

**INTRINSIC AND EXTRINSIC ASPIRATIONS AND PSYCHOLOGICAL WELL-
BEING: A META-ANALYSIS AND LATENT PROFILE ANALYSES OF LIFE
GOALS**

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STATEMENT OF AUTHORSHIP

This thesis contains no material published elsewhere or extracted in whole or in part from a thesis by which I have qualified for or been awarded another degree or diploma. No parts of this thesis have been submitted towards the award of any other degree or diploma in any other tertiary institution. No other person's work has been used without due acknowledgement in the main text of the thesis. All research procedures reported in the thesis received the approval of relevant Ethics/Safety Committees (where required).

Emma Bradshaw

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Winston Churchill once said, “If you are going through hell... keep going”. He was probably doing a PhD (or strategizing about a World War, who knows). In my three decades on earth, I have had few experiences that grow, crush, inspire, frustrate, encourage, bore, motivate, stunt, excite, expand, dismantle, and recreate oneself as much as does completing a doctorate. As such, the “keep going” requires substantial support. John Donne said, “No man is an island... every man is a piece of the continent” and thankfully I have found that this sentiment applies to women too. These past years I’ve had the exceptionally good fortune to share “the continent” with my supervisors Baljinder and Rich. We three came together through a combination of serendipity (thank you Bob Vallerand for being the catalyst) and their (arguably blind) faith in my abilities. I’m grateful to have learnt from their intellect, integrity, and insight. Thanks also to Joseph and to Phil, whose enthusiasm and brilliance (and data) have been infinitely valuable. Mike Innes and Fiona Papps also deserve thanks for steering me in the right direction when it was needed.

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Also: Red Bull.

ABBREVIATIONS

Abbreviation	Meaning
SDT	Self-determination theory
SES	Socioeconomic status
B-ESEM	Bifactor exploratory structural equation modelling
LPA	Latent profile analysis
GCEQ	Goal Content for Exercise Questionnaire
CFA	Confirmatory factor analysis
EFA	Exploratory factor analysis

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ABSTRACT

Goal contents theory (Kasser & Ryan, 1993, 1996, 2001; Ryan & Deci, 2017) holds that intrinsic life goals (personal growth, relationships, community giving, and health) and extrinsic life goals (wealth, fame, and image) differentially relate to psychological well-being. Intrinsic life goals, or aspirations, inherently satisfy basic psychological needs and therefore promote optimal functioning, while an emphasis on extrinsic aspirations represents a reliance on external contingencies which, at best, only indirectly satisfies basic psychological needs. Despite abundant evidence supporting goal contents theory, positive links between extrinsic aspiring and well-being, observed particularly in Eastern European countries, have led some authors to contend that extrinsic aspirations may not be damaging in all contexts (Frost & Frost, 2000; Rijavec, Brdar, & Miljković, 2011). In addition, the frequently observed positive correlation between intrinsic and extrinsic aspirations suggests that they are not universally divergent. Indeed, consistent unexplained heterogeneity in the results indicates there are unobserved sources of heterogeneity in the data, suggesting there may be subgroups with distinct patterns of aspiring.

In Chapter 2 of this thesis, a meta-analysis of more than 1'000 effect sizes showed support for the universality of goal contents theory across countries, age groups, and socioeconomic statuses. In Chapters 3, 4, and 5, bifactor structural equation modelling (B-ESEM) was combined with latent profile analysis (LPA) in three large, independent samples from Hungary, Australia, and the United States of America, and derived three replicable profiles of aspiring. Chapters 4 and 5 showed that profile membership predicted additional variance in well-being, even in highly conservative tests that control for the aspirations that comprise the profiles. The profiles also differed in the breadth of their care for others. From Profile 1 to Profile 3, increasingly more (and more distal) others are central in the configurations of aspiring, starting with the self (Profile 1), then close others (Profile 2), and

then the world in general (Profile 3). These studies make a unique contribution to the literature by synthesizing the available evidence and by identifying replicable latent profiles of aspiring that account for variance in well-being and other-oriented-ness over and above the constituent variables.

INTRODUCTION

“A short cut to riches is to subtract from our desires.”

- Petrarch

Follow your dreams. Work hard. Aim high. Never stop reaching for your goals. Whatever you set your mind to you can achieve. The essence of clichés such as these reflects humans’ deep investment in striving for the so-called “good life”. In 1776, the American government enshrined the “pursuit of happiness” in the Declaration of Independence, considering it an inalienable right to which all people (or at least all Americans) are entitled. Our shared desire to learn the path to happiness is understandable: if light were shone on the key to wellness we could all pick it up and unlock the door to thriving. Alas, the recipe for the good life eludes some of us. Rates of depression and mental illness are increasing (Twenge, Joiner, Rogers, & Martin, 2018), as are suicide rates (Wasserman, Cheng, & Jiang, 2005), all despite the world becoming increasingly safe, prosperous, and equitable (Pinker, 2011). Perhaps growing prosperity is not matched by commensurate gains in mental health because those engaged in the pursuit of happiness focus on *pursuit* rather than the *happiness* such pursuits afford. Indeed, evidence garnered in recent decades has suggested that *what* we pursue may be as important for our welfare as the vehemence with which we do so (Kasser & Ryan, 2001).

In principle, a focus on pursuing desired future states (as is the definition of a goal) is a good thing. Decades of evidence suggest that goals imbue our lives with a sense of purpose, and people working towards meaningful goals tend to report more well-being than those who are not (Brunstein, 1993; Emmons, 1986). However, as I will contend in this thesis, an emphasis on the process of goal pursuit (the ‘how’ and the ‘when’) has an important blind spot (Deci & Ryan, 2000). Specifically, I will propose—and demonstrate—that the *content* of goals and the *pattern* of concurrent goals are both important predictors of the degree to which

life goals result in psychological wellness (Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001).

My arguments will be derived in part from *self-determination theory* (SDT; Deci & Ryan, 1985; Ryan & Deci, 2017), which is an empirically-grounded theory of human motivation and wellness that emphasizes the importance of the satisfaction of a small set of basic psychological needs in fostering well-being. SDT holds that wellness is promoted through actions and environments that satisfy the basic psychological needs for competence (feelings of effectiveness and ability), autonomy (feelings of volition and agency), and relatedness (feeling connected to and cared for by others). Basic psychological needs are considered fundamental to psychological thriving, so contexts and actions that thwart their satisfaction promote varying degrees of controlled or extrinsic (rather than autonomous or intrinsic) motivation and predict psychological distress.

Fundamental to SDT is the idea that the goals to which a person aspires will impact psychological thriving based on the extent to which those goals serve basic psychological needs. *Goal contents theory* (Ryan & Deci, 2017) differentiates life goals, or aspirations, as being of two general types: intrinsic, or relatively directly satisfying of basic psychological needs, and extrinsic, or focused on instrumental outcomes such as money or fame that are less conducive to need satisfactions (Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001). Accordingly, intrinsic and extrinsic goal contents have been found to relate differentially to psychological thriving (for a review see Ryan & Deci, 2017).

To date, studies of goals of intrinsic quality have focused on those for personal growth, close relationships, contributing to the community, and physical health. Prioritizing aspirations of intrinsic nature has been shown to promote psychological well-being (Niemi, Ryan, & Deci, 2009). Goals of extrinsic quality have included wealth, becoming famous, and being physically attractive. As one might expect, a primary orientation towards extrinsic

goals is thought to be unrelated or even detrimental to well-being (Kasser & Ryan, 1996). In Chapter 2 of this thesis, I synthesize the literature examining the links between intrinsic and extrinsic aspirations and well-being and ill-being and, in doing so, demonstrate that intrinsic aspirations do indeed predict well-being. However, I also illustrate that the link between extrinsic aspirations and well-being is more nuanced. Extrinsically oriented aspirations appear to be weakly positively associated with ill-being *and* well-being, but the direction of the correlation depends on how extrinsic aspirations are calculated and the effects are moderated by some methodological and demographic factors.

In Chapter 2, I also highlight considerable unexplained variation—or unexplained heterogeneity—in the relationship between intrinsic and extrinsic aspirations and well-being. In the second chapter, I demonstrate that commonly observed sources of variation such as age, gender, country, and socioeconomic status do not readily account for this heterogeneity. In Chapters 3, 4, and 5, I argue—and demonstrate—that the unexplained variance is explained in part by unobserved sources of heterogeneity. Across three studies I show not only that goal type impacts well-being, but so too does the *combination* of aspirations and the extent to which one aspires in general. In Chapter 6 I elaborate on the pattern of evidence from the four studies and situate the results within the broader psychological literature. Taken together, the results presented in this thesis support the value of an intrinsic aspiration orientation, and also demonstrates that the broader array of multiply held goals is an important determinant of well-being.

CHAPTER 1: SELF-DETERMINATION THEORY AND ASPIRATIONS

“The reward of a thing well done is having done it.”

- Ralph Waldo Emerson

Introduction

Life goals, or aspirations, demonstrate humans’ evolved propensities to act upon and interact with environments in myriad ways (Deci & Ryan, 2000). Goals differ from person to person, and people often hold multiple simultaneous and competing aspirations. The aim of this first chapter is to provide a theoretical account for why goal content varies across people, and to contend that goal content plays a key role in the extent to which goals impact optimal psychological functioning. Within SDT, goal contents theory states that goals that engender basic psychological needs satisfactions—intrinsic aspirations—are thought to lead to well-being, whereas an emphasis on goals that depend on external contingencies—extrinsic aspirations—can thwart wellness (Kasser & Ryan, 1996; Ryan & Deci, 2017). Research to support the goal contents theory conceptualization of life goals is vast, though it has also attracted debate (Carver & Baird, 1998; Sagiv & Schwartz, 2000). Evidence for and against goal contents theory will be outlined in this chapter. In addition, questions remain about the nature and origin of extrinsic aspiring, and whether extrinsic aspirations are detrimental in all contexts. The basis for these empirical queries will be outlined in this chapter, foreshadowing a meta-analysis of the link between aspiration content and well-being in Chapter 2.

Why do we do?

People are wired to act. Such action (or the choice to not act) is rarely random, and most often serves the attainment of a desired state, or avoidance of an aversive one (Custers, Vermeent, & Aarts, 2018; Freund, Hennecke, & Mustafić, 2018). Darwin (1872) posited that these motivational tendencies are the product of evolution. Humans and non-verbal animals are thought to have evolved an emotional arsenal that guides action. Fear may result

in hiding, running, and lying, among other behaviors. Sexual arousal promotes copulation and reproduction. Anger can lead to violence, and so on. Early motivation theories held that these universal instincts and drives were the fundamental determinants of human behavior. James (1890) delineated 37 instincts including fear, love, resentment, jealousy, and interestingly, cleanliness. Hull (1943) referred to sex, thirst, hunger, and pain reduction as primary drives. Freud (1948) posited just two basic human instincts. Thanatos, the death instinct, was thought to manifest risky and aggressive behavior, while the life instinct, eros, relates to sexual expression (Freud, 1948). Evidently, these authors agreed that some psychological and biological imperatives promote action, though clearly did not agree about which of these drives were most central.

Behaviorist researchers also emphasized the importance of reinforcement in all human endeavors. Like drive and instinct theorists, behaviorists such as Skinner (1953) viewed action as the product of external reinforcement. Accordingly, behaviorists rejected introspection and studied only observable behavior enacted in response to external stimuli. In the operant view, action is the product of prior conditioning, rendering all behavior controlled by external forces to some degree. Behaviors were thought to be repeated only if reinforced or reduced in response to punishment, and often this supposition was supported experimentally (Ryan, Bradshaw, & Deci, in press). However, evidence in the years since has demonstrated that this is too simplistic a lens through which to view the complexity of behavior (Ryan & Bradshaw, in press). In addition, the external contingencies integral to drive and operant theories failed to account for important aspects of human behavior (Deci & Ryan, 1985). Examples such as spontaneous play and curious exploration cannot readily be explained using drive and operant theories (Deci & Ryan, 1985).

The notion that the mind orients towards self-expansion and integration is widespread in psychology. White (1959) coined the term “effectance motivation” (p. 321) to account for

such phenomena, referring to the feeling of competence one gains from a non-purposeful engagement with their environment, and the learning and mastery which results.

Csikszentmihalyi (1999) described “autotelic experiences” (p. 824) as those that are captivating and pleasant despite garnering no outcome beyond the experience of the task itself; the activity is the reinforcement. Rogers (1963) and Maslow (1967) referred to processes of actualization. According to Rogers (1963), one’s potential is fulfilled as the psyche develops towards autonomy and away from external sources of control. Similarly, Maslow (1967) emphasized the need to transcend base-level needs to achieve self-selected purpose and meaning.

Ryan and Deci (2017) describe one manifestation of these active growth-oriented tendencies in the phenomenon of *intrinsic motivation*. Intrinsic motivation is the spontaneous interest one has in engaging with their surroundings, and it is based in experiences of both volition and efficacy. Intrinsic psychic energy is separate from and demonstrably deterred by external reinforcements (de Charms, 1968). For example, Deci (1971) demonstrated that interest in free-choice behaviors decreased if the behaviors were rewarded. This suggests that intrinsically motivated acts are what healthy minds engage with when not responding to nervous system deficits—such as hunger or thirst—or preoccupied with environmental reinforcements (Deci & Ryan, 1985; White, 1959). In this sense intrinsic motivation reflects the integrative core of the organism striving towards self-determination (Kasser, 2002).

Though theoretical and empirical support for intrinsic motivation, and related concepts, as outlined here, is vast (for a comprehensive review see Ryan & Deci, 2017), of course, not all actions are purely intrinsic. Indeed, *most* activities are not intrinsically motivated (Ryan & Deci, 2000b). After early childhood more and more of people’s behavior is motivated by social demands and instrumental goals separable from the tasks themselves—that is, by extrinsic motivations (Ryan & Deci, 2000b). In SDT, extrinsically motivated

actions are driven by varying degrees of autonomous or controlled motivation. Intrinsic motivation is considered the prototype of autonomous motivation, though extrinsic behaviors can also be enacted because they are fully internalized and integrated with the self, thereby being also autonomously motivated. Orienting towards action for reasons of congruence or value represent integrated and identified motivation, respectively, which are autonomous forms of extrinsic motivation. However, some instrumental or extrinsically focused acts may be fully externally motivated. For example, applying for a minimum number jobs purely to maintain social security payments is externally motivated. Other endeavors may be motivated by internal experiences like guilt or shame, which represents introjected motivation. External and introjected regulatory styles are forms of controlled motivation.

Importantly, these various forms of autonomous and controlled motivation are not only distinguishable, they also differentially predict psychological well-being (Ryan & Deci, 2000c). As actions and environments, and therefore psychological states, become increasingly autonomous and autonomy-supportive, they better predict various indices of flourishing (Ryan & Deci, 2017). So, it seems often humans ‘do’ out of necessity, but given freedom of choice, the self endeavors to play, explore, learn, and internalize new values and behaviors in an ongoing process of psychological integration and growth.

Facilitating and undermining autonomous forms of motivation and wellness

Autonomous motivation promotes well-being. Thus, a focus of SDT has been understanding the forces that promote and thwart more autonomous forms of motivation. Resultant evidence suggests that autonomous motivation, and therefore well-being, is supported through the satisfaction of three basic psychological needs: competence, relatedness, and autonomy (Ryan & Deci, 2017). In the same way that human beings require air, water, and calories for physical health, SDT holds that competence, relatedness, and autonomy are the essential nourishment for psychological thriving (Deci & Ryan, 2009).

These three needs are basic, in that they are universally essential for all humans' thriving. They are also psychological, meaning their satisfaction and frustration has direct consequences for psychological functioning. Also, the needs are indeed *needed* to facilitate psychological wellness. Competence, relatedness, and autonomy were thought (and were, indeed, found) to be central to psychological thriving based on the theory-based rationales outlined below:

Competence. White's (1959) theory of effectance motivation posited that the intrinsic tendency to seek novelty and challenge is indicative of humans' need to feel effective and able, that is, to feel competent. Based on White's definition, actions will be experienced as increasingly congruent with the self—as more integrated and autonomous—to the extent that one has the skills and knowledge the task requires. Thus, environments that support competence by providing optimal challenges and task-relevant feedback should facilitate identification and integration (Ryan & Deci, 2000b). Indeed, as competence support increases so too does autonomous motivation and well-being (Patrick, Knee, Canevello, & Lonsbary, 2007; Ryan, Stiller, & Lynch, 1994).

Relatedness. Humans are an intensely social species (Frith & Wolpert, 2004). Having and maintaining close personal relationships permits a host of beneficial outcomes including increased prosocial behavior (Wentzel, Barry, & Caldwell, 2004), more effective conflict management (Patrick et al., 2007), and even enhanced academic achievement (Cauce, 1986). It follows, therefore, that having satisfying relationships would support psychological well-being and, indeed, it does (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). In addition, relatedness, that is, feeling care toward others and feeling cared for in return, can also drive more autonomous forms of motivation. Activities that are not purely intrinsic are not interesting in and of themselves and are thought to be a product of social learning processes (Ryan & Deci, 2000b). People model and adopt actions they see demonstrated by those for

whom they experience a sense of relatedness (Bandura, 1963). Therefore, as relatedness increases, so too should the feeling that modelled behaviors emanate from the self (i.e., are integrated and feel autonomous), rather than from sources of external control. Evidence suggests that people who experience more relatedness are also more autonomously motivated (Chen et al., 2015).

Autonomy. Finally, although SDT argues that all three basic needs are basic and essential, autonomy plays a particularly central role in full functioning (Ryan & Deci, 2017). In the SDT context autonomy refers to feelings of volition and agency (Niemic & Ryan, 2009), as opposed to independence. For this reason, relatedness and competence theoretically interact with autonomy to predict autonomous motivation and well-being. Relatedness and competence will be satisfying to the degree the relationships or tasks were autonomously selected (Ryan & Deci, 2017). Much of the literature reviewed so far points to the psychological necessity of autonomous experiences. Humans organismically orient towards self-endorsed and self-supported activities. Therefore, environments that support choice and autonomy should also promote thriving. Like competence and relatedness, evidence suggests they do (Carpentier & Mageau, 2016; Chirkov & Ryan, 2001; Deci et al., 2001; Gagne, 2003).

The centrality of these three needs as just that, *needs*, is made additionally salient in the context of their frustration. If satisfaction of the three basic psychological needs promotes autonomous motivation and well-being, it follows that thwarting these needs will lead to increasingly controlled forms of motivation and therefore ill-being. This has found to be so (e.g., Chen, Yao, & Yan, 2014). Controlling, cold, and undermining environments can lead to more external regulation, behavioral aggression (Ryan, Deci, & Vansteenkiste, 2016), burnout (Bartholomew, Ntoumanis, Ryan, Bosch, & Thøgersen-Ntoumani, 2011), and psychopathology (Ryan, 2005), among others indices of distress.

The extent to which one's basic psychological needs are satisfied predicts the autonomous or controlled nature of motivation, which in turn impacts well-being. Put differently, psychological needs both their pursuit and the extent to which they are satisfied or frustrated—are central determinants of action (Deci & Ryan, 2000). While this is true broadly, basic psychological needs satisfaction is also manifest more concretely in the content of life goals, or aspirations. Goal contents theory—SDT's conceptualization of life goals, or aspirations—posits that the degree to which one's basic psychological needs are satisfied will be reflected in the intrinsic or extrinsic quality of their aspirations (Kasser & Ryan, 1993, 1996, 2001). In addition, well-being has been found to be differentially predicted depending on which of the two aspiration types is prioritized in the pattern of aspirations.

To *what* does one aspire?

Goal striving has been associated with high life satisfaction and positive psychological functioning in many studies (Brunstein, 1993; Holahan, 1988; Lowenthal, 1971; Ruchman & Wolchik, 1988; Wheeler, Munz, & Jain, 1990). However, evidence garnered in recent decades suggests that when it comes to the enhancement of well-being, not all goals are equal (Ryan, Sheldon, Kasser, & Deci, 1996). For instance, Emmons (1986) proposed that well-being is associated with specific goal characteristics, such as level of goal commitment and perceived probability of success, but more recent evidence suggests that neither the tenacity nor efficacy of goal pursuit is central to fostering well-being. Rather, according to SDT, the *content* of goals is key (Deci & Ryan, 2000; Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001; Ryan et al., 1996).

Goal contents theory posits that one's value orientation informs the content of one's life goals, or aspirations. Specifically, the content of aspirations is thought to reveal an intrinsic or extrinsic value orientation. For example, Kasser and Ryan (1993) suggested that people's aspirations for wealth would be detrimental to well-being if they were emphasized

relative to more intrinsic goals such as closeness with others and self-development.

Prioritizing wealth was thought to be damaging because the satisfaction of wealth goals demands external inputs (from the bearers of said wealth), rendering them entirely externally dependent. Money, itself, has no intrinsic value. In contrast, pursuit of intrinsic aspirations for close relationships and personal growth inherently satisfy our needs for relatedness and competence.

Kasser and Ryan (1993) tested a two-factor model of aspirations by factor analyzing participants' importance ratings for a variety of different aspirations. The results distinguished the extrinsic aspiration for wealth from the intrinsic aspirations for personal growth, close relationships, and giving to the community. The Aspiration Index (Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001), a now widely-used measure of aspirations, has since evolved to include three extrinsic aspirations (wealth, fame, and physical attractiveness) and four intrinsic aspirations (personal growth, relationships, physical health, and giving to the community). The pursuit of intrinsic aspirations reflects humans' innate growth tendencies, and inherently satisfies the basic psychological needs described above (Deci & Ryan, 1985; Ryan & Deci, 2017). The extrinsic aspirations are relatively more materialistic and emphasize external impression management and social reinforcements. Extrinsic pursuits are theorized to, at best, only indirectly satisfy basic needs, and often represent more controlled motivation and psychological threat (Sheldon & Kasser, 2008).

Given that intrinsic and extrinsic aspirations represent and contribute to disparate levels of psychological needs satisfaction and autonomous motivation, it follows that each domain should differentially relate to psychological well-being. Indeed, cross-cultural research consistently indicates that an emphasis on intrinsic aspirations predicts basic psychological needs satisfaction and autonomous motivation (Sebire, Standage, & Vansteenkiste, 2008), as well as numerous well-being related outcomes, such as, life

satisfaction and meaning in life (Martos & Kopp, 2012; Ryan et al., 1999; Zawadzka, Duda, Rymkiewicz, & Kondratowicz-Nowak, 2015), vitality (Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001; Yamaguchi & Halberstadt, 2012), mindfulness (Brown & Kasser, 2005), empathy (Sheldon & Kasser, 1995), self-reported physical activity (Sebire, Standage, & Vansteenkiste, 2009), and pro-environment and prosocial behaviors (Fu, Liu, Yang, Zhang, & Kou, 2015; Unanue, Vignoles, Dittmar, & Vansteenkiste, 2016). In contrast, a relative extrinsic aspirational focus has been found to be associated with controlled motivation (Sebire et al., 2008), and ill-being and distress symptoms in a variety of cultures (Kasser et al., 2014; Martos & Kopp, 2014; Ryan et al., 1999; Schmuck, Kasser, & Ryan, 2000; Sheldon & Krieger, 2014).

The remainder of this chapter will provide an overview of the goal contents theory literature. First, I will review theoretical and conceptual critiques of the goal contents theory conceptualization of aspirations, and the logic and results that refute the theory. I will then discuss theory-based accounts for why extrinsic aspiring relates negatively to well-being, and question whether extrinsic aspiring is indeed detrimental in all contexts.

Critiques of goal contents theory

The match perspective

Despite the compelling evidence in favor of the positive link between relative intrinsic aspiring and well-being, three notable critiques of goal contents have been proposed. First, in Schwartz's (1992) similar but distinct theory of universal values, no single value (or set of values) is thought to have a more positive or negative functional impact than another. Sagiv and Schwartz (2000) propose that the extent to which a value is advantageous or detrimental to well-being depends on the fit, or match, between the value held and one's "value environment" (p. 188). Extending this "match perspective" (Vansteenkiste, Lens, & Deci, 2006b, p. 25) to aspirations would mean that intrinsic aspirations benefit well-being in

primarily intrinsic environments but, in predominantly extrinsic environments, extrinsic aspirations would also enhance well-being.

Supporting their value-environment theory, Sagiv and Schwartz (2000) reported that psychology students, for whom the value environment was arguably intrinsic, had more well-being when their aspirations were primarily intrinsic, whereas a relative extrinsic emphasis was found to be most beneficial for business students, whose value environment was presumably extrinsic. Similarly, Brdar, Majda, and Dubravka (2009) reported that only intrinsic aspirations positively related to well-being for future teachers and future doctors (both arguably intrinsic professions), while both intrinsic *and* extrinsic aspirations positively related to well-being for future entrepreneurs (whose value environment may be more extrinsic). However, Kasser and Ahuvia (2002) reported that extrinsic values were inimical to well-being for a sample of Singaporean business students, for whom both the cultural and academic environments are thought to be extrinsic, muddying the value-environment theory of aspirations.

Results supporting the match perspective have several limitations. For example, the match perspective presupposes that some environments have characteristics independent of their members. The match perspective assumes that business schools are always extrinsic and medical schools are only intrinsic. Presupposing the values of a given environment seems a fraught endeavor given members of the environment likely participate in the creation and maintenance of its values. Additionally, intrinsic aspirations are usually more conducive to well-being than extrinsic aspirations (Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001) which, according to the match perspective, implies that humans occupy predominantly intrinsic environments. This implication is contentious because it is thought that most market-based economies—such as the United States, and much of the developed world—have come to value extrinsic pursuits as a vital path to “the good life” (Ryan et al., 1999, p. 1509). The

value-environment in the developed world could therefore be thought of as largely extrinsic, so extrinsic values should be beneficial for well-being, but evidence suggests they tend not to be (Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001). Taken together, the logic and evidence presented here cast substantial doubt over the match perspective of aspirations.

Expectancy value theory

The second critique of goal contents theory hinges on the consistent finding that people tend to rate intrinsic aspirations as more important than extrinsic aspirations (Schmuck et al., 2000). According to expectancy-value theory (Feather, 1988), higher importance scores imply that intrinsic aspirations are more valued, as a result they promote well-being because they are more highly valued aspirations, not because they are qualitatively different from extrinsic aspirations. Vansteenkiste et al. (2006b) addressed this critique in a learning context, by comparing learning for tasks given either an intrinsic or extrinsic goal-framing, or simultaneously given both framings. According to expectancy-value theory the latter condition ought to attract the highest valuing (of *both* the intrinsic and extrinsic kind) and therefore the most learning. Concordant with the SDT view of aspirations, learners in the ‘both’ goal-framing condition performed worse than those in the intrinsic goal-framing condition. In a second experiment, extrinsic goal-framing was compared to no goal-framing (Vansteenkiste et al., 2006b). Again, expectancy-value theory would predict that attaching value to any kind of aspiration should lead to better learning outcomes than not assigning value at all. However, the results favored the SDT perspective, with the extrinsic goal-framing undermining performance compared to the no goal-framing condition (Vansteenkiste et al., 2006b).

The importance of motive

Finally, in their critique of the SDT framework of aspirations, Carver and Baird (1998) argued that distinguishing only the intrinsic or extrinsic quality of aspirations neglects

the function, or motivation, of different pursuits. To test this supposition, Carver and Baird (1998) accounted for the extent to which participants had self-determined or controlled reasons for valuing their aspirations. The results indicated that, once both types of reasons were controlled for, intrinsic aspiring ceased to independently predict self-actualization. These results were thought to indicate that the ‘why’ of aspirations, rather than the ‘what’, is the key determinant of optimal functioning. However, Carver and Baird (1998) only compared motives for aspiring for financial success and community giving, not the full spectrum of aspirations. In addition, in later cross-sectional and longitudinal studies, aspirations and motives both made independent contributions to optimal functioning (Sheldon, Ryan, Deci, & Kasser, 2004), suggesting that aspiration content is not redundant with motives, as argued by Carver and Baird (1998).

As demonstrated here, these three key critiques have each met serious challenge (Sheldon et al., 2004; Vansteenkiste et al., 2006b). However, debate persists in the literature. In particular, some suggest that personal or contextual factors, such as socioeconomic circumstances at the individual and country level, may attenuate the negative link between extrinsic aspiring and well-being (Brdar et al., 2009; Frost & Frost, 2000; Žemojtel-Piotrowska, Piotrowski, & Clinton, 2015).

The nature of intrinsic and extrinsic aspiring

The needs satisfying nature of intrinsic aspirations is arguably self-evident. As outlined above, aspirations for personal growth (i.e. to learn, develop insight, and choose meaningful pursuits) reflect humans’ intrinsic nature in action. Relationships and social connectedness are widely evidenced sources of well-being (Jose, Ryan, & Pryor, 2012; Lee, Dean, & Jung, 2008; Resnick, Harris, & Blum, 1993). Caring for the community and benevolent acts demonstrate humans’ innate prosocial nature (Martela & Ryan, 2016), and activate neural circuitry in the reward center of the brain (Harbaugh, Mayr, & Burghart,

2007), and valuing physical health facilitates actualization (Kasser & Ryan, 1996). Perhaps the reasons for why extrinsic, or more materialistic, pursuits are thought to frustrate basic psychological needs and deter well-being are less obvious.

Just as beavers collect wood and male satin bowerbirds collect blue objects, humans tend to acquire things. Beavers use their wood to build dams and bowerbirds attract mates with their blue things, though for humans, the utility of gathering materialistic objects may be less apparent. At various points in history, such a tendency would have been beneficial to the attainment of shelter, safety, warmth, and food (as in the case of the beavers and bowerbirds). However, for humans in (particularly Western) consumerist economies, materialistic propensities may be disadvantageous (Kasser, Ryan, Couchman, & Sheldon, 2004), due to the inherently comparative nature of materialistic pursuits.

An individual experiencing basic psychological needs frustration may turn to social models for information about ways to ‘get’ happiness and, in capitalist culture, it could appear that the happiest, most popular people are rich, famous, and beautiful. The belief that people with a high degree of wealth, fame, and image are happier than others may lead to strong aspirations in these domains. However, given extrinsic pursuits are built on social and interpersonal comparisons (Soenens, Wuyts, Vansteenkiste, Mageau, & Brenning, 2015), they essentially become unattainable because, as people’s material values increase, they tend to compare themselves to new social models and groups. Csikszentmihalyi (1999) refers to the phenomenon of “escalation of expectations” (p. 823), explaining that people adapt quickly to their level of material acquisitions and require a larger dose of the remedy to keep receiving its supposed benefit. Therefore, extrinsic aspirations become increasingly difficult to achieve, which compromises competence (Soenens et al., 2015). In other words, relative to extrinsic aspirations, intrinsic aspirations are fundamentally more achievable because the means satisfy the ends (one’s aspiration to be connected to others is satisfied while spending

time with others) and those ends satisfy basic needs (spending time with others promotes relatedness).

The impact of extrinsic aspiring is arguably doubly damaging for those in ongoing or permanent states of economic and existential threat. Kasser, Ryan, Zax, and Sameroff (1995) and Cohen and Cohen (2013) demonstrated that the most materialistic adolescents were also the most socioeconomically disadvantaged. Problematically, Solberg, Diener, and Robinson (2004) reported a significant interaction between the importance placed on extrinsic goals and the gap between actual and desired financial states in the prediction of satisfaction with life. The negative impact of extrinsic aspiring was greater for those with the biggest gap between their actual and desired level of material wealth. Socioeconomically disadvantaged individuals may thus have the strongest extrinsic orientation due to psychological threat, and also experience the most detrimental impact of extrinsic aspiring because there is likely to be a large discrepancy between actual and desired material wealth.

The universality of intrinsic and extrinsic aspirations

Contrary to the theory and substantial evidence reviewed above, some authors have questioned the universality of the links between (particularly extrinsic) aspirations and well-being (Frost & Frost, 2000; Żemojtel-Piotrowska et al., 2015). These authors have suggested that why (and where, geographically, as I will outline below) one holds an extrinsic aspiration may determine its psychological impact. For example, people may aspire for wealth because it means they can feed their family. To the extent that this extrinsic pursuit serves a higher-order goal, in this case one that reflects a relative emphasis on intrinsic values, it may not deter well-being. Further, in countries with developing economies, appreciation of wealth may represent increasing financial security rather than greed, and this could attenuate the negative impact of such valuing. Some have argued that the context-specific impact of extrinsic aspirations is evident at the country level (Brdar et al., 2009; Frost & Frost, 2000;

Žemojtel-Piotrowska et al., 2015). Frost and Frost (2000) found that emphasizing wealth goals was detrimental for Americans, but not for Romanians. Other studies have also emphasized small but nonetheless positive links between extrinsic aspirations and well-being, particularly in Eastern and Central European countries where the economic climates are stabilizing (Brdar et al., 2009; Žemojtel-Piotrowska et al., 2015).

These contradictory findings are in contrast to goal contents theory's central predictions, which have been widely demonstrated to apply well across cultural boundaries (Berg-Poppe, 2015; İlhan & Ozbay, 2010; Kasser & Ahuvia, 2002; Komlósi, Rózsa, Bérdi, Móricz, & Horváth, 2006; Unanue, Dittmar, Vignoles, & Vansteenkiste, 2014). Arguably, contrary results may be due to the relatively small samples from which they are often derived. In addition, the methods used to assess the links between intrinsic and extrinsic aspirations and wellness vary because aspiration scores are calculated in multiple ways (Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001). I will outline the issue of varying methodologies in more detail in the second chapter, however, to the extent that the results can be unified, at this point it would be useful to provide a synthesis of the existing evidence. A meta-analysis would treat each reported effect size as an individual data point (Cheung, 2014), providing a more robust and reliable account of the correlation between aspirations and indices of optimal psychological functioning, as well allow an assessment of possible moderators of the links.

Chapter summary

This chapter outlined the history and central tenets of the goal contents theory conceptualization of aspirations. First, I detailed the theoretical underpinnings of intrinsic and autonomous motivation and described the processes by which the various forms of extrinsic amotivation are internalized. Further, I emphasized the importance of basic psychological needs satisfaction in cultivating autonomous forms of motivation and well-being. Second, I explained that needs satisfaction and frustration are manifest in the content of life goals, or

aspirations. I introduced the Aspiration Index and emphasized the differential links between intrinsic and extrinsic aspiring and various indicators of optimal psychological functioning. Intrinsic aspirations better satisfy basic psychological needs and, in doing so, they facilitate wellness. In some contexts, extrinsic aspirations distract or crowd out more needs satisfying endeavors and are associated with basic psychological needs frustration, which can lead to psychological ill-being.

This chapter also introduced several arguments against the SDT interpretation of aspirations. I discussed points of contention including the match hypothesis, expectancy value theory, and the ‘why’ of aspiring, and outlined the considerable evidence against these rebuttals. However, despite this robust pattern of independent evidence, there remains some debate in the aspirations literature. Despite substantial cross-cultural research (Martos & Kopp, 2012; Ryan et al., 1999; Zawadzka et al., 2015), some authors wonder if the impact of aspirations on well-being is universal, or if there may be important moderators of these links (Frost & Frost, 2000). Such questions are best addressed using a systematic approach and a meta-analytic view of the data, which will be the focus of the next chapter.

CHAPTER 2: THE LINK BETWEEN INTRINSIC AND EXTRINSIC ASPIRATIONS AND WELL-BEING: A META-ANALYSIS

“Oh, what a void there is in things!”

- Persius

Introduction

The preceding chapter outlined evidence suggesting that a relative orientation towards intrinsic aspirations is beneficial to psychological well-being. I emphasized that the differential relationship of intrinsic and extrinsic aspirations to well-being is thought to be a function of the extent to which such pursuits satisfy our basic psychological needs for autonomy, competence, and relatedness (Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001). After outlining the considerable evidence in favour of this conceptualization of aspirations, and the theory and logic underpinning it, I also alluded to some prevailing debate in the aspirations literature. Namely, the positive (albeit small) correlations often reported between extrinsic aspirations and wellness indices (Martos & Konkolý Thege, 2012; Niemiec et al., 2009; Pauwlik & Margitics, 2008), have led some authors to suggest that extrinsic aspirations may not be detrimental in all contexts (Brdar et al., 2009; Frost & Frost, 2000; Žemojtel-Piotrowska et al., 2015). Such debate is best reconciled using a systematic review of the research and meta-analysis of the relevant data (Siddaway, Wood, & Hedges, 2019), which is the main aim of this chapter.

In this chapter, I demonstrate that intrinsic aspirations moderately predict well-being, and weakly negatively predict ill-being. Also, extrinsic aspirations are weak positive ill-being correlates. The link between extrinsic aspirations and well-being was moderated by the strategy used to calculate the aspiration variable. Specifically, when simple mean scores were used, extrinsic aspirations were weak, positive predictors of well-being, but when relative

centrality scores (the mean for extrinsic minus the mean for all aspirations) were used, extrinsic aspirations were negatively linked to well-being. Other methodological factors such as the scale type (whether aspirations were rated in terms of importance, likelihood, or attainment) moderated some of these links, as did gender, country, and socioeconomic status (SES). However, some of these moderation results were based on very few effect sizes and should be interpreted with caution.

Advantages of meta-analyses

Meta-analyses involve a thorough and replicable review of a specific literature to facilitate pooling effect sizes, and the examination of potential moderators of the observed effects to answer specific research questions (Siddaway et al., 2019). The Aspiration Index has been used in large (Bradshaw et al., 2018; Grouzet et al., 2005; Martos & Kopp, 2012), socioeconomically (Stevens, Constantinescu, & Butucescu, 2011; Tuicomepee & Romano, 2005) and culturally (Nishimura & Suzuki, 2016; Spasovski, 2013) diverse samples, including non-English speaking countries (Martos & Kopp, 2014; Schmuck et al., 2000), and countries of developed (Niemic et al., 2009) and developing (Raj & Chettiar, 2012) socioeconomic statuses, and across a broad range of age groups (Davids, Roman, & Kerchhoff, 2017; Mackenzie, Karaoylas, & Starzyk, 2017). Results that diverge from the theoretical underpinnings of goal contents theory, and the supporting evidence, may not necessarily call into question the universality of intrinsic and extrinsic aspiration effects, as has been suggested. Rather, anomalous results could be a function of Type I error, characteristics of the sample rather than the population, or reflect differences in methodology such as the variable operationalization. Pooling effect sizes across studies and assessing moderators meta-analytically constitutes a rigorous approach to addressing these possibilities.

Pooling the links between aspirations and psychological well-being

While prior research has examined the link between materialism and well-being (Dittmar, Bond, Hurst, & Kasser, 2014; Hurst, Dittmar, Bond, & Kasser, 2013; Wright & Larsen, 1993), no study has concurrently examined the link between intrinsic and extrinsic aspirations and well-being. Previous meta-analyses of the correlation between materialism and well-being suggest that materialistic pursuits are bad for optimal psychological functioning (Dittmar et al., 2014; Hurst et al., 2013; Wright & Larsen, 1993). Dittmar et al. (2014) meta-analyzed the link between multiple elements of materialism and well-being, reporting a moderate to weak negative effect size depending on how materialism was operationalized. The current study will complement the work of Dittmar et al. (2014) in several important ways.

First, Dittmar et al. (2014) focused on the extrinsic domain of aspirations. This was necessary to facilitate the integration of extrinsic aspirations with other facets of materialism assessed by, for example, the Belk (1985) and Richins (2004) materialism measures. Typically, items such as “When friends have things I can’t afford it bothers me” (Belk, 1985, p. 270) and “I admire people who own expensive homes, cars, and clothes” (Richins, 2004, p. 217) assess the envious and judgmental elements of materialism. Materialistic people will judge others and expect to be judged according to their possessions and monetary wealth (Richins, 2004). However, the items of the Aspiration Index, such as, “It is important to be rich” and “It is important to be famous” isolate the underlying *valuing* component of materialistic aspiring from the judgmental and behavioural elements, as will this meta-analysis.

Second, and crucially, the Aspiration Index allows extrinsic aspiring to be situated in the broader system of aspirations. By considering both intrinsic and extrinsic aspirations in this meta-analysis I will juxtapose the effects for both aspiration types. In their review,

Dittmar et al. (2014) opted to reverse all effect sizes (where necessary) so that a negative link always signified higher materialism and lower well-being. Item reversal is a sensible approach when assessing only materialism. However, when juxtaposing intrinsic and extrinsic aspirations, the reversal procedure would result in situating intrinsic and extrinsic aspirations on a single continuum. Considering intrinsic and extrinsic aspirations as opposite ends of a spectrum is problematic because studies often report positive correlations between the two constructs (Kasser & Ryan, 1993; Kasser et al., 1995; Sheldon, Gunz, Nichols, & Ferguson, 2010), indicating aspirations are not unidimensional. Rather, intrinsic and extrinsic aspirations are separable constructs, which provides a strong rationale for separately analyzing the links between well-being and each aspiration type, which I will do in this meta-analysis.

Third, the item reversal process that places intrinsic and extrinsic aspirations on opposite ends of a dimension also situates well-being and ill-being on a single continuum. A unidimensional view of mental health (with well-being indicators at one end, and ill-being indices at the other) would predict mirroring links between well-being and ill-being and various biological markers (Ryff et al., 2006). For example, if well-being has a moderate *positive* correlation with stress hormones such as cortisol, the unidimensional perspective would expect ill-being to have a similar moderate *negative* correlation with stress hormones. Generally, evidence does not support the mirror hypothesis because well-being and ill-being appear to have distinct cardiovascular and neuroendocrine markers (Ryff et al., 2006). Ryff et al. (2006) found that well-being was positively related to high-density lipoprotein cholesterol (the ‘good cholesterol’) and negatively related to waist-hip ratio, whereas ill-being was not correlated with either of these cardiovascular metrics. Similarly, ill-being was positively linked with levels of dehydroepiandrosterone sulfate (DHEA-S, a measure of adrenal function), but DHEA-S was not correlated with indices of well-being. Therefore, treating

well-being and ill-being as opposite ends of a spectrum is problematic because these two constructs have separable biomarkers, indicating they are independent psychological phenomena. Like intrinsic and extrinsic aspirations, given the evidence suggests well-being and ill-being are distinct, their links with intrinsic and extrinsic aspirations should also be considered separately. Generally, meta-analyses aim to report a single, central effect size (Siddaway et al., 2019). However, taken together, the preceding arguments support the pooling of four separate effect sizes in the current review: the links between intrinsic and extrinsic aspirations with well-being and ill-being.

Assessment of moderators

Previous studies of the link between aspirations and well-being report considerable unexplained variance, or heterogeneity (Vansteenkiste et al., 2006b). Unexplained variance points to the potential moderating role of methodological and demographic variables. However, moderation effects from small, cross-sectional samples can be unreliable because smaller samples result in higher standard errors, and the accurate identification of moderators depends on assumptions that can decrease statistical power and increase Type I error (MacKinnon, 2011). Therefore, another advantage of meta-analysis is the ability to assess moderators of pooled (as opposed to single) effect sizes (Hurst et al., 2013) and shed light on sources of heterogeneity (Higgins, Thompson, Deeks, & Altman, 2003). Following the calculation of pooled effects, moderation analyses can illuminate the role of variables such as method factors, or demographic variables like country of origin, SES, gender, and age.

Moderation by aspiration variable calculation strategy

Goal contents theory does not stipulate that extrinsic aspirations are inherently ‘bad’ (Deci & Ryan, 2000). Rather, the degree to which they predominate the overall pattern of aspiring determines their detrimental impact (Kasser & Ryan, 1996). Individuals’ responses on the Aspiration Index can be scored to examine which of intrinsic or extrinsic aspirations is

emphasized (Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001). Simple mean scores can be calculated for an individual aspiration (i.e. the mean score for wealth or health) or for a domain (i.e. the mean for all intrinsic or all extrinsic aspirations). These scores can then be used to derive a single measure of relative intrinsic aspiring by subtracting the extrinsic mean from the intrinsic mean (Kasser & Ryan, 2001; Nishimura, Bradshaw, Deci, & Ryan, 2018, under review). Positive values indicate a more intrinsic orientation, and negative scores mean the emphasis is on extrinsic aspirations. Kasser and Ryan (1996) also recommend calculating relative centrality indices, to account for the extent to which people aspire in general (Frost & Frost, 2000; Kasser & Ahuvia, 2002). Relative centrality calculation involves subtracting the mean across all the aspirations from the intrinsic or extrinsic mean scores, or controlling for the total aspiration score in step one of a regression (Kasser & Ryan, 1996).

