later published, the data from the published article were used.

## APPENDIX C

*Categorization of Well-Being Variables*

Stress/Tension Measures	Number of Studies
Stress In General (SIG) Full Scale (Stanton, Balzer, Smith, Parra, & Ironson, 2001)	2
SIG Threat Subscale (Stanton et al., 2001)	1
Cullen, Link, Wolf, & Frank (1989)	
Frequently cited as Crank, Regoli, Hewitt, & Culbertson (1995)	5
Parker & DeCotiis (1983) Felt Stress Full Scale (Time Stress and Anxiety)	4
Cohen, Kamarck, & Mermelstein (1983) Perceived Stress	1
House & Rizzo (1972) Job Tension	11
Bernas & Major (2000) Perceived Job Stress	1
Parasuraman (1982) Felt Stress	1
Kandel, Davies, & Raveis (1985)	1
Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995)	1
Total	28
Mental Ill health Measures	Number of Studies
Global Severity Index (GSI) from the Symptoms Checklist 90 (SCL-90; Derogatis & Cleary 1977)	2
General Health Questionnaire (GHQ-12 and GHQ-28) (Goldberg, 1972; Goldberg & Williams, 1988)	14
Banks, Clegg, Jackson, Kemp, Stafford, & Wall (1980)	
General Mental Well-Being	1
Blom, Melin, & Pyöriä (2001) Mental Health	1
Kessler & Mrocek (1994) Psychological Distress	2
Mental Health Index (MHI; Velt & Ware (1983)	1
Occupational Stress Inventory (OSI) Current State of Health Scale	
Mental Ill health Subscale (Cooper, Sloan & Williams, 1988)	1
Caplan, Cobb, French, Van Harrison, & Pinneau (1975)	
Work-Related Depression, Anxiety, and Irritation (Full Scale)	1
Created for primary study	1
Total	24

*Categorization of Well-Being Variables Continued*

Anxiety Measures	Number of Studies
Parker & DeCotiis (1983) Felt Stress Anxiety Subscale	6
Hoy & Endler (1969)	1
Warr (1990) Anxiety-Comfort	1
Nowlis (1965) Mood Scale – Anxiety	1
SCL-90 Anxiety Subscale (Derogatis & Cleary 1977)	1
Spielberger (1979) State Anxiety	1
Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995)	1
Total	12

Depression Measures	Number of Studies
Center for Epidemiological Studies (Radloff 1977)	1
Quinn & Shepard (1974)	1
Warr (1990) Depression-Enthusiasm	1
SCL-90 Depression Subscale (Derogatis & Cleary 1977)	1
Caplan et al. (1975)	1
Depressive Symptoms Subscale	1
Depression Anxiety Stress Scale (DASS; Lovibond & Lovibond, 1995)	1
Total	6

Psychosomatic Symptoms Measures	Number of Studies
House & Rizzo (1972) Anxiety-Stress Questionnaire (including job and somatic tension; mainly somatic)	3
Andersson (1986)	1
Mohr (1986)	1
Caplan et al. (1975) Somatic Symptoms Subscale	5
Health Conditions Index (Hanisch, 1992)	1
Health Experiences Questionnaire (VOEG; Dirken, 1967)	1
Health Scale (Spence, Helmreich, & Pred, 1987)	4
(OSI) Current State of Health Scale Physical Ill health Subscale (Cooper et al., 1988)	4
Dirken (1969)	1
Heilbrune & Pepe (1985)	1
Quality of Employment Survey Physical Health Subscale	1
Quinn & Staines (1975)	1
Patchen (1970)	2
Medical Outcome Study (Stewart & Ware, 1992)	1
Created for primary study	3
Total	29

## Ethics Approval



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**Use of Human Subjects - Ethics Approval Notice**

<b>Review Number</b>	<b>10 11 18</b>	<b>Approval Date</b>	<b>10 11 11</b>
<b>Principal Investigator</b>	<b>John Meyer/Elyse Maltin</b>	<b>End Date</b>	<b>11 01 31</b>
<b>Protocol Title</b>	<b>Educators' work experiences and well-being</b>		
<b>Sponsor</b>	n/a		

This is to notify you that The University of Western Ontario Department of Psychology Research Ethics Board (PREB) has granted expedited ethics approval to the above named research study on the date noted above.

The PREB is a sub-REB of The University of Western Ontario's Research Ethics Board for Non-Medical Research Involving Human Subjects (NMREB) which is organized and operates according to the Tri-Council Policy Statement and the applicable laws and regulations of Ontario. (See Office of Research Ethics web site: <http://www.uwo.ca/research/ethics/>)

This approval shall remain valid until end date noted above assuming timely and acceptable responses to the University's periodic requests for surveillance and monitoring information.

During the course of the research, no deviations from, or changes to, the protocol or consent form may be initiated without prior written approval from the PREB except when necessary to eliminate immediate hazards to the subject or when the change(s) involve only logistical or administrative aspects of the study (e.g. change of research assistant, telephone number etc). Subjects must receive a copy of the information/consent documentation.

Investigators must promptly also report to the PREB:

- changes increasing the risk to the participant(s) and/or affecting significantly the conduct of the study;
- all adverse and unexpected experiences or events that are both serious and unexpected;
- new information that may adversely affect the safety of the subjects or the conduct of the study.

If these changes/adverse events require a change to the information/consent documentation, and/or recruitment advertisement, the newly revised information/consent documentation, and/or advertisement, must be submitted to the PREB for approval.

Members of the PREB who are named as investigators in research studies, or declare a conflict of interest, do not participate in discussion related to, nor vote on, such studies when they are presented to the PREB.



Clive Seligman Ph.D.

Chair, Psychology Expedited Research Ethics Board (PREB)

The other members of the 2010-2011 PREB are: Mike Atkinson (Introductory Psychology Coordinator), David Dozois, Vicki Esses, Riley Hinson Albert Katz (Department Chair), and Tom O'Neill (Graduate Student Representative)

CC: UWO Office of Research Ethics

*This is an official document. Please retain the original in your files.*

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University of Western Ontario  
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Ontario Graduate Scholarship  
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Social Sciences and Humanities Research Scholarship,  
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Meyer, J. P., & Maltin, E. R. (2010). Employee commitment and well-being: A critical review, theoretical framework and research agenda. *Journal of Vocational Behavior*, 77, 323-337.

Maltin, E. R., & Meyer, J. P. (2009). Commitment and employee well-being. In J. Rojot, P. Roussel, & C. Vandenberghe (Eds.), *Comportement organisationnel* [Organizational behaviour]. Paris: De Boeck.

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