Effect sizes generated using these varied methods are often discussed as if they provide the same information, but a correlation using a simple score contains variance distinct from that using a relative intrinsic or relative centrality score. For example, Žemojtel-Piotrowska et al. (2015) found that extrinsic aspiration simple scores (the mean across all extrinsic aspirations) correlated positively with hedonic well-being and social well-being in a Polish sample, and suggested that Poland's developing economy may reverse the negative impact of extrinsic aspirations typically observed in other developed economies. However, positive correlations are often found between extrinsic aspiration absolute scores and well-being indices in developed countries as well (Bradshaw et al., 2018). Positive links between extrinsic aspiration simple scores and well-being are thought to reflect the fact that high goal engagement links to well-being, regardless of content (Brunstein, 1993; Emmons, 1986), and is why relative centrality indices (a specific or domain absolute score minus the mean across all aspirations) are often preferred. Using relative centrality indices, Frost and Frost (2000) drew conclusions similar to that of Žemojtel-Piotrowska et al. (2015) when they found that

the relative centrality of extrinsic aspirations was not detrimental to well-being in a Romanian sample. Further, Stevens et al. (2011) reported a positive link between the relative centrality of wealth aspirations and life satisfaction, also in a Romanian sample. It seems researchers are sometimes finding divergent results using varying methodologies, and either make disparate claims, or make the same claims based on different methods. Such diversity further points to the utility of pooling the effects and systematically examining the extent to which the strategy used to calculate the aspiration variables moderates the link between aspirations and well-being.

Importance, likelihood, and attainment effects

As well as offering several ways of operationalizing aspirations, the Aspiration Index also has three scale types which assess different aspects of intrinsic and extrinsic aspiring. The scales examine the importance of intrinsic and extrinsic aspirations, the perceived likelihood of attaining aspirations in the future, and the extent to which aspirations have already been achieved. Importance scores are most often used in the literature and have thus been the central focus of most of this literature review, though theory and evidence suggest that likelihood and attainment scores provide unique information about the impact of intrinsic and extrinsic aspirations on well-being and ill-being.

Kasser et al. (1995) and Cohen and Cohen (2013) found that individuals of lowest SES reported the most materialism. Materialism coupled with economic disadvantage is thought to be especially detrimental because as the gap between existing material wealth and desired wealth grows larger, so too does the negative impact of materialistic aspirations (Solberg et al., 2004). Therefore, the correlations between extrinsic aspirations and ill-being derived using the likelihood and attainment scales may be lower than for importance. In other words, the negative effect of valuing extrinsic aspirations may be attenuated if people perceive themselves as likely to achieve their goals, or if they already have. A similar effect

should also be observed for intrinsic aspirations. Evidence has suggested that when opportunities to satisfy intrinsic aspirations are thwarted, people may dynamically adjust by devaluing them (Guillen-Royo & Kasser, 2015). Therefore, perceiving oneself as likely to accomplish intrinsic goals (or having already done so) should boost their positive impact. In sum, the existing pattern of evidence suggests that scale type may moderate the link between aspirations and psychological well-being.

Demographic moderators

Demographic variables may also explain some of the heterogeneity evident in the results. Age and gender are common sources of variance in psychology generally, however, the differential links between intrinsic and extrinsic aspirations and wellness have been demonstrated to be consistent across age groups (Davids et al., 2017; Mackenzie et al., 2017). In addition, while men tend to endorse more extrinsic aspirations than do women, and women tend to be more intrinsic than men, these differences do not alter the differential impact of intrinsic and extrinsic aspirations (Kasser & Ryan, 1996; Kasser et al., 1995; Rijavec et al., 2011). Based on the demonstrated applicability of goal contents theory across age groups and for men and women (Davids et al., 2017; Kasser & Ryan, 1996; Kasser et al., 1995; Mackenzie et al., 2017; Rijavec et al., 2011), age and gender are not expected to moderate the links between intrinsic and extrinsic aspirations and well-being and ill-being. As already mentioned, as far as demographic variables are concerned, the main areas of contention center on country (where the research was conducted/sample was derived) and SES. Among others, Frost and Frost (2000), Žemojtel-Piotrowska et al. (2015), Stevens et al. (2011), and Brdar et al. (2009) have suggested that Eastern and Central European countries—and by implication, other countries with developing economies—may not be negatively impacted by pursuing extrinsic aspirations. The moderating effect of country and SES will be a central

contribution of this chapter because the results are intended to settle debate about whether the link between aspirations and well-being is universal or context-dependent.

Current Study

There are multiple measures of aspirations and different methods of calculating aspirations using those measures. In addition, demographic factors have been identified as potential moderators of the supposed universal links between intrinsic and extrinsic aspirations and well-being and ill-being. Taken together, methodological opacity, theoretical debate, and considerable heterogeneity of the observed effects suggest a need for a systematic assessment of the links of intrinsic and extrinsic aspirations with well-being and ill-being. This meta-analysis will pool the effect sizes linking aspirations to indicators of well-being and ill-being, as well as include a thorough assessment of potential moderators of these links.

Research Questions and Hypotheses

Research Question 1

What is the magnitude of the link between the global and specific domains of intrinsic and extrinsic aspirations and indices of psychological well-being?

Hypothesis 1a

Based on the review of the literature above I expect that the link between global and specific intrinsic aspirations and well-being will be positive.

Hypothesis 1b

I also expect the link between global and specific extrinsic aspirations and well-being to be positive. However, I expect the correlations between extrinsic aspirations and well-being will be smaller than the correlations between intrinsic aspirations and well-being. According to the preceding literature review, the hypothesized positive link between extrinsic aspirations and well-being may seem counter to the goal contents theory claim that extrinsic aspirations can deter well-being. However, as discussed above, extrinsic simple mean scores

often correlate positively with well-being (Bradshaw et al., 2018). Positive correlations between extrinsic simple scores and well-being are thought to reflect the broader goal theory assumption that aspiring (in any domain) is better for well-being than not engaging with life goals (Brunstein, 1993; Emmons, 1986). Put differently, until the relative emphasis on intrinsic aspirations or the relative centrality of extrinsic aspirations is accounted for, extrinsic absolute scores may simply demonstrate goal engagement, which can be beneficial to well-being. In the pooled effect between extrinsic aspirations and well-being the three different methods for calculating the aspiration variables are assessed together, and of the three methods, simple scores predominate the data. Thus, given that extrinsic absolute scores tend to correlate positively with well-being, and absolute scores outweigh relative intrinsic and relative centrality scores in the data, the effect linking extrinsic aspirations to well-being is expected to be positive.

Research Question 2

What is the magnitude of the link between the global and specific domains of intrinsic and extrinsic aspirations and indices of psychological ill-being?

Hypothesis 2a

Further to the above hypotheses and based on the relevant literature, I expect the link between global and specific intrinsic aspirations and ill-being to be negative.

Hypothesis 2b

I expect the link between global and specific extrinsic aspirations and ill-being to be positive.

Research Question 3

Is the link between intrinsic aspirations and indices of well-being or ill-being moderated by the method of calculating the aspiration variables?

Hypothesis 3a

As discussed above, in the aspirations literature there are three primary methods used to calculate the aspiration variables. I expect that the method of calculating the aspiration variables will be a significant moderator of the link between intrinsic aspirations and well-being because simple scores (mean scores within in a specific aspiration or across an intrinsic or extrinsic domain) do not address the relative emphasis of intrinsic aspiring (which involves subtracting extrinsic aspirations from intrinsic aspirations) or account for the relative centrality of aspirations (which involves subtracting the mean for total aspirations from specific or domain aspiration scores). When simple scores are used to calculate the aspiration variables I expect intrinsic aspirations to relate positively to well-being and negatively to ill-being.

Hypothesis 3b

Further, I expect intrinsic simple scores to have the largest correlation with well-being, because intrinsic simple scores do not account for the relative emphasis of intrinsic aspirations or the extent to which people aspire in general.

Hypothesis 3c

When relative intrinsic aspirations scores (intrinsic minus extrinsic) are utilized, I expect the link with well-being to be positive and the link to ill-being to be negative. I expect these links to be comparable to the correlations between intrinsic absolute scores and well-being because the relative metric assesses the intrinsic orientation but does not subtract general aspiring.

Hypothesis 3d

When studies use relative centrality of intrinsic aspirations (intrinsic scores minus the mean for total aspirations), I expect intrinsic aspirations to continue to link positively with well-being and negatively with ill-being. However, I expect these effect sizes to be attenuated

relative to that derived using simple scores of the relative intrinsic scores because this metric subtracts total aspiring from the scores, which reduces the available variance and corrects for response bias.

Research Question 4

Is the link between extrinsic aspirations and indices of well-being and ill-being moderated by the method of calculating the aspiration variables?

Hypothesis 4a

I expect that the method of calculating the aspiration variables will be a significant moderator of the link between extrinsic aspirations and well-being and ill-being. Following from hypotheses 1b and 2b, when only extrinsic simple scores are used I expect the correlations with well-being *and* ill-being to be positive.

Hypothesis 4b

When studies use relative centrality of extrinsic aspirations (as opposed to simple scores) I expect extrinsic aspirations to link negatively to well-being and remain positively correlated with ill-being. As previous studies have shown, once the general aspirational orientation is accounted for, extrinsic aspirations generally predict ill-being and negatively predict well-being (Kasser & Ryan, 1996). Support for hypothesis 4a and 4b will illuminate debate concerning why, counter to the theory, some studies suggest that extrinsic aspiring can be beneficial to well-being (Brdar et al., 2009; Frost & Frost, 2000; Žemojtel-Piotrowska et al., 2015). Arguably, these atheoretical claims are the result of differences in aspiration variable calculation method, not differences in the applicability of goal contents theory. Support for hypothesis 4a will align with previous studies reporting positive links between extrinsic aspirations and well-being. However, concurrent support for hypothesis 4b will indicate that the main reason some studies have found positive links between extrinsic aspirations and well-being is because total aspiring has not been controlled for. When total

aspirations are controlled for, the link between extrinsic aspirations and well-being is expected to be negative.

Research Question 5

What factors moderate the link between aspirations and psychological well-being?

After testing for moderation by aspiration variable calculation method, I will test for moderation by aspiration scale type (importance, likelihood, or attainment), age, gender ratio, SES, and country.

Hypothesis 5a

Based on the literature reviewed above, scale type is expected to be a moderator of the links between aspirations and indices of well-being and ill-being. Specifically, perceived likelihood and attainment of aspirations is expected to boost the positive effects of intrinsic aspirations and ameliorate the negative impact of extrinsic aspiring.

Hypothesis 5b

Age and gender are not expected to be significant moderators of the links between aspirations and well-being and ill-being.

Hypothesis 5c

There are very few country-level studies providing evidence that extrinsic aspirations may be neutral or even beneficial for wellbeing. As such, country is not expected to be a significant moderator overall.

Hypothesis 5d

Finally, based on the evidence outlined in Chapter 1, it is plausible that the damaging role of extrinsic aspirations may be exacerbated for those in low socioeconomic circumstances. If so, SES will emerge as a significant moderator of the link between extrinsic aspirations and indicators of well-being and ill-being.

Method

Protocol and registration

This study involving a systematic review and meta-analysis was registered with PROSPERO on 21 June 2018, under registration number: CRD42018097171.

Eligibility criteria

To be included in the meta-analysis studies needed to be quantitative in nature and include use of Aspiration Index (Kasser & Ryan, 1993, 1996, 2001) or one of its shortened or language-adapted alternatives (i.e., Martos, Szabó, & Rózsa, 2006; Nishimura, Bradshaw, Deci, & Ryan, 2018), or the Aspirations Index (Grouzet et al., 2005). The Aspiration Index (in its various forms) is the only valid, reliable, and widely-used measure of life goals in which aspirations are explicitly classified as intrinsic or extrinsic. This meta-analysis aimed to clarify the links between intrinsic aspirations and well-being and between extrinsic aspirations (the *valuing* component of materialism) and well-being, use of the Aspiration Index was essential for this purpose.

Included studies also needed to use a psychometrically valid measure of psychological well-being (for example, one widely published and/or published with indices of reliability and validity). The scope of psychological well-being measures is broad, so highly inclusive search terms were used, as detailed below. Participants were not limited by age, country of origin, ethnicity, SES, or any other factor. All participant samples found in the search process were included in the review. A measure of effect-size (i.e. Pearson's *r*) needed to be included in the study. For inclusion, the paper or results were also required to be available in English. Authors were contacted for manuscripts published in languages other than English, to obtain the relevant effect-sizes and/or English manuscripts.

Information sources

Five databases were searched for eligible papers: PsycINFO, PsycARTICLES, Psychology and Behavioural Sciences Collection, ERIC, and ProQuest Psychology. Reference lists and Google Scholar were also used to source additional references.

Keywords

Titles and abstracts were searched using the following search terms to target aspirations: ‘aspiration*’ (for aspiration and aspirations), ‘life goals’, ‘materialism’, ‘materialistic’, ‘materialistic values’, and employing the Boolean separator ‘OR’. The search terms for psychological well-being included: ‘well-being’, ‘wellbeing’, ‘happiness’, ‘life satisfaction’, ‘quality of life’, ‘meaning in life’, ‘optimal functioning’, ‘positive functioning’, ‘self-esteem’, ‘self-actuali*’ (for self-actualisation and self-actualization), ‘vitality’, ‘depression’, ‘anxiety’, ‘positive affect’, ‘negative affect’, ‘need* satisfaction’ (for need satisfaction and needs satisfaction), ‘mental health’, and ‘flourish*’ (for flourish, flourishing, and flourished), also separated by ‘OR’. Aspiration search terms and well-being search terms were separated by ‘AND’, meaning papers returned needed to have at least one term from the aspiration terms, and one from the well-being terms. Given that this analysis depended on use of the Aspiration Index which was first published in 1993, searches were limited to papers published from 1993 onwards. This search strategy produced 3,431 papers as shown below in Figure 1. Reference list searches and Google Scholar returned a further eight articles, and three so far unpublished studies were found through liaison with researchers publishing in this area.

Abstract and full-text screening

Relevant articles were imported into an EndNote library and duplicates were removed. Two independent researchers, including myself, screened 2024 titles and abstracts. Studies were retained when both researchers agreed about its relevance. Studies mutually

deemed irrelevant were excluded, and disagreements were decided through liaison between me and the other researcher. Full texts of the 155 qualifying studies were then obtained (where possible), and further screened to ensure the correct measures were utilized and the relevant effect sizes were reported. Where full-texts were not available authors were contacted via email.

Data extraction

Following full-text screening I and another researcher extracted data from the relevant studies. When the applicable correlation was not reported the author/s were contacted via email. If the authors did not respond, the study was necessarily excluded from the review. Other reasons for which some studies were excluded from the review at the full-text screening stage are included in Appendix A. Across the 62 papers included in the study, there were a total of 1034 individual effect sizes, that is, individual correlations between aspiration measures and well-being/ill-being indicators.

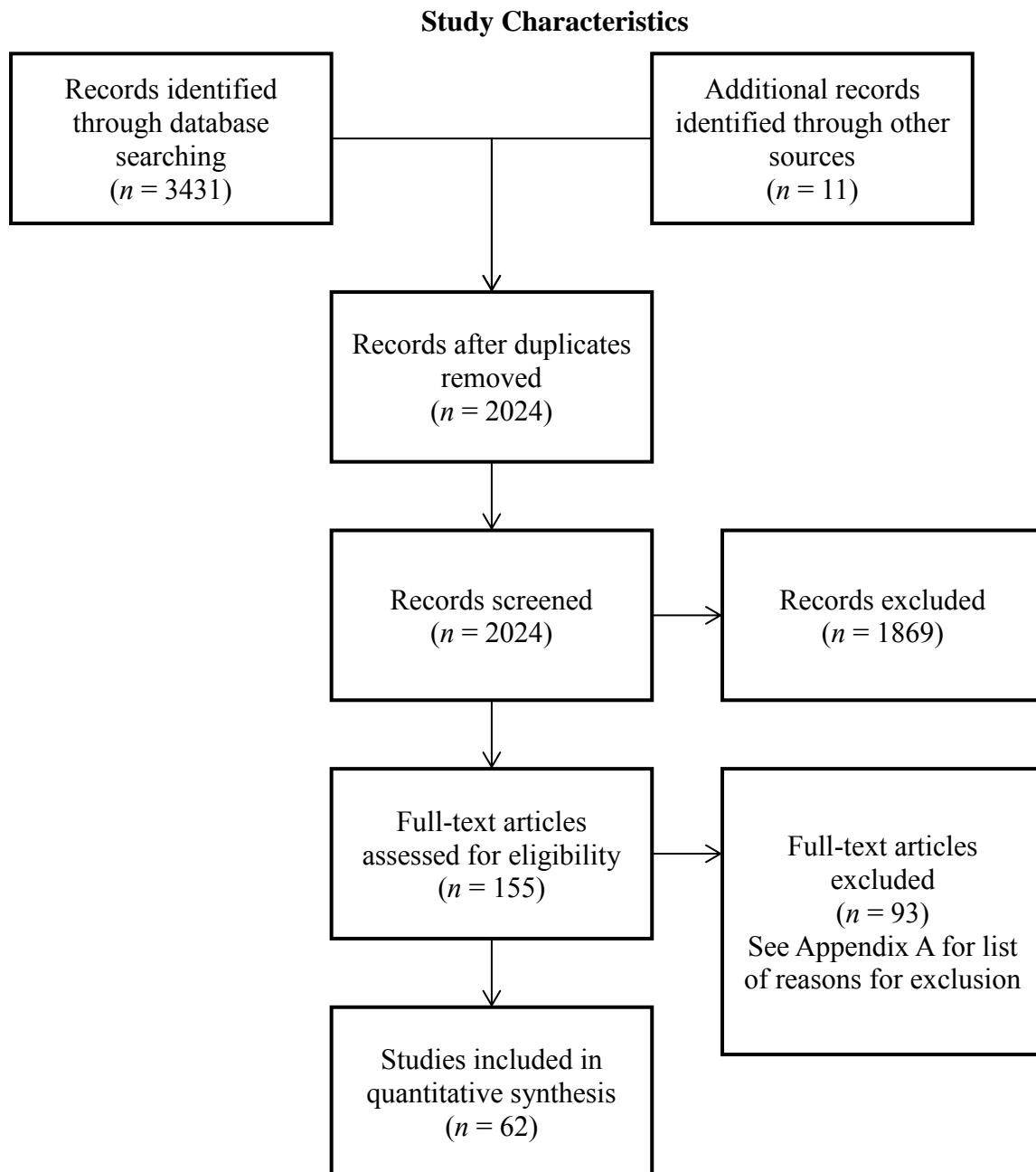


Figure 1. Flow diagram of meta-analysis

Effect sizes

Of the 62 papers in the meta-analysis five were theses, two were book chapters, and three were papers that are under review. The remaining 52 were articles published in peer-reviewed journals. Articles were published, or submitted for publication, between 1993 and 2018. To facilitate pooling within the global intrinsic and extrinsic domains, as well as across the specific aspirations, each effect size was coded twice. First, all effect sizes were coded

according to their intrinsic or extrinsic quality. For example, some studies refer only to the aggregated mean across all intrinsic aspirations (domain-specific absolute score), other studies refer to means for a specific intrinsic aspiration such as relationships (specific aspiration absolute score), often the relative intrinsic score is used (intrinsic mean scores minus the extrinsic mean scores), as is the relative centrality of intrinsic aspirations (intrinsic mean scores minus the mean across all aspirations), all of which were coded as being of intrinsic quality. Similarly, effect sizes pertaining to the mean across all extrinsic aspirations or to specific extrinsic aspirations such as fame, or to the relative centrality of extrinsic aspirations (the mean for extrinsic aspirations minus the mean for total aspirations) were coded as extrinsic. Then, to pool according to the specific aspiration type, the effects were coded according whether they represented an aggregated score (such as the mean across all extrinsic aspirations, coded as extrinsic, or intrinsic aspiration scores minus extrinsic aspiration scores, coded as intrinsic) or a specific score, such as for growth or health. This coding allowed for pooling by aspiration domain: intrinsic ($n=625$) or extrinsic ($n=409$), and by aspiration type: aggregate intrinsic ($n=239$), aggregate extrinsic ($n=126$), wealth ($n=113$), fame ($n=85$), image ($n=85$), growth ($n=93$), relationships ($n=109$), community ($n=111$), and health ($n=73$).

Of the effect sizes, 482 were links between intrinsic aspirations and well-being metrics and 311 were links between extrinsic aspirations and well-being. Links between intrinsic aspirations and ill-being represented 143 of the effect sizes, and 98 effect sizes were correlations between extrinsic aspirations and ill-being. Further, 790 were zero-order Pearson's r correlations between the outcome variables and simple aspiration scores (intrinsic, extrinsic, or the seven specific aspirations), 124 were correlations between the outcome variables and relative intrinsic aspirations (intrinsic mean scores minus the extrinsic mean scores), and 120 were correlations between the outcome variables and intrinsic and

extrinsic mean scores after subtracting the mean for total aspirations. Some of the studies reported only standardized beta coefficients ($n=90$) for intrinsic and/or extrinsic aspirations predicting the outcome variables after controlling for total aspirations (or in some cases gender and age were also controlled for) in step one of a hierarchical regression analysis. Where possible, for the studies that reported only betas (i.e., a zero-order correlation matrix was not included in the study), I attempted to acquire Pearson's r correlations from the relevant authors, and if a Pearson's r could not be obtained, the study was necessarily excluded from the meta-analysis. Accordingly, two studies were omitted from the meta-analysis.

Measures of well-being and ill-being

The outcome variables assessed in studies utilizing the Aspiration Index are manifold. Kasser and Ryan (2001) refer to "optimal functioning" (p. 116) which is operationalized using variables such as vitality, self-actualization, depression, anxiety, and affect (Kasser & Ryan, 1996). Other studies create their own composite well-being measures by combining well-being scales (Lekes, Gingras, Philippe, Koestner, & Fang, 2010; Yamaguchi & Halberstadt, 2012) and, in many cases, basic psychological needs are measured because of the theoretical link between needs and aspirations (Nishimura et al., 2018; Roman et al., 2015; Tao & Fei, 2018). Given the variety of measures utilized, I opted for a maximally inclusive approach counting all studies that used the Aspiration Index and a psychological variable described as "well-being", "ill-being", or applicable synonyms (as per the search terms included above). This resulted in the inclusion of 52 measures, and their relevant subscales. Note that some measures include both a positive and negative component, for example, the Positive and Negative Affect Scale (Watson, Clark, & Tellegen, 1988) is a measure that has both a well-being and ill-being scale. The search strategy also revealed the use of five composite measures (comprised of several other scales). Within the domain of well-being, the

numerable outcome variables collapsed into six broader categories: general well-being (14 measures, for example the Keyes (2006) well-being scales), basic needs satisfaction (six measures), positive affect (eight measures), life satisfaction (four measures), self-esteem (two measures), purpose and meaning in life (four measures), and the composite scales. A full list of these measures is available in Appendix B. There were three broader categories of ill-being measures including basic psychological needs frustration (two measures), depression and anxiety (nine measures), and negative affect (six measures). A full list of these measures appears in Appendix C.

Analysis

All analyses were conducted in R (R Core Team, 2018). Packages utilized for these analyses included tidyverse (Wickham, 2016) and OpenMx (Neale et al., 2016). Meta-analyses generally assume that the effect sizes included in the analysis are independent, though in some cases, the assumption of dependence is not realistic (Cheung, 2014). For example, studies often report multiple effect sizes, as is the case in the current meta-analysis. When several effects are reported in one study, using the same participants, there is reason to expect dependence among the effects. To assess the degree of heterogeneity among the effect sizes, Cheung (2014) suggests comparing a two-level meta-analytic model (with study participants at level one and effect sizes—or within-study variation—at level two) with a three-level model (which controls for between-study variation). In the current meta-analysis, the ANOVA comparing the two- and three-level models indicated that controlling for clustering (the three-level model) provided a significantly better fit for the data than the two-level model, $\chi^2(1) = 37.94, p < .001$. To account for the dependence demonstrated among the effect sizes I have used the metaSEM (Cheung, 2015) and metafor (Viechtbauer, 2010) packages in R (R Core Team, 2018) which employ multilevel structural equation modelling

meta-analysis to control for heterogeneity within (level two) and between (level three) studies.

Moderators

To clarify the important theoretical and methodological points outlined above, moderation is a key element of this meta-analysis. The purpose of moderation analyses is to identify features of the included studies that predict heterogeneity. To test the degree to which various study characteristics predict heterogeneity, the potential moderators (such as age group or SES) are used as predictors in mixed-effects meta-analytic models. Models including the moderators are then compared to the baseline model using ANOVA. A significant p value (i.e., less than 0.05) for the ANOVA indicates that the baseline model is significantly improved by including the moderator. In other words, the moderator explains a substantial portion of the observed variance in the effect sizes.

To test for moderation by aspiration variable calculation strategy and scale type, the relevant data were coded according to their aspiration variable calculation method (simple scores, intrinsic mean scores minus extrinsic mean scores, or intrinsic and extrinsic mean scores minus the mean for total aspirations), and scale type (whether aspirations were rated in terms of importance, likelihood of attainment, or current attainment). Further, to ensure that the broad range of outcome types included in the meta-analysis does not impact the effect of aspirations on outcomes, outcome type will be assessed as a moderator. To test for demographic moderators, where available, I also extracted the mean age of the participants in the studies, as well as gender ratios, SES, and country (where the research was conducted).

Results

Pooled effect sizes for intrinsic aspirations and well-being

Please see Table 1 below for a detailed summary of the pooled effects linking intrinsic aspirations to well-being. The main effects tables (Tables 1, 2, 3, and 4) depict moderation by

aspiration type, as well as the moderating effect of aspiration variable calculation method (or more simply, ‘strategy’). I have opted to include strategy in the main effects tables because, if the moderating effect of strategy is significant, especially if it changes the direction of a main effects, it would be necessary to run the ensuing moderation analyses separately according to strategy.

There was a small positive association between all aspirations of intrinsic quality and well-being. Pooling the effect sizes for the aggregated and specific aspirations resulted in an effect size of $r = 0.26$, 95% CI [0.22, 0.29] for intrinsic aspirations, for growth aspirations $r = 0.22$ [0.18, 0.27], for relationship aspirations $r = 0.17$ [0.12, 0.22], for community aspirations $r = 0.16$ [0.11, 0.21], and $r = 0.18$ [0.13, 0.23] for health aspirations. These results reveal that intrinsic aspirations, whether they are specific or aggregated, are positively associated with well-being. Of the specific aspirations, growth and health appear to have the strongest associations with well-being, though the confidence intervals for all the specific aspirations overlap, so the effect sizes are not significantly different. Figure 2 below depicts the individual and pooled effect sizes in a forest plot.

To test if these main effects are moderated by strategy, each effect size was coded as either a simple mean score, a relative intrinsic score (intrinsic mean score minus the extrinsic mean score), or a relative centrality score (intrinsic aspirations minus the mean across all aspirations). Most of the effect sizes linking intrinsic aspirations to well-being were simple scores ($n=330$). Far fewer effects pertained to relative intrinsic scores ($n=99$) or relative centrality indices ($n=53$). The aspiration variable calculation strategy was a significant moderator of the link between intrinsic aspirations and indices of well-being (the likelihood-ratio test was $\Delta\chi^2(2) = 17.14$, $p = < 0.01$). While the link between intrinsic aspirations and well-being was positive regardless of the strategy used to calculate the aspirations, the relative centrality of intrinsic aspirations was a weaker predictor of well-being $r = 0.10$, 95%

CI [0.04, 0.17] than were simple intrinsic scores $r = 0.25$ [0.22, 0.28] and relative intrinsic scores $r = 0.23$ [0.18, 0.27]. This indicates that intrinsic aspirations positively predict well-being, but once one's tendency to aspire in general is accounted for, this link is attenuated.

Table 1

Meta-analysis of the relationship between intrinsic aspirations and well-being

Moderator	k	n	Estimate (95% CI)	SE	$R^2_{(2)}$	$R^2_{(3)}$	p
Baseline ($I^2_{(2,3)}$: 0.55; 0.39)	57	482	0.23 (0.20, 0.26)	0.01			
Aspiration	57	482			0.06	0.04	< 0.01*
Intrinsic	41	183	0.26 (0.22, 0.29)	0.02			
Growth	15	73	0.22 (0.18, 0.27)	0.03			
Relationships	17	85	0.17 (0.12, 0.22)	0.02			
Community	17	86	0.16 (0.11, 0.21)	0.02			
Health	10	55	0.18 (0.13, 0.23)	0.03			
Strategy	57	482			0.02	0.25	< 0.01*
Simple scores	42	330	0.25 (0.22, 0.28)	0.02			
Relative intrinsic	14	99	0.23 (0.18, 0.27)	0.02			
Relative centrality	7	53	0.10 (0.04, 0.17)	0.03			

Note. k = number of studies; n = numbers of effect sizes; Baseline $I^2_{(2,3)}$ = proportion of heterogeneity at level 2 and 3; $R^2_{(2)}$ = proportion of heterogeneity explained by moderator; $R^2_{(3)}$ = heterogeneity indices measured at level 3; p = ANOVA p-value.

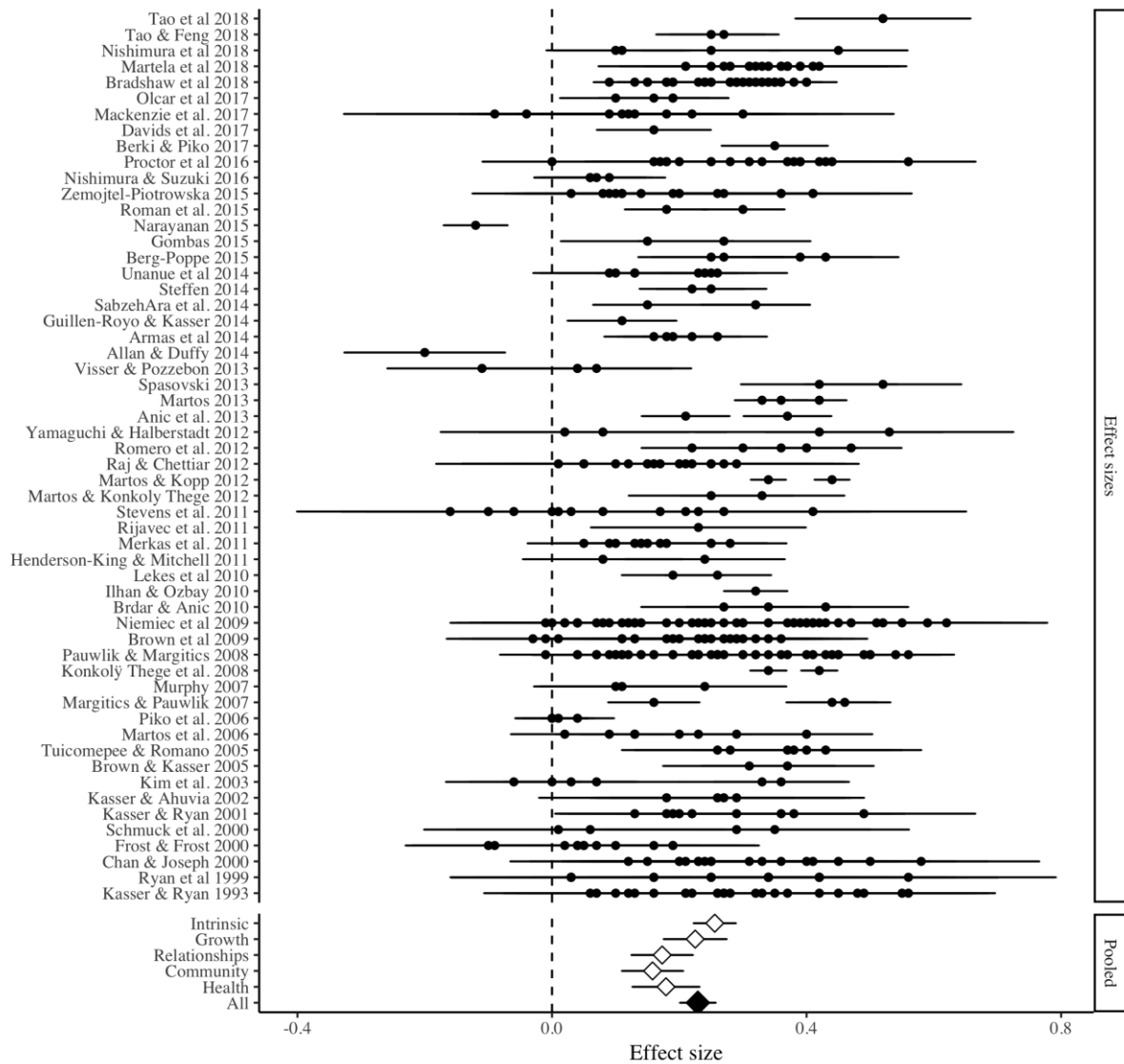


Figure 2. Forest plot of the relationship between intrinsic aspirations and well-being

Note. Pooled effect sizes demonstrate the correlation between the aspirational domains and well-being. In this figure, multiple effect sizes are indicated where multiple points and confidence intervals are present in a single row.

Pooled effect sizes for intrinsic aspirations and ill-being

Please see Table 2 below for a detailed summary of the pooled effects linking intrinsic aspirations to ill-being. The pooled correlation between ill-being and all aspirations of intrinsic quality was negative and weak. Pooling effect sizes across aggregated and specific aspirations resulted in an effect size of $r = -0.11$, 95% CI [-0.16, -0.06] for intrinsic aspirations, for growth aspirations $r = -0.16$ [-0.23, -0.09], for relationship aspirations $r = -$

0.13 [-0.20, -0.07], for community aspirations $r = -0.11$ [-0.17, -0.04], and for health aspirations $r = -0.15$ [-0.23, -0.08]. Regardless of aspiration type, all intrinsic aspirations showed weak, negative associations with ill-being, which suggests aspiring for intrinsic goals relates to slight decreases psychological distress. Figure 3 below depicts the individual and pooled effect sizes.

Most of the effect sizes linking intrinsic aspirations to ill-being were simple scores ($n=111$), as compared with relative intrinsic scores ($n=25$) and relative centrality scores ($n=7$). However, in this case, the aspiration variable calculation strategy did not moderate the link between intrinsic aspirations and ill-being, $\Delta\chi^2(2) = 0.28$, $p = < 0.87$. As reported in Table 2, for all three aspiration variable calculation strategies the average correlation was low and negative suggesting that, regardless of aspiration variable calculation strategy intrinsic aspirations are weakly negatively associated with ill-being.

Table 2

Meta-analysis of the relationship between intrinsic aspirations and ill-being

Moderator	k	n	Estimate (95% CI)	SE	$R^2_{(2)}$	$R^2_{(3)}$	p
Baseline ($I^2_{(2,3)}$: 0.62; 0.31)	26	143	-0.12 (-0.16, -0.08)	0.02			
Aspiration	26	143			0.03	0.02	0.53
Intrinsic	18	56	-0.11 (-0.16, -0.06)	0.02			
Growth	7	20	-0.16 (-0.23, -0.09)	0.04			
Relationships	8	24	-0.13 (-0.20, -0.07)	0.03			
Community	9	25	-0.11 (-0.17, -0.04)	0.03			
Health	6	18	-0.15 (-0.23, -0.08)	0.04			
Strategy	26	143			0.00	0.01	0.87
Simple scores	20	111	-0.12 (-0.16, -0.08)	0.02			
Relative intrinsic	6	25	-0.14 (-0.21, -0.06)	0.04			
Relative centrality	2	7	-0.13 (-0.26, 0.00)	0.07			

Note. k = number of studies; n = numbers of effect sizes; Baseline $I^2_{(2,3)}$ = proportion of heterogeneity at level 2 and 3; $R^2_{(2)}$ = proportion of heterogeneity explained by moderator; $R^2_{(3)}$ = heterogeneity indices measured at level 3; p = ANOVA p-value.

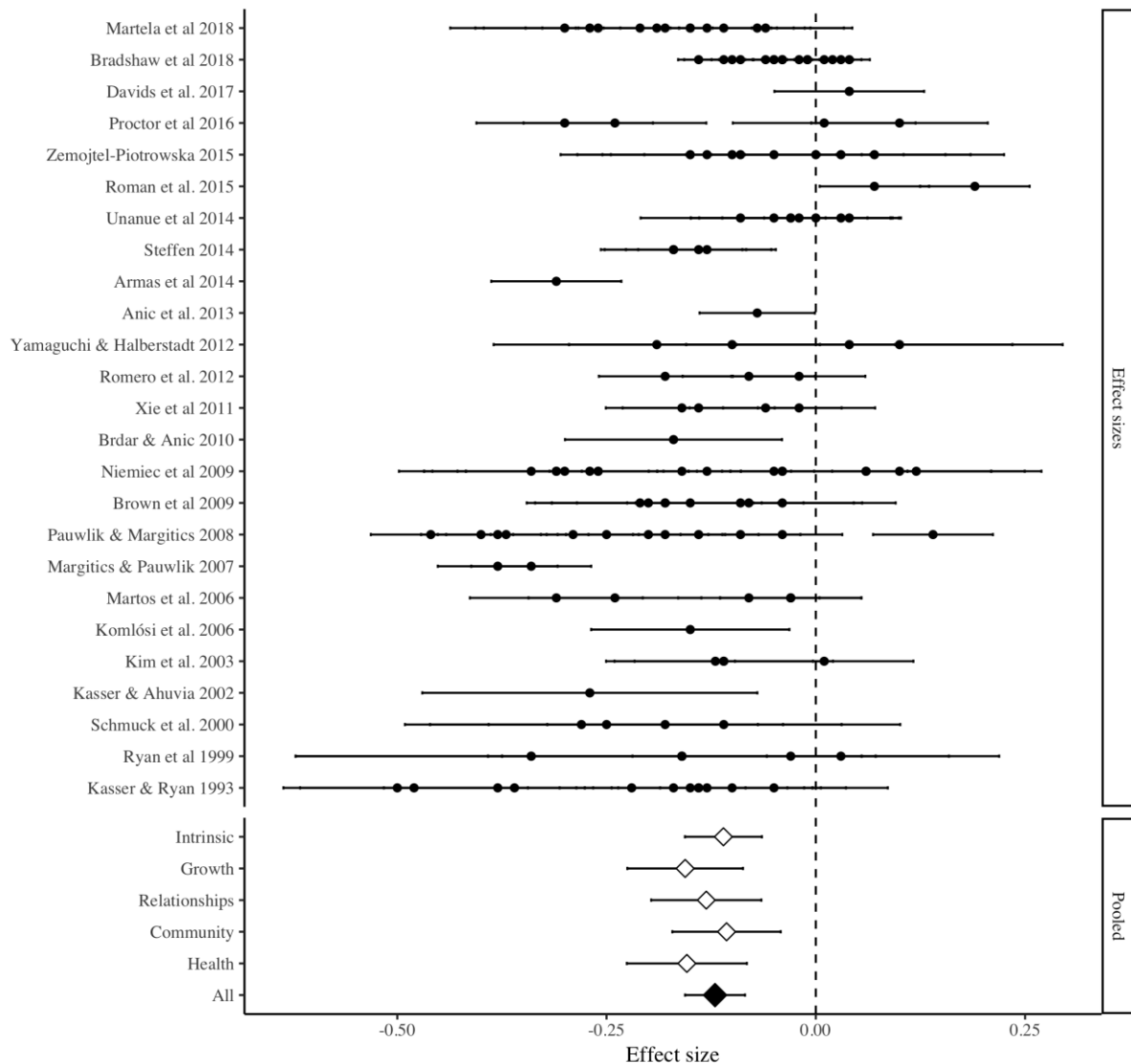


Figure 3. Forest plot of the relationship between intrinsic aspirations and ill-being

Note. Pooled effect sizes demonstrate the correlation between the aspirational domains and well-being. In this figure, multiple effect sizes are indicated where multiple points and confidence intervals are present in a single row.

Pooled effect sizes for extrinsic aspirations and well-being

Please see Table 3 below for a detailed summary of the pooled effects linking extrinsic aspirations and well-being. The pooled effect size for aggregated aspirations of extrinsic quality and well-being was positive and very weak, $r = 0.05$, CI 95% [0.01, 0.09]. The confidence intervals for the pooled effects for the specific aspirations of wealth, fame, and image included zero, suggesting these specific aspirations are unrelated to well-being. In

general, aspiring for extrinsic goals appears weakly related or unrelated to indices of well-being. Figure 4 below depicts the individual and pooled effect sizes.

Of the two methods for calculating extrinsic aspirations, most of the extrinsic aspirations and well-being effect sizes pertained to simple scores ($n=261$) rather than to relative centrality ($n=50$). The method of calculating the extrinsic variable was a significant moderator of the link between extrinsic aspirations and well-being, $\Delta\chi^2(1) = 16.71, p = < 0.01$. Indeed, when simple scores are used, extrinsic aspirations are weakly positively linked with well-being $r = 0.07$, 95% CI [0.04, 0.10], but when relative centrality is used extrinsic aspirations are a weak negative predictor of well-being $r = -0.12$ [-0.20, -0.05]. Given that the strategy of calculation aspirations not only significantly moderated the link between extrinsic aspirations and well-being but reversed its direction, this provided a strong rationale for conducting further moderation tests on extrinsic aspirations and well-being divided according to aspiration variable calculation strategy. Accordingly, there are two moderation tables included for extrinsic aspirations and well-being, one for simple scores (Table 7), and one for relative centrality scores (Table 8). The results from these separate moderation analyses are described in detail in the relevant sections below.

Table 3

Meta-analysis of the relationship between extrinsic aspirations and well-being

Moderator	k	n	Estimate (95% CI)	SE	$R^2_{(2)}$	$R^2_{(3)}$	p
Baseline ($I^2_{(2,3)}$: 0.36; 0.59)	49	311	0.04 (0.00, 0.08)	0.02			
Aspiration	49	311			0.04	0.05	0.02*
Extrinsic	32	92	0.05 (0.01, 0.10)	0.02			
Wealth	18	88	0.00 (-0.06, 0.05)	0.03			
Fame	13	66	0.04 (-0.02, 0.10)	0.03			
Image	12	65	0.05 (-0.01, 0.11)	0.03			
Strategy	49	311			0.00	0.43	< 0.01*
Simple scores	41	261	0.07 (0.04, 0.10)	0.02			
Relative centrality	8	50	-0.12 (-0.20, -0.05)	0.04			

Note. k = number of studies; n = numbers of effect sizes; Baseline $I^2_{(2;3)}$ = proportion of heterogeneity at level 2 and 3; $R^2_{(2)}$ = proportion of heterogeneity explained by moderator; $R^2_{(3)}$ = heterogeneity indices measured at level 3; p = ANOVA p-value.

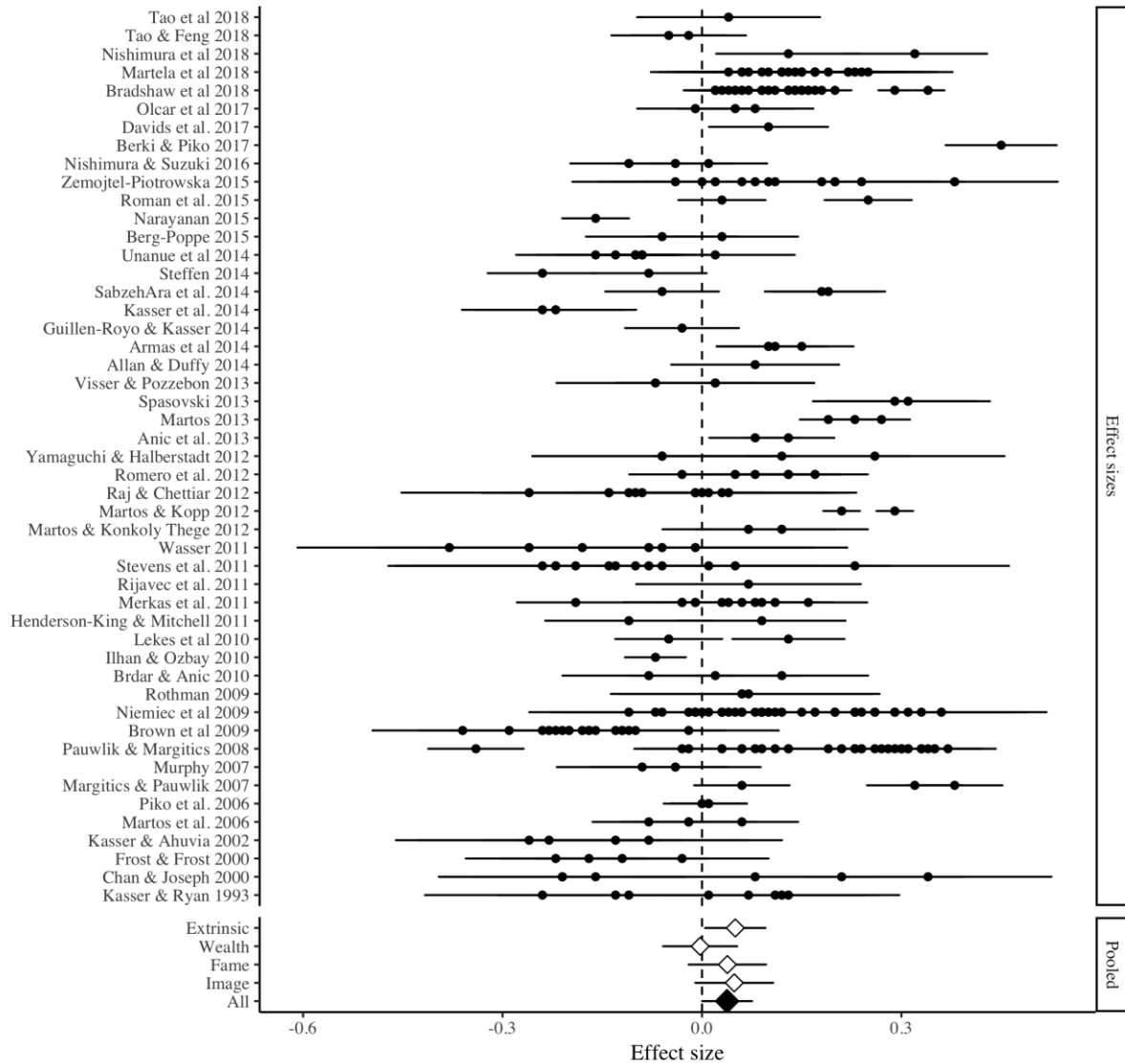


Figure 4. Forest plot of the correlation between extrinsic aspirations and well-being

Note. Pooled effect sizes demonstrate the correlation between the aspirational domains and well-being. In this figure, multiple effect sizes are indicated where multiple points and confidence intervals are present in a single row.

Pooled effect sizes for extrinsic aspirations and ill-being

Please see Table 4 below for a detailed summary of the pooled effects linking extrinsic aspirations to ill-being. The pooled effect sizes between ill-being and all aspirations

of extrinsic quality was positive and weak. When the effect sizes were pooled for aggregated and specific extrinsic aspirations the effect size was $r = 0.09$, 95% CI [0.02, 0.15]. For wealth aspirations $r = 0.06$ [-0.01, 0.13], for fame aspirations $r = 0.07$ [-0.01, 0.14], and for image aspirations $r = 0.06$ [-0.02, 0.14]. These results indicate that the link between extrinsic aspirations and ill-being is positive (albeit very weak), though not significant when extrinsic aspirations are separated into wealth, fame, and image. These effects are all below 0.10 thus accounting for less than 1% of the variance in ill-being, and unlikely to be phenomenologically impactful. Figure 5 below depicts the individual and pooled effect sizes.

The link between extrinsic aspirations and ill-being was not moderated by the aspiration variable calculation strategy, $\Delta\chi^2(1) = 1.39$, $p = < 0.24$. As shown in Table 4, when the effect sizes used simple scores ($n=88$), extrinsic aspiring was very weakly, positively correlated with ill-being $r = 0.07$, [0.02, 0.11]. When the effect sizes referred to relative centrality ($n=10$), extrinsic aspiring is also a weak (though slightly stronger) positive correlate of ill-being $r = 0.16$ [0.11, 0.30]. There was no difference between these effect sizes indicating that extrinsic aspirations are positively associated with ill-being regardless of aspiration variable calculation strategy.

Table 4

Meta-analysis of the relationship between extrinsic aspirations and ill-being

Moderator	k	n	Estimate (95% CI)	SE	$R^2_{(2)}$	$R^2_{(3)}$	p
Baseline ($I^2_{(2,3)}$: 0.35; 0.57)	20	98	0.07 (0.03, 0.12)	0.02			
Aspiration	20	98			0.00	0.02	0.95
Extrinsic	12	34	0.09 (0.02, 0.15)	0.03			
Wealth	8	25	0.06 (-0.01, 0.13)	0.04			
Fame	6	19	0.07 (-0.01, 0.14)	0.04			
Image	7	20	0.06 (-0.02, 0.14)	0.04			
Strategy	20	98			0.00	0.08	0.24
Simple scores	18	88	0.07 (0.02, 0.11)	0.02			
Relative centrality	2	10	0.16 (0.01, 0.30)	0.07			

Note. k = number of studies; n = numbers of effect sizes; Baseline $I^2_{(2;3)}$ = proportion of heterogeneity at level 2 and 3; $R^2_{(2)}$ = proportion of heterogeneity explained by moderator; $R^2_{(3)}$ = heterogeneity indices measured at level 3; p = ANOVA p-value.

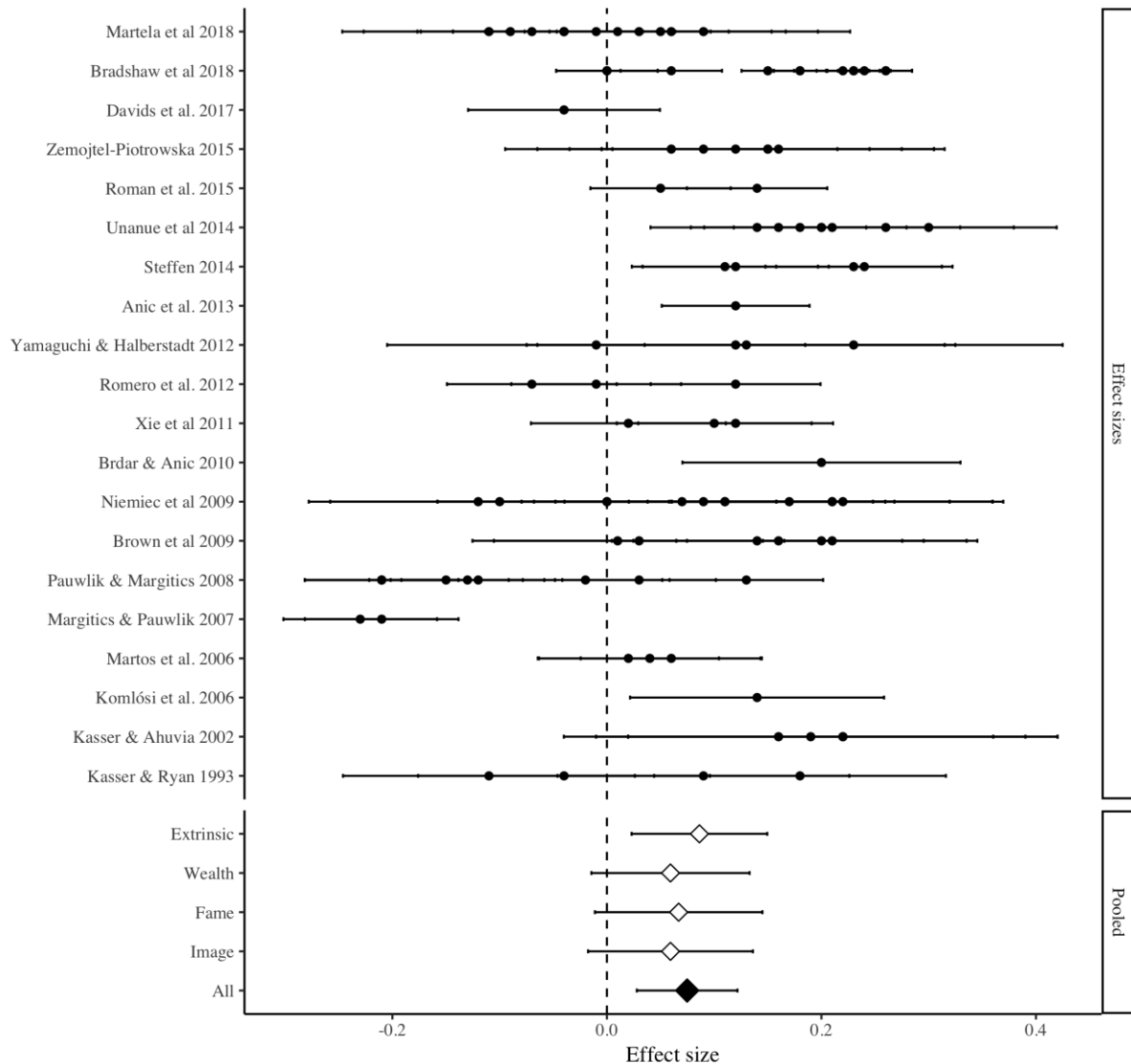


Figure 5. Forest plot of the relationship between extrinsic aspirations and ill-being

Note. Pooled effect sizes demonstrate the correlation between the aspirational domains and well-being. In this figure, multiple effect sizes are indicated where multiple points and confidence intervals are present in a single row.

Moderation by scale type

Intrinsic aspirations and well-being. To assess moderation by scale type, all the effect sizes were coded according to whether they measured importance of aspirations, perceived likelihood of attaining aspirations, or current attainment of aspirations. As shown

in Table 5, when assessing the link between intrinsic aspirations and well-being, the effect sizes most commonly refer to the importance scale ($n=305$), followed by likelihood ($n=1122$), followed by attainment ($n=55$). Scale type significantly moderated the link between intrinsic aspirations and well-being, $\Delta\chi^2(2) = 92.00, p = < 0.01$. Participant's ratings of perceived likelihood of attaining their intrinsic aspirations is a stronger well-being correlate $r = 0.35, 95\% \text{ CI } [0.31, 0.39]$, than importance ratings $r = 0.20 [0.17, 0.23]$. It seems that the extent to which one feels they can attain their intrinsic aspirations is a better predictor of psychological wellness than one's valuing of intrinsic aspirations.

Intrinsic aspirations and ill-being. Scale type was also a significant moderator of the link between intrinsic aspirations and ill-being, $\Delta\chi^2(2) = 72.41, p = < 0.01$. As shown in Table 6, the likelihood ($n=29$) of attaining intrinsic aspirations $r = -0.28, 95\% \text{ CI } [-0.33, -0.23]$, and current attainment ($n=16$) of intrinsic aspirations $r = -0.20 [-0.26, -0.14]$ are stronger negative correlates of ill-being than importance ($n=98$) of intrinsic aspirations $r = -0.06 [-0.10, -0.03]$. The extent to which one feels they will or have already attained their intrinsic aspirations protects against ill-being better than just valuing intrinsic aspirations.

Extrinsic aspiration simple scores and well-being. Scale type is also a significant moderator of the positive link between extrinsic simple scores and well-being, $\Delta\chi^2(2) = 75.24, p = < 0.01$. As shown in Table 7, the perceived likelihood ($n=61$) of attaining extrinsic aspirations $r = 0.20, 95\% \text{ CI } [0.15, 0.25]$, and current attainment ($n=24$) of extrinsic aspirations $r = 0.21 [0.16, 0.27]$ correlate positively with well-being, while the importance ($n=176$) of extrinsic aspirations $r = 0.03 [-0.01, 0.07]$ does not correlate with well-being when simple scores are used. Expecting to achieve, or having already achieved, extrinsic aspirations appears to drive the positive link between extrinsic aspiration simple scores and well-being compared to valuing extrinsic aspirations.

Extrinsic aspiration relative centrality scores and well-being. As shown in Table 8, when extrinsic relative centrality indices are used to predict well-being, scale type is not significant moderator of the link, $\Delta\chi^2(2) = 0.32, p = 0.85$. Importance, likelihood, and attainment of extrinsic aspirations are all weak negative correlates of well-being when accounting for general aspiring.

Extrinsic aspirations and ill-being. The link between extrinsic aspirations and ill-being is significantly moderated by scale type, $\Delta\chi^2(2) = 28.66, p = < 0.01$. As shown in Table 9, perceived likelihood ($n=18$) and current attainment ($n=10$) of extrinsic aspirations do not relate with ill-being. In contrast, importance ($n=70$) of extrinsic aspirations is a weak positive correlate of ill-being. Thus, it seems that only the valuing aspect of extrinsic aspirations tends to relate to increased psychological distress.

Moderation by outcome type

Intrinsic aspirations and well-being. As shown in Table 5, the link between intrinsic aspirations and well-being was not moderated by the type of outcome variable, $\Delta\chi^2(29) = 30.20, p = 1.00$. For each of the seven well-being outcome types, the link between intrinsic aspirations and well-being was positive.

Intrinsic aspirations and ill-being. As shown in Table 6, the link between intrinsic aspirations and ill-being was not moderated by the type of outcome variable, $\Delta\chi^2(2) = 5.74, p = < 0.06$. However, moderation by outcome type approached significance. It seems that the link between intrinsic aspirations and basic psychological needs frustration may be smaller than the links between intrinsic aspirations and other ill-being indicators such as negative affect and depression/anxiety. However, accounting for moderation by outcome type does not improve the meta-analytic model because the confidence intervals of all of the outcome types intersected.

Extrinsic aspiration simple scores and well-being. As shown in Table 7, the link between extrinsic aspiration simple scores and well-being was not moderated by the type of outcome variable, $\Delta\chi^2(23) = -19.30, p = 1.00$. The correlation was weak and positive regardless of the outcome type, except for self-esteem, meaning in life, and life satisfaction, for which the correlation was non-significant. However, because the confidence intervals for all of the outcome types intersected, including outcome as a moderator did not improve the meta-analytic model.

Extrinsic aspiration relative centrality scores and well-being. As shown in Table 8, the link between extrinsic aspiration relative centrality scores and well-being was not moderated by the type of outcome variable, $\Delta\chi^2(5) = 5.05, p = < 0.41$. The link between extrinsic relative centrality scores and well-being was negative regardless of outcome type, except for self-esteem for which the link was non-significant. However, because the confidence intervals for all of the outcome types intersected, including outcome type as a moderator did not improve the meta-analytic model.

Extrinsic aspirations and ill-being. As shown in Table 9, outcome type significantly moderated the link between extrinsic aspirations and well-being, $\Delta\chi^2(2) = 17.56, p = < 0.01$. While all of the average effect sizes linking the ill-being variables with extrinsic aspirations were positive, the link was especially negative for basic psychological needs frustration ($n=12, r = 0.21, 95\% \text{ CI } [0.13, 0.28]$) compared to negative affect ($n=36, r = 0.06 [0.01, 0.11]$), and depression and anxiety ($n=50, r = 0.06 [0.01, 0.11]$). These results suggest that aspiring for extrinsic aspirations is associated with more needs frustration than negative mood or distress.

Moderation by age bracket

Intrinsic aspirations and well-being. To test for moderation by age, samples were split into teenagers (under 19), young adults (19-30), adults (31-50), and older adults (over

50), according to the mean age of the sample. As shown in Table 5, age bracket did not significantly moderate the link between intrinsic aspirations and well-being, $\Delta\chi^2(130) = -94.06, p = 1.00$. For teenagers ($n=70$), young adults ($n=181$), adults ($n=101$), and older adults ($n=3$) the correlation between intrinsic aspirations and well-being was positive.

Intrinsic aspirations and ill-being. As shown in Table 6, age bracket did not significantly moderate the link between intrinsic aspirations and ill-being, $\Delta\chi^2(34) = -31.49, p = 1.00$. For teenagers ($n=16$), young adults ($n=62$), and adults ($n=33$) the correlation between intrinsic aspirations and ill-being was negative.

Extrinsic aspiration simple scores and well-being. As shown in Table 7, age bracket did not significantly moderate the link between extrinsic aspiration simple scores and well-being, $\Delta\chi^2(56) = -52.95, p = 1.00$. For teenagers ($n=43$), young adults ($n=104$), adults ($n=60$), and older adults ($n=1$) the correlation between extrinsic absolute scores and well-being was very weak and positive, except for teenagers and older adults, for whom the link was not significant. Accounting for moderation by age bracket does not improve the meta-analytic model linking extrinsic aspiration simple scores to well-being, because the confidence intervals of all of the age groups intersected.

Extrinsic aspiration relative centrality scores and well-being. As shown in Table 8, Age bracket did not significantly moderate the link between extrinsic aspiration relative centrality scores and well-being, $\Delta\chi^2(3) = -3.62, p = 1.00$. For young adults ($n=23$) and adults ($n=25$) the correlation between extrinsic relative centrality scores and well-being was negative.

Extrinsic aspirations and ill-being. As shown in Table 9, age bracket did not significantly moderate the link between extrinsic aspirations and ill-being, $\Delta\chi^2(14) = -4.09, p = 1.00$. For teenagers ($n=10$), young adults ($n=46$), and adults ($n=30$) the correlation between extrinsic aspirations and ill-being was either very weak and positive or non-significant.

Moderation by gender ratio

Intrinsic aspirations and well-being. To test for moderation by gender, the percentage of females was calculated in each sample, and used to classify samples as mostly males (fewer than 33% female), mixed (between 34% and 66% female), or mostly female (67% to 100% female). Gender did not moderate the link between intrinsic aspirations and well-being, $\Delta\chi^2(17) = -15.50, p = 1.00$. The average effect sizes for mostly males ($n=37$), a mixture of males and females ($n=241$), and mostly females ($n=189$) were all positive. Please see Table 5 for a summary of these results.

Intrinsic aspirations and ill-being. Gender did not moderate the link between intrinsic aspirations and ill-being, $\Delta\chi^2(7) = 0.19, p = < 1.00$. The average effect sizes for mostly males ($n=12$), a mixture of males and females ($n=65$), and mostly females ($n=61$) were all negative, except for mostly male samples, for whom the link was not significant. Please see Table 6 for a summary of these results.

Extrinsic aspiration simple scores and well-being. Gender did not moderate the link between extrinsic aspiration simple scores and well-being, $\Delta\chi^2(4) = 0.37, p = 0.98$. The average effect sizes for mostly males ($n=23$), a mixture of males and females ($n=131$), and mostly females ($n=105$) were all weak and positive. Please see Table 7 for a summary of these results.

Extrinsic aspiration relative centrality scores and well-being. Gender did not moderate the link between extrinsic aspiration relative centrality scores and well-being, $\Delta\chi^2(1) = 0.06, p = 0.81$. The average effect sizes for a mixture of males and females ($n=37$) and mostly females ($n=13$) were both negative. Please see Table 8 for a summary of these results.

Extrinsic aspirations and ill-being. Contrary to the other gender moderations, when considering the link between extrinsic aspirations and ill-being, including gender as a

moderator significantly improved the model, $\Delta\chi^2(3) = 20.31, p = < 0.01$. As shown in Table 9, the average effect size for samples comprised of mostly males ($n=9, r = 0.28, 95\% \text{ CI } [0.19, 0.37]$) was significantly higher than that for samples comprised of mostly females ($n=41, r = 0.02 [-0.04, 0.09]$), for whom the link was not significant. This moderation result suggests that the endorsement of extrinsic aspirations may be detrimental particularly for males.

Moderation by country

Intrinsic aspirations and well-being. To assess moderation by country the countries in which the research was conducted were split into nine groups: North America (American and Canadian samples), South American (Peruvian and Chilean samples), Oceania (Australian and New Zealander samples), East Asia (Chinese, Japanese, and Korean samples), South East Asian (Singaporean and Thai samples), South Asian (Indian), Western European (British, German, and Spanish), Eastern European (Croatian, Turkish, Hungarian, Macedonian, Polish, Romanian, and Russian), and South Africa. Not all countries were represented in all combinations of aspiring and well-being/ill-being. As shown in Table 5, country did not moderate the link between intrinsic aspirations and well-being, $\Delta\chi^2(8) = 4.16, p = 0.84$. The average correlation between intrinsic aspirations and well-being was positive, regardless of country, except for the South American groups for whom the link was not significant. However, including country as a moderator did not improve the model.

Intrinsic aspirations and ill-being. As shown in Table 6, country was also not a significant moderator of the link between intrinsic aspirations and well-being, $\Delta\chi^2(7) = 12.28, p = 0.09$. The link between intrinsic aspirations and ill-being was negative regardless of country, except for East and South-East Asian, South African, and South American groups for whom the link was not significant. However, the confidence intervals for all of the

countries intersected, indicating they were not significantly different to each other. Therefore, including country as a moderator did not improve the meta-analytic model.

Extrinsic aspiration simple scores and well-being. Country was a significant moderator of the link between extrinsic simple scores and well-being, $\Delta\chi^2(8) = 15.66$, $p < 0.05$. The confidence intervals shown in Table 7 demonstrate that extrinsic simple scores do not correlate with well-being in any country except for Eastern European countries ($n=92$), for whom the correlation between extrinsic aspiration simple scores and well-being was weak and positive, $r = 0.13$, 95% CI [0.08, 0.18].

Extrinsic aspiration relative centrality scores and well-being. As shown in Table 8, the link between extrinsic relative centrality scores and well-being was not moderated by country, $\Delta\chi^2(2) = 3.80$, $p < 0.15$. The link between extrinsic relative centrality scores and well-being was negative, regardless of country. Except in the case of Eastern Europe for whom the link was not significant. However, the confidence intervals for each of the country categories intersected, indicating they are not significantly different from each other. Therefore, including country as a moderator did not improve the model linking extrinsic aspiration relative centrality scores with well-being.

Extrinsic aspirations and ill-being. Country was a significant moderator of the link between extrinsic aspirations and ill-being, $\Delta\chi^2(7) = 19.56$, $p < 0.01$. The confidence intervals shown in Table 9, demonstrate that extrinsic aspirations do not correlate with ill-being in any country except for in North American ($n=47$, $r = 0.13$, 95% CI [0.08, 0.17]) and South American ($n=4$, $r = 0.16$ [0.01, 0.32]) groups, for whom the correlation between extrinsic aspirations and well-being was weak and positive.

Moderation by SES

Intrinsic aspirations and well-being. SES was rarely explicitly reported in these studies. When SES was included, the most common SES was moderate. As shown in Table 5,

SES did not moderate the link between intrinsic aspirations and well-being, $\Delta\chi^2(393) = 427.86, p = 1.00$. For low ($n=14$), moderate ($n=73$), and high ($n=4$) socioeconomic samples the average correlation between intrinsic aspirations and well-being was positive, except for the low socioeconomic group, for whom the link was not significant.

Extrinsic aspiration simple scores and well-being. As shown in Table 7, SES was not a significant moderator of the link between extrinsic aspiration simple scores and well-being, $\Delta\chi^2(234) = -294.34, p = 1.00$. Extrinsic aspiration simple scores did not correlate with well-being for any of the SES groups.

Extrinsic aspiration relative centrality scores and well-being. As shown in Table 8, SES did not moderate the link between extrinsic aspiration relative centrality scores and well-being, $\Delta\chi^2(15) = -23.53, p = 1.00$. The effect size linking extrinsic aspiration relative centrality scores and well-being was negative regardless of SES, though the correlation was only significant for those of high SES ($n=6, r = -0.16, 95\% \text{ CI } [-0.30, -0.02]$).

Table 5

Intrinsic aspirations and well-being meta-analysis results by moderator variables

Moderator	k	n	Estimate (95% CI)	SE	$R^2_{(2)}$	$R^2_{(3)}$	p
Baseline ($I^2_{(2,3)}: 0.55; 0.39$)	57	482	0.23 (0.20, 0.26)	0.01			
Scale Type	57	482			0.30	0.00	< 0.01*
Importance	55	305	0.20 (0.17, 0.23)	0.02			
Attainment	10	55	0.28 (0.23, 0.32)	0.02			
Likelihood	16	122	0.35 (0.31, 0.39)	0.02			
Outcome Type	55	459			0.01	0.18	1.00
Positive Affect	16	48	0.24 (0.19, 0.28)	0.02			
Basic Needs Satisfaction	14	80	0.24 (0.20, 0.29)	0.02			
General Well-being	21	154	0.23 (0.19, 0.27)	0.02			
Purpose/Meaning in Life	8	18	0.29 (0.22, 0.36)	0.03			
Self-Esteem	6	28	0.17 (0.10, 0.23)	0.03			
Life Satisfaction	27	118	0.21 (0.18, 0.25)	0.02			
Composite	6	13	0.27 (0.18, 0.36)	0.05			
Age	48	355			0.01	0.06	1.00
Teenagers (< 19)	13	70	0.19 (0.14, 0.24)	0.03			
Young adults (19 – 30)	23	181	0.23 (0.19, 0.27)	0.02			
Adults (31 – 50)	16	101	0.26 (0.21, 0.32)	0.03			

Older adults (> 50)	1	3	0.32 (0.11, 0.52)	0.11			
Gender	56	467			0.00	0.05	1.00
< 33% female	3	37	0.27 (0.20, 0.33)	0.03			
Mixed (33 - 66%)	37	241	0.22 (0.19, 0.25)	0.02			
> 33% female	19	189	0.24 (0.20, 0.28)	0.02			
Country	57	482			0.01	0.05	0.84
North America	19	212	0.24 (0.19, 0.28)	0.02			
Oceania	2	20	0.20 (0.13, 0.27)	0.04			
East Asia	6	15	0.22 (0.13, 0.31)	0.05			
South-East Asia	4	27	0.19 (0.09, 0.30)	0.05			
Western Europe	6	57	0.27 (0.19, 0.34)	0.04			
Eastern Europe	21	140	0.23 (0.18, 0.27)	0.02			
South Africa	2	3	0.21 (0.03, 0.38)	0.09			
Middle East	1	3	0.26 (0.05, 0.47)	0.11			
South America	2	5	0.13 (-0.03, 0.30)	0.08			
SES	11	91			0.00	0.16	1.00
High	1	4	0.34 (0.05, 0.62)	0.15			
Moderate	7	73	0.16 (0.06, 0.27)	0.05			
Low	4	14	0.11 (-0.02, 0.24)	0.06			

Note. **Bolded** items indicate moderation analysis performed. k = number of studies, n = number of effect sizes. Baseline $I^2_{(2,3)}$ = proportion of heterogeneity at level 2 and 3; $R^2_{(2)}$ = proportion of heterogeneity explained by moderator; $R^2_{(3)}$ = heterogeneity indices measured at level 3; ANOVAs compare models with moderation to baseline model.

Table 6

Intrinsic aspirations and ill-being meta-analysis results by moderator variables

Moderator	k	n	Estimate (95% CI)	SE	$R^2_{(2)}$	$R^2_{(3)}$	p
Baseline ($I^2_{(2,3)}$: 0.62; 0.31)	26	143	-0.12 (-0.16, -0.08)	0.02			
Scale Type	26	143			0.56	0.24	< 0.01*
Importance	24	98	-0.06 (-0.10, -0.03)	0.02			
Attainment	6	16	-0.20 (-0.26, -0.14)	0.03			
Likelihood	9	29	-0.28 (-0.33, -0.23)	0.02			
Outcome Type	26	143			0.00	0.52	0.06
Negative Affect	15	45	-0.10 (-0.15, -0.06)	0.02			
Depression and Anxiety	17	83	-0.14 (-0.18, -0.11)	0.02			
Basic Needs Frustration	4	15	-0.05 (-0.13, 0.03)	0.04			
Age	22	111			0.00	0.09	1.00
Teenagers (< 19)	6	16	-0.08 (-0.16, -0.01)	0.04			
Young adults (19 – 30)	12	62	-0.12 (-0.18, -0.06)	0.03			
Adults (31 – 50)	6	33	-0.13 (-0.21, -0.06)	0.04			
Gender	25	138			0.00	0.48	1.00
< 33% female	1	12	-0.04 (-0.14, 0.05)	0.05			
Mixed gender (33 - 66%)	15	65	-0.09 (-0.13, -0.05)	0.02			
> 33% female	11	61	-0.16 (-0.21, -0.12)	0.02			
Country	26	143			0.03	0.49	0.09
North America	8	70	-0.14 (-0.19, -0.10)	0.02			

Oceania	2	8	-0.11 (-0.21, -0.02)	0.05
East Asia	2	6	-0.08 (-0.19, 0.03)	0.06
South-East Asia	1	1	-0.27 (-0.56, 0.02)	0.15
Western Europe	5	16	-0.11 (-0.18, -0.04)	0.04
Eastern Europe	8	35	-0.15 (-0.21, -0.09)	0.03
South Africa	2	3	0.10 (-0.04, 0.24)	0.07
South America	1	4	-0.04 (-0.19, 0.11)	0.08

Note. **Bolded** items indicate moderation analysis performed. k = number of studies, n = number of effect sizes. Baseline $I^2_{(2,3)}$ = proportion of heterogeneity at level 2 and 3; $R^2_{(2)}$ = proportion of heterogeneity explained by moderator; $R^2_{(3)}$ = heterogeneity indices measured at level 3; ANOVAs compare models with moderation to baseline model.

Table 7

Extrinsic aspiration simple scores and well-being meta-analysis results by moderator variables

Moderator	k	n	Estimate (95% CI)	SE	$R^2_{(2)}$	$R^2_{(3)}$	p
Baseline ($I^2_{(2,3)}$: 0.48; 0.47)	41	261	0.07 (0.03, 0.10)	0.02			
Scale Type	41	261			0.41	0.00	< 0.01*
Importance	39	176	0.03 (-0.01, 0.07)	0.02			
Attainment	7	24	0.21 (0.16, 0.27)	0.03			
Likelihood	9	61	0.20 (0.15, 0.25)	0.03			
Outcome Type	39	244			0.03	0.06	1.00
Positive Affect	12	31	0.11 (0.05, 0.16)	0.03			
Basic Needs Satisfaction	11	48	0.07 (0.02, 0.13)	0.03			
General Well-being	13	81	0.07 (0.03, 0.12)	0.02			
Purpose/Meaning in Life	6	13	0.06 (-0.02, 0.14)	0.04			
Self-Esteem	3	8	0.08 (-0.03, 0.19)	0.05			
Life Satisfaction	18	56	0.04 (-0.01, 0.09)	0.02			
Composite	5	7	0.14 (0.04, 0.25)	0.05			
Age	35	208			0.03	0.02	1.00
Teenagers (< 19)	12	43	0.04 (-0.01, 0.10)	0.03			
Young adults (19 – 30)	16	104	0.10 (0.05, 0.15)	0.03			
Adults (31 – 50)	10	60	0.07 (0.00, 0.14)	0.04			
Older adults (> 50)	1	1	0.06 (-0.16, 0.28)	0.11			
Gender	40	259			0.03	0.00	0.98
< 33% female	2	23	0.12 (0.04, 0.19)	0.04			
Mixed (33 - 66%)	28	131	0.06 (0.02, 0.10)	0.02			
> 33% female	13	105	0.09 (0.03, 0.15)	0.03			
Country	41	261			0.04	0.31	0.05*
North America	10	100	0.04 (-0.02, 0.10)	0.03			
Oceania	2	16	-0.01 (-0.10, 0.07)	0.04			
East Asia	5	9	0.06 (-0.04, 0.16)	0.05			
South-East Asia	2	13	-0.10 (-0.24, 0.04)	0.07			
Western Europe	4	20	0.03 (-0.06, 0.12)	0.04			
Eastern Europe	16	92	0.13 (0.08, 0.18)	0.03			
South Africa	2	3	0.12 (-0.04, 0.28)	0.08			
Middle East	1	3	0.10 (-0.09, 0.30)	0.10			

South America	2	5	-0.01 (-0.14, 0.12)	0.07			
SES	6	29			0.00	0.63	1.00
High	2	4	0.02 (-0.11, 0.14)	0.06			
Moderate	2	23	0.08 (-0.03, 0.19)	0.06			
Low	2	2	-0.10 (-0.23, 0.03)	0.07			

Note. **Bolded** items indicate moderation analysis performed. k = number of studies, n = number of effect sizes. Baseline $I^2_{(2,3)}$ = proportion of heterogeneity at level 2 and 3; $R^2_{(2)}$ = proportion of heterogeneity explained by moderator; $R^2_{(3)}$ = heterogeneity indices measured at level 3; ANOVAs compare models with moderation to baseline model.

Table 8

Extrinsic aspiration relative centrality scores and well-being meta-analysis results by moderator variables

Moderator	k	n	Estimate (95% CI)	SE	$R^2_{(2)}$	$R^2_{(3)}$	<i>p</i>
Baseline ($I^2_{(2,3)}$: 0.13; 0.33)	8	50	-0.12 (-0.18, -0.07)	0.03			
Scale Type	8	50			0.00	0.15	0.85
Importance	8	29	-0.12 (-0.18, -0.06)	0.03			
Attainment	2	11	-0.14 (-0.23, -0.05)	0.04			
Likelihood	3	10	-0.12 (-0.21, -0.03)	0.05			
Outcome Type	8	50			0.00	1.00	0.41
Positive Affect	2	8	-0.17 (NA, NA)*	-			
Basic Needs Satisfaction	1	1	-0.22 (-0.37, -0.07)	0.08			
General Well-being	2	8	-0.18 (NA, NA)*	-			
Self-Esteem	2	6	-0.05 (-0.13, 0.04)	0.04			
Life Satisfaction	5	26	-0.13 (-0.17, -0.10)	0.02			
Composite	1	1	-0.24 (-0.39, -0.09)	0.08			
Age	7	48			0.00	0.38	1.00
Young adults (19 – 30)	4	23	-0.10 (-0.16, -0.04)	0.03			
Adults (31 – 50)	3	25	-0.13 (-0.24, -0.02)	0.06			
Gender	8	50			0.00	0.05	0.81
Mixed gender (33 - 66%)	5	37	-0.13 (-0.20, -0.06)	0.04			
> 33% female	3	13	-0.11 (-0.20, -0.02)	0.05			
Country	8	50			0.50	0.00	0.15
North America	7	38	-0.13 (-0.19, -0.07)	0.03			
South-East Asia	1	4	-0.17 (-0.34, -0.01)	0.09			
Eastern Europe	2	8	-0.04 (-0.14, 0.06)	0.05			
SES	4	37			0.00	0.38	1.00
High	1	6	-0.16 (-0.30, -0.02)	0.07			
Moderate	3	25	-0.12 (-0.28, 0.03)	0.08			
Low	1	6	-0.04 (-0.19, 0.11)	0.08			

Note. **Bolded** items indicate moderation analysis performed. k = number of studies, n = number of effect sizes. Baseline $I^2_{(2,3)}$ = proportion of heterogeneity at level 2 and 3; $R^2_{(2)}$ = proportion of heterogeneity explained by moderator; $R^2_{(3)}$ = heterogeneity indices measured at level 3; ANOVAs compare models with moderation to baseline model. * Indicates standard errors could not be calculated.

Table 9

Extrinsic aspirations and ill-being meta-analysis results by moderator variables

Moderator	k	n	Estimate (95% CI)	SE	$R^2_{(2)}$	$R^2_{(3)}$	p
Baseline ($I^2_{(2,3)}$: 0.35; 0.57)	20	98	0.07 (0.03, 0.12)	0.02			
Scale Type	20	98			0.34	0.29	< 0.01*
Importance	19	70	0.11 (0.07, 0.15)	0.02			
Attainment	5	10	-0.02 (-0.09, 0.05)	0.04			
Likelihood	7	18	-0.03 (-0.09, 0.03)	0.03			
Outcome Type	20	98			0.33	0.08	< 0.01*
Negative Affect	12	36	0.06 (0.01, 0.11)	0.03			
Depression and Anxiety	13	50	0.06 (0.01, 0.11)	0.03			
Basic Needs Frustration	3	12	0.21 (0.13, 0.28)	0.04			
Age	19	86			0.39	0.00	1.00
Teenagers (< 19)	5	10	-0.04 (-0.12, 0.05)	0.04			
Young adults (19 – 30)	11	46	0.11 (0.05, 0.18)	0.03			
Adults (31 – 50)	5	30	0.09 (-0.01, 0.19)	0.05			
Gender	19	97			0.43	0.08	< 0.01*
< 33% female	1	9	0.28 (0.19, 0.37)	0.05			
Mixed (33 - 66%)	11	47	0.09 (0.04, 0.15)	0.03			
> 33% female	9	41	0.02 (-0.04, 0.09)	0.03			
Country	20	98			0.39	0.01	< 0.01*
North America	6	47	0.13 (0.05, 0.20)	0.04			
Oceania	2	7	-0.05 (-0.14, 0.05)	0.05			
East Asia	1	3	0.08 (-0.12, 0.28)	0.10			
South-East Asia	1	4	0.20 (-0.02, 0.41)	0.11			
Western Europe	2	7	0.10 (-0.04, 0.24)	0.07			
Eastern Europe	7	23	0.03 (-0.06, 0.11)	0.04			
South Africa	2	3	0.04 (-0.12, 0.19)	0.08			
South America	1	4	0.16 (0.01, 0.32)	0.08			

Note. **Bolded** items indicate moderation analysis performed. k = number of studies, n = number of effect sizes. Baseline $I^2_{(2,3)}$ = proportion of heterogeneity at level 2 and 3; $R^2_{(2)}$ = proportion of heterogeneity explained by moderator; $R^2_{(3)}$ = heterogeneity indices measured at level 3; ANOVAs compare models with moderation to baseline model.

Publication bias

Publication bias is a common problem in meta-analyses, particularly for reviews with few effect sizes as is often the case in evaluations of clinical trials (Egger, Smith, Schneider, & Minder, 1997). Ideally, effect sizes will group symmetrically around the mean, but small or non-significant effects are often subject to the so-called file drawer effect, resulting in biased reporting. I assessed publication bias in this meta-analysis using funnel plots. Formal tests of asymmetry tend to be sensitive to the number of effects (Egger et al., 1997), and are therefore not suitable for meta-analyses that include very large numbers of effect sizes. This is because the tests of asymmetry become over-powered and can detect even small instances of asymmetry, which are to be expected. As this meta-analysis has more than a thousand effects a visual inspection of funnel plots is more appropriate. Relevant funnel plots are included in Appendix D and show no apparent asymmetry and demonstrate the vast amount of effect sizes included in the analysis.

Discussion

From the outset, this meta-analysis aimed for consilience regarding the link between intrinsic and extrinsic aspirations and indices of well-being and ill-being (Research Questions 1 and 2). Based on the theoretical and empirical distinctions between intrinsic and extrinsic aspirations (Kasser & Ryan, 1996), and between well-being and ill-being (Ryff et al., 2006), I calculated four separate links—intrinsic to well-being, intrinsic to ill-being, extrinsic to well-being, and extrinsic to ill-being. By pooling more than a thousand effect sizes, I demonstrated that intrinsic aspirations are positively linked to well-being while the extrinsic aspirations for wealth, fame, and image, are not. In addition, when extrinsic aspirations take priority in the array of aspirations, the correlation with well-being is negative. Extrinsic aspirations also correlated positively with ill-being, and intrinsic aspirations demonstrated a negative link with ill-being. These results generally support the vast literature suggesting that orienting

towards intrinsic aspirations ones is beneficial, and when extrinsic aspirations crowd out intrinsic goals, well-being is deterred (Dittmar et al., 2014; Kasser, 2002, 2005; Kasser & Ahuvia, 2002; Kasser et al., 2014; Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001; Ryan et al., 1999; Schmuck et al., 2000).

However, some studies dispute the above-mentioned general goal contents theory claims, and argue that the theorized negative impact of extrinsic aspirations may not apply in countries with developing economies (Brdar et al., 2009; Frost & Frost, 2000). Based on this debate, my meta-analysis also included a thorough assessment of variables that may moderate the links between aspirations and the outcome variables (Research Questions 3, 4, and 5). The strategy of calculating the aspiration variables (heretofore referred to as strategy), the scale type (whether the aspirations were rated in terms of importance, likelihood, or current attainment), the outcome type (of which there were several types including general well-being, basic psychological needs satisfaction, and depression and anxiety), gender ratio, and country in which the research was conducted were significant moderators of some of the links.

Most often, significant moderators were theoretically congruent. For example, goal contents theory holds that extrinsic aspirations tend to be detrimental when they are prioritized in the broad pattern of aspiring (Kasser & Ryan, 1996). In this meta-analysis, moderation by strategy analyses found that extrinsic aspirations tend to be associated with ill-being when they are predominant. The strategy used to calculate the aspiration variables, also moderated the link between intrinsic aspirations and well-being. Intrinsic simple scores correlated more strongly with well-being than did intrinsic aspirations from which the degree of overall aspiring had been partialled out. When general aspiring is accounted for, the positive impact of intrinsic aspirations becomes weaker. It appears that there is an element of general goal engagement that relates to well-being, and when that general element is

controlled for intrinsic aspirations correlate less strongly with well-being. In addition, controlling for general aspiring reverses the correlation between extrinsic aspirations and well-being from positive to negative. Controlling for total aspirations attenuates the links between both aspiration types and well-being, which is especially noteworthy with regard to extrinsic aspirations because the correlation becomes negative when accounting for general aspiring.

Evidence suggests that current attainment, or belief in the future attainment of goals may boost the positive impact of intrinsic aspiring and attenuate the negative impact of extrinsic aspiring (Kasser & Ryan, 2001; Ryan et al., 1999; Ryan & Deci, 2017). Moderation by scale type showed that the extent to which one thinks they are likely to attain their intrinsic goals correlated more strongly with well-being than the importance of intrinsic goals. Similarly, perceived likelihood of extrinsic aspirations (measured using simple scores) was a stronger positive correlate with well-being than importance, which did not relate to well-being. A third methodological moderator concerned the type of outcome measure used to calculate the effect sizes. I used a highly inclusive approach in the selection of effect sizes, considering measures such as life satisfaction and self-esteem as indicators of well-being, and negative affect and basic psychological needs frustration as indicators of ill-being. Outcome type was not a significant moderator for four of the five models. The link between extrinsic aspirations and ill-being was moderated by outcome type, such that the consistently positive effect sizes were stronger for basic psychological needs frustration than for negative affect and depression and anxiety. Moderation by outcome type supports the theoretical claim that basic psychological needs frustration is the mechanism linking extrinsic aspirations to ill-being (Kasser & Ryan, 1996).

Finally, demographic moderators suggested that age and SES did not moderate any of the five links. Gender moderated the correlation between extrinsic aspirations and ill-being,

such that the effect was particularly damaging for mostly male samples. There was also some moderation by country. For Eastern European countries, the correlation between extrinsic aspiration simple scores and well-being was positive, while it was non-significant for the other countries. However, when the overall pattern of aspiring was accounted for, the link between extrinsic aspirations and well-being was not moderated by country.

Meta-analysis of intrinsic aspirations

There is little debate concerning the utility of orienting towards intrinsic aspirations. While some studies on special populations (i.e. in a maximum security prison, and a slum in Peru) have found that when opportunities to satisfy intrinsic aspirations are thwarted, their pursuit does not promote well-being (Guillen-Royo & Kasser, 2015; Kasser, 1996), generally, aspiring intrinsically is widely thought to be beneficial (Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001). This study provides meta-analytic support for these claims. Intrinsic aspirations moderately relate to well-being, and weakly negatively correlate with ill-being.

Of the specific aspirations, personal growth and physical health had the largest correlations with well-being. Perhaps growth and health are most strongly associated with well-being because of the independent nature of such aspirations. For example, self-development (i.e. personal growth) and diet and exercise (i.e. physical health) are aims that can be pursued by oneself. In contrast, connecting with others and giving to others inherently involves those others, therefore satisfaction of relationship and community aspirations will depend on the extent to which connections and contributions can be made. Though the confidence intervals for all the specific intrinsic aspirations intersected, so the effect sizes were not significantly different from each other. The confidence intervals for all four intrinsic aspirations also intersected in the prediction of ill-being, indicating all four are negatively

(and equally) associated with ill-being. However, the average correlations between intrinsic aspirations and ill-being were very weak indicating there may be no experiential impact.

The pattern of results linking intrinsic aspirations to well-being and ill-being suggests that intrinsic aspirations act as more of a well-being enhancement than a defense against distress (Ryan & Deci, 2000a). In other words, they may contribute to wellness more so than protect against well-being deficits. SDT suggests that intrinsic aspirations relate more strongly to well-being than extrinsic aspirations because they are better aligned with basic psychological needs (Ryan & Deci, 2017). In addition, Ryan and Deci (2000a) propose that intrinsic aspirations promote a more enduring type of wellness: eudaimonic well-being. Eudaimonia is a fuller, more stable form of well-being thought to reflect living well, as opposed to hedonia, which is simply feeling happy (Waterman et al., 2010). Attainment of intrinsic goals promotes eudaimonic satisfactions, whereas extrinsic goals tend to result in more fleeting, hedonic experiences. If intrinsic aspirations link more directly to stable forms of well-being like eudaimonia, it stands to reason that the link between intrinsic aspirations and more ephemeral, affect-based distress experiences is not as strong.

Meta-analysis of extrinsic aspirations

Kasser and Ryan (2001) claimed that “a relative focus on extrinsic goals is either negatively or neutrally related to well-being” (p. 116). From a statistical perspective, the inclusion of the word “neutrally” may seem confusing; variables may be thought of as being either significantly related or not. However, the results of this meta-analysis provide unique evidence that extrinsic aspirations may have a neutral impact on well-being. When considered in aggregate extrinsic aspirations link positively to well-being. While this link is significant (the confidence interval does not include zero), it is weak. In addition, when using individual aspirations to predict well-being the average effect sizes for wealth, fame, and image include zero, indicating no significant link. The results are similar for the prediction of

ill-being. The link between general extrinsic aspiring and ill-being is positive, significant, and very weak. For the specific extrinsic aspirations, the link is not significant. Based on the results of this meta-analysis, it seems that the weak benefit of extrinsic aspiring is matched by equally weak detriment.

The role of relative centrality

Of the four primary pooled effects assessed in this meta-analysis, two were moderated by the strategy used to calculate the aspiration variables. The positive link between intrinsic aspirations and well-being was attenuated when relative centrality indices of intrinsic aspiring were used (when the mean for all aspirations is subtracted from the intrinsic mean), and the positive link between extrinsic aspirations became negative when relative centrality indices of extrinsic aspiring were used. The impact of relative centrality in these analyses points to the beneficial role of aspiring in general. When the degree of one's general aspiring is partialled out, the correlation between both aspiration types and wellness decreases, and in the case of extrinsic aspirations, such goals appear weakly detrimental to well-being.

However, general aspiring, or aspirations g to borrow a term from the intelligence literature (Sternberg & Hedlund, 2002), does not change the correlation between intrinsic and extrinsic aspirations and *ill*-being. Evidence suggests that measures of ill-being are less susceptible to response bias (Fastame & Penna, 2012; Stukenberg, Dura, & Kiecolt-Glaser, 1990), so controlling for g should have less of an impact on the prediction of ill-being (than on the prediction of well-being), which is what this moderation by strategy result implies. The disparate links between aspirations and well-being and ill-being also support my decision to assess the ill-being links separate from the well-being links, since it appears that aspirations relate differently (not unidimensionally) to each of these variables.

The moderating role of strategy in the prediction of well-being informs the debate mentioned earlier in this chapter, suggesting that extrinsic aspirations may be beneficial (or at

least not detrimental) in some contexts. According to this meta-analysis, when general aspiring (the mean across all aspirations) is *not* accounted for, weak positive correlations between extrinsic aspirations and well-being can be expected. However, this does not refute SDT's theoretical claims, and should not be introduced as if they do, instead the methodology should be emphasized. Those engaged with goals will report more well-being than those who are not (Emmons, 1986), regardless of the intrinsic or extrinsic goal quality. When such engagement is controlled for (in the form of the mean across all aspirations), the previously observed positive link between extrinsic aspirations and well-being are negative. Therefore, an simple mean score for extrinsic aspiring appears to operationalize a rather different construct to that measured using relative centrality indices. Given the disparate links between well-being and extrinsic aspiration simple scores and well-being and extrinsic aspiration relative centrality scores, subsequent moderators were assessed on the simple and relative centrality extrinsic scores separately.

Differences in importance, likelihood, and attainment

Scale type moderated the link between intrinsic aspirations and both well-being and ill-being, and between extrinsic simple scores and well-being and extrinsic aspirations and ill-being. When intrinsic aspirations were rated on likelihood of success, they moderately correlated with well-being, as compared to importance ratings which were weaker predictors of well-being. Similarly, likelihood of success and current attainment of intrinsic aspirations were stronger negative correlates of ill-being than were importance ratings. In general, intrinsic aspirations link positively to well-being and negatively with ill-being but the extent to which one feels they can achieve their aspirations boosts the correlations. These results are congruent with past evidence that when intrinsic aspirations cannot be satisfied, aiming for them tends to be less beneficial (Guillen-Royo & Kasser, 2015; Kasser, 1996).

Likelihood of success also moderated the positive link between extrinsic simple scores and well-being. Belief that one is likely to attain their extrinsic aspirations (measured using simple mean scores) correlates with wellness while valuing these aspirations does not. Likewise, likelihood of success scores and current attainment of extrinsic aspirations did not relate to ill-being, whereas extrinsic aspiration importance ratings were weak predictors of ill-being. Brdar et al. (2009) suggested that country-level economic context may moderate the negative impact of extrinsic aspiring on well-being. The results of this meta-analysis indicate that such an effect may be better attributed to the extent to which people feel they are likely to achieve, or have already accomplished their intrinsic and extrinsic goals, regardless of their country of origin or its socioeconomic circumstances.

The role of demographic moderators

Of the five models tested, none were moderated by age group. Teens, young adults, adults, and older adults did not deviate from the broad patterns observed. These results support the previously demonstrated generalizability of goal contents theory across age groups (Davids et al., 2017; Mackenzie et al., 2017). This review also demonstrated that the differential impact of intrinsic and extrinsic aspiring on well-being and ill-being applies regardless of the gender ratio in the sample. The one exception concerned the model linking extrinsic aspirations to ill-being. The positive correlation between extrinsic aspirations and ill-being was significantly higher for samples comprised of mostly males. This is a novel finding, because while past studies have demonstrated that males value extrinsic aspirations more than do women, this has not been shown to result in additional negative impact (Kasser & Ryan, 1996; Kasser et al., 1995; Rijavec et al., 2011). Perhaps males experience more social pressure to accrue demonstrable material resources to compete in society and secure a mate. If males orient towards extrinsic aspirations due to external sources of control, doing so will likely feel less agentic and more controlled. Such experiences of control have been

shown to reduce well-being (Nix, Ryan, Manly, & Deci, 1999), which may inform the finding that extrinsic aspiring is a stronger correlate of ill-being in mostly male samples.

Of interest in these moderation analyses was examination of the role of country. The country in which the research was conducted was a significant moderator of two of the five models. The result suggested that the correlation between extrinsic simple scores and well-being was positive for Eastern European samples. This moderation result speaks to the work of Brdar et al. (2009) and Žemojtel-Piotrowska et al. (2015) out of Croatia and Poland, respectively. These authors pointed to the positive correlations between extrinsic aspirations and well-being as evidence that extrinsic striving may not be detrimental in all contexts. However, country did not moderate the link between extrinsic aspirations and well-being after controlling for total aspiring. Despite individual studies suggesting that the relative centrality of extrinsic aspirations is not negatively impactful in all contexts (Frost & Frost, 2000), the results of this meta-analysis indicate that emphasizing extrinsic aspirations tends to be detrimental regardless of country.

The country-level differences concerning the impact of aspirations on well-being have been explained as reflecting differences in the state of economic growth (Frost & Frost, 2000; Žemojtel-Piotrowska et al., 2015). The supposed impact of country-level economic climate (on the link between aspirations and psychological functioning) was not evident when considering country as a moderator, so I assessed the role of individual economic circumstances by examining the impact of SES on the link between aspirations and wellness. However, SES was rarely reported and could only be tested for three of the five models. SES was not a significant moderator for any of the three models for which appropriate data was available. The possibility that extrinsic aspirations may be beneficial (or at least not detrimental) in some countries was not supported by this meta-analysis, though this result may be due to the general lack of effect sizes in some groups. Given the lack of SES diversity

in the samples, and underreporting of SES in general, the absence of a significant moderation by SES is not thought to be conclusive. More studies of varying SES should be conducted and added to this meta-analysis to further investigate the role of SES in the link between aspirations and optimal psychological functioning.

Limitations

The multilevel structural equation modelling approach used to conduct this analysis was indispensable for controlling for dependence among the effect sizes. However, this approach only allows for the use of categorical moderators (Cheung, 2014). Continuous variables such as age are transformed into categories (in this case, teens, young adults, adults, and older adults). The transformation minimizes the variance available and may hide potential effects. Age was, however, not thought to be a particularly important moderator of the link between aspirations and indices of optimal psychological functioning. Moreover, for variables about which there is debate in the literature, such as country and SES, categorical measurement was appropriate.

However, a thorough review of the moderating roles of country and SES was not possible due to under-representation of some countries, and under-reporting of socioeconomic status generally. North America and Europe are well represented in the data, while more Oceanic, South and South-East Asian, African, South American, and Middle Eastern samples are needed to further illuminate the potential role of being from these countries. Similarly, SES could only be evaluated for three of five models, and not reliably, because it is not often reported. While further evidence is needed to evaluate country and SES as moderators, that which does exist supports the universal applicability of goal contents theory across countries and SES.

Broadly, this review also found that some of the studies that control for relative centrality of aspirations in step one of a regression, do not also report the zero-order

correlations (Carver & Baird, 1998). This has resulted in the omission of several effect sizes. However, given the data extraction derived more than a thousand effect sizes, the removal of these effects is unlikely to have biased the results. I would encourage future studies to include a correlation table as well as a regression table, to facilitate pooling effects. Finally, because there is a dearth of longitudinal research in this field, causal implications cannot be discussed. Arguably, the relationship between aspirations and well-being/ill-being could be reciprocal; as one's well-being decreases they may orient towards observable sources of worth, and such an orientation may predict less well-being. However, apart from some notable exceptions (Niemi et al., 2009; Weinstein, Przybylski, & Ryan, 2009), there is insufficient evidence to meta-analyze these links.

Chapter Summary

This chapter demonstrated that intrinsic aspirations moderately correlate with well-being, whereas the link between extrinsic aspirations and well-being depends on how extrinsic aspirations are operationalized. Generally, extrinsic aspirations have little to no effect on well-being until general levels of aspiring (the mean across all aspirations) are controlled, at which point their link with well-being is weakly negative. Intrinsic and extrinsic aspirations also differentially link to ill-being, the former serving a weak protective effect, and the latter a weak predictive effect.

The results largely upheld the central claims of goal contents theory that orienting towards intrinsic aspirations relates to well-being, while orienting towards extrinsic aspirations is associated with ill-being. The moderation analyses also provided support for the generalizability of this conceptualization of aspirations. Moderation by scale type indicated that if one feels they are likely to attain their aspirations, or if they already have, it bolsters the benefits of intrinsic aspiring. However, this effect was not seen for extrinsic aspirations in the prediction of well-being once general levels of aspiring were controlled. There may be

something about the inherent quality of extrinsic aspirations that is detrimental to well-being, regardless of whether one thinks such aspirations can be or have already been achieved. Age did not moderate any of the models, while gender was a significant moderator of the link between extrinsic aspirations and ill-being. For samples comprised of mostly males, extrinsic aspiring correlated more strongly with ill-being than in samples comprised of mostly females or equally of both genders. In general, this evidence supports the universality of goal contents theory, though the finding that extrinsic aspirations correlate most strongly with ill-being in male samples points to a novel area of interest, namely, exploring the mediating role of social pressure on the link between extrinsic aspirations and ill-being.

The key contributions of this chapter center on clarifying the main effects, which support goal contents theory and, primarily, clarification regarding the applicability of goal contents theory in countries with developing economies. While the existing data does not support the hypothesis that country moderates the link between aspirations and optimal functioning (arguably due to under-representation or under-reporting), future studies will need to be conducted (and then added to this meta-analysis) to further address this point. Generally, this meta-analysis suggests that intrinsic aspirations are good for well-being, especially when the individual is confident they will be achieved (high likelihood ratings). Extrinsic aspirations on the other hand, link to well-being *and* ill-being weakly or not at all. Evidence in the literature that extrinsic aspirations are beneficial to well-being tends to be derived from simple mean scores, and once general aspiring is taken out, there appears to be no benefit of such aspirations. However, the effect sizes in this review are all quite small, and the standard errors are often large (especially relative to the effect sizes). Small effect sizes and large standard errors suggest there is substantial heterogeneity in the results and, as this meta-analysis suggests, this unexplained variance cannot be attributed to observed sources of variance. In other words, it appears there may be unobserved sources of variance lurking in

the data. Examination of this possibility and its consequences form the subject matter of the ensuing three chapters.

CHAPTER 3: LATENT PROFILES OF ASPIRATIONS

Introduction

The meta-analysis in Chapter 2 demonstrated that analyses of intrinsic and extrinsic aspirations support the theoretical claim that an orientation towards intrinsic life goals rather than to extrinsic aspirations, is more beneficial for well-being. However, the average effect size was modest and thus suggests that there is considerable unexplained heterogeneity in the results. Unexplained heterogeneity implies that, for some, extrinsic aspiring may not be inherently detrimental, while others may aspire intrinsically without substantial benefit to their well-being. Chapter 2 also shed light on possible moderators of the effect of intrinsic and extrinsic aspiring on well-being; though found that the generally observed sources of variance, such as gender, age, SES, and country, did little to improve the overall models. Thus indicating that existing heterogeneity may also be due to unobserved sources of variance (Lubke & Muthén, 2005). Put differently, the samples may be comprised of latent subgroups of people for whom the pattern of aspirations differs, and so too does the impact of aspirations on well-being. However, to date, the insights about the links between aspirations and well-being related outcomes have been based primarily on variable-centered analytic approaches, which cannot test for the existence of latent subsamples.

Therefore, Chapters 3, 4, and 5 detail the development and testing of a novel person-centered framework for the analysis of intrinsic and extrinsic aspirations. In this third chapter I combined bifactor exploratory structural equation modelling (B-ESEM; Morin, Arens, & Marsh, 2016a) with latent profile analysis (LPA)—both of which are detailed below—and derived three unique, replicable profiles of aspirations.

Person-centered approaches vs. variable centered methods

The discoveries made about intrinsic and extrinsic aspirations through variable-centered approaches, such as factor analysis and linear regression, have advanced the field and facilitated new questions about the configuration of aspirations, such as: are extrinsic aspirations generally antithetical to optimal functioning, regardless of the levels of specific kinds of intrinsic aspirations one pursues? Is it possible for people to be extrinsically oriented in one or more ways (e.g., seeking wealth and fame), but still thrive, depending on their levels of one or more intrinsic aspirations (e.g., giving to the community, valuing personal relationships)? Interaction testing in a variable-centered approach could begin to answer such questions, but that would require, for instance, regression models with interaction effects of very high order (e.g., a 7-way interaction), which would make interpretations of the results extremely complicated at best and intractable at worst.

Recent advances in statistical modelling provide a more tenable analytic strategy of mixture modelling, also known as person-centered analysis (McLachlan & Peel, 2004). Person-centered approaches overcome several of the assumptions upon which variable-centered methods depend (Lindwall, Weman-Josefsson, Sebire, & Standage, 2016). Specifically, mixture models do not assume sample homogeneity. Instead they account for each participant's individual response pattern (Isler, Liu, Sibley, & Fletcher, 2016), and explore potential sources of group heterogeneity that may emerge if there are qualitatively discrete subpopulations (Morin, Morizot, Boudrias, & Madore, 2010). Put differently, variable-centered analyses might be used to examine the interaction of two variables across scores on a third variable, on average, in a given sample, whereas person-centered methods address the question of whether the sample contains groups with distinct patterns of interactions (Dyer, Pleck, & McBride, 2012).

Person-centered approaches also make no assumptions about functional form, so interactions are not assumed to be linear (Bauer & Shanahan, 2007). Using simulated data, Bauer and Shanahan (2007) compared 2- and 3-way interactions (which are variable-centered) with the results of a (person-centered) LPA, demonstrating that the LPA captured interactions between variables whilst allowing them to be nonlinear. Theoretically-indicated nonlinearity could be addressed in a variable-centered way via the inclusion of polynomial terms in a regression (Bauer & Shanahan, 2007). However, doing so would complicate the interpretability of the results and detract from the parsimonious aim of employing such methods. This becomes increasingly the case as more variables are added to a model. So, variable-centered approaches are *often* simpler, but only to a point.

With respect to the Aspiration Index, it is not obvious how one might pre-specify nonlinear effects, for instance, in a 7-dimensional “hypercube,” (which is an extension of the more familiar 3-dimensional cube). As I alluded above, this cumulative complexity presents a conceptual challenge for variable-centered analyses of the Aspiration Index, because there is no existing basis upon which to hypothesize specific interactions from the myriad possibilities. Bauer and Shanahan’s (2007) simulation study provides support for the use of person-centered methods to address conceptual and pragmatic issues such as these.

Person-centered analysis of aspirations

As Chapter 2 demonstrated meta-analytically, much of the evidence on the role of aspirations in well-being has unexplained heterogeneity (Vansteenkiste et al., 2006b). The source of such heterogeneity may be unobserved (Lubke & Muthén, 2005) and perhaps attributable to the existence of latent subsamples. Further, the correlations reported in past analyses of the Aspiration Index, also point to the utility of mixture models in future studies (Kasser & Ryan, 1993, 1996; Kasser et al., 1995; Martos & Kopp, 2014; Sheldon et al., 2010; Vansteenkiste, Duriez, Simons, & Soenens, 2006a). Specifically, intrinsic and extrinsic

aspirations are often positively correlated (Kasser & Ryan, 1993; Kasser et al., 1995; Sheldon et al., 2010), which adds weight to my proposition that there might be subsamples that show varied configurations on the different specific intrinsic and extrinsic aspirations. These questions can also be addressed using an LPA.

I thus suggest that a ‘configural’, person-centered analysis can complement and further inform what is already known about the links between aspirations and well-being related outcomes. Such strategies are gaining popularity in empirical psychology and have been successfully employed in person-centered analyses of several constructs, such as, achievement goal orientation (Pastor, Barron, Miller, & Davis, 2007; Tuominen-Soini, Salmela-Aro, & Niemivirta, 2008), mindfulness (Bravo, Boothe, & Pearson, 2016; Pearson, Lawless, Brown, & Bravo, 2015; Sahdra et al., 2017), self-concept (Marsh, Lüdtke, Trautwein, & Morin, 2009), and personality traits (Merz & Roesch, 2011).

However, there is a dearth of studies employing a person-centered analysis of aspirations. To my knowledge, just two person-centered analyses of the Aspiration Index have been published (Lindwall et al., 2016; Rijavec et al., 2011). Rijavec et al. (2011) provided initial evidence that subgroups of a population can be clustered based on their intrinsic and extrinsic aspirations. Rijavec et al. (2011) conducted a K-means cluster analysis of aspiration importance scores, in which they “forced” (p. 698) a 4-cluster solution based on Kasser and Ryan’s (2001) evidence that subgroups can be classified into four groups according to their dominating attainment scores on intrinsic (I) and/or extrinsic (E) aspirations. Rijavec et al.’s (2011) analysis supported the same four groups reported by Kasser and Ryan (2001): a Low I/High E cluster, a High I/Low E, a High I/High E cluster and Low I/Low E cluster. Both high intrinsic clusters (High I/Low E and High I/High E) contained more females than males, and males were distributed evenly across the four clusters. Additionally, individuals in the two high intrinsic clusters reported the most basic

psychological needs satisfaction and well-being. In contrast, members of the Low I/Low E cluster reported the least positive functioning. These results indicate that high aspirational engagement is beneficial for well-being in the cluster of people whose aspiration orientation favors intrinsic goals but also for the group of people for whom both intrinsic and extrinsic goals are above average.

Rijavec et al.'s (2011) finding that females are more likely to comprise intrinsic clusters aligns with past evidence that women tend to rate the importance of intrinsic aspirations higher than do men (Kasser & Ryan, 1993, 1996; Kasser et al., 1995), and that men tend to rate the importance of extrinsic aspirations (especially wealth) higher than women (Kasser & Ryan, 1993, 1996). However, in contrast with the substantial existing literature (for a review see Kasser, 2002), Rijavec et al.'s (2011) study also implies that having above average levels in both aspirational domains may be as beneficial as having high intrinsic relative to extrinsic aspirations. While this result seems to be at odds with the notion that valuing extrinsic aspirations may diminish well-being (Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001), it lends support to the possible existence of subgroups for which extrinsic pursuits are not necessarily negative.

The mechanism underlying Rijavec et al.'s (2011) finding is somewhat difficult to elucidate without considering the wider spectrum of specific aspirations. In most studies of aspirations, specific aspirations (e.g., wealth, fame, relationships, giving to the community, etc.) are a priori divided into two theoretically meaningful higher-order categories of intrinsic and extrinsic aspirations, and statistical analyses are typically conducted on the average scores of the respective intrinsic and extrinsic aspirations items, often with a careful use of control variables to account for the overall importance of aspirations (Kasser & Ryan, 1996). But by using such higher-order aspiration scale scores, as Rijavec et al. (2011) did, the level of specificity of individual aspirations is conflated in the higher-order indicators of the cluster

analysis. Although all the information is used when researchers conduct analyses employing only the higher-order scores of intrinsic and extrinsic aspirations based on all available data, an important level of detail can remain hidden.

Perhaps, the devil is in the details. Feasibly, the combination of the higher-order intrinsic and extrinsic scores in the members of Rijavec et al.'s (2011) High I/High E was a function of an emphasis on fame aspirations (which are classified as extrinsically oriented) combined with high community engagement aspirations (intrinsically oriented), and that kind of a combination might have made the extrinsic aspiration of fame function more like an intrinsic aspiration. That is, perhaps being known and respected by many people in a community can be in the service of giving to that community. People might also hold other combinations of specific extrinsic and intrinsic aspirations—some might value money and relationships, but not fame or giving to the community. Also, among the wide variety of possible combinations of different aspirations, people might exhibit varying levels of the aspirations—for instance, among those who aspire for wealth, some might value money a moderate amount while others might value it a lot. These ideas are mere speculations without examination of profiles of specific aspirations rather than the profiles derived from the higher-order categories alone.

To investigate profiles of specific aspirations, Lindwall et al. (2016) conducted a person-centered analysis of five intrinsic and extrinsic exercise-related goals using the Goal Content for Exercise Questionnaire (GCEQ; Sebire et al., 2008). The GCEQ includes subscales for the intrinsic goals of relationships, skill development (a proxy for personal growth), and health, and the extrinsic goals of social recognition (a proxy for fame) and image. Lindwall et al. (2016) used factor scores from a confirmatory factor analysis (CFA) of the five GCEQ subscales in an LPA and derived five profiles of exercise-related aspiring. Lindwall et al.'s (2016) Profile 1 typified individuals with below average aspirations in all

domains. Much like Rijavec et al.'s (2011) Low I/Low E cluster, members of Lindwall et al.'s (2016) Profile 1 reported the least basic psychological needs satisfaction, and also the least autonomous motivation. Members of Lindwall et al.'s (2011) Profiles 2 and 3 both emphasized health goals, but Profile 3 participants also strongly endorsed both extrinsic aspirations (which Profile 2 did not). Compared to Profile 2, Profile 3 had less autonomy satisfaction and higher controlled motivation. Participants typified by Lindwall et al.'s (2016) Profile 4 had above average intrinsic aspirations and below average extrinsic aspirations, and Profile 5 members were high in all aspirations. Lindwall et al.'s (2016) Profile 4 is akin to Rijavec et al.'s (2011) High I/Low E cluster, and Profile 5 is like Rijavec et al.'s High I/High E cluster. Similar to Rijavec et al.'s (2011) finding that the High I/Low E and High I/High E clusters has the highest needs satisfaction, Profile 4 and Profile 5 members had the most (and did not differ in) needs satisfaction and autonomous motivation. Lindwall et al., (2016) demonstrated that person-centered analysis of specific aspirations provides information that is novel and complements analyses of just the higher-order (intrinsic and extrinsic) categories. Also, like Rijavec et al. (2011), the Lindwall et al. (2016) results suggest that above average extrinsic aspirations may not be detrimental to well-being, depending on the configuration of the other aspirations.

Lindwall et al. (2016) chose to combine LPA with CFA. LPA is recommended for person-centered analyses because of its robust criteria for classifying subpopulations (Pastor et al., 2007). Based on its reliability I too employed LPA in my studies examining the seven specific aspirations measured by the Aspiration Index. However, while Lindwall et al. (2016) shed light on configurations of specific aspirations, the CFA used in their study did not account for the fact that people also differ in their overall level of aspiring (Sheldon et al., 2010; Williams, Hedberg, Cox, & Deci, 2000). The issue of overall aspiring has been addressed in past studies by controlling for overall means across all aspirations to examine

relative valuations of higher-order intrinsic versus extrinsic aspiration scores (Kasser & Ryan, 1996). However, as I reasoned above, people can also differ in the extent that they value some of the specific aspirations relative to others despite their overall intrinsic and extrinsic aspiration levels. Therefore, the current study sought to disentangle the higher-order orientation effects (the overall levels of extrinsic and intrinsic aspirations) from the pattern of second-order aspirations (the levels of seven specific aspirations) within profiles of aspirations using B-ESEM.

Combining bifactor exploratory structural equation modelling with mixture modelling

In this study, I used the factor scores from a B-ESEM of the seven Aspiration Index subscales as the indicator variables in an LPA. As I will explain in detail below, this method allowed me to disentangle the overall level of extrinsic and intrinsic aspirations from the different configurations of specific aspirations. My goal was to use the most sophisticated statistical tools available to create an analytical framework for addressing the different questions about the links between aspirations and well-being that researchers have thus far been attempting to answer using different kinds of variable- and person-centered approaches. In the B-ESEM, each Aspiration Index item is loaded onto two factors: (1) a global factor that represents the relevant subscales within the intrinsic and extrinsic domains (e.g., an item of health aspiration is loaded onto a global intrinsic aspiration factor); and (2) a specific factor of the respective subscale (e.g., the same health item also loads on a specific factor of health). The resultant global and specific factor scores were then used as indicators in LPAs to examine the pattern of aspirations in heterogeneous subgroups within the broader sample.

The LPAs using factor scores derived from B-ESEM are procedures with utility for separating level and shape effects (Morin, Boudrias, Marsh, Madore, & Desrumaux, 2016b; Morin & Marsh, 2015). The global factors of the B-ESEM indicate the “level” effects (low, medium, or high responses on all intrinsic or extrinsic items, or, in SDT terms the

“orientation” effects) in the profiles. The relative levels of the global factors indicate the orientation of the higher-order aspirations in the profiles. Equally importantly for my purposes, the level of the seven specific aspirations factor scores (patterns of low, medium, or high scores on the individual aspirations) indicate the “shape” of the profiles of the specific aspirations. If group heterogeneity is plausible, then I would expect to find replicable profiles that differ substantively in terms of the specific aspirations, above and beyond the ratio of global intrinsic to global extrinsic aspirations that has been emphasized in past research.

Research Questions and Hypotheses

In this third chapter, the ideas introduced above were tested using archival data from a large convenience sample from Hungary. Chapter 3 sought to address two primary research questions:

Research Question 1

Will an LPA of a wide spectrum of B-ESEM-derived aspiration factor scores yield unique configurations of specific aspirations?

Hypothesis 1

As mentioned above, my analytic strategy involved conducting a B-ESEM of the Aspiration Index, which included two global factors of intrinsic and extrinsic aspirations and seven specific factors of the individual aspirations. I then used those factor scores in an LPA to extract latent profiles of aspirations. Based on the literature discussed above, I expected to find a profile that would be more intrinsic than extrinsic, and another vice versa. Further, based on my preceding arguments, I questioned the homogeneity assumption underlying variable-centered analyses of the specific aspirations of the Aspiration Index, expecting to find some variation in the configurations of the specific aspirations in the different profiles. However, as the first study to analyze the Aspiration Index using the combination of B-ESEM and LPA, I had no a priori hypothesis about the exact shapes of the configurations. To

answer this research question, I analyzed a large sample of Hungarian adults, to test whether subgroups of the sample were characterized by unique profiles of specific aspirations accounting for the overall levels of global intrinsic and extrinsic aspirations.

Research Question 2

Will membership to LPA-derived profiles be predicted by demographic variables such as gender and age?

Hypothesis 2

Evidence suggests that the sexes typically differ in their aspirational orientations—women are often more intrinsically oriented than men (Kasser & Ryan, 1996; Kasser et al., 1995; Rijavec et al., 2011), and men tend to be more extrinsically oriented than women (Kasser & Ryan, 1993; Martos & Kopp, 2012). Based on these studies, I expected females to be more likely than males to belong to the profiles with a more intrinsic than extrinsic emphasis.

Method

Participants and design

Participants in this study were recruited via online advertising on social media. Students of Hungarian higher education institutions were invited to participate in an online questionnaire about health and aspirations. All study materials were administered in Hungarian. The dataset was part of a larger study, from which only the Aspiration Index (as detailed below) and a measure of anxiety were available to me. Since the aim of Chapter 3 was to answer our Research Question 1 regarding the level and shape of aspirations, I focused on the Aspiration Index only. The total sample size was 3370 (77% female). Since mixture modelling of B-ESEM factor scores is a large sample strategy (Morin et al., 2016b; Morin & Marsh, 2015) I had large sample sizes in each study (N=3370 in Chapter 3; N=1632 in Chapter 4, N=6063 in Chapter 5). In the current study participant ages ranged from 18 to 59

years ($M = 23.57$, $SD = 5.17$). In this chapter I conducted secondary analysis on data from a study that was given ethical approval by the Medical Ethical Research Board of the Semmelweis University (SE TUKÉB 13/2002).

Materials

Aspirations. The previously validated Hungarian version (Komlósi et al., 2006) of the 35-item Aspiration Index (Kasser & Ryan, 2001) measures the importance of seven kinds of aspirations. The three extrinsic aspirations are wealth, fame, image, and the four intrinsic aspirations are personal growth, relationships, physical health, and community giving. Participants were provided with the sentence stem, “How important is it to you to...” and then presented with five “life goals” for each subscale. Example aspirations include: “To be rich” (wealth), “To be famous” (fame), “To have people comment often about how attractive I look” (image), “To grow and learn new things” (personal growth), “To have deep enduring relationships” (relationships), “To have a physically healthy life style” (physical health) and “To work to make the world a better place” (community giving). Each item was rated on a scale from 1 (Not at all important) to 7 (Very important). Cronbach’s alphas were .67 for personal growth, .75 for relationships, .81 for wealth, .84 for image and health, .86 for fame and .89 for community.

Results

Inter-correlations

Table 10 presents the key descriptive statistics for this study. The seven subscales of aspirations were all positively related to each other, except for community giving and wealth, which were negatively correlated. The intrinsic aspirations were more strongly correlated with each other than they were with the extrinsic aspirations, and vice versa, supporting the intrinsic/extrinsic distinction commonly used in the literature. However, there were also weak positive links between the importance of aspirations for wealth and health, as well as image,

growth, and relationships, suggesting that these variables, despite belonging to different higher-order categories of intrinsic and extrinsic aspirations, were not in opposition to each other. The pattern of correlations I observed in this study was consistent with previous research (Kasser & Ryan, 1993, 1996).

Table 10.

Summary of inter-correlations, means, and standard deviations

	1	2	3	4	5	6	7
1. Wealth	1						
2. Fame	.48**	1					
3. Image	.58**	.48**	1				
4. Growth	.16**	.14**	.21**	1			
5. Relationship	.09**	.09**	.21**	.47**	1		
6. Health	.22**	.07**	.32**	.47**	.41**	1	
7. Community	-.05**	.16**	.15**	.44**	.36**	.33**	1
<i>M</i>	4.56	3.05	4.22	6.32	6.44	5.25	6.40
<i>SD</i>	1.07	1.23	1.28	0.62	0.65	1.21	0.72

Note. ** $p < 0.01$.

To further represent the links between the aspiration subscales Appendix E includes 21 heat maps, each displaying the frequency distribution of every combination of two aspiration sub-scale scores. These plots include lines denoting the top, middle, and bottom third of the distribution. The heat maps give a visual sense of the configuration, or spread, of individuals that might be expected in the different regions of the two-dimensional space of each pair of aspirations in a variable-centered approach. The variety of possible interactions depicted in these plots supports my use of person-centered methods. Indeed, as I mentioned earlier, a person-centered LPA is a more principled approach to examining the configuration of individuals with different patterns of responses, as has been demonstrated in the simulation study by Bauer and Shanahan (2007). The result of this simulation study suggested that, compared to a variable-centered approach, LPA accounts for interactive patterns, allows for nonlinearity and, importantly, emphasizes configurations that best characterize the data (Bauer & Shanahan, 2007).

B-ESEM of the Aspiration Index

I conducted B-ESEM to derive indicators for use in the subsequent LPA (described below). The “exploratory” in exploratory structural equation modelling (ESEM), so-called by its developers Asparouhov and Muthén (2009), refers to the method’s combination of features from both CFA and exploratory factor analysis (EFA) (Morin, Marsh, & Nagengast, 2013). CFA assumes that cross loadings between target items (items on a scale) and non-target factors (the latent factors upon which the items load) are zero (Morin et al., 2016a). Constraining cross-loadings to be exactly zero can be unreasonably restrictive, particularly when measures include conceptually-related factors (Morin et al., 2016a), as is the case with the Aspiration Index (all the aspirations reflect aspiring and are thus related). By allowing cross-loadings to be freely estimated in a model, EFA is thought to provide a more realistic account of the data (Tóth-Király, Bőthe, Rigó, & Orosz, 2017). Accordingly, ESEM integrates the methodological advances of CFA whilst allowing small cross-loadings from target items to non-target factors (for example, from an image item to the intrinsic global factor). Furthermore, the “bifactor” element of B-ESEM tests for the presence of a global construct that coexists with more specific elements (Morin et al., 2016a). In the case of the Aspiration Index the global factors are the intrinsic and extrinsic global domains, each of which is comprised of multiple specific aspirations. The 35 items of the Aspiration Index measure both the global and specific factors, thus the B-ESEM approach was most consistent with our underlying theoretical model and provided an excellent fit for the data.

The B-ESEM was conducted in *Mplus* Version 7.4 via the *MplusAutomation* package (Hallquist & Wiley, 2013) in R (R Core Team, 2015), using orthogonal target rotation and MLR estimation to account for violations of non-normality (Muthén & Muthén, 2015). Orthogonal rotation maintains the interpretability of the bifactor model (according to its assumption that variance in the specific factors is not explained by the global factor/s) by

constraining the correlations between both global factors, between the global and specific factors, and between each of the specific factors to be close to zero (Morin et al., 2016a).

As discussed above, in the B-ESEM, each of the 35 Aspiration Index items loaded onto two orthogonal factors: a global factor and a specific factor. Cross-loadings across items were allowed but constrained to be as close to zero as possible. I specified two global factors, an extrinsic global factor (including the wealth, fame, and image items) and an intrinsic global factor (including the personal growth, relationships, health, and community giving items), as well as the seven specific factors. My selection of a 2-global factors model was guided by the existing theoretical distinction of intrinsic and extrinsic aspirations (Kasser, 2002; Ryan & Deci, 2017) and prior empirical research supporting the 2-factor structure of aspirations (Kasser & Ryan, 1993, 1996). Also, since one of my goals was to disentangle the issue of the relative levels of extrinsic and intrinsic aspirations whilst examining the shapes of the specific aspirations, a 2-global factors model was indispensable for that purpose.

Several goodness-of-fit indices and information criterion are used to confirm adequate model fit. The chi-square test of model fit is sensitive to sample size (Morin et al., 2016a), so I relied more heavily on the comparative fit index (CFI; Bentler, 1990), Tucker-Lewis Index (TLI; Tucker & Lewis, 1973), the root mean square error of approximation (RMSEA; Steiger, 1990), and the standardized root mean square error residual (SRMR; Hu & Bentler, 1999). The fit indices of the 2-global factors B-ESEM were excellent ($\chi^2(316) = 1097.34, p < .001, CFI = .97, TLI = .94, RMSEA = .039, SRMR = .01$), as per the widely accepted fit criteria of $CFI/TLI \geq .90, RMSEA \leq .06$ and $SRMR \leq .08$ (Bentler, 1990; Hu & Bentler, 1999). Factor scores derived from the B-ESEM separate variance that is due to all subscales within a higher-order domain of intrinsic or extrinsic aspiration, from the variance that is due to a specific factor. Accordingly, using these factor scores as indicators in an LPA (as detailed below) allowed me to account for the global extrinsic and intrinsic level effects while

examining the shape of the specific aspirations. Item factor loadings for the nine factors are reported in Appendix F. In all three studies, the factor loadings generally support the factor structure of the two global and seven specific factors. Omega coefficients for the two global and seven specific factors are also included in Appendix G. Bifactor omega estimates the proportion of variance in total scores that can be attributed to a general factor, or in the current case, two general factors. Subscale omegas reflect the reliability of specific factors controlling for the variance attributable to the general factor (Reise, 2012; Rodriguez, Reise, & Haviland, 2016). In this study it was the case that the omega coefficients for the specific factors were smaller than those for the general factors, this is to be expected because the specific factors are residualized and loadings tend to be higher on the general factor/s than on the specific factors (Rodriguez et al., 2016).

LPA of the Aspiration Index

LPA were conducted in *Mplus 7.4* (Muthén & Muthén, 2015) using the *MplusAutomation* package (Hallquist & Wiley, 2013) in R (R Core Team, 2015). To avoid local maxima, all LPA were conducted using 5000 random start values, 1000 iterations, retaining the 200 best solutions for final stage optimization (Hipp & Bauer, 2006; McLachlan & Peel, 2004). In LPA, selection of the optimal profile solution is guided by several factors to ensure the profiles are substantively important, theoretically informed, and statistically adequate (Bauer & Curran, 2003; Lindwall et al., 2016; Marsh et al., 2009; Muthén, 2003). To this latter point, pertinent statistical indices include the following: the Akaike Information Criterion (AIC), the Consistent AIC (CAIC), the Bayesian Information Criterion (BIC), the sample-size Adjusted BIC (ABIC), the adjusted Lo, Mendell and Rubin's (2001) Likelihood Ratio Test (LMR), and the Bootstrap Likelihood Ratio Test (BLRT). Lower AIC, CAIC, BIC and ABIC values suggest a better-fitting model. A significant p value for the LMR and BLRT supports a $k-1$ profile solution (one fewer latent profiles). However, in larger sample sizes,

these indices may interminably support the inclusion of additional profiles (Marsh et al., 2009). In such cases, entropy indexes the relative quality of profile classification.

Ranging from 0 to 1, entropy is the aggregate posterior probability of class estimation. Scores closer to 1 suggest more precise placement of individuals into the profiles (Dyer et al., 2012). However, entropy alone should not be relied upon to determine the optimal number of profiles (Lubke & Muthén, 2007). Indeed, given the variety of fit indices in LPA—each developed based on a distinct rationale—it is important to focus on the profile solution for which these various indices converge, and to consider the theoretical contribution of each new profile. Model complexity increases with each additional profile, so it is vital that added complexity is commensurate with increased theoretical utility (Bauer & Shanahan, 2007).

I ran LPA up to a 6-profile solution, the results of which can be found below in Table 11 (for ease and clarity the fit indices from the profile analyses in Chapter 4 and Chapter 5 are also included in Table 11). As expected, in Chapter 3, the AIC, CAIC, BIC and ABIC consistently improved (e.g., became smaller) as the number of profiles increased. However, the aLMR and BLRT became non-significant at the 5-profile solution (indicating the 5-profile solution is not better than the 4-profile solution). Further, the entropy value within the 4-profile solution (.69) was lower than that of the 3-profile solution (.74), suggesting that the precision of class probability estimation decreased in the 4-profile solution. Appendix H includes the profile configurations from the 4-profile solutions for Chapter 3, 4, and 5. Evidently, the fourth profile derived differed markedly across the three studies, indicating a lack of replicability. In addition to its unreliability, the novel profile derived in the 4-profile solution was a relatively flat line close to zero (group average) in this study, indicating that average-scoring participants had been extracted from the prior three profiles, compromising the precision of profile estimation without clarifying the shape of specific aspirations over the

3-profile solution. Taken together, all the information provided me with a strong rationale for selecting the 3-profile solution.

Table 11.

Results from the latent profile analyses of the Aspiration Index B-ESEM factor scores

Study	Model	LL	#fp	Scaling	AIC	CAIC	BIC	ABIC	Entropy	aLMR	BLRT	sm. n
Chapter 3	1 Profile	-39760.29	18	1.5011	79556.58	79556.79	79666.79	79609.59	–	–	–	3370
Chapter 4	1 Profile	-18613.42	18	1.7350	37262.84	37263.27	37360.00	37302.82	–	–	–	1632
Chapter 5	1 Profile	-58474.88	18	1.3480	116985.75	116985.92	117106.53	117049.33	–	–	–	6063
Chapter 3	2 Profiles	-37837.30	37	1.3190	75748.60	75749.44	75975.14	75857.57	0.688	≤ .001	≤ .001	1429
Chapter 4	2 Profiles	-17425.51	37	1.4024	34925.02	34926.78	35124.73	35007.18	0.760	≤ .001	≤ .001	810
Chapter 5	2 Profiles	-54492.59	37	1.3635	109059.18	109059.63	109307.49	109189.87	0.804	≤ .001	≤ .001	2275
Chapter 3	3 Profiles	-37243.22	56	1.2528	74598.44	74600.37	74941.31	74763.37	0.736	≤ .001	≤ .001	963
Chapter 4	3 Profiles	-16928.24	56	1.4815	33968.48	33972.53	34270.74	34092.84	0.775	≤ .01	≤ .001	274
Chapter 5	3 Profiles	-53101.32	56	1.3632	106314.65	106315.71	106690.41	106512.45	0.736	≤ .001	≤ .001	1536
Chapter 3	4 Profiles	-36882.90	75	1.2634	73915.80	73919.26	74374.99	74136.69	0.688	≤ .001	≤ .001	545
Chapter 4	4 Profiles	-16629.38	75	1.6164	33408.75	33416.08	33813.57	33575.31	0.758	≥ 0.05	≤ .001	228
Chapter 5	4 Profiles	-52069.36	75	1.4294	104288.73	104289.19	104791.97	104553.64	0.790	≤ .001	≤ .001	521
Chapter 3	5 Profiles	-36617.00	94	1.3344	73422.00	73427.46	73997.53	73698.85	0.719	≥ 0.05	≤ .001	445
Chapter 4	5 Profiles	-16499.09	94	1.8125	33186.18	33197.80	33693.55	33394.93	0.800	≥ 0.05	≤ .001	106
Chapter 5	5 Profiles	-51268.16	94	1.2786	102724.33	102724.79	103355.0	103056.36	0.791	≤ .001	≤ .001	188
Chapter 3	6 Profiles	-36347.38	113	1.3724	72920.75	72928.67	73612.62	73253.56	0.739	≥ 0.05	≤ .001	310
Chapter 4	6 Profiles	-16361.67	113	1.3062	32949.34	32966.32	33559.27	33200.29	0.786	≥ 0.05	≤ .001	69
Chapter 5	6 Profiles	-50596.29	113	1.3128	101418.57	101419.03	102176.80	101817.71	0.777	≤ .001	≤ .001	185

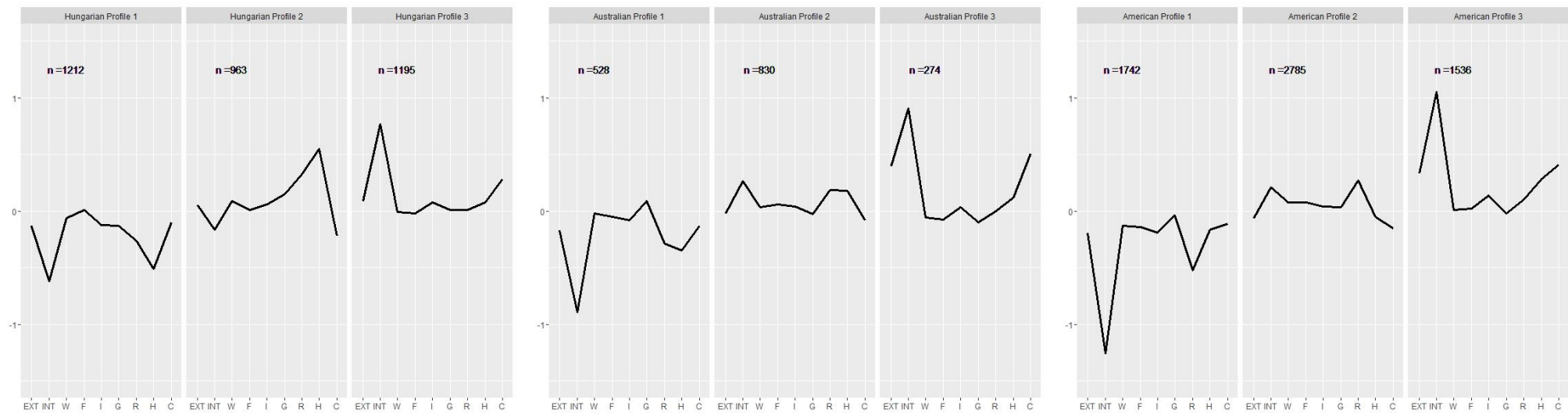
Note. Chapter 3 (the Hungarian sample), Chapter 4 (the Australian sample), and Chapter 5 (the American sample)

The observed pattern of means for each profile in the 3-profile solution is depicted below in Figure 6 (left panel). Profile 1 characterized 36% ($n=1212$) of the total sample and consisted of average extrinsic aspirations but well below average intrinsic aspirations, especially for relationship and health aspirations. On this basis, I labelled this profile *Disengaged from relationships and health*. Profile 2 typified 28.6% ($n=963$) of the total sample. The levels of the global extrinsic and intrinsic aspirations in this profile were comparable, although there was a slight tendency for higher extrinsic relative to intrinsic global aspirations. The specific factors showed a novel shape: the level of the specific factor of relationships was relatively higher than the other specific factors, especially community giving. As such, this profile was called *Aspiring for interpersonal relationships more than community relationships*. Profile 3 represented 35.5% ($n=1195$) of the sample. Of the three profiles, Profile 3 individuals reported the highest levels of both intrinsic and extrinsic global aspirations, though also had the highest ratio of intrinsic relative to extrinsic aspirations. The shape of the specific aspirations in Profile 3 showed a peak for the specific factor of community giving amongst intrinsic aspirations and image amongst extrinsic aspirations. I therefore labelled this group *Aspiring for community relationships more than interpersonal relationships*. I hasten to add that the labels of the profiles were considered tentative until further tests in an independent sample (as detailed in the next chapter).

While variation within the three profiles is evident in Figure 6, the various peaks in the profiles relate to the population mean, rather than means internal to the profile. Therefore, to facilitate hypotheses regarding within-profile variation in the aspirations (i.e., what might I predict based on which aspirations are rated as more or less important to people characterized by a specific profile), as well as between-profile variation (differences between the profiles) in the ensuing studies, I also calculated the nine B-ESEM factor score means and unstandardized scale score means, weighted according to the posterior probabilities of class

estimation from the LPA, for Profile 1, Profile 2, and Profile 3. These results are presented in Appendix I and J. In combination, the factor scores and unstandardized subscale scores can be used to examine variation in aspirations within each profile. These weighted means informed the hypotheses, in Chapter 4 and 5, which refer to intrinsic versus extrinsic aspiration orientations and specific aspiration emphases. In other words, the ensuing chapters center on testing my expectations about the link between belonging to a particular profile and well-being related variables. Thus, to make predictions about profile differences, it is necessary to understand which aspirations are more or less central to members typified by a particular profile.

Figure 6. Patterns of global and specific aspiration means



Note. The pattern of mean levels of the two global and seven specific factors of aspirations from a latent profile analysis of the factor scores from a bifactor exploratory structural equation model of the Aspiration Index in Chapter 3 (the Hungarian sample, left panel), Chapter 4 (the Australian sample, middle panel), and Chapter 5 (the American sample, right panel). EXT: Global extrinsic factor; INT: Global intrinsic factor; W: Wealth specific factor; F: Fame specific factor; I: Image specific factor; G: Personal growth specific factor; R: Relationships specific factor; H: Physical health specific factor; C: Community giving specific factor; Profile 1: *Disengaged from relationships and health*; Profile 2: *Aspiring for interpersonal relationships more than community relationships*; Profile 3: *Aspiring for community relationships more than interpersonal relationships*.

Gender as a predictor of profile membership

To test gender as a predictor of profile membership, I first conducted pseudo-class based multiple imputations of profile membership (Wang, Hendricks Brown, & Bandeen-Roche, 2005). This method involves using the class probability estimates from the *Mplus* output as sampling probabilities for creating multiple imputations of profile membership, 25 imputations in the current study. Pseudo-class based multiple imputation accounts for the uncertainty of class estimation by placing participants into the various profiles multiple times—25 in this case—based on the distribution of their posterior probabilities. The ensuing analysis—in this case a chi-square—is then conducted 25 times (once for each imputation) and the results are pooled across the imputations (Bray, Lanza, & Tan, 2015).

I then used the *mitools* (Lumley, 2014) and *miceadds* (Robitzsch, Grund, & Henke, 2014) packages in R to test the link between gender and profile membership. I conducted a chi-square test using the 25 imputed datasets, which showed a significant link between gender and class membership: $\chi^2(2) = 108.21, p < .001$. Table 12 shows the observed and expected number of males and females and the standardized residuals in each of the six cells of the contingency table pooled across 25 imputations.

Table 12.

Observed and expected numbers of males and females in the three profiles

Study	Profile	Males (exp.)	Females (exp.)	Males (obs.)	Females (obs.)	Males (std. resid.)	Females (std. resid.)
Chapter 3	Profile 1	291	1002	405	889	9.58	-9.58
Chapter 4	Profile 1	273	287	311	249	3.98	-3.98
Chapter 5	Profile 1	327	1580	472	1435	10.65	-10.65
Chapter 3	Profile 2	208	716	209	715	0.04	-0.04
Chapter 4	Profile 2	390	411	365	435	-2.44	2.44
Chapter 5	Profile 2	451	2179	362	2268	-6.12	6.12
Chapter 3	Profile 3	262	898	148	1012	-9.84	-9.84
Chapter 4	Profile 3	130	136	116	149	-1.81	1.81
Chapter 5	Profile 3	253	1223	197	1279	-4.45	4.45

Note. Chapter 3 (the Hungarian sample), Chapter 4 (the Australian sample), and Chapter 5 (the American sample). Profile 1: *Disengaged from relationships and health*; Profile 2: *Aspiring for interpersonal relationships more than community relationships*; Profile 3: *Aspiring for community relationships more than interpersonal relationships*. Exp. = expected, obs. = observed, std. resid. = standardized residuals (expected counts subtracted from observed counts and divided by the square root of the residual cell variance).

In line with my expectations, males were more likely than females to belong to Profile 1, the *Disengaged from relationships and health* group, and women were more likely than men to belong to Profile 3, the *Aspiring for community relationships more than interpersonal relationships* group. There was no sex difference in Profile 2, the *Aspiring for interpersonal relationships more than community relationships* group. I also examined age as a predictor of profile membership. Age did not predict membership into any of the three profiles as shown in Appendix K. This is aligned with the results of the meta-analysis in Chapter 2, which found that age is not a significant moderator of link between aspirations and well-being. In light of this result and given that the samples in Chapters 4 and 5 were youth/young adult samples, I did not examine age in the other studies and do not discuss it further in this thesis.

Discussion

The results of the study in this third chapter uniquely informed the existing aspirations literature by showing that subgroups of individuals differed above and beyond the ratio of intrinsic to extrinsic global aspirations, that is, both their levels and shapes were distinct (Research Question 1). Each of the profiles was characterized by a unique configuration of specific aspirations, with increasing levels of global intrinsic- and other-oriented specific aspirations from Profiles 1 to 3. I also found that gender (but not age) was significantly linked to profile membership (Research Question 2). Males were more likely to belong to the extrinsically oriented Profile 1, and females were more likely to belong to the intrinsically oriented Profile 3. These results support my hypothesis that the broader sample would be comprised of latent subgroups with different patterns of global and specific aspirations, and that females would be more likely to belong to profiles with a more intrinsic orientation.

The profile shapes in Chapter 3 supported prior evidence that subgroups differ in the levels of their higher-order intrinsic and extrinsic aspirations (Rijavec et al., 2011), and the configuration of their specific aspirations (Lindwall et al., 2016). Two of the configurations Rijavec et al. (2011) described align with the level effects (the ratio of intrinsic to extrinsic orientation effects) observed in Profile 1 (*Disengaged from relationships and health*), and Profile 3 (*Aspiring for community relationships more than interpersonal relationships*). Rijavec et al.'s (2011) Low I/High E cluster was like my Profile 1, and their High I/Low E cluster was similar to my Profile 3, which had high intrinsic relative to extrinsic global aspirations. Notably, in Chapter 3, Profile 1 had below average levels on both global factors, Profile 2 showed close to average levels and Profile 3 well above average levels of both global aspirations.

The shapes of Profiles 1 and 3 also echo some of the patterns seen in the profiles derived by Lindwall et al. (2016). Profile 1, *Disengaged from relationships and health*, is like Lindwall et al.'s Profile 1 whose members had below average aspirations generally, especially for health. Similarly, Lindwall et al.'s Profile 5 had above average aspirations for all aspirations regardless of their intrinsic or extrinsic quality, which is similar to Profile 3 in the current study. However, by separating the higher-order and specific aspirations using B-ESEM, it seems that high goal engagement in general is coupled with high aspirations to connect with the community. In short, my analysis, which disentangles higher-order and specific aspirations, reveals new information about patterns of aspiring, while supporting existing evidence.

Limitations

The results from Chapter 3 are limited in that, as a standalone study, they are speculative. LPAs often derive “local solutions” (Hipp & Bauer, 2006, p. 38) that may not replicate in subsequent samples or be phenomenologically meaningful. Therefore, these

results warranted a confirmatory test of the replicability of the observed profiles to ensure they are not a function of random error, or statistical artefact, or only extant in the sample from which they were derived. In addition, while replicating the level and shape effects of the profiles may bolster my confidence that the profiles meaningfully differ in terms of the configurations of aspirations, Chapter 3 provides no information about the utility of deriving such groups. The differences between the profiles may ultimately be rendered meaningless if profile membership does not account for additional variance in theoretically relevant outcome measures. The key aims of Chapters 4 and 5 center on addressing these limitations.

Chapter summary

I began this chapter by outlining several reasons to question the appropriateness of the homogeneity assumption in the analysis of intrinsic and extrinsic aspirations. I argued that the relatively small average effect sizes demonstrated in the meta-analysis in Chapter 2, and the positive correlations between intrinsic and extrinsic aspirations often cited in the literature (Kasser & Ryan, 1993, 1996; Kasser et al., 1995; Martos & Kopp, 2014; Sheldon et al., 2010; Vansteenkiste et al., 2006a) suggest there may be unobserved sources of variance (Lubke & Muthén, 2005). Using a combination of B-ESEM and LPA I found support for these suppositions. My analyses suggested that a large sample of Hungarian adults was comprised of three distinct subgroups each with their own unique pattern of aspiring.

Members characterized by the first of the three profiles aspired below average in general and were more extrinsic than intrinsic with a notable disinterest in relationships and health. The participants typifying the second profile had mean level aspirations across the spectrum, with notable peaks for relationships with close others and health. Broadly, Profile 3 members aspired above average, were more intrinsic than extrinsic, and emphasized contributing to the community relative to other aspirations. Age did not predict profile membership, but consistent with variable-centered analyses of aspirations females were more

likely to belong to the more intrinsic profile (Profile 3), and males were more likely to belong to the relatively extrinsic profile.

CHAPTER 4: REPLICATION AND EXPANSION OF THE PERSON-CENTERED ANALYSIS OF ASPIRATIONS

Introduction

In Chapter 3 I took the important first steps in building a person-centered framework for the study of intrinsic and extrinsic aspirations. As expected, I found that a large sample of adults consisted of three latent subgroups with varying configurations of aspirations. The presence of these subsamples may account for some of the considerable heterogeneity shown in the meta-analysis in Chapter 2. Heterogeneity in the existing results could be attributable, at least in part, to the presence of latent subsamples if the profiles are robust and replicable, and if membership to such profiles is a meaningful and incremental predictor of relevant outcome variables. Therefore, the first goal of Chapter 4 was to test whether I could replicate the profiles discovered in Chapter 3 in a sample from a different culture in a different language. To achieve this aim, I utilized a sample of Australian high school students, to whom all measures were administered in English. Using the same analytical framework (combining B-ESEM and LPA), and the same instrument for measuring aspirations in another large sample from a different country and culture, served as a rigorous test of my first research goal of discovering replicable profiles of aspirations.

The second aim of this fourth chapter was to test whether insights gained from my analytic approach add value to what can be learned from a purely variable-centered approach of linking specific aspirations to well-being outcomes. I test the incremental utility of the B-ESEM and LPA approach by using profile membership as a predictor whilst controlling for the aspiration factors that comprise the profiles. The results presented in this chapter show that the profiles add value for five of the nine outcome measures.

The third aim of this chapter was to examine the ways in which the profiles differ on the variables for which profile membership is an incremental predictor. The intrinsic and

extrinsic emphases and the shapes of the specific aspirations allowed me to make predictions about the ways in which the profiles would differ. For example, I predicted that, if replicated, a more intrinsically-oriented profile (i.e., Profile 3 from Chapter 3) would report more well-being than an extrinsically-oriented profile (i.e., Profile 1 in Chapter 3). I also expected profiles with a focus on building relationships (i.e., Profile 2 from Chapter 3) and helping the community (i.e., Profile 3 from Chapter 3) would, if replicated, score higher on indices of other-oriented-ness such as nonattachment and empathy. Again, the results presented in this chapter show that the profiles differed in theoretically meaningful ways.

Establishing the incremental utility and qualitative meaning of the profiles

A broad literature using variable-centered approaches already suggests that aspirations meaningfully relate to well-being (Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001). Since I am proposing a new way of analyzing the Aspiration Index, the question is whether my method adds value to what is already known from previous research on the Aspiration Index using variable-centered approaches. A purely variable-centered approach is more parsimonious, so the profiles must prove their true mettle by showing incremental validity by explaining variance in the outcomes above and beyond what can be explained using only the aspiration variables. Thus, after establishing the reliability of the profiles by replicating the method from Chapter 3, it is important to test if profile membership accounts for additional variance in well-being and well-being-related variables over and above the constituent aspirations. As I detail below, I discovered the variables for which profile membership was an incremental predictor using hierarchical regression.

After testing the variables for which profile membership adds statistical value, it is important to examine the ways the profiles differ, to test their theoretical congruence and utility. Theory and evidence suggest more intrinsic profiles should report more well-being than more extrinsic profiles (Kasser & Ryan, 2001; Lindwall et al., 2016; Rijavec et al.,

2011). I tested this claim using highly conservative tests that control for the aspiration factor scores when predicting outcomes, isolating variance attributable to profile membership.

Research Questions and Hypotheses

Research Question 1

Will the three profiles derived in Chapter 3 be replicated in an independent sample?

Hypothesis 1

As I proposed, and found, in Chapter 3, I expect that samples are comprised of latent clusters each with divergent patterns of aspiring in Chapter 4. Therefore, I expect to find that this sample also consists of latent subgroups. Assessing if the shapes of the newly-derived profiles are similar to those found in Chapter 3 will be a key step in establishing their replicability.

Research Question 2

Does clustering according to the results of the LPA provide additional predictive power beyond the joint contributions of the individual aspiration variables (which would be the focus of a variable-centered analysis)?

Hypothesis 2

I tested the additional explanatory power of profile membership using hierarchical regression. Specifically, I tested the ability of profile membership to predict well-being and well-being related outcomes, even when controlling for the aspiration factors that comprise the profiles. I then compared this model (e.g., that controls for the aspiration factors) to a model in which just aspirations predict the outcomes (e.g., that does not control for the aspiration factors). If an ANOVA comparing these two models indicates that the model including profile membership accounts for significantly more variance (in the outcome variable/s) than the aspirations alone, this would constitute evidence of the incremental utility

of the profiles and my person-centered method, which is what I expected to find in this fourth chapter.

Research Question 3

Will membership to each of the LPA-derived profiles be predicted by gender, and will membership to each of the profiles relate to theoretically-relevant outcomes in meaningful ways (Morin et al., 2011; Muthén, 2003).

Hypothesis 3a: Aspirations and well-being

As in Chapter 3, and concordant with evidence (Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001; Rijavec et al., 2011), I expected women to be more likely to comprise more relatively intrinsic profiles, and men would be more likely to belong to extrinsically-oriented profiles. The more central question regarding the qualitative meaning of the profile shapes involved examining the ways in which the profiles differ on the well-being variables for which profile membership was an incremental predictor. By comparing the profiles on these outcome variables, I was able to investigate the psychological correlates of belonging to each of the three profiles. To account for the fact that differences in well-being may be caused by the degree to which profile members subscribe to certain aspirations, it was crucial to use an extremely conservative test to compare the profiles, which involved controlling for the aspiration factor scores. However, I also compared the profiles not controlling for the aspiration factors. As I discussed in Chapter 3, with reference to a simulation study (Bauer & Shanahan, 2007), the profiles themselves provide meaningful information, which cannot be obtained via other means. For this reason, and to maintain complete reporting, I also include the comparisons between the profiles not controlling for the aspiration factors.

If replicated, I hypothesized that those characterized by Profile 1—those expected to show a configuration of a relative extrinsic focus and below average aspirational engagement—would show less emotional, psychological, and social well-being, and more mental ill-health, than would members of Profiles 2 and 3. Due to the relative intrinsic orientation and high overall level of aspiring in Profile 3 individuals, and the peak for the specific factor of community giving, I expected members of this profile, relative to the other profiles, to show the highest levels of well-being, lowest ill-being, and highest levels of other theoretically-relevant variables, such as, engaged living and mindfulness (Brown, Kasser, Ryan, Linley, & Orzech, 2009; Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001; Rijavec et al., 2011).

Hypothesis 3b: Aspirations and integrative span

In addition to well-being, I made specific predictions about the link of the profiles to indices of other-orientation. In fact, I interpret differences in these profiles in terms of people's *integrative span*, or their breadth of aspirations for social care and connection. I use the term integrative span heuristically, as a theoretical basis upon which I may hypothesize, test, and describe the qualitative differences between the profiles. Specifically, the profiles appear to differ in the extent to which others, both close and distal, are emphasized in the pattern of aspirations. In Chapter 3, people characterized by Profile 1 had below average relationship aspirations, whereas those in Profile 2 aspired for close personal relationships, but not necessarily community relationships which would presumably involve less intimate friends and family, acquaintances, and strangers. In contrast, people characterized by Profile 3 aspired for community giving.

If this integrative span hypothesis is correct, and the three profiles from Chapter 3 are replicated, I would expect members of Profiles 2 and 3 (individuals with high interpersonal and/or community orientation) to score higher on other-oriented variables such as

nonattachment and empathy. Empathy is clearly other-related, but nonattachment may need some explanation. Nonattachment reflects the tendency to let go of or not cling to inner experiences such as self-indulgent beliefs (e.g., “I am more special than you”). Such letting go is expected to facilitate care for and consideration of others (Sahdra, Ciarrochi, & Parker, 2016; Sahdra, Ciarrochi, Parker, Marshall, & Heaven, 2015). Consistent with this definition, evidence suggests that nonattachment relates positively with generosity and the positive relationships element of eudaimonic well-being (Sahdra, Shaver, & Brown, 2010), and increases the likelihood of engaging in prosocial behaviour as observed by peers (Sahdra et al., 2015). Nonattachment also relates positively with empathy (Sahdra et al., 2010), which is a quality reflected by someone “focused more on another person’s situation or emotion than on one’s own” (Albiero, Matricardi, Speltri, & Toso, 2009, p. 393) and has been associated with a high willingness to help someone in need (Jolliffe & Farrington, 2006). I contend that the breadth of social concern for others is increasing in the profiles (from Profile 1 to 3), so I expect that levels of nonattachment and empathy will also increase from Profile 1 to Profile 3. Significant profile differences in other-oriented-ness may be evidence of broadening social focus, or integrative span, and explain, in part, the meaning of the configural differences between the profiles.

Method

Participants and design

The 1632 (51% female) participants in the Chapter 3 were Year 12 high-school students from 17 Catholic high schools in two dioceses from New South Wales (NSW) and Queensland (QLD), Australia. The schools were in urban, regional, and rural areas throughout the two dioceses, ensuring a broad and representative socioeconomic profile. Most of the participants (63.3%) classified themselves as “Caucasian Australian” or European (13.7%), followed by “other” (11.9%), Aboriginal (3.4%), and New Zealander

(1.6%). The mean age of the sample was 16.6 years ($SD=0.40$). The analyses in Chapters 4 and 5 used data collected as part of the Australian Character Study for which ethical approval was obtained from the University of Wollongong Human Research Ethics Committee (HE10/158) and the Australian Catholic University Human Research Ethics Committee (2014-342N).

Given the nested structure of these data (students nested within schools), preliminary models were run to assess the impact of school on profile membership. I used school as a clustering variable (using the command, `TYPE=COMPLEX` in *Mplus*) in the B-ESEM and LPA models. The results from this preliminary analysis did not lead to substantively different conclusions (about the level and shape of the profiles) from the results of simpler models in which school was not included as a clustering variable. I therefore report the simplest models below (but have included a figure showing the results of the model using school as a clustering variable in Appendix L).

Materials

Aspirations. Aspirations were measured using the original English language version of the 35-item Aspiration Index (Kasser & Ryan, 2001) as described in Chapter 3. In this sample, Cronbach's alphas ranged from .81 for personal growth to .89 for physical health, indicating satisfactory internal consistency.

Subjective well-being. Three aspects of subjective well-being—emotional well-being, social well-being, and psychological well-being—were measured using Keyes' (2006) widely-validated 12-item Subjective Well-being Scales. Emotional well-being is measured via the extent to which participants reported having felt: 1) happy, 2) interested in life, and 3) satisfied, during the past month. Other example items include: “In the past month how often did you feel that the way our society works made sense to you?” (social well-being, five items) and “In the past month how often did you feel confident to think or express your own

ideas and opinions?” (psychological well-being, four items). All items were responded to on a 1 (Never) to 6 (Every day) scale. This measure has shown good psychometric properties in an Australian sample before (McGaffin, Deane, Kelly, & Ciarrochi, 2015), and showed satisfactory internal consistency in the current study ($\alpha = .90$ for emotional well-being, $\alpha = .84$ for social well-being, and $\alpha = .79$ for psychological well-being).

Mental ill-being. The General Health Questionnaire (GHQ; Goldberg et al., 1997) is a widely used and reliable measure of mental ill-being, and screens for psychiatric illness. After being provided with the sentence stem “Have you recently...” participants responded to six positively worded items (example, “Felt capable of making decisions about things?”) on a 1 (More so than usual) to 4 (Much less than usual) scale, and six negatively worded items (example, “Been feeling unhappy and depressed?”) on a 1 (Not at all) to 4 (Much more than usual). Therefore, high scores indicate psychological distress. In my sample, the GHQ showed good internal consistency ($\alpha = .90$).

Engaged living. The Engaged Living Scale (ELS; Trompetter et al., 2013) measures the extent to which one employs an engaged response style as conceptualized in Acceptance and Commitment Therapy (Hayes, Strosahl, & Wilson, 1999). The 16-item scale captures engaged living, which is comprised of ten items that measure ‘valued living,’ that is, a lifestyle that is congruent with one’s values, and six items that measure ‘life fulfilment’, that is, satisfaction with life. Example items include: “I believe that how I behave fits in with my personal wants and desires” (valued living) and “I believe that I am living life to the full right now” (life fulfilment), all answered on a 1 (Completely disagree) to 5 (Completely agree) scale. In the original Dutch study, the ELS was found to be highly reliable (Trompetter et al., 2013), as it was in my sample ($\alpha = .93$).

Mindfulness. I measured mindfulness using a 14-item version of the Mindful Attention and Awareness Scale (Brown & Ryan, 2003). The scale showed good internal

consistency in the sample ($\alpha = .90$), as it has in other youth and adult samples (Brown, West, Loverich, & Biegel, 2011), and in several languages other than English (Hansen, Lundh, Homman, & Wångby-Lundh, 2009; Jermann et al., 2009; Soler et al., 2012). Example items include: “I find myself doing things without paying attention” and “It seems I am ‘running on automatic,’ without much awareness of what I’m doing”, each answered on a 1 (Almost always) to 6 (Almost never) scale, with high scores indicating high mindfulness.

Nonattachment. The 7-item Nonattachment Scale (NAS-7; Elphinstone, Sahdra, & Ciarrochi, 2015) has been shown to be highly reliable in samples of broad age ranges (Sahdra et al., 2016; Sahdra et al., 2017; Sahdra et al., 2015). It measures participants’ ability to relinquish attachments to positive experiences and unrealistic expectations about life. Participants responded to items such as, “I do not get ‘hung up’ on wanting an ‘ideal’ or ‘perfect’ life” and, “I can enjoy pleasant experiences without needing them to last forever”, on a 1 (Disagree strongly) to 6 (Agree strongly) scale. The NAS-7 showed good internal consistency in my sample ($\alpha = .81$).

Empathy. I measured two aspects of empathy (affective empathy and cognitive empathy) using the 20-item Basic Empathy Scale (BES; Jolliffe & Farrington, 2006). Nine items measure cognitive empathy, such as “I can often understand how people are feeling even before they tell me”, and 11 items measure affective empathy, for example “After being with a friend who is sad about something, I usually feel sad”, all answered on a 1 (Strongly disagree) to 5 (Strongly agree) scale. In this sample, the two subscales showed satisfactory internal consistency ($\alpha = .84$ for cognitive empathy and $\alpha = .83$ for affective empathy).

Results

Inter-correlations

See Table 13 for inter-correlations, means and standard deviations of the scale scores of the Chapter 4 variables. As in Chapter 3, the Aspiration Index subscales were positively

correlated with each other, and within higher-order category correlations were stronger than the correlations between the extrinsic and intrinsic categories. The aspiration variables were also meaningfully related to the other study variables. Congruent with existing theory (Kasser & Ryan, 1996; Kasser & Ryan, 2001), the four intrinsic aspirations, relative to the extrinsic ones, demonstrated consistently higher positive correlations with the well-being related variables and stronger negative associations with mental ill-health/distress.

Table 13.

Summary of inter-correlations, means and standard deviations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	16	17
1. Wealth	1															
2. Fame	.64**	1														
3. Image	.71**	.71**	1													
4. Growth	.20**	.20**	.17**	1												
5. Relationships	.15**	.14**	.18**	.66**	1											
6. Health	.28**	.19**	.29**	.68**	.61**	1										
7. Community	.07**	.21**	.17**	.66**	.51**	.52**	1									
8. Emotional well-being	.02	.03	.02	.25**	.19**	.15**	.24**	1								
9. Social well-being	.06*	.15**	.10**	.18**	.15**	.19**	.18**	.57**	1							
10. Psych well-being	.05	.07**	.04	.30**	.24**	.24**	.30**	.66**	.71**	1						
11. Mental ill-health	-.00	.00	.06*	-.11**	-.04	-.01	-.09**	-.61**	-.45**	-.51**	1					
12. Engaged living	.09**	.14**	.09**	.40**	.29**	.35**	.35**	.47**	.46**	.54**	-.38**	1				
13. Mindfulness	-.07*	-.06*	-.08**	.12**	.13**	.09**	.15**	.32**	.35**	.34**	-.32**	.29**	1			
14. Nonattachment	-.14**	-.11**	-.12**	.28**	.18**	.25**	.23**	.39**	.37**	.43**	-.34**	.52**	.32**	1		
16. Affective empathy	-.12**	-.06*	.01	.15**	.26**	.22**	.13**	-.01	-.01	-.00	.21**	-.04	-.07**	-.21**	1	
17. Cognitive empathy	-.11**	-.09**	-.10**	.32**	.36**	.26**	.25**	.16**	.09**	.24**	-.04	.18**	.14**	.04	.37**	1
<i>M</i>	4.76	4.12	4.25	6.07	6.29	5.68	6.14	4.74	3.65	4.35	2.12	3.69	3.74	3.01	4.05	3.4
<i>SD</i>	1.41	1.46	1.51	0.89	0.96	1.09	0.98	1.09	1.19	1.01	0.57	0.72	0.91	0.64	0.58	0.7

Note. * $p < .05$, ** $p < 0.01$.

B-ESEM and LPA of the Aspiration Index

To replicate the profile structure obtained in Chapter 3 (Research Question 1), I employed the same B-ESEM and LPA analyses described in Chapter 3. As in Chapter 3, a B-ESEM including two global and seven specific factors indicated excellent fit in this sample, $\chi^2(316) = 1097.36, p < .001, CFI = .97, TLI = .94, RMSEA = .04, SRMR = .02$. Item factor loadings for the nine factors are reported in Appendix M. Omega coefficients for the two global and seven specific factors (for Chapter 3, 4, and 5) are also included in Appendix G.

I then ran LPAs up to a 6-profile solution. The results of these analyses can also be found in Table 11 in Chapter 3. I took a more confirmatory approach to profile selection given the known 3-profile solution from Chapter 3. Still, I checked whether the 3-profile solution was statistically sound. As in Chapter 3, the AIC, CAIC, BIC and ABIC consistently improved as the number of profiles increased. The LMR became (and remained) non-significant after the 3-profile solution. The entropy estimate was higher in the 3-profile solution than in the surrounding 2-profile and 4-profile solutions, indicating more precise classification of individuals in to the different profiles in the 3-profile solution. Taken together and considering the pattern of results observed in Chapter 3, the 3-profile solution was the most informative and statistically sound. Appendix I and Appendix J include the B-ESEM factor score means and the unstandardized subscale means, respectively, weighted according to the posterior probabilities of profile estimation based on the results of the LPA.

As illustrated in Figure 6 (middle panel) in Chapter 3, the patterns of means in each profile of Chapter 4 were markedly similar to the configurations of the profiles in Chapter 3 (Figure 6, left panel). Profile 1 (32.4% of the sample, $n=528$) was *Disengaged from relationships and health* and again typified by average extrinsic aspirations and well below average intrinsic aspirations, with nadirs for relationships and health. Profile 2 (50.8%, $n=830$), the *Aspiring for interpersonal relationships more than community relationships*

group differed marginally from the respective profile in Chapter 3 in that the level effects slightly favored intrinsic over extrinsic aspirations (the pattern was reversed in Chapter 3), though the overall shape was comparable to that of Profile 2 in the Hungarian sample, with peaks for the specific factors of relationships and health (though the peaks were lower in Chapter 3). Profile 3 (16.8%, n=274) also depicted the *Aspiring for community relationships more than interpersonal relationships* group. Once more, the *Aspiring for community relationships more than interpersonal relationships* group had the highest level of the global aspirational domains, with the intrinsic global factor showing a relatively higher level than the extrinsic one. Importantly, as in Chapter 3, Profile 3 also showed a distinctive peak for the specific factor of community giving amongst intrinsic aspirations and image amongst extrinsic aspirations.

Gender as a predictor of profile membership

Here again I used pseudo-class based multiple imputation to generate 25 imputations of class estimation probabilities. I then employed a chi-square test to examine the link between gender and profile membership, which was significant, $\chi^2(2) = 12.78, p < .01$. Table 12 (included above in Chapter 3) shows the expected and observed number of males and females and the standardized residuals in each of the six cells of the contingency table. As in Chapter 3, males were more likely than females to belong to Profile 1, the *Disengaged from relationships and health* group, and females were more likely than males to belong to Profile 3, the *Aspiring for community relationships more than interpersonal relationships* group. Contrary to Chapter 3, females were also more likely to belong to Profile 2 (*Aspiring for interpersonal relationships more than community relationships*) in Chapter 4.

Incremental utility of profile membership

To establish the added utility of using profile membership as a predictor of a variety of outcome variables (Research Question 2) I conducted a series of hierarchical regressions.

In the first model (Model 1), the two global and seven specific factors were used as predictors of the outcome variables. Then, as described above in Chapter 3, I used a pseudo-class based multiple imputation method (Wang et al., 2005) to create 25 imputations of profile membership probabilities and included profile membership probability as an additional predictor (i.e., to control for aspirations) of the outcome variables in Model 2. I then compared Model 1 and Model 2 using an ANOVA, pooling the results across the imputed data sets (Meng & Rubin, 1992). As shown below in Table 14, Model 2 (including class membership as a predictor) was a significantly better fit for the data for five of the nine variables including: emotional, psychological, and social well-being, nonattachment, and engaged living. Class membership did not predict additional variance for distress, mindfulness, or cognitive and affective empathy. These analyses indicate that profile membership additionally informs what is already known about the link between aspirations and some well-being metrics and is therefore a strong rationale for comparing the three profiles on these outcome measures to understand their qualitative meaning.

Table 14.

Hierarchical regression results using aspirations and profile membership to predict well-being

	Emotional WB		Psych WB		Social WB		Nonattachment		Engaged Living	
	M1	M2	M1	M2	M1	M2	M1	M2	M1	M2
Extrinsic G	0.00	-0.02	0.03	0.01	0.13***	0.11***	-0.17***	-0.19***	0.09***	0.07**
Intrinsic G	0.27***	0.21***	0.34***	0.29***	0.19***	0.10**	0.31***	0.26***	0.42***	0.38***
Wealth S	-0.03	-0.03	-0.03	-0.03	-0.10***	-0.10***	-0.07**	-0.08**	-0.04	-0.04
Fame S	0.04	0.04	0.02	0.03	0.00	0.01	-0.07*	-0.07*	0.03	0.04
Image S	-0.03	-0.04	-0.04	-0.04	-0.05	-0.06	-0.05	-0.05*	-0.07*	-0.07*
Growth S	-0.08**	-0.07*	-0.06	-0.05	-0.04	-0.02	-0.09**	-0.08*	-0.12***	-0.12***
Relationships S	-0.02	-0.04	-0.03	-0.04	-0.00	-0.01	-0.08**	-0.08**	-0.04	-0.03
Community S	-0.06*	-0.08*	-0.00	-0.03	0.06*	0.03	0.08*	0.04	0.10***	0.07*
Health S	0.07**	0.05	0.08**	0.07*	0.06*	0.04	0.08*	0.06*	0.09**	0.09**
Profile membership (relative to Profile 1)										
Profile 2		0.15		0.07		0.13		0.04		-0.04
Profile 3		0.28*		0.29*		0.42***		0.33**		0.27*
Pooled sig. test M1 vs M2	$F(2,958) = 3.09, p < .05$		$F(2,736) = 3.76, p < .05$		$F(2,536) = 6.60, p < .01$		$F(2,1012) = 6.36, p < .01$		$F(2,1453) = 7.51, p < .01$	
Pooled R^2	0.07	0.08	0.11	0.12	0.06	0.07	0.14	0.15	0.19	0.20
Pooled $R^2 \Delta$		0.01		0.01		0.01		0.01		0.01

Table 14 continued.

	GHQ		Mindfulness		Cognitive empathy		Affective empathy	
	M1	M2	M1	M2	M1	M2	M1	M2
Extrinsic G	0.01	0.03	-0.08**	-0.09***	-0.16***	-0.17***	-0.10***	-0.10***
Intrinsic G	-0.11***	-0.06	0.16***	0.12**	0.40***	0.39***	0.21***	0.20***
Wealth S	0.01	0.01	-0.04	-0.04	-0.07**	-0.07**	-0.13***	-0.13***
Fame S	-0.02	-0.02	-0.06*	-0.06	0.11***	0.11***	0.06*	0.06*
Image S	0.10***	0.11	-0.07*	-0.08*	-0.01	-0.01	0.13***	0.12***
Growth S	0.04	0.03	-0.03	-0.03	-0.11***	-0.11***	0.01	0.01
Relationships S	0.08**	0.09**	0.04	0.02	0.10***	0.10***	0.18***	0.17***
Community S	0.11***	0.13***	-0.01	-0.02	-0.02	-0.03	0.13***	0.13***
Health S	-0.04	-0.03	0.09**	0.07*	-0.05*	-0.05*	-0.03	-0.03
Profile membership (relative to Profile 1)								
Profile 2		-0.12		0.10		-0.01		0.07
Profile 3		-0.25*		0.22		0.10		0.03
Pooled sig. test								
M1 vs M2	$F(2,720) = 2.26, p = \text{n.s}$		$F(2,819) = 1.72, p = \text{n.s}$		$F(2,672) = 0.93, p = \text{n.s}$		$F(2,416) = 0.51, p = \text{n.s}$	
Pooled R^2	0.03	0.03	0.04	0.04	0.20	0.20	0.11	0.11
Pooled $R^2 \Delta$		0.00		0.00		0.00		0.00

Note. * $p < .05$. Results compare models using the factor scores from a bifactor exploratory structural equation modelling of the Aspiration Index (Model 1), to models that also include class membership probabilities from a latent profile analysis of the factor scores (Model 2), pooled across 25 imputations of class membership in Chapter 4 (the Australian sample). M1 = Model 1 (using the two global and seven specific aspiration variables to predict the dependent variables); M2 = Model 2 (using the aspiration variables, plus the profile membership variable to predict outcomes). G = Global factor, S = specific factor, WB = well-being. The profile membership estimates included here for Profile 2 (*Aspiring for interpersonal relationships more than community relationships*) and Profile 3 (*Aspiring for community relationships more than interpersonal relationships*) are relative to Profile 1 (*Disengaged from relationships and health*). Grey highlighting for the pooled significance tests indicate variables for which Model 2 was a significantly better fit than Model 1.

Profile differences

Next, I aimed to explore the qualitative differences between the profiles by assessing the ways in which they vary on the well-being and other-orientation indices (Research Question 3). To compare the profiles to each other rather than to an intercept, I used the `car` package in R to combine regression with the popular delta method (Fox & Weisberg, 2010). The delta method approximates the standard errors for a set of normal variables for which variance is known and providing a means of calculating significance tests. The delta method transforms the means and standard errors from a multivariate test (in this case regression) into univariate estimates to, in my case, facilitate comparisons between the three profiles simultaneously. Here again, I used the 25 imputations of class membership to reduce the uncertainty associated with class membership estimation.

As I did in the hierarchical regressions, it was crucial for me to control for the aspiration factor scores when comparing the profiles, to account for the fact that differences in well-being and other-oriented-ness may be caused by the degree to which profile members endorse certain aspirations. However, I also compared the profiles *not* controlling for the aspiration factors. While it is important to assess the extent to which profile membership provides information in addition to the aspiration variables, as I discussed in Chapter 3, the profiles themselves provide meaningful information, which cannot be obtained via other means. Table 15 reports the means, standard errors, R^2 , and $R^2\Delta$ from these analyses. In Table 15, Model 1 and Model 2 each reflect the standardized means and standard errors for each profile, for each variable, under one of two conditions. The regression in Model 1 does not control for the aspiration factors that comprise the variables, while the regression in Model 2 does. Thus, the means and standard errors are different (for each profile for each variable) from Model 1 to Model 2.

When the aspirations are not controlled for, the results indicated that all the measures differ by profile, such that Profile 3 had higher levels of well-being, engaged living, and nonattachment than Profile 2, which had higher levels than Profile 1. More importantly, the profiles differed even in the extremely conservative tests that compared the profiles controlling for the factor scores. When controlling for aspirations, Profile 3 members had more social well-being than those of Profiles 1 and 2, and more emotional and psychological well-being than Profile 1 members only. For engaged living, members of Profile 3 scored higher than those of Profiles 1 and 2, between whom there was no difference. For nonattachment, the mean levels in Profile 3 continued to be higher than the means of Profiles 1 and 2.

Table 15.

Standardized profile means, standard errors, R^2 , and $R^2\Delta$ for the models not controlling (Model 1) and controlling for aspirations (Model 2)

		Profile 1		Profile 2		Profile 3		R^2	$R^2\Delta$
		M	SE	M	SE	M	SE		
Emotional WB	Model 1	-0.29^a	0.04	-0.09^b	0.04	0.32^c	0.06	0.05	
	Model 2	-0.12^a	0.06	0.03	0.04	0.16^b	0.08	0.08	0.03
Psychological WB	Model 1	-0.33^a	0.04	0.07^b	0.04	0.46^c	0.06	0.07	
	Model 2	-0.10^a	0.06	-0.01	0.04	0.21^b	0.07	0.12	0.05
Social WB	Model 1	-0.25^a	0.04	0.03^b	0.04	0.44^c	0.06	0.05	
	Model 2	-0.15^a	0.06	0.01^a	0.04	0.29^b	0.08	0.07	0.02
Nonattachment	Model 1	-0.25^a	0.04	0.02^b	0.04	0.46^c	0.06	0.06	
	Model 2	-0.09^a	0.06	-0.03^a	0.04	0.27^b	0.08	0.15	0.09
Engaged Living	Model 1	-0.37^a	0.04	0.03^b	0.04	0.66^c	0.06	0.12	
	Model 2	-0.03^a	0.05	-0.07^a	0.04	0.24^b	0.07	0.20	0.08

Note. Model 1 uses profile membership as a sole predictor of the outcome variable; Model 2 uses profile membership as a predictor whilst controlling for the two global and seven specific aspiration factors from the B-ESEM of the Aspiration Index; a b c = the means with matching superscripts (across each row) indicate that the respective profiles do not differ on the outcome variable, differing superscripts signify profiles that do differ, a mean with no superscript is not different from the other means in that row; bold = further signifies a profile that differs significantly from another profile on the outcome variable. Profile 1: *Disengaged from relationships and health*; Profile 2: *Aspiring for interpersonal relationships more than community relationships*; Profile 3: *Aspiring for community relationships more than interpersonal relationships*.

Discussion

Chapter 4 achieved three important aims. First, the results supported the cross-cultural replicability of the three aspiration profiles derived in Chapter 3 (Research Question 1). Second, the study demonstrated that profile membership provided additional explanatory power beyond the nine aspiration factors derived using B-ESEM (Research Question 2). Third, the results showed that the three profiles differed on five measures of well-being and one measure of other-orientation (Research Question 3), even when controlling for the aspiration variables. Put simply, one's pattern of aspirations matters for optimal psychological functioning.

Apart from some minor configural nuances, the three profiles were similar across the two studies, providing support for my tentative profile labels. In both samples, Profile 1—*Disengaged from relationships and health*—members were well below average on global intrinsic aspiring, with a disinterest in health and relationships. Similarly, Profile 3—*Aspiring for community relationships more than interpersonal relationships*—members were above average for both global aspirations and especially for community aspiring. Profile 2—*Aspiring for interpersonal relationships more than community relationships*—members were notably different across the two studies in that the ratio of global extrinsic to intrinsic aspiring was reversed in Chapter 4 (e.g., in Chapter 3 the profile was more globally extrinsic than intrinsic, this pattern was reversed in Chapter 4), though these peaks were less than a quarter of a standard deviation, so there may be no phenomenological impact. Further, peaks for relationships were key features in Profile 2 in both studies, fitting with Profile 2's label.

In addition to replicating the profiles, Chapter 4's key contribution was the establishment of the incremental value of the profiles, over and above the factors used to derive them. Models including class membership probabilities as a predictor were a significantly better fit for the data for five of the nine variables measured including social,

emotional, and psychological well-being, engaged living, and nonattachment. Profile membership did not improve the model for psychological distress, mindfulness, or cognitive and affective empathy. Using the extremely conservative test that controlled for the two global and seven specific factors, Chapter 4 showed that those characterized by Profile 3 were higher than Profiles 1 and 2 in social well-being, engaged living, and nonattachment. Profile 3 members were higher in emotional and psychological well-being compared to Profile 1 members only. The ability of the profiles to account for additional variance in well-being and other-orientation highlights the complementary utility of my approach to traditional variable-centered methods.

Limitations

While the results reported in this chapter successfully demonstrated the replicability of the profiles resulting from the analyses in Chapter 3, the differences between the profiles are novel and therefore also require replication. Earlier in this chapter I argued that the consistent derivation of profiles is only useful if they have incremental predictive utility. Thus, Chapter 4 demonstrated that profile membership does indeed predict unique variance in well-being, engaged living, and nonattachment, but this result is only as useful as it is reliable and generalizable. This study is therefore limited by the fact that it may apply only to teenagers in Australia. Replication in an independent sample is required to replicate the ability of profile membership to predict unique variance in well-being.

Chapter summary

In this fourth chapter I provided replication and novel expansion of the results presented in Chapter 3. In terms of replication, the results of the LPA supported a 3-profile solution, and those three profiles closely resembled the profiles found in Chapter 3. These results were also expanded upon in this chapter using highly conservative tests that partial out the extent to which aspirations predict well-being outcomes, leaving behind variance

attributable to profile membership. In these strict tests profile membership was found to independently predict variance in the well-being, engaged living, and nonattachment. It seems that patterns of aspirations are a unique determinant of psychological wellness. The profile typified by a relative intrinsic orientation and an emphasis on community giving has the most well-being and the highest other-orientation. This latter detail is an important contribution because it supports my suggestion that these profiles may be a formative empirical demonstration of integrative span. Visually the profiles appeared to progressively orient towards more others. Profile 1 had below average relationship and community aspirations, Profile 2 emphasized close personal relationships over the wider community, and Profile 3 values community contribution over other aspirations. I have suggested that this demonstrates an incrementally broadening scope of concern for others; a widening integrative span. Empirically this has been supported, with the profiles differing in nonattachment, even after controlling for the aspirations.

Taken together, Chapters 3 and 4 took crucial steps in developing a person-centered approach to aspirations. The ensuing Chapter 5 tests the replicability of the profiles' ability to predict outcomes over and above the aspirations themselves.

CHAPTER 5: REPLICATING THE LINK BETWEEN ASPIRATION PROFILES AND WELL-BEING

Introduction

In the preceding fourth chapter I cross-culturally replicated the three aspiration profiles derived in Chapter 3 in an independent sample. In addition to providing evidence regarding the robustness of the profiles, Chapter 4 also provided evidence for the complementary value added by my person-centered framework. In accordance with my hypotheses, the results in Chapter 4 showed that profiles with a more intrinsic orientation reported more well-being and are more oriented towards others, even when controlling for the aspiration variables.

In Chapter 5, I sought to replicate these optimal functioning outcomes, and examine other theoretically relevant outcome variables. Specifically, I aimed to accomplish three things in this chapter. First, using an independent sample of Americans, I sought to replicate the profiles for a second time in yet another culture. Second, I attempted to replicate Chapter 4's findings related to well-being, engaged living, and nonattachment (with and without controlling for the aspiration factor scores). Third, given that intrinsic aspirations are thought to enhance basic psychological needs, and extrinsic aspirations, at best, only indirectly satisfy these needs (Deci & Ryan, 1985; Ryan & Deci, 2017), I included basic psychological needs satisfaction and frustration as outcome variables and assessed the extent to which these variables, central to SDT, relate to profile membership.

Research Questions and Hypotheses

Research Question 1

Will the three aspiration profiles replicate for a second time, in a third independent sample?

Hypothesis 1

Using the same analytical framework (combining B-ESEM and LPA) and the same instrument for measuring aspirations, the three profiles found in Chapter 3 were replicated in Chapter 4, despite the samples being from two countries and cultures, of differing ages, and administered in different languages. This serves as a rigorous test of the reliability of the 3-profile solution and is why I hypothesized that I would find support for the same three profiles in Chapter 5.

Research Question 2

Will Chapter 4's findings related to incremental utility, and profile differences in well-being, engaged living, and nonattachment replicate in a second sample?

Hypothesis 2

The differences between the profiles in Chapter 4 were hypothesized based on theory and previous evidence (Kasser & Ryan, 1993, 1996; Kasser & Ryan, 2001), and supported by the data. On this basis it is reasonable to expect that, if the profiles are replicated, the incremental value of the profiles, and differences between the profiles should also replicate.

Research Question 3

If the tests of incremental utility and the profile differences are replicated, will the profile differences generalize to other theoretically relevant outcomes such as basic psychological needs satisfaction and frustration?

Hypothesis 3

Given that intrinsic aspirations are thought to enhance basic psychological needs, and extrinsic aspirations, at best, only indirectly satisfy these needs (Deci & Ryan, 1985; Ryan & Deci, 2017), I included basic psychological needs satisfaction and frustration as outcome variables and assessed the extent to which these variables, central to SDT, relate to profile membership. I hypothesized that Profiles 2 and 3 would be more needs satisfied than Profile

1, and that Profile 1 would report the most psychological needs frustration given their relatively extrinsic orientation. I again expected that profile membership would uniquely predict these outcomes when controlling for the aspiration factor scores.

Method

Participants and design

Participants from Chapter 5 were recruited by professional survey company Qualtrics. The sample was comprised of 6063 participants (82% female) aged between 18 and 25 ($M=21.86$, $SD=2.29$). I also collected demographic information regarding ethnicity, income, marital status and education. Participants were 10.2% African American, 13.9% Hispanic, 7.7% European, 37.7% European American, 4.8% Asian American, 4.5% Native American, 0.8% South Indian/Indian subcontinent, 5.9% Mixed multi-racial, and 14.5% Other. The median income category was USD\$30'000-\$40'000. Participants reported being single (49.1%), dating a number of people (1.1%), dating one person (20.8%), married (15.5%), divorced (0.4%), widowed (0.1%), cohabiting (11.6%), or engaged (4.4%). Regarding education level, participants reported: Some high school or less (4.9%), high school diploma or equivalent (26.3%), some college (39.9%), college diploma (21.3%), some grad school (3.9%) and graduate degree (3.7%). All materials were administered in English.

Materials

Aspirations. Aspirations were measured using the English language version of the 35-item Aspiration Index (Kasser & Ryan, 2001) as described in Chapter 3. In this sample, Cronbach's alphas ranged from .81 for personal growth to .89 for physical health, indicating satisfactory internal consistency.

Subjective well-being. Keyes' (2006) 12-item Subjective Well-being Scale, described above in Chapter 4, showed satisfactory internal consistency in Chapter 5 ($\alpha = .86$ for

emotional well-being, $\alpha = .84$ for social well-being, and $\alpha = .76$ for psychological well-being).

Engaged living. Also described above in Chapter 4, the Engaged Living Scale (ELS; Trompetter et al., 2013) was found to be highly reliable in Chapter 5 ($\alpha = .93$).

Nonattachment. The NAS-7 (Elphinstone et al., 2015) showed good internal consistency in Chapter 5 ($\alpha = .87$), as it did in Chapter 4 described above.

Psychological needs. To assess satisfaction and frustration of participants' psychological needs for autonomy, competence, and relatedness, I used the cross-culturally validated Basic Psychological Needs Satisfaction and Frustration Scale (Chen et al., 2015). The measure consists of six subscales: autonomy frustration and satisfaction, competence frustration and satisfaction, and relatedness frustration and satisfaction, each represented by four items responded to on a 1 (Completely disagree) to 5 (Completely agree) scale. Example items include: "I feel that my decisions reflect what I really want" (autonomy satisfaction, $\alpha = .79$), "My daily activities feel like a chain of obligations" (autonomy frustration, $\alpha = .79$), "I feel capable at what I do" (competence satisfaction, $\alpha = .83$), "I feel insecure about my abilities" (competence frustration, $\alpha = .83$), "I feel connected with people who care for me, and for whom I care" (relatedness satisfaction, $\alpha = .82$), and "I feel the relationships I have are just superficial" (relatedness frustration, $\alpha = .84$).

Multiple imputation

In Chapter 5 I used a missing data design, as such data were missing completely at random (Enders, 2010). Using Amelia II (Honaker, King, & Blackwell, 2011) I created 25 imputations in R 3.2.0 (R Core Team, 2015). Demographic information was recorded for all respondents, and then participants were presented with 116 (or 117 depending on Qualtrics' display logic) random items from a total item pool of 217 (the questionnaire battery contained several scales not pertinent to this analysis). Amelia II implements the Expectation-

Maximization (EM) algorithm with bootstrapping (Dempster, Laird, & Rubin, 1977; Honaker et al., 2011). The package employs multiple bootstrapped samples of the original data to draw EM based predictive distribution of missing data and uses those parameters to automatically fill in the missing values while leaving the observed values intact across the imputations. The uncertainty associated with missing data modelling is accounted for across multiple imputations, which show minor variations in the imputed values. The EM convergence was normal and EM chain lengths of the imputed datasets were reasonably short and consistent in length. I also used several diagnostic tools available in Amelia II to confirm that the missing data modelling was robust.

Results

Inter-correlations

See Table 16 for inter-correlations, means and standard deviations of the scale scores of the Chapter 5 variables. As in Chapters 3 and 4, the intrinsic aspirations correlate more highly with each other than with the extrinsic aspirations (and vice versa). Interestingly, both intrinsic and extrinsic aspirations correlate positively with several well-being indices. For the most part, the well-being variables correlate highest with the intrinsic aspirations, though social well-being correlates similarly with all aspirations. Autonomy and competence satisfaction correlate positively with both intrinsic and extrinsic aspirations (though more so for the intrinsic subscales), and basic psychological needs frustration consistently relates positively with extrinsic aspirations, and negatively (or not at all) with the intrinsic aspirations.

Table 16.

Summary of inter-correlations, means and standard deviations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. Wealth	1																
2. Fame	.63**	1															
3. Image	.67**	.71**	1														
4. Growth	.27**	.13**	.25**	1													
5. Relationships	.20**	.08**	.22**	.70**	1												
6. Health	.36**	.18**	.35**	.69**	.60**	1											
7. Community	.19**	.19**	.24**	.72**	.60**	.61**	1										
8. Emotional well-	.09**	.07**	.11**	.28**	.28**	.29**	.29**	1									
9. Social well-being	.20**	.34**	.29**	.13**	.09**	.18**	.25**	.61**	1								
10. Psych well-being	.13**	.14**	.16**	.33**	.29**	.32**	.36**	.72**	.68**	1							
11. Engaged living	.14**	.16**	.18**	.33**	.28**	.34**	.38**	.61**	.51**	.62**	1						
12. Nonattachment	.09**	.04**	.08**	.40**	.31**	.37**	.39**	.49**	.37**	.51**	.52**	1					
13. Autonomy Sat.	.14**	.17**	.15**	.28**	.23**	.29**	.30**	.48**	.43**	.48**	.62**	.42**	1				
14. Autonomy Frust.	.23**	.24**	.22**	.04**	-.01	.02	.01	-.17**	.02	-	-	-	-	1			
15. Relatedness Sat.	.05**	.02	.06**	.36**	.40**	.31**	.35**	.49**	.30**	.44**	.53**	.41**	.60**	-	1		
16. Relatedness Frust.	.23**	.26**	.26**	-.10**	-.14**	-.05**	-.06**	-.19**	.07**	-	-	-	-	.62**	-	1	
17. Competence Sat.	.15**	.13**	.13**	.32**	.29**	.34**	.31**	.49**	.35**	.50**	.60**	.46**	.63**	-	.68**	-.14**	1
18. Competence Frust.	.15**	.18**	.18**	.03	-.05**	-.04	-.02	-.28**	-	-	-	-	-	.64**	.15**	.68**	-.32**
<i>M</i>	4.48	3.40	4.08	5.92	6.05	5.75	5.64	4.38	4.18	3.31	3.71	4.45	3.63	3.12	3.97	2.65	3.82
<i>SD</i>	1.37	1.56	1.42	1.03	1.13	1.11	1.18	1.16	1.13	1.25	0.80	0.97	0.88	1.01	0.87	1.14	0.87

B-ESEM and LPA of the Aspiration Index

To replicate the profile structure obtained in Chapters 3 and 4 (Research Question 1), I employed the same B-ESEM and LPA strategy described in those studies. As in the preceding studies, the B-ESEM (including two global and seven specific factors) indicated excellent fit in this sample, $\chi^2(316) = 4037.94$, $p < .001$, CFI = .97, TLI = .94, RMSEA = .04, SRMR = .01. Given my primary aim was to see if the 3-profile solution would replicate for a second time, I only ran LPA up to a 5-profile solution. The results of these analyses can also be found above in Table 11 (in Chapter 3). Item factor loadings for the nine factors are reported in Appendix N.

The right panel of Figure 6 (shown previously in Chapter 3) shows profile configurations akin to those observed in Chapter 3 (left panel) and Chapter 4 (middle panel). Profile 1 (28.7% of the sample, $n=1742$) again depicted the *Disengaged from relationships and health* group, characterizing those with average extrinsic aspirations, well below average intrinsic aspirations and a particular disinterest in relationships. Members of Profile 2 (45.9%, $n=2785$), the *Aspiring for interpersonal relationships more than community relationships* group, were slightly more intrinsic than extrinsic (as in Chapter 4, but not in Chapter 3) with an emphasis on relationships. Those in the *Aspiring for community relationships more than interpersonal relationships* group again had the highest global intrinsic and extrinsic aspirations, with an intrinsic emphasis. As in Chapter 3 and Chapter 4, Profile 3 also had a peak for community giving in Chapter 5.

Gender as a predictor of profile membership

As in the previous chapters, I again used a pseudo-class based multiple imputation method (Wang et al., 2005) to generate 25 imputations of profile membership estimations. I then employed a chi-square test to examine the link between gender and profile membership, which was significant, $\chi^2(2) = 135.69$, $p < .001$. Table 12 (included above in Chapter 3)

shows the expected and observed number of males and females and the standardized residuals in each of the six cells of the contingency table. As in Chapters 3 and 4, males were more likely than females to belong to Profile 1, the *Disengaged from relationships and health* group, and females were more likely than males to belong to Profiles 1 and 2 (the *Aspiring for interpersonal relationships more than community relationships* and *Aspiring for community relationships more than interpersonal relationships* groups).

Incremental utility of profile membership

I used the same approach outlined in Chapter 4 to determine the variables for which profile membership provides additional predictive power. I again used pseudo-class based multiple imputation (Wang et al., 2005) to estimate class probabilities 25 times, combining these estimates with the 25 multiply imputed datasets to conduct the hierarchical regressions. Model 1 used the two global and seven specific factors as predictors of the outcome variables, Model 2 additionally included profile membership probability as a predictor. I then compared Model 1 and Model 2 using an ANOVA, pooling the results across the imputed data sets (Meng & Rubin, 1992). As shown in Table 17, Model 2 (including class membership as a predictor) was a significantly better fit for all the variables measured, including basic psychological needs satisfaction and frustration. These results bolster the results from Chapter 4, again providing evidence for the importance of aspiration profile membership in predicting indices of optimal functioning.

To ensure that the links between profile membership and indices of optimal functioning were not specific to the sample in Chapter 4, I also ran the Chapter 5 LPAs whilst fixing the model command final estimates to match those in the *Mplus* output for Chapter 4. Fixing the values in Chapter 5 means that the model command final estimates for the profiles in this chapter are exactly the same as in Chapter 4. By using this fixed, or constrained, LPA procedure the profile shapes in Chapter 5 become more similar to those in Chapter 4 (see

Appendix O), and the Chapter 5 participants are given class membership probabilities based on the Chapter 4 output. I then tested the ability of profile membership to continue to predict additional variance in well-being using a constrained LPA in Chapter 5. As shown in Appendix P and Q, the hierarchical regression and profile comparisons using the profile probabilities from the constrained LPA, found that profile membership still has additional explanatory power for six of the eleven variables. The ability of profile membership to explain additional variance in the outcome variables in Chapter 5 using fixed model estimates from Chapter 4 serves a rigorous test of the utility of profile membership and the reliability of its incremental value.

Deriving similar profile shapes using totally independent samples serves as the most stringent test of the profile shapes' replicability. In addition, the fit indices were better for the independent models compared to the models using the fixed model estimates (see Appendix R). On these bases, I have aligned my results with the most statistically sound model, focusing on novel profiles that are derived independently from each sample but remain similar across studies. By conducting these sensitivity analyses, this study becomes, to my knowledge, the only mixture modeling study that passes the critical tests outlined by Parker and Brockman (in press)

Table 17.

Hierarchical regression results using aspirations and profile membership to predict well-being

	Emotional WB		Psych WB		Social WB		Nonattachment		Engaged Living	
	M1	M2	M1	M2	M1	M2	M1	M2	M1	M2
Extrinsic G	0.04***	0.04***	0.09***	0.09***	0.24***	0.23***	-0.01	-0.01	0.09***	0.09***
Intrinsic G	0.21***	0.20***	0.21***	0.20***	0.10***	0.08***	0.32***	0.32***	0.23***	0.22***
Wealth S	-0.03	-0.03	-0.04*	-0.04*	-0.14***	-0.14***	0.02	0.02	-0.05**	-0.05**
Fame S	-0.02	-0.01	-0.02	-0.01	-0.03	-0.02	-0.19***	-0.18***	-0.12***	-0.11**
Image S	-0.00	-0.01	-0.02	-0.03	-0.00	-0.01	-0.00	-0.00	-0.01	-0.02
Growth S	0.07	0.07	0.19***	0.19***	-0.26***	-0.25***	0.21***	0.21***	0.21***	0.22***
Relationships S	0.12***	0.13***	0.12***	0.12***	-0.05*	-0.06*	0.02	0.03	0.08***	0.09***
Community S	0.14***	0.13***	0.24***	0.22***	0.17***	0.16***	0.18***	0.17***	0.25***	0.22***
Health S	0.14***	0.13***	0.16***	0.15***	0.06***	0.05**	0.13***	0.12***	0.17***	0.16***
Profile membership (relative to Profile 1)										
Profile 2		-0.03		-0.04		0.00		-0.09		-0.09
Profile 3		0.08		0.11		0.12*		0.04		0.12*
Pooled sig. test M1 vs M2	$F(2,324) = 3.14, p < .05$		$F(2,279) = 6.53, p < .01$		$F(2,502) = 4.54, p < .01$		$F(2,353) = 6.37, p < .01$		$F(2,442) = 14.76, p < .001$	
Pooled R^2	0.120	0.121	0.166	0.168	0.185	0.186	0.205	0.207	0.186	0.191
Pooled $R^2 \Delta$		0.001		0.002		0.002		0.002		0.005

Table 17 continued.

	AutSat		AutFrustr		CompSat		CompFrustr	
	M1	M2	M1	M2	M1	M2	M1	M2
Extrinsic G	0.11***	0.10***	0.16***	-0.17***	0.07***	0.06***	0.13***	0.13***
Intrinsic G	0.25***	0.23***	0.03	0.06*	0.23***	0.22***	-0.01	0.02
Wealth S	-0.06**	-0.05**	0.05*	0.05*	0.03	0.04*	-0.01	-0.00
Fame S	-0.10*	-0.08*	-0.16***	-0.16***	0.04	0.05	-0.11*	-0.11*
Image S	-0.07*	-0.08**	0.07*	0.08**	-0.09**	-0.10**	0.12***	0.13***
Growth S	-0.06	-0.05	-0.09	-0.09	0.14*	0.15**	-0.18**	-0.18**
Relationships S	-0.00	0.00	-0.07**	-0.05*	0.10***	0.11***	-0.09***	-0.07**
Community S	0.08**	0.06**	-0.07**	-0.06*	0.13***	0.11***	-0.08**	-0.06*
Health S	0.08***	0.07**	-0.12***	-0.11***	0.18***	0.17***	-0.13***	-0.12***
Profile membership (relative to Profile 1)								
Profile 2		-0.06		-0.06		-0.06		-0.07
Profile 3		0.13*		-0.16**		0.12*		-0.17**
Pooled sig. test								
M1 vs M2	$F(2,442) = 14.76, p < .001$		$F(2,295) = 3.67, p < .05$		$F(2,326) = 9.99, p < .001$		$F(2,391) = 3.85, p < .05$	
Pooled R^2	0.126	0.130	0.082	0.083	0.148	0.152	0.061	0.063
Pooled $R^2 \Delta$		0.004		0.001		0.004		0.002

Table 17 continued.

	RelSat		RelFrustr	
	M1	M2	M1	M2
Extrinsic G	-0.01	-0.01	0.22***	0.22***
Intrinsic G	0.31***	0.29***	-0.13***	-0.10***
Wealth S	-0.02	-0.02	-0.02	-0.02
Fame S	-0.08*	-0.07	-0.24***	-0.24***
Image S	-0.03	-0.04	0.10***	0.11***
Growth S	0.08	0.09	0.03	0.03
Relationships S	0.20***	0.21***	-0.06*	-0.04
Community S	0.11***	0.10***	0.03	0.04
Health S	0.05*	0.04*	-0.07	0.00
Profile membership (relative to Profile 1)				
Profile 2		-0.04		-0.10*
Profile 3		0.11		-0.16**
Pooled sig. test				
M1 vs M2	$F(2,268) = 6.91, p < .01$		$F(2,388) = 3.91, p < .05$	
Pooled R^2	0.192	0.195	0.157	0.158
Pooled $R^2 \Delta$		0.003		0.001

Note. * $p < .05$. Results compare models using the factor scores from a bifactor exploratory structural equation modelling of the Aspiration Index (Model 1), to models that also include class membership probabilities from a latent profile analysis of the factor scores (Model 2), pooled across 25 imputations of class membership in Chapter 5 (the American sample). M1 = Model 1 (using the two global and seven specific aspiration variables to predict the dependent variables); M2 = Model 2 (using the aspiration variables, plus the profile membership variable to predict outcomes). G = Global factor, S = specific factor, WB = well-being. The profile membership estimates included here for Profile 2 (*Aspiring for interpersonal relationships more than community relationships*) and Profile 3 (*Aspiring for community relationships more than interpersonal relationships*) are relative to Profile 1 (*Disengaged from relationships and health*). Grey highlighting for the pooled significance tests indicate variables for which Model 2 was a significantly better fit than Model 1.

Profile differences

The three profiles were compared on the indices of well-being/optimal functioning. Again, I used regression combined with the delta method (Fox & Weisberg, 2010) to compare the means and standard errors across the three profiles (Research Question 3), also using the 25 imputations of class membership probabilities. Table 18 reports the means, standard errors, R^2 , and $R^2 \Delta$ from these analyses (Model 1 results in Table 18 does not control for aspirations, Model 2 does control for aspirations).

The results of these tests replicated and extended those from Chapter 4. When the aspirations are not controlled for emotional, psychological, and social well-being, engaged living, and nonattachment all increase with profile number. In addition, all three basic psychological needs (autonomy, relatedness, and competence) increase with profile number, with Profile 1 reporting less than Profile 2 who report less than Profile 3. The results also indicate that participants characterized by Profile 1 reported significantly more autonomy and relatedness frustration than Profile 3. Controlling for the two global and seven specific factors, the results indicated that members of Profile 3 had more social well-being, engaged living, and autonomy and relatedness satisfaction than both Profiles 1 and 2. Profile 3 also had more emotional and psychological well-being, nonattachment, and competence satisfaction than Profile 2 only, and Profile 1 members had more basic psychological needs frustration than Profile 3 only.

Table 18.

Standardized profile means, standard errors, R^2 , and $R^2\Delta$ for the models not controlling (Model 1) and controlling for aspirations (Model 2)

		Profile 1		Profile 2		Profile 3		R^2	$R^2\Delta$
		M	SE	M	SE	M	SE		
Emotional WB	Model 1	-0.32^a	0.03	0.01^b	0.02	0.39^c	0.03	0.07	
	Model 2	-0.01	0.04	-0.04^a	0.02	0.07^b	0.03	0.12	0.05
Psychological WB	Model 1	-0.34^a	0.03	-0.02^b	0.02	0.48^c	0.03	0.09	
	Model 2	-0.01	0.04	-0.05^a	0.02	0.10^b	0.03	0.17	0.08
Social well-being	Model 1	-0.13^a	0.03	-0.09^a	0.02	0.33^b	0.03	0.04	
	Model 2	-0.03^a	0.03	-0.03^a	0.02	0.09^b	0.03	0.19	0.15
Nonattachment	Model 1	-0.35^a	0.02	-0.02^b	0.02	0.49^c	0.03	0.10	
	Model 2	0.03	0.03	-0.06^a	0.02	0.07^b	0.03	0.21	0.11
Engaged Living	Model 1	-0.32^a	0.02	-0.06^b	0.02	0.52^c	0.03	0.10	
	Model 2	0.00^a	0.03	-0.08^a	0.02	0.13^b	0.03	0.19	0.09
Autonomy Sat	Model 1	-0.26^a	0.03	-0.05^b	0.02	0.43^c	0.03	0.07	
	Model 2	-0.01^a	0.03	-0.06^a	0.02	0.12^b	0.03	0.13	0.06
Autonomy Frust.	Model 1	0.03	0.03	0.00	0.02	-0.03	0.03	0.01	
	Model 2	0.07^a	0.04	0.00	0.02	-0.10^b	0.04	0.08	0.07
Competence Sat	Model 1	-0.34^a	0.03	-0.01^b	0.02	0.46^c	0.03	0.09	
	Model 2	0.00	0.04	-0.06^a	0.02	0.12^b	0.03	0.15	0.06
Competence Frust.	Model 1	0.08^a	0.03	-0.02	0.02	-0.07^b	0.03	0.01	

	Model 2	0.07^a	0.04	0.00	0.02	-0.09^b	0.03	0.06	0.05
Relatedness Sat	Model 1	-0.42^a	0.02	0.04^b	0.02	0.47^c	0.03	0.11	
	Model 2	-0.01^a	0.02	-0.05^a	0.02	0.10^b	0.03	0.20	0.09
Relatedness Frustr.	Model 1	0.18^a	0.03	-0.08^b	0.02	-0.09^b	0.03	0.01	
	Model 2	0.08^a	0.03	-0.02	0.02	-0.08^b	0.03	0.16	0.15

Note. Model 1 uses profile membership as a sole predictor of the outcome variable; Model 2 uses profile membership as a predictor whilst controlling for the two global and seven specific aspiration factors from the B-ESEM of the Aspiration Index; ^{a b c} = the means with matching superscripts (across each row) indicate that the respective profiles do not differ on the outcome variable, differing superscripts signify profiles that do differ, a mean with no superscript is not different from the other means in that row; bold = further signifies a profile that differs significantly from another profile on the outcome variable. Profile 1: *Disengaged from relationships and health*; Profile 2: *Aspiring for interpersonal relationships more than community relationships*; Profile 3: *Aspiring for community relationships more than interpersonal relationships*.

Discussion

This study served to unify the results found in the two preceding chapters, Chapters 3 and 4. Across three large studies using samples from different countries, I combined B-ESEM and LPA to examine intrinsic and extrinsic aspirations through a person-centered lens. I found support for my hypotheses that subgroups differ in the configuration of their aspirations, that those differences explain variance beyond the individual aspirations, and that the observed patterns of aspiring differentially relates to optimal psychological functioning, even in the most conservative tests. The replicable profiles derived in all three samples are easily interpretable and suggest that the Aspiration Index reliably measures aspiration configurations common across at least three different cultures. Crucially, I demonstrated that a B-ESEM and LPA analytic framework adds value to more traditional variable-centered approaches by finding that profile membership predicts positive functioning, even in conservative tests that control for the global and specific aspiration factor scores used to derive the profiles.

Profile membership predicted optimal functioning particularly for the *Aspiring for community relationships more than interpersonal relationships* group (Profile 3), whose members reported significantly more positive functioning than did those in Profile 1

(*Disengaged from relationships and health*) and Profile 2 (*Aspiring for interpersonal relationships more than community relationships*). This is a key outcome of this thesis because, while Profile 3 characterized individuals with a relative intrinsic orientation, of the three groups, Profile 3 members also reported the highest extrinsic aspirations. This result provides unique evidence that, for some groups, above average extrinsic aspiring may not be detrimental, if such aspiring is done in a highly intrinsic context, especially in combination with aspiring for community engagement and giving (Kasser & Ryan, 2001). It also converges with evidence on the need satisfying impact of civic engagement (Wray-Lake, DeHaan, Shubert, & Ryan, 2017).

Replicable profile configurations

Mine is the first study to disentangle intrinsic and extrinsic orientation effects from the shapes of the specific aspirations using an innovative B-ESEM methodology. In doing so, I achieved two important outcomes. First, I provided partial support for prior evidence that people can be grouped according to the levels of their higher-order intrinsic and extrinsic aspiration importance and attainment ratings (Kasser & Ryan, 2001; Lindwall et al., 2016; Rijavec et al., 2011). Specifically, Rijavec et al. (2011) reported four clusters from their K-Means cluster analysis. Of the four clusters described, my results support Rijavec et al.'s (2011) High E/Low I and Low E/High I clusters, in that members of Profile 1 members were more extrinsic than intrinsic, and Profile 3 individuals had a more intrinsic than extrinsic focus. Similarly, Lindwall et al. (2016) found a profile whose members had high intrinsic *and* extrinsic aspirations, much like my Profile 3 – *Aspiring for community relationships more than interpersonal relationships*. However, the B-ESEM methodology allowed me to zoom in on the shape of the specific aspirations in Profile 3, finding that high intrinsic and extrinsic aspirations is coupled with high community giving aspirations. Indeed, my use of B-ESEM

allowed me to expand past work (Lindwall et al., 2016; Rijavec et al., 2011) by including specific aspirations, whilst accounting for global intrinsic and extrinsic aspirations.

Profile membership and integrative span

My person-centered analytic strategy also revealed specific aspiration patterns of expanding social breadth. Each profile tended to increase in the breadth of their aspirations for social connection, from profiles characterized by low aspiration for social connection (Profile 1), higher aspiration for interpersonal connection than community connection (Profile 2), and then higher aspiration for community connection than interpersonal connection (Profile 3). I interpret the three profiles as representing differences in people's integrative span, or the expansiveness of their interests and focus of caring. Profile 1 members have below average relationship and community aspirations (both arguably other-oriented aspirations), while Profile 2 emphasizes relationship aspirations (which refer to more intimate, proximal others). Finally, Profile 3's configuration is centered on giving to the community (which focusses on the broader, more distal community and the world in general). The inclusion of increasingly distal others in the configurations is consistent with the idea of an expanding integrative span. Future research might examine the existence of potential additional spheres of integrative span, perhaps reflecting consideration for non-human animals, the environment, and future generations and their links to wellness.

Profile membership and optimal functioning

The central aims in Chapters 4 and 5 involved a comprehensive assessment of the additional utility of considering profiles of aspirations over and above what is known from the aspiration variables alone, the link between profiles and theoretically-relevant outcomes, and a test of the incremental value of these profiles controlling for the aspirations used to derive them. I expected that Profile 1 members' relative extrinsic orientation would result in them having less optimal functioning than would members of Profiles 2 and 3. This

hypothesis was largely supported. Emotional, social, and psychological well-being, engaged living, and basic psychological needs satisfaction all increased from Profile 1 to Profile 3, and Profile 1 members reported more basic psychological needs frustration than Profile 3 in Chapter 5.

To demonstrate that the B-ESEM and LPA framework added value, I also compared the three profiles whilst controlling for the two global and seven specific aspiration factors, which served as a highly conservative test of the predictive utility of class membership to well-being. The three profiles did not show incremental value in predicting mental ill-health or mindfulness in Chapter 4. However, Profile 1 continued to show less emotional, psychological, and social well-being than Profile 3 in Chapter 4 and more basic psychological needs frustration than Profile 3 in Chapter 5, and Profile 3 members maintained more social well-being and engaged living than Profiles 1 and 2.

Profile membership, nonattachment and empathy

Concordant with my conceptualization of integrative span discussed above (and in more detail in Chapter 4), I also hypothesized that the levels of the other-oriented variables of nonattachment, and cognitive and affective empathy would increase in line with expanding integrative span. Preliminary tests supported our integrative span hypotheses in part, with nonattachment increasing from Profile 1 to Profile 3 in Chapter 4 and Chapter 5. In Chapter 4, profile membership did not explain variance in cognitive empathy beyond the aspiration factors. Using my conservative test, I found that Profile 3 members were significantly more nonattached than those of Profile 1 and 2 in Chapter 4 and Profile 2 in Chapter 5. These results seem to indicate that Profile 3 members are best able to let go of self-indulgent beliefs (nonattachment). However, aspiration profile does not seem to make a difference in the extent to which profile members see themselves as particularly gifted when connecting with others (empathy), even though Profile 3 members aspire to contribute to the lives of others

nonetheless. Of course, I have no evidence that members of Profile 3 were actually serving the community (only aspiring to), although Schwartz (2010) reported that individuals are more likely to respond to those in need if doing so supports their “high priority values” (p. 222). Future research is needed to examine the extent to which members of the three profiles are enacting behaviours congruent with their patterns of aspirations.

Predicting profile membership

Gender was found to relate significantly with profile membership in all three samples. In Chapter 3 (the Hungarian sample) males were more likely than females to appear in Profile 1, the *Disengaged from relationships and health* group, and females were more likely than males to appear in Profile 3, the *Aspiring for community relationships more than interpersonal relationships* group. Gender did not meaningfully relate to profile membership in Profile 2, the *Aspiring for interpersonal relationships more than community relationships* group. Results were similar in Chapter 4 (the Australian sample) and Chapter 5 (the American sample) in that males were more likely than females to belong to Profile 1 and females were more likely than males to belong to Profile 3. In contrast to the study in Chapter 3, however, females were also more likely than males to belong to Profile 2 in Chapter 4 (Australian sample) and Chapter 5 (American sample). This result points to a difference observed in these studies: the proportion of extrinsic to intrinsic global aspirations observed in Profile 2. In Chapter 3, extrinsic slightly outweighed intrinsic, and in Chapters 4 and 5 intrinsic slightly outweighed extrinsic global aspirations in Profile 2. These peaks (in either direction) occur at less than a quarter of a standard deviation, so were small effects, but the pattern was consistent with my hypothesis that women are more likely to comprise profiles with a relative intrinsic emphasis.

Limitations

One potential limitation of the studies reported in Chapter 5 (as well as in the Chapters 3 and 4) is that responses on the self-report aspiration scales may have been influenced by common method variance, such as social desirability or extreme responding. However, one key aspect of my incremental analyses (controlling for aspirations) is that it minimized this risk. When comparing the profiles on the various outcomes, I control for the individual aspiration factors, a procedure that reduces or eliminates shared method variance (Lindell & Whitney, 2001). Nevertheless, it would be useful for future research to find non-self-report ways to measure aspirations, perhaps finding ways to assess implicit motivation (Schultheiss, Liening, & Schad, 2008).

Chapter Summary

The studies reported in this fifth chapter aligned with the results from Chapters 3 and 4, and support my claim that subgroups differ in their aspiration profiles and these differences relate to well-being and integrative span, even when controlling for individual aspirations. The derivation of these profiles using B-ESEM and LPA demonstrated a novel way of examining aspirations, and the results revealed a subgroup of aspirers, for whom giving to the community is important in combination with their high level of general aspiring. Individuals characterized by this profile reported more social well-being, engaged living, basic psychological needs satisfaction, and nonattachment than those in a group with an aspirational pattern marked by low intrinsic aspirations, and those in a group oriented towards their close relationships and health, even when controlling for the contributions of the two global and seven specific aspiration factors. The configuration of specific intrinsic and extrinsic aspirations meaningfully and incrementally informs the links between aspirations and optimal functioning.

Indeed, these results provide considerable grist for future investigations. The studies reported in Chapters 3, 4, and 5 distinguished Profile 3 individuals from those in Profiles 1 and 2, but the characteristics of members of the two latter profiles remain to be understood. For example, Profile 1 members' extrinsic emphasis may be demonstrative of insecurities, financial strain, or merely materialism – these ideas can be tested by measuring these constructs in future studies. Profile 2 individuals' focus on close relationships may signify their interest in a romantic partner or perhaps represent more collectivistic background values. Longitudinal analyses may also inform factors that predict aspiration profile membership (such as parenting style or cultural factors), and the outcomes associated with profile membership.

CHAPTER 6: GENERAL DISCUSSION

Introduction

The principal aim of this thesis was to investigate the claims of goal contents theory that intrinsic aspiring yields well-being benefits, whereas a focus on extrinsic aspirations can deter optimal psychological functioning (Kasser & Ryan, 1996). Key questions centered on whether extrinsic aspirations are detrimental in all contexts, and if there are subsamples of people with specific configurations of aspirations that might further explain the linkages between aspirations and well-being.

In Chapter 2, I conducted a meta-analysis of more than 1,000 effect sizes to assess the generalizability of goal contents theory across a variety observed sources of variance. The results showed that goal contents theory's central tenets generally held across age groups, genders, countries, and SES. The meta-analysis did, however, reveal considerable heterogeneity. In Chapters 3, 4, and 5 I contended that unobserved sources of variance, may account for some of the unexplained variance. Specifically, I supposed that the frequently observed positive correlations between intrinsic and extrinsic aspirations (Bradshaw et al., 2018) indicate that, for latent subgroups, intrinsic and extrinsic aspirations may not have universally divergent links with well-being. I garnered support for my suppositions in Chapters 3, 4, and 5. Using latent profile analysis, in three large, cross-cultural studies, I found that the samples were consistently comprised of three replicable profiles each with a distinct configuration of aspirations. Then, in Chapters 4 and 5, I demonstrated not only that the profiles could be reliably identified, but that membership to the profiles explained variance in multiple well-being metrics, above and beyond the intrinsic and extrinsic aspirations used to derive the profiles. Profile 3, whose members were highly engaged with all aspirations, but especially community giving, reported more well-being compared to

Profile 1 who were disengaged from all aspirations especially relationships, and Profile 2 who aspired to an average extent, but prioritized close relationships.

Together, the studies in thesis make several novel contributions to the field. The thesis includes the first meta-analysis of aspirations and optimal psychological functioning to examine the links between intrinsic and extrinsic aspirations and well-being and ill-being separately. Analyzing the aspirations separately allowed me to demonstrate that the two aspiration types are not opposite ends of a continuum; rather they each relate uniquely to indices of well-being and ill-being. In addition, Chapters 3, 4, and 5 outline the first person-centered analysis of specific aspirations that accounts for the overall level of intrinsic and extrinsic aspirations using B-ESEM. The profiles resulting from the novel B-ESEM and LPA approach showed groups with progressively broadening aspirations for social care and consideration. I explained these differences as representing different degrees of integrative span, or breadth of aspirations for social connection. Integrative span represents a key theoretical contribution of this thesis.

In this sixth and final chapter I elaborate on and broaden the findings reported herein, point to specific trends in the data that require further exploration, draw links between the four studies, and situate the results within the broader literature. In particular, I propose that the negative impact of extrinsic aspiring is nuanced. Prioritizing extrinsic pursuits appears to be of little benefit for well-being, and some detriments are also evident, especially for specific groups, which I will discuss in detail below. Building on the results of the three latent profile analyses in Chapters 3, 4, and 5, I further discuss my theory of broadening social concern and argue that integrative span may be the mechanism by which people are sorted into various patterns of aspiring. Finally, I conclude that the four studies of this thesis support goal contents theory, whilst also providing a complementary framework for the person-centered analysis of aspirations which provides information otherwise not accessible.

Summary of key findings

The link between relative extrinsic aspiring and well-being

The meta-analysis and profile analyses included in this thesis uniquely and complementarily demonstrate that intrinsic aspirations benefit wellness, especially relative to extrinsic aspirations. When the relative centrality of intrinsic aspirations—calculated by subtracting the mean across all aspirations from the intrinsic mean—is compared to the relative centrality of extrinsic aspirations. Predominant intrinsic aspiring is positively linked to optimal functioning. The same is not true for extrinsic aspiring.

However, separation of the aspiration types in the meta-analysis revealed that intrinsic and extrinsic aspirations each have unique properties, which permits a deeper dive into the correlates of, particularly, extrinsic aspiring. Goal contents theory does not contend that extrinsic aspirations are essentially bad (Deci & Ryan, 2000). Indeed, when measured using simple scores (the mean across the extrinsic aspirations for wealth, fame, and image), Chapter 2 showed that the correlation between extrinsic goals and well-being was positive. However, the theory does hold that when extrinsic aspirations take priority in the pattern of overall aspiring well-being can be deterred. The meta-analysis supported this theoretical claim. The small, negative correlation between the relative centrality of extrinsic aspirations and well-being was not moderated by any of the methodological or demographic variables included in the meta-analysis. The effect sizes were very small, so relative extrinsic aspiring probably contributes to approximately 1% of variance in well-being. While the link between relative extrinsic aspiring and well-being was negative, it appears not to be a key deterrent of well-being.

The link between extrinsic aspirations and ill-being

The link between extrinsic aspirations and ill-being was more nuanced than the link between extrinsic aspirations and *well*-being. Separation of ill-being (from well-being) in the

meta-analysis shed light on the complexity of its link to extrinsic aspiring. First, the correlation between extrinsic aspiring and ill-being was not moderated by the strategy used to calculate extrinsic aspirations. Use of a simple extrinsic mean versus a relative extrinsic aspiring score did not affect the small, positive correlation between extrinsic aspirations and ill-being. The correlation between extrinsic aspirations and ill-being was, however, moderated by scale type (importance, likelihood, and attainment), outcome type (negative affect, depression and anxiety, and basic psychological needs frustration), gender, and country.

The significant effect of scale type was such that, when one rates extrinsic aspirations in terms of their importance, the correlation with ill-being was weakly positive. Valuing extrinsic aspirations is linked with a small increase in ill-being. However, when extrinsic aspirations are rated in terms of their likelihood of attainment or current attainment, the link to ill-being is non-significant. Thus, expecting to achieve or having already achieved extrinsic goals does not link to ill-being. I elaborate upon the implications of moderation by scale type, and the role of perceived likelihood later in this general discussion.

The significant moderating role of outcome type indicated that extrinsic aspirations link most strongly with basic psychological needs frustration (of the ill-being outcome metrics). The correlation between extrinsic aspirations and negative affect, and between extrinsic aspirations and depression/anxiety was very weak, whereas the link with basic psychological needs frustration was moderate. Arguably, significant moderation by outcome type points to the mediating role of basic psychological needs frustration in the positive link between extrinsic aspirations and other indices of ill-being such as negative affect and distress. Basic psychological needs frustration is thought to be the path through which relative extrinsic aspiring promotes ill-being (Kasser & Ryan, 1993, 1996). It seems that

extrinsic pursuits either actively frustrate needs or distract from other behaviors that better satisfy needs, as a result optimal psychological functioning is undermined.

Moderation by gender and country

Demographic variables including gender and country also moderated the link between extrinsic aspirations and ill-being. For mostly male samples, the extrinsic to ill-being link was significantly larger than it was for mixed-sex or mostly female samples. I detail this result below in a discussion of gender effects, suffice at this point to say that males may be at increased risk of the ill-being-related consequences of extrinsic aspiring. Finally, moderation by country showed that the positive correlation between extrinsic aspirations and ill-being was only significant for North American and South American samples. However, several levels of the country moderator included only one study, which is less than the minimum two suggested by Valentine, Pigott, and Rothstein (2010).

The methodological and demographic moderators of the link between extrinsic aspirations and ill-being suggest that prioritizing extrinsic aspirations in the pattern of aspirations is associated with a small increase in ill-being. However, this appears especially the case in specific circumstances. Valuing extrinsic aspirations (rather than expecting them or having already attained them) and being male are particularly linked to indicators of ill-being, especially basic psychological needs frustration. Though, the negative association between extrinsic aspirations and ill-being appears to only be significant in the Americas, so more diverse samples are needed to support the moderation by country result due to a dearth of samples from Oceania, East Asia, South-East Asia, South Africa, the Middle East, and South America.

Gender and aspiring

The meta-analysis in Chapter 2 showed that, for mostly male samples, extrinsic aspiring led to the largest increase in ill-being (relative to mixed-sex and mostly female

samples). Similarly, the latent profile analyses in Chapters 3, 4, and 5 indicated that males are more likely to belong to a subgroup typified by an extrinsic goal focus and lower ill-being (relative to those with a more intrinsic focus). Taken together, the results of the meta-analysis and latent profile analyses suggest that males are a population of particular interest in the study of, especially extrinsic, aspirations.

Prior evidence suggests that males tend to orient towards extrinsic aspirations, especially wealth, more than do women (e.g., Kasser & Ryan, 1993, 1996). However, the “why” or the mechanism for these gender differences can only be a matter of speculation at this stage. Guillen-Royo and Kasser (2015) propose two primary explanations for why some people focus on one set of aspirations rather than the other. First, people tend to orient towards values and aspirations that are emphasized in their environment/s. Second, experiences of psychological insecurity predict an emphasis on material indicators of worth. Following from these two explanations, males perhaps occupy more extrinsically-oriented environments and therefore more readily endorse extrinsic values (compared to females). More broadly, maybe males are more socially groomed to work towards various sources of material worth, which is why they more commonly prioritize them. In addition, arguably the perception of external social pressure would make males’ orientation towards these goals feel psychologically controlling, perhaps explaining why extrinsic aspiring promotes ill-being particularly for males. Perceived social pressure to aspire extrinsically would likely increase the negative impact of such aspiring for all samples, regardless of gender composition, though the fact that extrinsic aspirations are associated with more ill-being in mostly male samples suggests males may experience more social pressure (or be more negatively impacted by social pressure) than mixed or mostly female samples.

Other trends in the meta-analysis’ results suggest that the correlation between aspirations and outcomes is complex for mostly male samples. The link between intrinsic

aspirations and ill-being was not moderated by gender ratio, as the confidence intervals for each of the gender groups intersected. However, the mostly male category included only one study with 12 interdependent effect sizes. For this single study, the average correlation between intrinsic aspirations and ill-being was not significant, whereas for mixed-sex and mostly female samples the correlation was negative. Again, including gender as a moderator did not improve the model linking intrinsic aspirations to ill-being, but the fact that the mostly male group only contained one study suggests that more data is needed to investigate the apparent trend that intrinsic aspiring may be less protective against ill-being for male samples than for mixed-sex and mostly female samples.

It seems males cannot win when it comes to aspirations. Striving for extrinsic goals links more strongly to ill-being in mostly male samples, plus aspiring for intrinsic aspirations may not protect against ill-being as it does for mixed-sex and mostly female samples. Perhaps, males engage with goals differently, or experience more goal disengagement, than females. Geiser, Okun, and Grano (2014) provided evidence that males were less likely than females to belong to a profile typified by disengagement. In a profile analysis of volunteer motivation, Geiser et al. (2014) found that males were more prevalent than females in a profile characterized by amotivation to volunteer. Geiser et al.'s (2014) result maps onto the results from Chapters 3, 4, and 5, wherein males were more likely than females to belong to the below-average-aspiring Profile 1. It seems not only that males tend to orient towards extrinsic goals more than women do (and tend to be typified by generally disengaged profiles), but they do so to their added detriment.

Perhaps to focus on gender is a misdirected explanation of these differences. It is also possible that societal norms may encourage men to seek extrinsic pursuits; to be the hunter-gatherer; the provider, which is why they belong to the more extrinsic profile in Chapter 3, 4, and 5. Those same societal norms may coax women towards more intrinsic goals and roles,

which center on helping others and maintaining relationships, resulting in their likelihood of belonging to profiles with a relative intrinsic, other-oriented aspirational orientation. Indeed, Fausto-Sterling (2000) and Keane and Rosengarten (2002) argued that sexed, binary narratives that suppose males and females are the way they are because of their biological sex are at best reductive and at worst erroneous because they divorce sex from the pertinent social context.

Theoretical connections

The role of privilege

Psychological threat, particularly economic threat, tends to make people orient towards extrinsic over intrinsic aspirations (Kasser et al., 1995; Sheldon & Kasser, 2001). For those experiencing financial challenges, a focus particularly on wealth goals may have utility. Those who struggle to make ends meet strive, primarily, to survive. The priority becomes meeting basic needs such as acquiring shelter and food, instead of learning or building meaningful relationships. Those in circumstances of financial insecurity likely experience a large differential between their current and desired levels of material wealth. Unfortunately, the gap between current and desired wealth interacts with extrinsic aspiring to predict ill-being. As the gap between actual and desired wealth increases so too does the negative psychological impact of extrinsic aspiring (Solberg et al., 2004). Put together, the evidence suggests that those who have less than they need orient towards extrinsic aspirations, and as the gap between have and need expands, the negative consequences of an extrinsic orientation are compounded.

Building on the work of Maslow (1970), Inglehart (2018) suggested that extrinsic aspirations represent *materialistic* values and, what goal contents theory calls intrinsic aspirations, are *post-materialistic* values. According to Inglehart (2018), developing communities and countries with high financial insecurity necessarily focus on materialistic

values. As countries become more secure, stable, and safe, people's interest in post-materialistic values increases. Trends in the meta-analysis in Chapter 2 support the claim that some groups may need to pass through the materialistic values filter before they can benefit from post-materialistic values (or, in goal contents theory terms, intrinsic aspiring). Specifically, the correlation between intrinsic aspirations and well-being was positive for all countries and SES groups except for South America and the low SES group, for whom the links were non-significant. Use of the word "trends" is appropriate for discussing these South America- and low SES-specific results, because the link between intrinsic aspirations and well-being was not significantly moderated by country or SES. However, the South American and low SES groups within the country and SES moderators were underrepresented and therefore underpowered (Pincus et al., 2011; Valentine et al., 2010). In addition, the correlations were counter to theory (they suggest some groups may not benefit from intrinsic aspiring as theory would suggest) and so further research is needed to see if only privileged groups with post-materialistic values experience the benefits of intrinsic aspiring.

Importance, attainment, and likelihood

The valuing of aspirations is distinct from expecting to attain or having already achieved aspirations. Each of these three goal elements: valuing, likelihood of attainment, and actual attainment, has been individually linked to well-being (Brunstein, 1993; Carver, Lawrence, & Scheier, 1996; Emmons, 1991). The Aspiration Index measures the valuing component of life goals via importance ratings. Kasser and Ryan (2001) later added likelihood and attainment subscales to the Aspiration Index to see if emphasizing extrinsic aspirations would deter well-being even if one expected to attain, or had already achieved, their extrinsic goal/s. Kasser and Ryan (2001) found that holding relative extrinsic aspirations is detrimental, whether the aspirations were valued, thought likely, or accomplished (Kasser & Ryan, 2001).

In the meta-analysis in Chapter 2, the valuing of extrinsic aspirations (measured using simple scores) was not related to well-being, whereas likelihood of attainment correlated positively. The reverse was true for the link between extrinsic aspirations (simple scores) and ill-being. Valuing extrinsic aspirations (simple scores) linked positively with ill-being, while likelihood of attainment did not. Similarly, the valuing component of intrinsic aspiring weakly correlated with well-being, whereas the likelihood of attaining intrinsic aspirations correlated moderately with well-being. The importance of intrinsic aspirations also had a very weak negative link with ill-being, while likelihood ratings had a larger negative association with ill-being. The belief that one can achieve their intrinsic goals is linked with a boost to the benefits of intrinsic aspiring, and a stronger defense against ill-being. In other words, intrinsic aspirations benefit well-being and reduce ill-being more than extrinsic aspirations, and those psychological profits are enhanced if the aspirations are thought to be attainable.

The link between aspirations and autonomous forms of motivation

Integration represents the most completely internalized, self-congruent form of motivation (Ryan & Deci, 2017). Values that are integrated with oneself have first passed through the filter of identification (that is, they have become valued and thought meaningful), and progressively become more autonomous so as to eventually be fully accepted and made coherent with other elements of the self (Deci & Ryan, 2000). Integration of a value is, in large part, attributable to the degree to which the value supports basic psychological needs (Deci & Ryan, 2000). In particular, for a value to be integrated there must be an opportunity for it to be self-selected and self-endorsed, free from external pressures. The value has to become aligned with other integrated values. The value has to be self-concordant (Sheldon & Elliot, 1998). For a value to become self-concordant, one must be able to hold the value freely without fear of pressure or appraisal (Deci & Ryan, 2000). Orienting primarily towards extrinsic goals concerned with riches, popularity, and beauty demonstrates that some level of

attention is on sources of external evaluation. To emphasize goals of extrinsic nature is to focus on what other people think, and such processes forestall integration.

The logic outlined above suggests that extrinsic aspirations are not, by their very nature, as likely to become fully integrated, because they depend on external evaluations which prevent integrative processes. Evidence from Lindwall et al. (2016) supports the claim that extrinsic pursuits are associated with less autonomous forms of motivation even at the person-centered level. Lindwall et al. (2016) found that profiles typified by an orientation towards extrinsic goals reported more external and introjected motivation than amotivated and primarily-intrinsic profiles. The results of the meta-analysis in Chapter 2, and the results from Lindwall et al. (2016) are consistent with the theoretical claim that extrinsic aspiring typically reflects less autonomous motivation.

However, I am suggesting that extrinsic aspirations can be identified with, which is to say, thought meaningful and valuable. However, the range of identifications with an extrinsic aspiration may vary. One may think it is important to have a fancier home than their neighbor and so aspires for riches. Others might value helping the less fortunate and so could be “earning to give [to charity]” as in effective altruism (Singer, 2015, p.55). In the first example, satisfaction of the value depends on the neighbor noticing (and caring about) the size of their neighbor’s house. It relies on external evaluation. Whereas, acquiring wealth to donate to charity appears to reflect a deeper held value. In the “earning to give” example, the direct benefits of the endeavor are not available to the pursuant, so the act does not depend on those benefits. In either case, prioritizing a wealth-related goal over aspirations for relationships and growth (and so on) will likely discourage wellness. But, extrinsic aspirations can move further along the spectrum of identifications, becoming progressively more autonomous.

The incremental value of person-centered analysis to goal contents theory

Person-centered analyses facilitate a view of data that is otherwise concealed by the homogeneity assumption upon which variable-centered methods depend (Lindwall et al., 2016). Indeed, in Chapter 3, 4, and 5, I discovered three distinct and replicable profiles of aspirations. Profile 1 was typified by disengagement particularly from relationships, Profile 2 focused on close interpersonal relationships, and Profile 3 was highly goal-engaged with a focus on the community.

However, conclusions drawn from person-centered methods can be limited by mixture models' ability to derive local cluster- or profile-solutions regardless of whether the solution has predictive utility (Hipp & Bauer, 2006). If a cluster- or profile-solution from one study cannot be replicated in future samples, then conclusions drawn about the derived profiles pertain only to that sample and cannot be generalized. In addition, differences reported between the profiles in a given solution could reflect differences in the variables that actually comprise the profiles. For example, in the LPA conducted by Lindwall et al. (2016), profiles of exercise-related intrinsic and extrinsic goals were found to differentially relate to indices of controlled and autonomous motivation. However, differences between the aspiration profiles could be a function of group members' endorsement (or disregard) for a particular aspiration. Maybe one group strongly endorses social affiliation exercise-related goals, and that focus is driving their higher scores on autonomous motivation. In other words, the profile differences may be confounded by profile members' (de)emphasis on different goals. The degree to which differences between profiles are dictated by profile members' focus (or lack thereof) on different aspirations can be accounted for by controlling for the specific aspiration variables when predicting outcomes. Controlling for aspirations is a highly restrictive approach but doing so isolates variance attributable only to profile membership

and demonstrates that the person-centered method adds value to traditional variable-centered methods.

In Chapters 4 and 5, I used the conservative approach outlined above to demonstrate that the profiles derived in each sample added value to what is already known about the link between aspirations and well-being. In Chapters 4 and 5, these conservative tests demonstrated that membership to Profile 1 was negatively linked with its members' emotional and psychological well-being, and Profile 3 membership is linked with its members' positivity and belongingness (social well-being), and valued living and life satisfaction (engaged living), even when accounting for the spectrum of aspirations. In other words, even when the specific aspirations were controlled for, those characterized by Profile 1 still had the least optimal functioning and those characterized by Profile 3 had the most. For Profile 1, these results are perhaps intuitive. In general, high goal engagement has been linked to well-being (Emmons, 1986), especially if said goals are intrinsic (Kasser, 2002), and Profile 1 members had below average intrinsic aspirations, and general aspiring. However, what may be surprising for some is Profile 3's apparent high degree of optimal functioning despite their above average scores of global extrinsic aspirations.

Profile 3 members' high degree of positive functioning, relative to the other profiles, indicates that there is a subgroup of people for whom above average extrinsic aspirations may not be inherently negative. Perhaps it is the case that Profile 3's extrinsic endeavors do not distract from their high level of intrinsic aspiring. Or perhaps the functions of extrinsic aspirations are different when they are in the context of high (Profile 3) versus low (Profile 1) intrinsic aspiring. For example, people who aspire for community values may see fame as a way to help others by being influential. In contrast, someone characterized by the disengaged profile (Profile 1) may see fame only in terms of power and status. These speculations need to be tested in future research.

Chapter 4 and 5 of this thesis used a highly conservative test to establish the incremental utility of the B-ESEM and LPA person-centered approach to analyzing aspirations. By disentangling the higher order intrinsic and extrinsic aspirations from the specific aspirations, I was able to shed light on how patterns of global and specific aspirations reveal more information about the complex interplay between intrinsic and extrinsic aspirations and optimal psychological functioning.

A theory of integrative span

In Chapters 3, 4, and 5 of this thesis, I describe the configural differences between the three latent profiles of aspirations as representing a progressively inclusive orientation towards others. In each of the three cross-cultural samples, Profile 1 members had below average relationship and community aspirations (both arguably other-oriented aspirations), while Profile 2 emphasized relationship aspirations (which refer to more intimate, proximal others). Profile 3's configuration was centered on giving to the community (which focusses on the broader, more distal community and the world in general). In other words, ever-more others, and increasingly distal others, were considered in the patterns of aspiring. The inclusion of increasingly distal others in the configurations, is consistent with the idea of a progressively integrative span of other-identifications. In Chapter 4 and 5, I propose that integrative span is the sorting mechanism behind the profiles of aspirations.

The progressive increase in integrative span from Profile 1 to Profile 3 (in Chapters 3, 4, and 5) may ultimately relate to several existing constructs as well as speculative ideas in the literature. For instance, these differences may reflect different degrees of self-actualization (Maslow, 1967), which is manifest in people who are driven by causes "outside themselves" (p.94). Frankl's (1966) self-transcendence thesis similarly emphasizes human interactions as a source of meaning, which is thought to be the ultimate human goal, as do Adler's (1954/1927) seminal writings concerning *gemeinschaftsgefühl* (community feeling).

Broadening integrative span as discussed herein may also connect with the literature of eudaimonia, insofar as eudaimonic living emphasizes the pursuit of virtue and one's best potentialities (Huta & Waterman, 2014; Ryan, Huta, & Deci, 2008), and has been speculated to relate to a broader scope of concern (Huta, 2016), or a propensity to consider the well-being others, as well as to think abstractly and see a bigger picture. Perhaps most directly, integrative span connects with the McFarland, Webb, and Brown (2012) construct: identification with all humanity (IWAH), which expands upon work by Adler (1954/1927) and Maslow (1967), among others. Like McFarland et al.'s (2012) work, my Profile 1's self-orientation reflects a relatively narrow span of identifications, Profile 2 is one level wider by including close others, and Profile 3's emphasis on the community represents the broadest span of other-identification.

I also see the idea of integrative span as potentially related to successful development, as people move increasingly beyond self-focused concerns (Profile 1) to more concern with their relationships (Profile 2) and the larger community (Profile 3). Intrinsic aspirations could be thought to reflect more expansive integrative span given that these pursuits better satisfy basic psychological needs and integration. In contrast, extrinsic aspiring could reflect narrower integrative span because aspirations of this type are thought to be more self-focused, often due to need thwarting and frustration in one's social context. For example, Kasser et al. (1995) showed that more need depriving (cold and controlling) parenting led to youth developing more materialistic leanings and fewer prosocial interests.

Integrative span reflects greater inclusion of increasingly distant others. The narrowest span would focus only on one's own needs. The span could then be broadened to include significant others, such as a partner, and even further to include one's community. As integrative span increases, people are expected to become more oriented towards satisfying the needs of others. In addition, they are likely to encounter more people who can help them

satisfy their own needs. Integrative span illustrates that there appear to be levels or spheres of consideration beyond the self, and this thesis demonstrates importantly, that one's own wellness is enhanced the more levels are transcended.

Strengths and limitations

The body of research upon which I have elaborated in this section is limited in several ways, all of which point to opportunities for future research (which I will outline in the next section). One of the key strengths of this thesis is the sheer volume of effect sizes (in Chapter 2) and participants (in Chapter 3, 4, and 5). The meta-analysis in Chapter 2 extracted in excess of 1,000 effect sizes from 62 published and unpublished works, and the profile analyses involved more than 11,000 participants. Sixty-two far exceeds the 10 studies recommended to achieve adequate statistical power in a meta-analysis (Pincus et al., 2011). However, at some levels of several moderators, there were far fewer studies and effects than recommended. Conclusions regarding any moderator for which less than the minimum recommended two studies (Valentine et al., 2010) are available should be interpreted with caution. Underrepresentation within some of the key moderators in the meta-analysis precluded conclusions about the role of context and demographics such as country and SES. Some potentially important trends were not statistically significant. Perhaps these trends were non-significant because the links are, indeed, not significant, or it could be due to too few effect sizes. Aspirations have been studied in a variety of countries and SES groups, though the meta-analysis was still comprised of primarily middle-class, Western groups. More studies are needed to complement the cross-cultural research that has already been, and is currently being, conducted.

The four studies in this thesis are also limited primarily by the fact that they are cross-sectional. A purely cross-sectional analysis prevents discussion of causal links and implications, giving the results more descriptive rather than prescriptive utility. While it is

clear from these studies that aspirations link with well-being and basic psychological needs satisfaction, my research can shed no light on the possible direction, or potential causes, of these links. Guillen-Royo and Kasser (2015) discussed evidence suggesting that psychological, and particularly economic, threat can lead to extrinsic aspiring. But if psychological and economic threat leads to extrinsic aspiring, as some evidence has found (Cohen & Cohen, 2013; Kasser et al., 1995), this does not explain why such an orientation negatively impacts well-being. Arguably, those experiencing psychological and economic threat would experience decrements in well-being as a result, so in this sense, reductions in well-being and extrinsic aspiring could simply co-occur, rather than cause each other.

Some studies have examined the longitudinal, as opposed to cross-sectional, effects of extrinsic aspiring (Hope, Holding, Verner-Filion, Sheldon, & Koestner, 2018; Niemiec et al., 2009). The evidence suggests that people are no less likely to achieve extrinsic goals but, even when achieved, extrinsic goals seem to contribute little to well-being (Niemiec et al., 2009). However, there were too few longitudinal studies to include them in the meta-analysis. Also, there was little diversity in the samples of the longitudinal studies found (most were from North America), so synthesizing them could not address questions about the longitudinal impact of intrinsic and extrinsic aspiring in other cultures and contexts.

Another potential limitation of the studies is that responses on the Aspiration Index rely on self-report. Self-report responses could have been influenced by common method variance, such as social desirability or extreme responding. However, in Chapters 4 and 5, when I compared the three profiles derived in Chapters 3, 4, and 5 on the various outcomes, I controlled for the individual aspiration factors, a procedure that reduces shared method variance (Lindell & Whitney, 2001). Nevertheless, it would be useful for future research to find non-self-report ways to measure aspirations, perhaps finding ways to assess implicit motivation (Schultheiss et al., 2008).

Future Directions

More diverse sampling

One of the aims of this thesis was to comprehensively evaluate the role demographic moderators such as gender, country, and SES play in the links between aspirations and optimal psychological functioning. However, a lack of samples comprised of mostly males, non-Westernized countries, and diverse SESs, forestalled a complete review of these moderators. Some non-significant trends in the data indicated that males, countries typified by poverty and economic inequality, and low SES groups may not benefit from intrinsic aspirations. The studies in this thesis have rather comprehensively indicated that emphasizing intrinsic aspirations relative to extrinsic aspirations is well-being enhancing, but this conclusion should not preclude further study of intrinsic and extrinsic aspirations to delve deeper into the role of gender, country, and SES.

Person-centered analysis of likelihood ratings

Above I propose that the importance given to aspirations demonstrates one's level of identification with an aspiration. I also suggest that the expected attainment of one's aspirations relates, at least in part, to one's identification with and integration of the goals. The profiles provided in this thesis utilize only importance ratings. They are profiles of aspiration valuing. Given that valuing of life goals relates differently to outcomes than does perceived likelihood of attainment, profile analyses of likelihood ratings could provide unique information about patterns of aspirations. Profiles of likelihood ratings may be an important avenue for future research because, based on the results of the meta-analysis, profiles of likelihood of attainment would likely account for variance in well-being distinct from that attributable to aspiration valuing.

Further study of integrative span

The preceding discussion of integrative span also warrants further investigation. I introduced the concept of integrative span as perhaps being the mechanism by which people are sorted into the various profiles. However, the concept is merely theoretical at this point. While the shape of the latent profiles from Chapters 3, 4, and 5, and the correlates of Profile 3 membership (increased nonattachment and well-being) support my theoretical outline, operationalization of the construct and evaluation of its validity are necessary next steps. Moreover, if integrative span is found to have construct validity, it is ripe for even further exploration. Demographic, social, and psychological predictors and outcomes of integrative span will need to be investigated, as well as potential expansion of the construct to see if there are additional spheres of integrative span beyond self, close others, and the community.

Conclusions

As outlined in detail in this thesis, the discourse surrounding extrinsic aspiring often frames extrinsic goals as materialistic, and more likely than intrinsic aspirations to be psychologically detrimental (Deci & Ryan, 2000). The results of this thesis have demonstrated that emphasizing extrinsic aspirations in the broad pattern of aspiring can deter well-being. The profiles derived in this thesis also indicated that subscribing to patterns of aspiring that prioritize intrinsic aspirations over extrinsic aspirations links with optimal psychological functioning. However, the profiles also suggested that having a high degree of extrinsic aspirations is not necessarily detrimental. What appears crucial is the ratio of intrinsic to extrinsic aspiring. Profile 3 reported the highest levels of both intrinsic and extrinsic aspirations, but the orientation was primarily intrinsic, and they consistently reported more optimal functioning. In the latter chapters of this thesis I explained Profile 3's high degree of optimal functioning as a function of their broad integrative span. Profile 3's aspirations orient towards the broader community, thus their care extends beyond themselves,

and their intimate network, to less familiar others. I argue that Profile 3 member's inclusive scope of concern represents fuller integration, less self-focus, and less attachment, and might in part explain their own high levels of well-being.

The conclusions drawn above point to the key theoretical contributions of this thesis, but the studies herein also make novel methodological contributions. By combining B-ESEM with LPA in three large, cross-cultural samples I provided a comprehensive framework for the person-centered analysis of higher-order and specific intrinsic and extrinsic aspirations. Chapters 4 and 5 also demonstrated that the novel methodological framework provided information about aspirations and well-being that is otherwise hidden in variable-centered analysis of aspirations. The four quantitative studies of this thesis make important theoretical and methodological contributions to the study of intrinsic and extrinsic aspirations. Using a variety of appropriate and rigorous methodologies the studies herein provide support for existing theoretical claims, as well as extend the theoretical dialogue through the novel contribution of integrative span theory. En masse, this thesis shines new and complementary light on goal contents theory and human wellness.

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* Indicates data included in the meta-analysis in Chapter 2

APPENDIX A: META-ANALYSIS REASONS FOR EXCLUSION

Appendix Table 1.

Reasons for exclusion from the meta-analysis in Chapter 2 and the frequency of each reason

Reason	Frequency
Aspiration Index not used	39
Relevant data not reported	14
No original data	13
No well-being measure	12
Duplicate	9
Not available in English	4
Could not be obtained	2

APPENDIX B: META-ANALYSIS WELL-BEING OUTCOME VARIABLES

Appendix Table 2.

Well-being measures included in the meta-analysis in Chapter 2 according to outcome measure type

General well-being	Needs satisfaction	Positive Affect	Life Satisfaction	Self-esteem	Purpose and meaning in life
Ryff (1989) Scales of Well-being	General Needs Satisfaction Scale (Gagné, 2003)	Happiness Measure (Fordyce, 1988)	Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985)	Rosenberg Self-esteem Scale (Rosenberg, 1979)	Meaning in life (Rahe & Tolles, 2002)
Keyes (2006) Well-being scales	Basic Needs Satisfaction in General Scale (Johnston & Finney, 2010)	Positive Affect Scale (Watson et al., 1988)	Engaged Living Scale (Trompetter et al., 2013)	Multi-dimensional Self-esteem Inventory (O'Brien & Epstein, 1988)	Life Meaning Subscale from the Brief Stress and Coping Inventory (Konkolý Thege et al., 2008)
World Health Organization (ten) Well-being Index (Bech, Gudex, & Johansen, 1996)	Basic Psychological Need Satisfaction and Frustration Scale (Chen et al., 2015)	Time happy (Fordyce, 1988)	Multidimensional Students' Life Satisfaction Scale (Huebner & Gilman, 2002)		Meaning in Life Questionnaire (Steger, Frazier, Oishi, & Kaler, 2006)
Index of Self-Actualization (Jones & Crandall, 1986)	Basic Needs Satisfaction in General (Deci et al., 2001)	Positive Affect (Emmons, 1991)	Temporal Satisfaction With Life Scale (Pavot, Diener, & Suh, 1998)		Purpose in Life Test (Crumbaugh & Maholick, 1981)
Oxford Happiness Inventory (Argyle,	Balanced Measure of Psychological Needs	Affect Valence (Diener & Emmons, 1984)			

Martin, & Crossland, 1989)	Scale (Sheldon & Hilpert, 2012)	
Subjective General Well-being (Gombás, 2015)	General Need Satisfaction Scale (Ilardi, Leone, Kasser, & Ryan, 1993)	Positive Affect (Diener & Emmons, 1984)
Subjective Vitality Scale (Ryan & Frederick, 1997)		Scale of Positive Experiences (Diener et al., 2010)
Berne Subjective Well-being Questionnaire (Grob, 1995)		International Positive Affect Schedule Short Form (Thompson, 2007)
Short Depression-Happiness Scale (Joseph, Linley, Harwood, Lewis, & McCollam, 2004)		
Subjective Well-being Inventory (Nagpal & Sell, 1992)		
Subjective Happiness Scale (Lyubomirsky & Lepper, 1999)		

Eudaimonic Well-being Questionnaire
(Waterman et al., 2010)

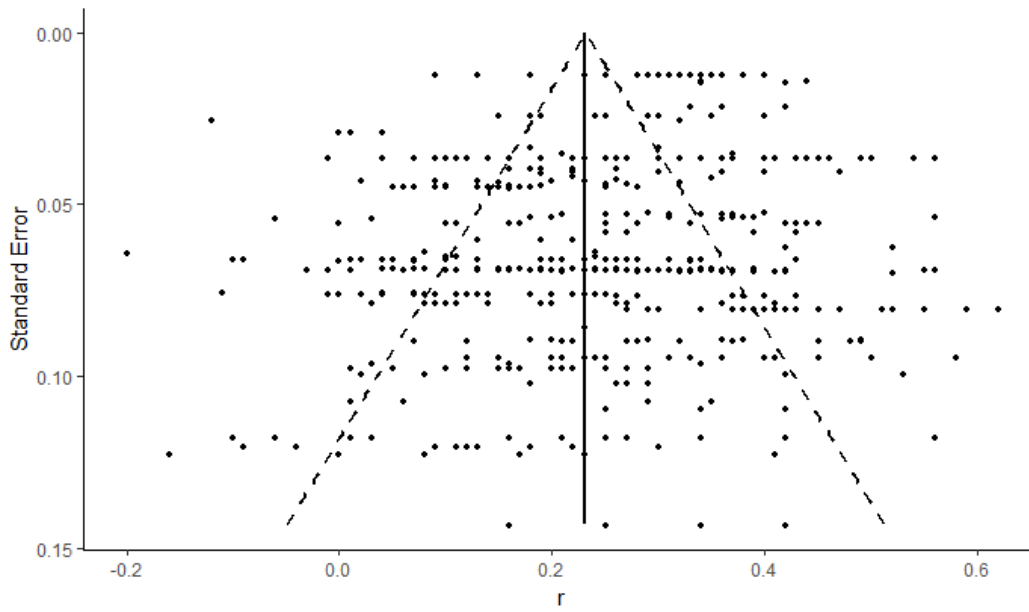
Index of Well-being
(Mei, Chai, & Guo, 2015)

APPENDIX C: META-ANALYSIS ILL-BEING OUTCOME VARIABLES

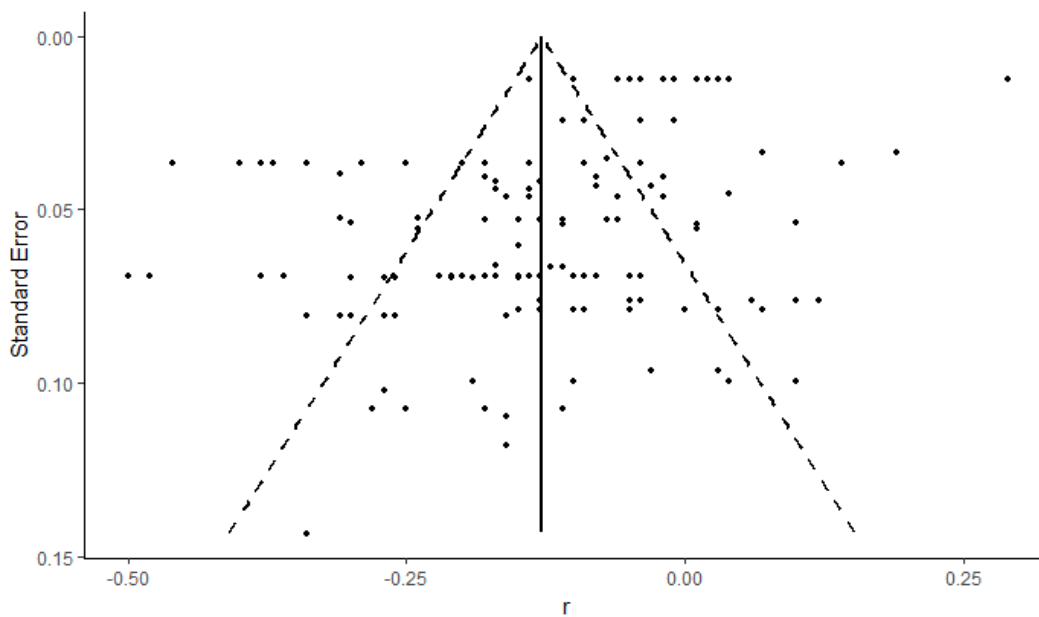
Appendix Table 3.

Ill-being measures included in the meta-analysis in Chapter 2 according to outcome measure type

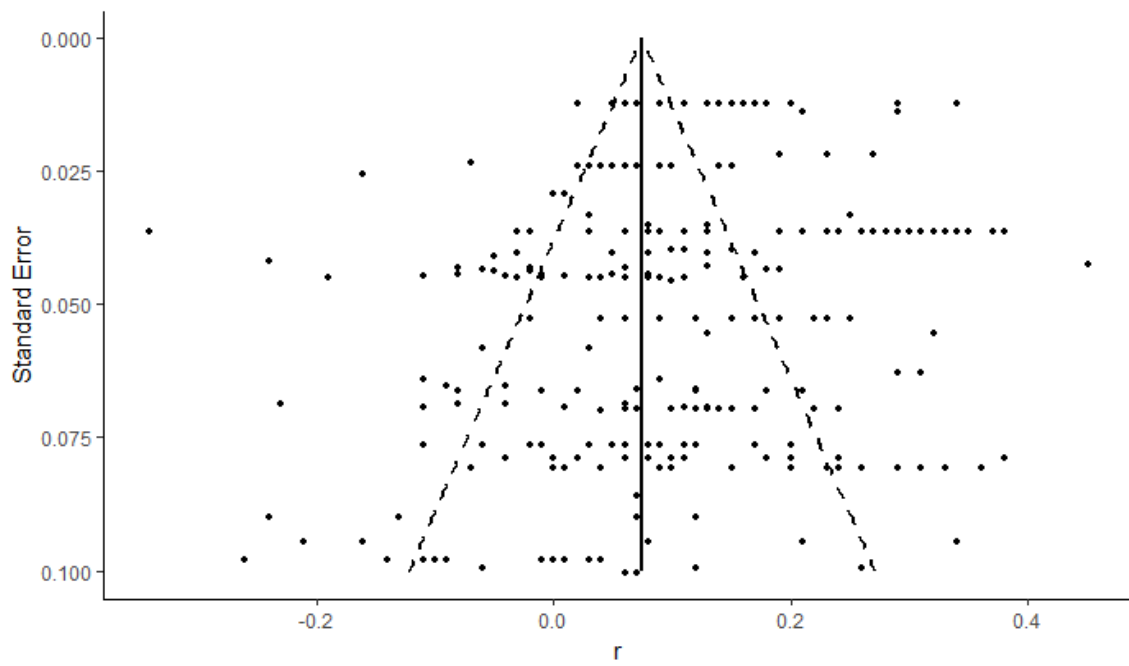
Needs frustration	Depression and Anxiety	Negative Affect
Basic Psychological Need Frustration Scale (Chen et al., 2015)	Beck Depression Inventory (Beck, Steer, & Brown, 1996)	Negative Affect Scale (Watson et al., 1988)
Balanced Measure of Psychological Needs Scale (Sheldon & Hilpert, 2012)	Hopkins Symptoms Checklist (Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974)	Time unhappy (Fordyce, 1988)
	State Trait Anxiety Scale (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983)	Negative Affect (Emmons, 1991)
	Center for Epidemiological Studies Depression Scale (Radloff, 1977)	Negative Affect (Diener & Emmons, 1984)
	Self-rating Anxiety Scale (Zung, 1971)	Scale of Negative Experiences (Diener et al., 2010)
	Multidimensional Anxiety Scale for Children (Yen, Yang, Wu, Hsu, & Cheng, 2010)	International Negative Affect Schedule Short Form (Thompson, 2007)
	Brief Measure of Generalized Anxiety (Spitzer, Kroenke, Williams, & Löwe, 2006)	
	General Health Questionnaire (Goldberg et al., 1997)	

APPENDIX D: META-ANALYSIS FUNNEL PLOTS

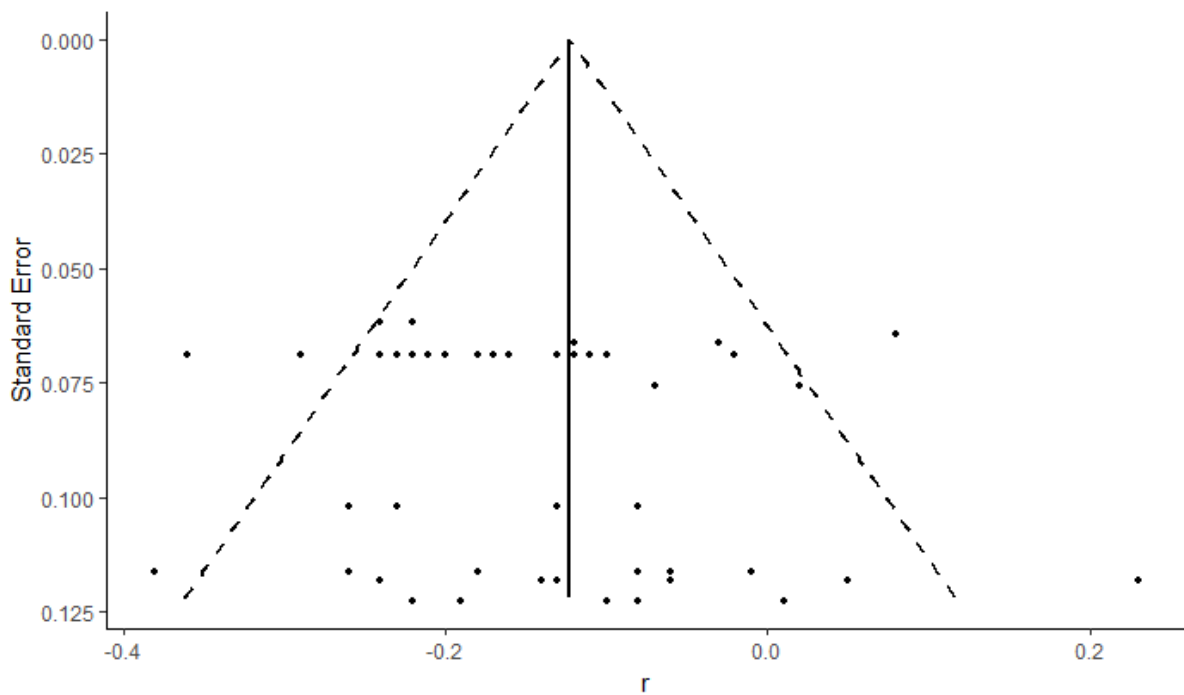
Appendix Figure 1. Funnel plots of intrinsic aspirations and well-being



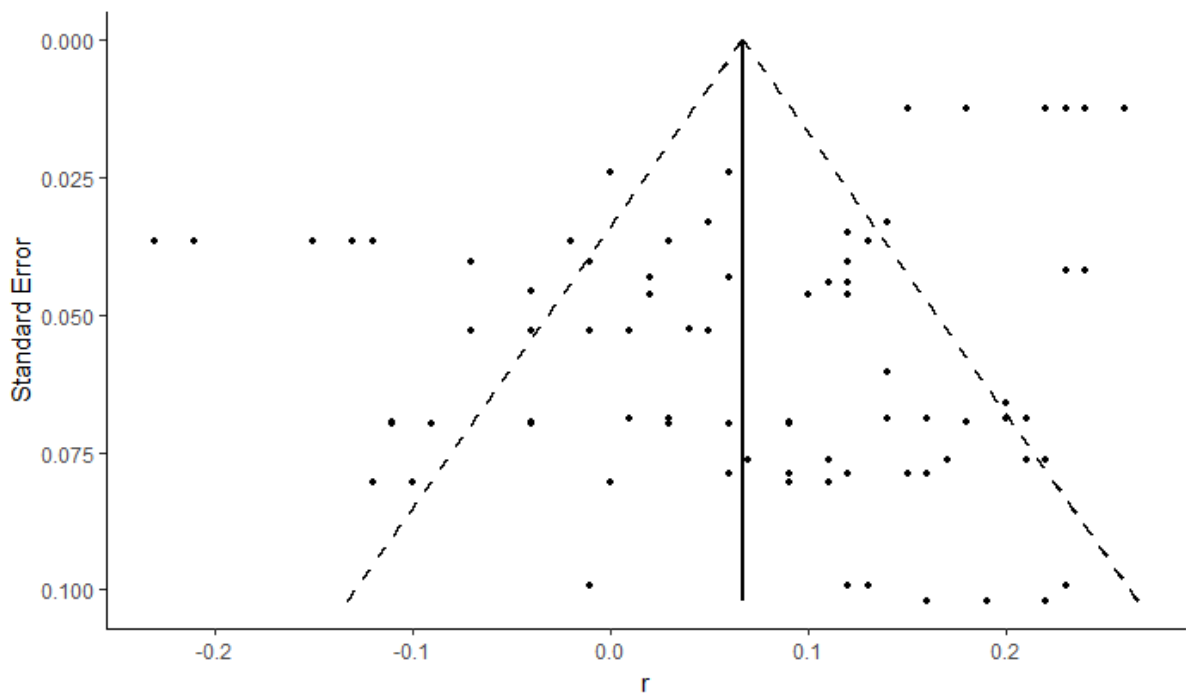
Appendix Figure 2. Funnel plots of intrinsic aspirations and ill-being



Appendix Figure 3. Funnel plots of extrinsic aspiration absolute scores and well-being



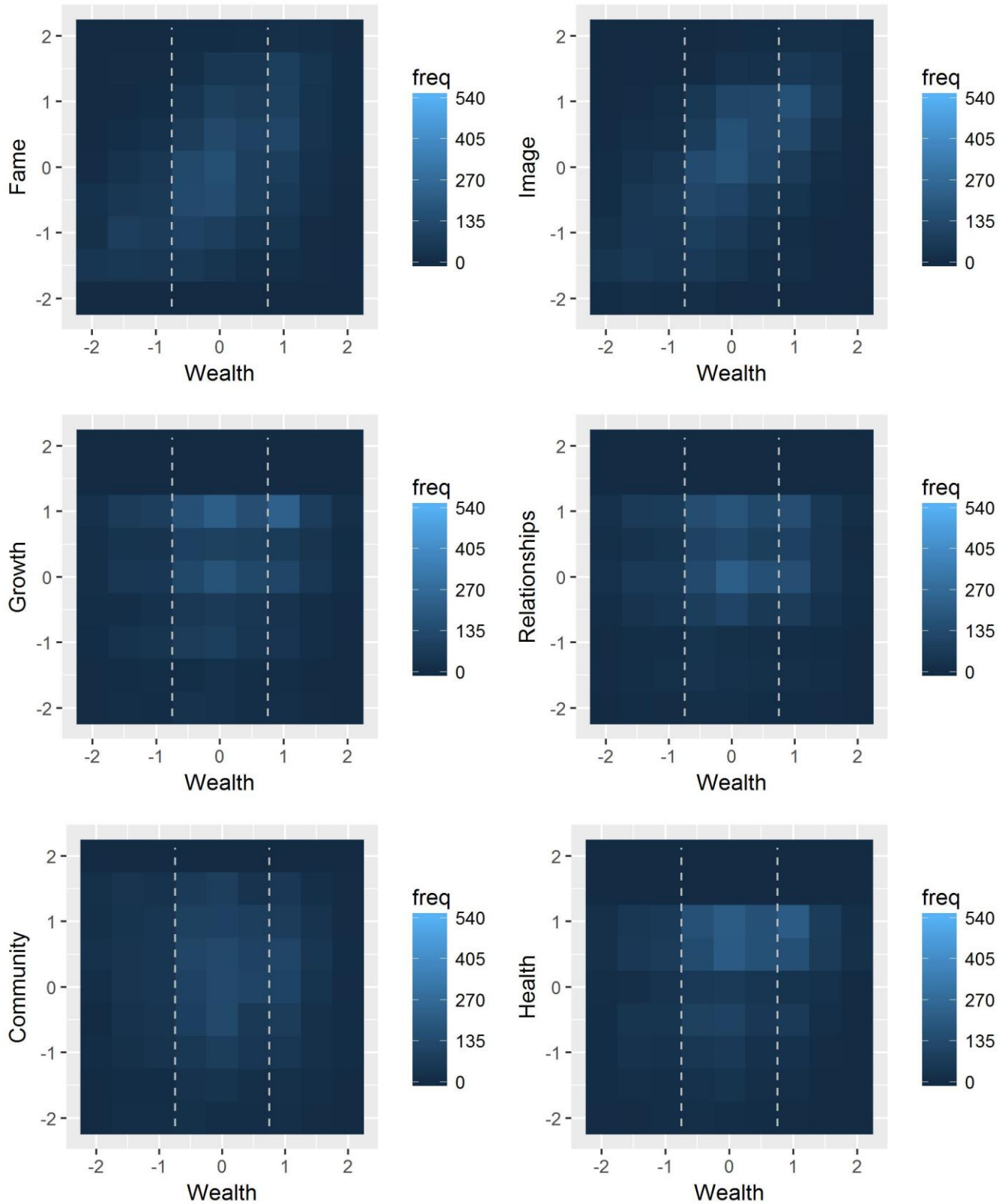
Appendix Figure 4. Funnel plots of extrinsic aspiration relative centrality scores and well-being

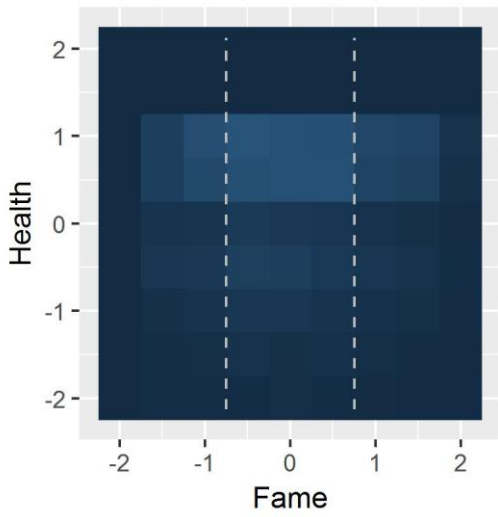
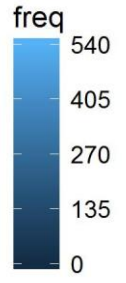
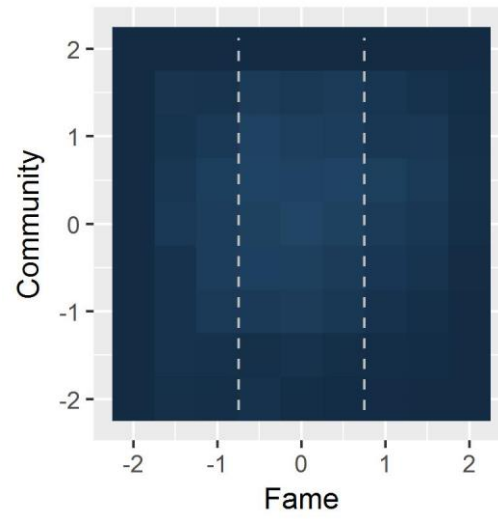
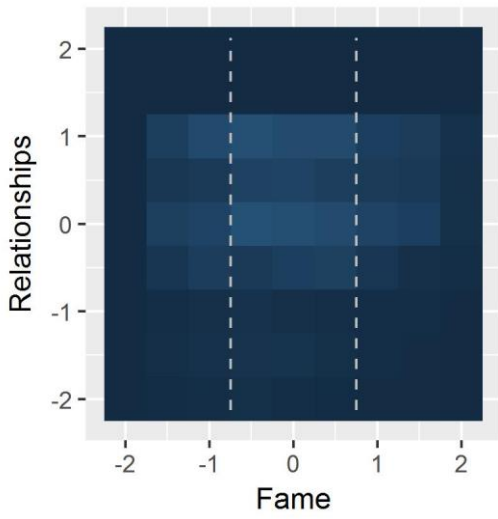
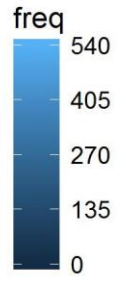
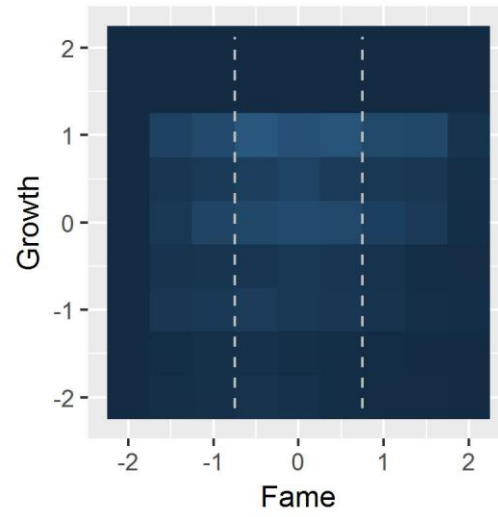
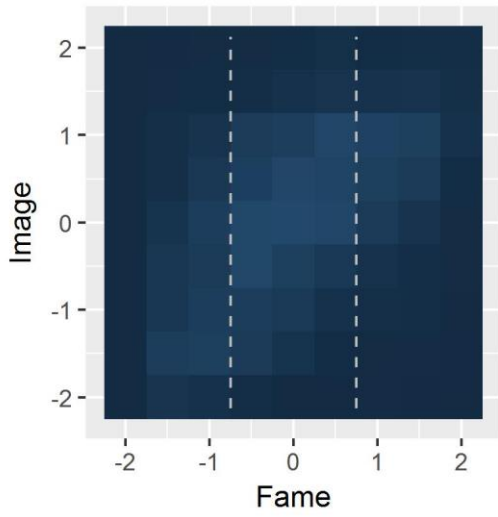


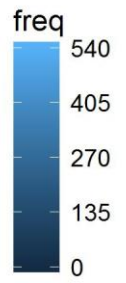
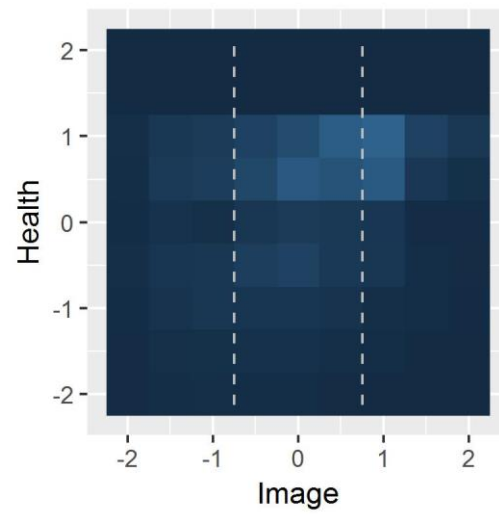
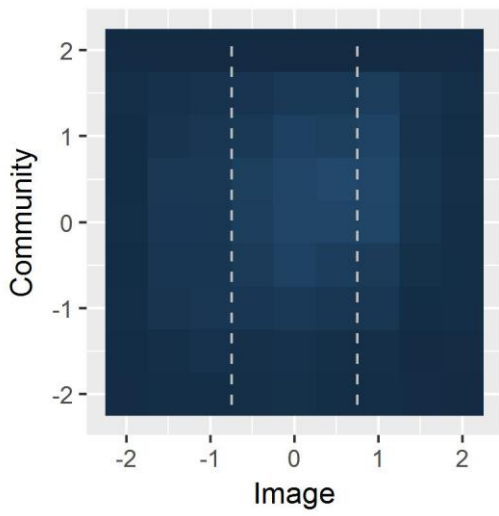
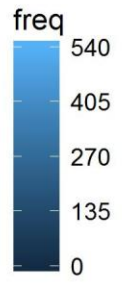
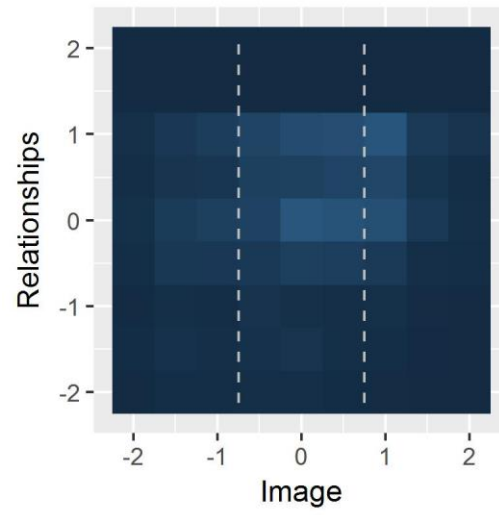
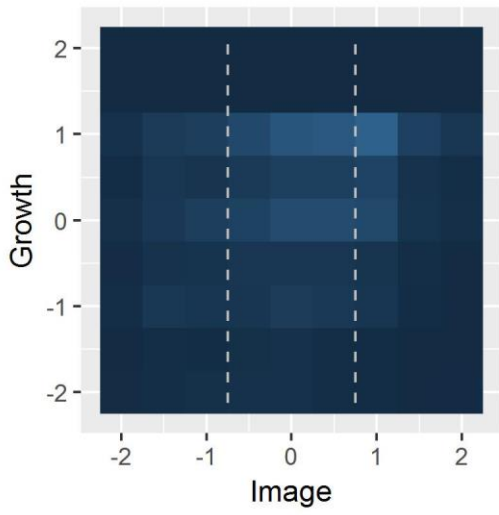
Appendix Figure 5. Funnel plots of extrinsic aspirations and ill-being

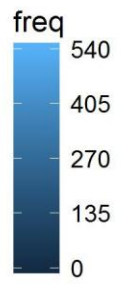
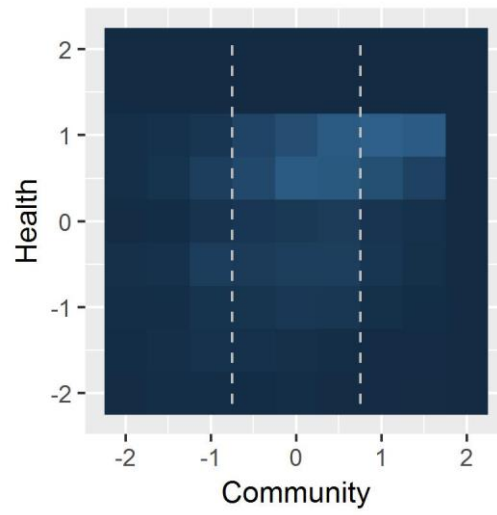
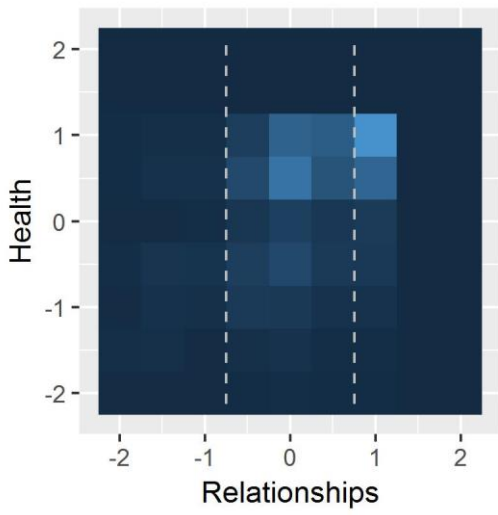
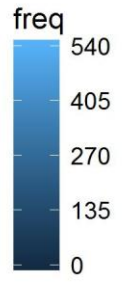
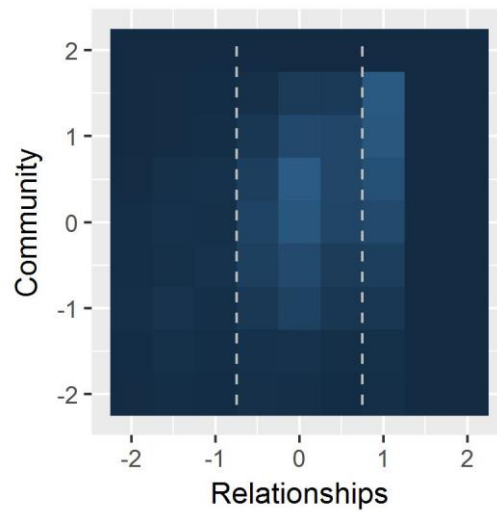
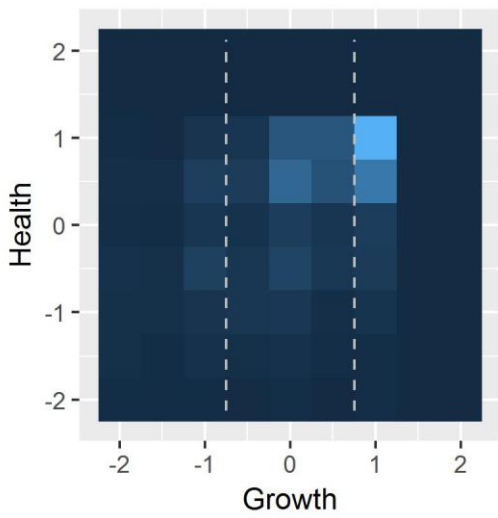
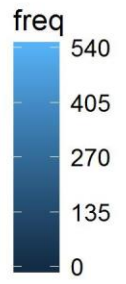
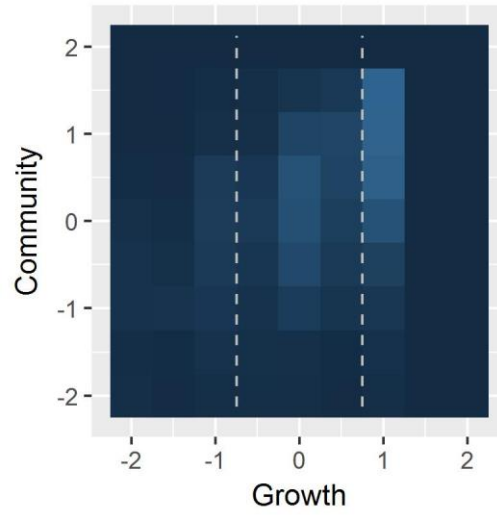
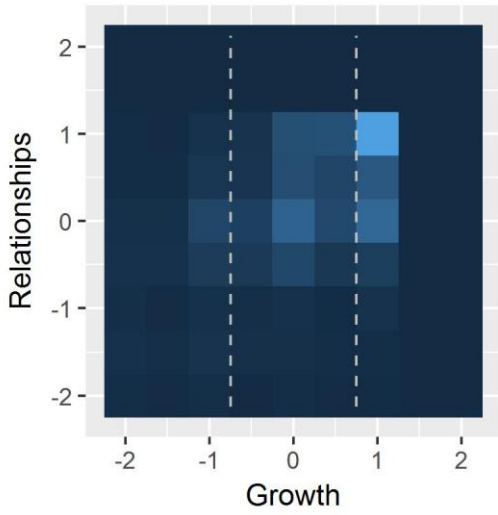
APPENDIX E: STUDY TWO HEAT MAPS

Appendix Figure 6. Heat maps of frequency distributions for each possible pair of aspiration subscale variables in Chapter 3 (the Hungarian sample)









APPENDIX F: ITEM FACTOR LOADINGS CHAPTER 3

Appendix Table 4.

Item factor loadings for the two global and seven specific factors from a B-ESEM of the 35-item Aspiration Index in Chapter 3 (the Hungarian sample)

	Ext G	Int G	Wealth	Fame	Image	Growth	Relationship	Community	Health
W1	0.67	-0.08	0.93	0.03	0.06	-0.05	0.03	-0.06	0.07
W2	0.71	-0.06	0.39	0.09	0.20	-0.06	0.02	0.02	0.05
W3	0.49	0.22	0.59	-0.08	0.22	0.17	-0.02	-0.14	0.20
W4	0.93	-0.06	1.11	0.08	0.10	-0.08	0.03	-0.12	0.05
W5	0.44	0.19	0.48	-0.05	0.28	0.24	-0.02	-0.17	0.11
F1	1.05	0.04	0.01	0.55	-0.15	0.13	-0.02	0.15	-0.05
F2	1.47	0.18	-0.27	-0.59	-0.28	0.02	0.04	0.11	-0.01
F3	1.06	-0.02	-0.07	0.86	-0.15	-0.01	-0.01	0.11	-0.09
F4	0.82	-0.01	-0.06	0.70	-0.06	-0.03	-0.01	0.06	-0.04
F5	1.16	0.13	-0.09	0.14	0.11	0.01	-0.01	0.13	-0.08
I1	0.66	0.16	0.20	-0.04	0.62	0.02	0.06	0.15	0.29
I2	0.91	0.18	0.10	-0.04	0.93	-0.06	0.07	0.02	0.09
I3	0.77	0.13	0.26	0.04	0.77	-0.09	0.08	0.04	0.16
I4	0.64	0.33	0.23	-0.01	0.75	0.14	0.02	-0.04	0.09
I5	0.90	0.27	0.14	-0.04	1.03	0.03	0.04	-0.01	0.09
GR1	0.03	0.34	0.04	0.04	-0.03	0.25	-0.02	0.15	0.05
GR2	0.05	0.37	0.02	-0.03	-0.02	0.17	0.16	0.04	0.08
GR3	0.17	0.32	0.11	0.02	0.02	0.28	0.02	-0.01	0.04
GR4	0.04	0.47	0.03	-0.02	0.04	0.34	0.07	0.01	0.07
GR5	0.04	0.50	0.02	0.02	0.01	0.43	0.01	-0.01	-0.01
R1	0.04	0.28	0.01	0.01	0.01	0.07	0.30	0.01	0.02
R2	0.04	0.29	-0.01	-0.05	0.03	-0.04	0.28	-0.03	0.08
R3	0.11	0.50	0.01	0.06	0.02	0.04	0.57	0.07	-0.03
R4	0.01	0.39	0.01	-0.03	0.04	0.07	0.32	-0.05	0.05
R5	0.04	0.50	0.01	-0.02	0.06	0.01	0.53	-0.02	-0.02
C1	0.09	0.43	-0.07	0.06	-0.02	0.27	0.19	1.28	0.14
C2	0.01	0.85	-0.10	-0.03	0.05	-0.16	-0.14	0.54	-0.11
C3	0.11	0.64	-0.09	0.07	-0.01	0.23	0.09	1.01	0.02
C4	0.08	0.92	-0.08	0.02	0.01	-0.18	-0.14	0.70	-0.15
C5	0.05	1.03	-0.12	0.04	0.07	-0.26	-0.22	0.75	-0.20
H1	0.06	0.35	0.04	-0.01	0.03	0.03	0.03	0.01	0.52
H2	0.06	0.50	0.05	-0.03	0.10	0.14	0.03	-0.01	0.40
H3	0.04	0.34	0.04	-0.02	0.04	-0.02	0.01	-0.05	0.52
H4	0.14	0.39	0.12	-0.03	0.10	0.01	0.05	-0.09	0.49
H5	0.10	0.55	0.06	-0.03	0.13	0.04	-0.04	0.08	0.48

Note. B-ESEM = bifactor structural equation model; Ext = extrinsic; Int = Intrinsic G = B-ESEM global factor

APPENDIX G: OMEGA COEFFICIENTS FOR CHAPTERS 3, 4, AND 5

Appendix Table 5.

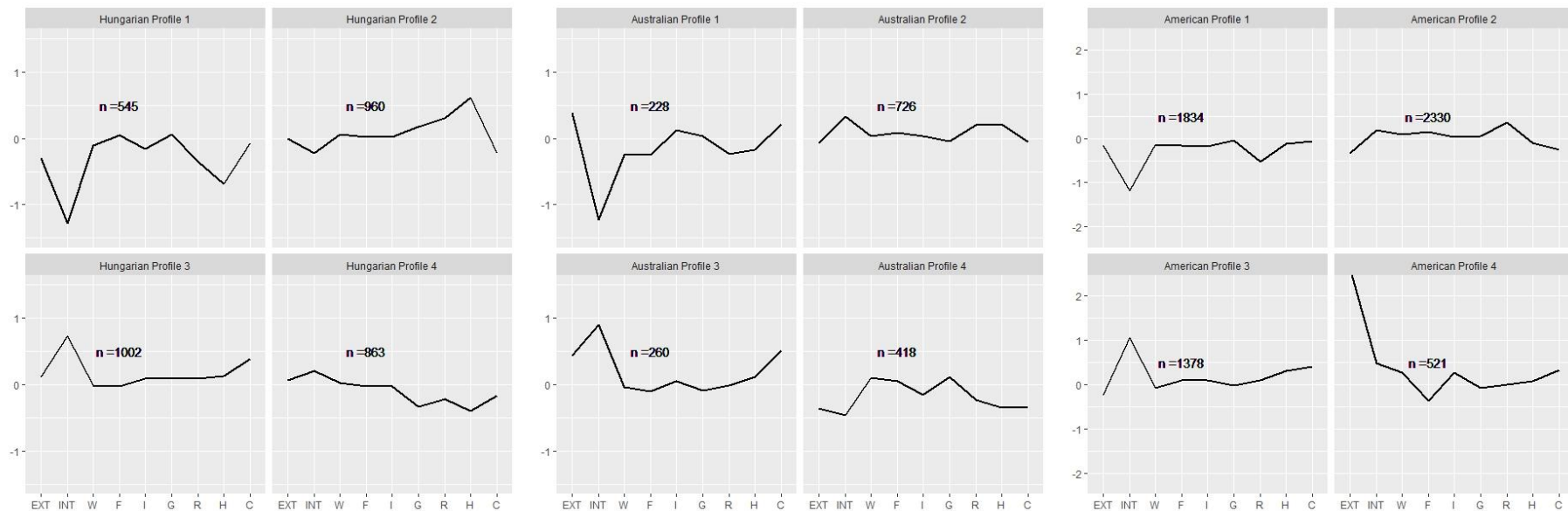
Omega coefficients for the two global and seven specific factors of the bifactor structural equation models in Chapter 3 (the Hungarian sample), Chapter 4 (the Australian sample), and Chapter 5 (the American sample)

	Chapter 3	Chapter 4	Chapter 5
Extrinsic G	0.93	0.86	0.92
Intrinsic G	0.95	0.90	0.95
Wealth S	0.91	0.84	0.83
Fame S	0.90	0.88	0.78
Image S	0.87	0.79	0.76
Growth S	0.57	0.29	0.36
Relationships S	0.75	0.65	0.70
Community S	0.80	0.85	0.76
Health S	0.79	0.75	0.76

Note. G = B-ESEM global factor; S = B-ESEM specific factor

APPENDIX H: FOUR-PROFILE SOLUTIONS

Appendix Figure 7. The four aspiration profiles based on the 4-profile solutions from Chapter 3 (the Hungarian sample), Chapter 4 (the Australian sample), and Chapter 5 (the American sample)



Note. EXT: Global extrinsic factor; INT: Global intrinsic factor; W: Wealth specific factor; F: Fame specific factor; I: Image specific factor; G: Personal growth specific factor; R: Relationships specific factor; H: Physical health specific factor; C: Community giving specific factor; Profile 1: *Disengaged from relationships and health*; Profile 2: *Aspiring for interpersonal relationships more than community relationships*; Profile 3: *Aspiring for community relationships more than interpersonal relationships*; the fourth profile is unreliable and is therefore untitled. The range on y-axis for the Chapter 5 plot is larger than Chapters 3 and 4 to capture the intercept for the global extrinsic factor.

APPENDIX I: FACTOR SCORE PROFILE MEANS WEIGHTED ACCORDING TO CLASS PROBABILITIES

Appendix Table 6.

Means (and standard deviations) for the two global and seven specific aspiration B-ESEM factor scores, weighted according to the posterior probabilities of class estimation for the three profiles in the LPA 3-profile solution in Chapter 3 (the Hungarian sample, left), Chapter 4 (the Australian sample, center), and Chapter 5 (the American sample, right)

	Chapter 3			Chapter 4			Chapter 5		
	Profile 1	Profile 2	Profile 3	Profile 1	Profile 2	Profile 3	Profile 1	Profile 2	Profile 3
	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)
Extrinsic G	-0.11 (1.02)	0.03 (0.95)	0.09 (1.05)	-0.17 (0.90)	-0.02 (0.90)	0.41 (1.18)	-0.19 (1.39)	-0.06 (1.32)	0.35 (1.66)
Intrinsic G	-0.57 (1.09)	-0.15 (0.40)	0.76 (0.33)	-0.80 (1.10)	0.26 (0.47)	0.90 (0.14)	-1.09 (1.30)	0.21 (0.51)	1.04 (0.21)
Wealth S	-0.05 (0.96)	0.08 (0.85)	-0.01 (0.91)	-0.02 (0.97)	0.03 (0.84)	-0.03 (0.75)	-0.12 (0.90)	0.08 (0.82)	0.01 (0.84)
Fame S	0.01 (0.99)	0.02 (0.93)	-0.02 (1.00)	-0.04 (0.80)	0.06 (0.81)	-0.08 (0.88)	-0.13 (0.36)	0.08 (0.34)	0.02 (0.40)
Image S	-0.12 (0.95)	0.06 (0.88)	0.09 (0.86)	-0.07 (0.83)	0.03 (0.81)	0.05 (0.77)	-0.18 (0.53)	0.05 (0.52)	0.15 (0.57)
Growth S	-0.11 (0.95)	0.14 (0.72)	0.01 (0.48)	0.08 (1.10)	-0.02 (0.57)	-0.10 (0.30)	-0.03 (0.44)	0.03 (0.28)	-0.02 (0.18)
Relation S	-0.23 (1.12)	0.31 (0.57)	0.01 (0.35)	-0.26 (1.27)	0.18 (0.48)	-0.01 (0.14)	-0.44 (1.05)	0.25 (0.53)	0.11 (0.23)
Commun S	-0.11 (1.02)	-0.20 (0.89)	0.28 (0.75)	-0.12 (1.10)	-0.08 (0.71)	0.51 (0.19)	-0.10 (0.95)	-0.15 (0.72)	0.41 (0.24)
Health S	-0.45 (1.22)	0.53 (0.28)	0.08 (0.24)	-0.30 (1.22)	0.17 (0.60)	0.12 (0.21)	-0.15 (0.98)	-0.04 (0.77)	0.28 (0.34)

Note. B-ESEM = bifactor structural equation model; LPA = latent profile analysis; G = B-ESEM global factor; S = B-ESEM specific factor; *M* = mean, SD = standard deviation. Profile 1: *Disengaged from relationships and health*; Profile 2: *Aspiring for interpersonal relationships more than community relationships*; Profile 3: *Aspiring for community relationships more than interpersonal relationships*.

APPENDIX J: UNSTANDARDIZED SUB-SCALE PROFILE MEANS WEIGHTED ACCORDING TO CLASS PROBABILITIES

Appendix Table 7.

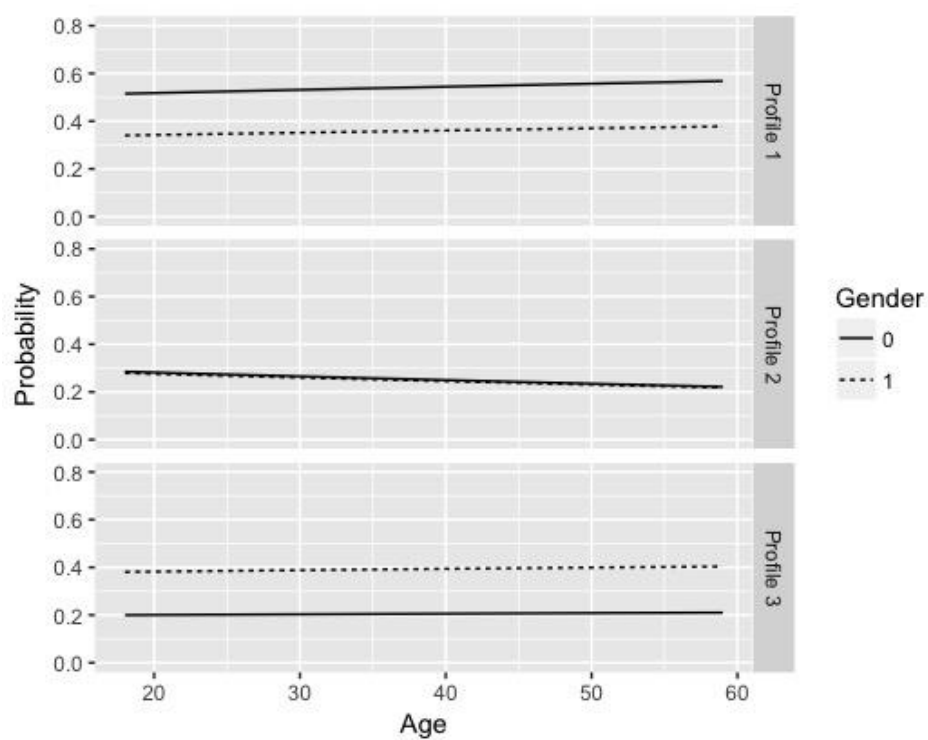
Means (and standard deviations) for the seven unstandardized aspiration subscale scores, weighted according to the posterior probabilities of class estimation for the three profiles in the LPA 3-profile solution in Chapter 3 (the Hungarian sample, left), Chapter 4 (the Australian sample, center), and Chapter 5 4 (the American sample, right)

	Chapter 1			Chapter 2			Chapter 3		
	Profile 1	Profile 2	Profile 3	Profile 1	Profile 2	Profile 3	Profile 1	Profile 2	Profile 3
	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i> (SD)
Wealth	4.35 (1.11)	4.71 (0.98)	4.65 (1.05)	4.41 (1.38)	4.83 (1.32)	5.28 (1.53)	4.06 (1.33)	4.55 (1.23)	4.88 (1.49)
Fame	2.91 (1.23)	3.02 (1.16)	3.21 (1.26)	3.75 (1.36)	4.11 (1.35)	4.90 (1.68)	3.23 (1.51)	3.30 (1.44)	3.77 (1.76)
Image	3.80 (1.29)	4.39 (1.20)	4.54 (1.20)	3.77 (1.35)	4.32 (1.39)	5.00 (1.79)	3.58 (1.33)	4.11 (1.29)	4.63 (1.52)
Growth	5.99 (0.73)	6.34 (0.47)	6.68 (0.32)	5.41 (1.05)	6.25 (0.52)	6.89 (0.18)	5.08 (1.19)	6.07 (0.61)	6.76 (0.43)
Relationships	6.06 (0.83)	6.56 (0.37)	6.77 (0.27)	5.51 (1.22)	6.59 (0.44)	6.96 (0.10)	4.99 (1.23)	6.36 (0.62)	6.89 (0.42)
Community	4.74 (1.28)	4.86 (0.95)	6.12 (0.73)	4.96 (1.21)	5.78 (0.75)	6.85 (0.22)	4.78 (1.31)	5.64 (0.79)	6.74 (0.45)
Health	5.86 (0.86)	6.66 (0.33)	6.79 (0.26)	5.31 (1.12)	6.44 (0.54)	6.94 (0.15)	4.89 (1.19)	5.83 (0.78)	6.70 (0.49)

Note. B-ESEM = bifactor structural equation model; LPA = latent profile analysis; G = B-ESEM global factor; S = B-ESEM specific factor; *M* = mean, SD = standard deviation. Profile 1: *Disengaged from relationships and health*; Profile 2: *Aspiring for interpersonal relationships more than community relationships*; Profile 3: *Aspiring for community relationships more than interpersonal relationships*.

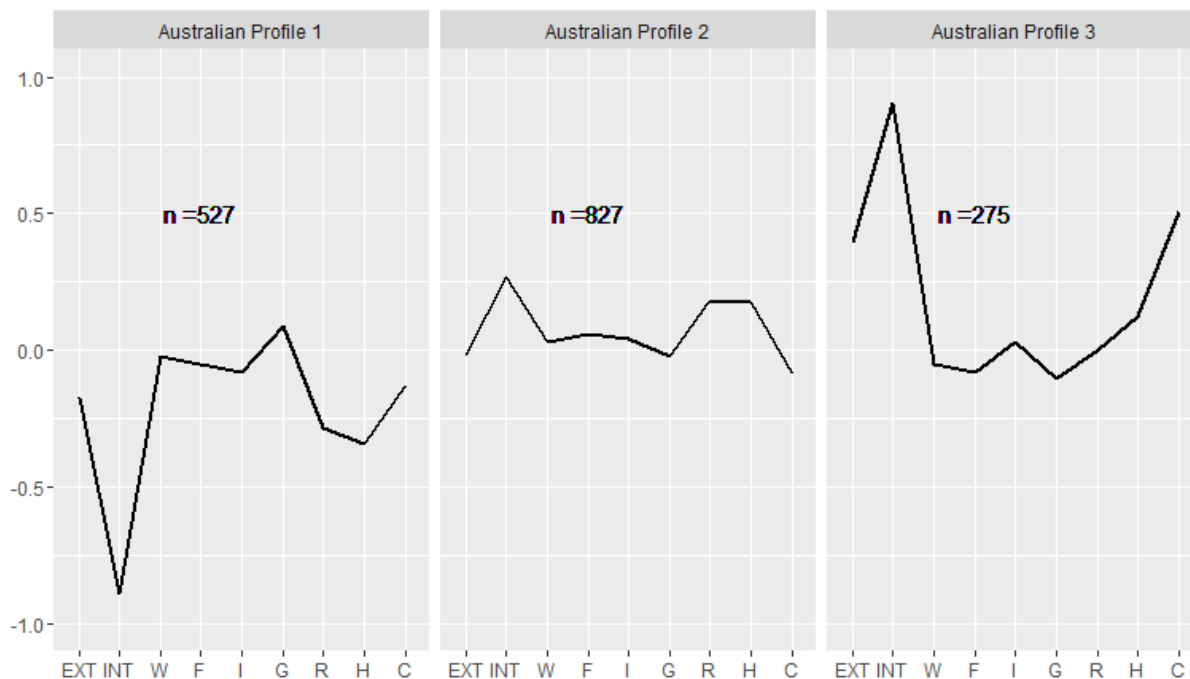
APPENDIX K: PROBABILITY OF PROFILE MEMBERSHIP BY GENDER AND AGE

Appendix Figure 8. Probability of profile membership according to gender and age in Chapter 3 (the Hungarian sample)



APPENDIX L: PROFILES USING TYPE=COMPLEX

Appendix Figure 9. The pattern of mean levels of the two global and seven specific factors of aspirations from a latent profile analysis of the factor scores from a bifactor exploratory structural equation model of the Aspiration Index using “school” as a clustering variable in Chapter 4



Note. EXT: Global extrinsic factor; INT: Global intrinsic factor; W: Wealth specific factor; F: Fame specific factor; I: Image specific factor; G: Personal growth specific factor; R: Relationships specific factor; H: Physical health specific factor; C: Community giving specific factor; Profile 1: *Disengaged from relationships and health*; Profile 2: *Aspiring for interpersonal relationships more than community relationships*; Profile 3: *Aspiring for community relationships more than interpersonal relationships*.

APPENDIX M: ITEM FACTOR LOADINGS CHAPTER 4

Appendix Table 9.

Item factor loadings for the two global and seven specific factors from a B-ESEM of the 35-item Aspiration Index in Chapter 4 (the Australian sample)

	Extrinsic G	Intrinsic G	Wealth S	Fame S	Image S	Growth S	Relationships S	Comm S	Health S
W1	0.98	0.16	0.95	-0.01	-0.01	0.10	-0.01	-0.07	0.05
W2	1.29	-0.09	0.65	-0.12	0.23	0.14	0.07	-0.02	0.15
W3	0.62	0.48	0.68	0.17	0.10	0.09	0.07	-0.08	0.14
W4	1.31	-0.01	0.98	-0.08	0.05	-0.05	-0.01	-0.09	0.08
W5	0.96	0.28	0.82	0.02	0.27	-0.23	-0.01	-0.15	0.01
F1	1.30	0.23	-0.01	0.21	-0.17	0.09	-0.08	0.02	-0.02
F2	1.19	0.44	-0.09	0.76	-0.13	0.11	0.04	0.14	0.04
F3	1.59	-0.13	-0.22	-0.55	-0.18	-0.01	-0.04	0.13	-0.15
F4	1.42	-0.05	-0.20	-0.45	-0.08	-0.08	-0.07	0.11	-0.12
F5	1.34	0.34	-0.12	0.53	0.01	-0.27	0.04	0.14	-0.03
I1	1.10	0.04	0.19	-0.09	0.64	0.26	0.05	0.18	0.23
I2	1.34	0.09	0.08	0.13	0.54	0.12	0.11	0.03	0.11
I3	1.20	0.16	0.19	-0.18	0.75	0.17	0.13	0.14	0.20
I4	1.15	0.31	0.20	-0.08	0.99	-0.22	-0.01	-0.06	0.04
I5	1.16	0.19	0.14	0.21	0.64	-0.25	0.11	-0.03	0.12
GR1	0.02	0.75	0.06	-0.01	-0.04	0.16	-0.12	0.06	-0.02
GR2	0.06	0.77	0.03	0.07	-0.08	0.25	0.05	-0.03	0.04
GR3	0.06	0.75	0.16	-0.02	-0.02	0.11	0.03	0.02	0.02
GR4	0.05	0.90	-0.03	0.01	-0.02	-0.17	-0.02	-0.01	-0.02
GR5	0.24	0.81	0.08	0.04	-0.04	-0.27	-0.08	0.19	-0.07
R1	0.01	0.69	0.03	0.01	0.01	0.16	0.16	-0.08	0.01
R2	0.07	0.72	-0.01	0.06	0.04	0.18	0.62	-0.01	0.09
R3	0.12	0.74	0.04	-0.03	0.08	0.08	0.76	0.03	0.01
R4	-0.01	0.80	0.01	0.01	0.03	-0.10	0.41	-0.06	-0.03
R5	0.12	0.79	0.04	0.03	0.02	-0.24	0.70	0.01	-0.02
C1	0.20	0.69	-0.03	-0.09	-0.07	0.21	-0.11	0.63	-0.10
C2	0.02	0.77	-0.04	0.07	0.04	0.10	0.05	0.59	0.08
C3	0.17	0.74	-0.09	-0.04	-0.05	0.13	-0.06	0.77	-0.03
C4	0.07	0.82	-0.09	0.04	0.09	-0.19	-0.01	0.67	-0.07
C5	0.04	0.77	-0.06	0.07	0.07	-0.21	0.06	0.73	0.05
H1	0.12	0.71	0.01	0.03	0.06	0.16	-0.01	-0.03	0.63
H2	0.18	0.76	0.11	0.02	0.11	0.12	0.01	-0.01	0.69
H3	0.09	0.75	0.08	-0.01	0.04	0.07	0.07	0.01	0.49
H4	0.14	0.74	0.13	0.10	0.05	-0.18	0.07	-0.02	0.16
H5	0.18	0.75	0.05	0.03	0.08	-0.24	-0.01	-0.01	0.73

Note. B-ESEM = bifactor structural equation model; G = B-ESEM global factor; S = B-ESEM specific factor; *M* = mean, *SD* = standard deviation

APPENDIX N: ITEM FACTOR LOADINGS CHAPTER 5

Appendix Table 10.

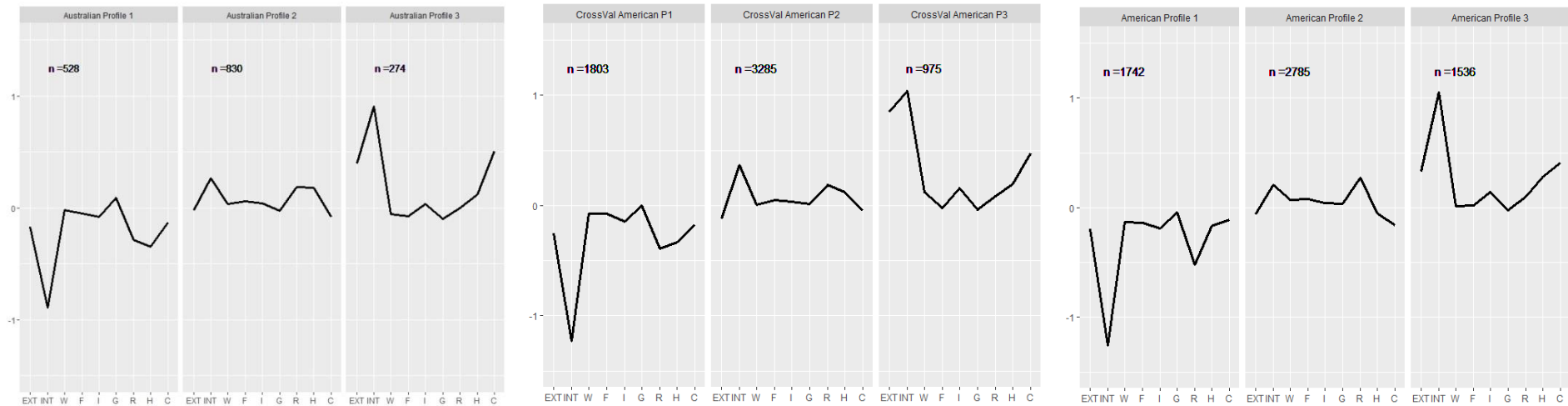
Item factor loadings for the two global and seven specific factors from a B-ESEM of the 35-item Aspiration Index in Chapter 5 (the American sample)

	Extrinsic G	Intrinsic G	Wealth S	Fame S	Image S	Growth S	Relationships S	Community S	Health S
W1	1.07	0.16	1.14	0.02	0.08	-0.07	0.01	0.04	0.12
W2	1.25	-0.01	0.40	-0.23	0.21	-0.12	0.01	-0.06	-0.01
W3	0.31	0.59	0.57	0.05	0.08	0.25	0.03	-0.05	0.19
W4	1.13	0.14	1.01	-0.04	0.05	-0.12	0.04	-0.03	0.07
W5	0.72	0.37	0.74	0.02	0.16	0.10	0.03	-0.16	0.08
F1	1.48	0.09	-0.07	-0.08	-0.17	0.10	-0.08	0.11	-0.02
F2	1.36	0.29	-0.11	0.70	-0.03	0.04	0.09	0.11	-0.01
F3	1.41	-0.10	-0.05	-0.43	-0.12	0.01	-0.08	0.07	-0.02
F4	1.41	-0.14	-0.15	-0.56	-0.14	0.01	-0.13	0.10	0.01
F5	1.40	0.30	-0.11	0.71	0.04	0.02	0.06	0.08	-0.01
I1	1.01	0.21	0.18	-0.03	0.68	0.01	0.07	0.04	0.16
I2	1.22	0.06	-0.01	0.06	0.58	-0.09	0.11	-0.01	-0.02
I3	1.04	0.25	0.19	-0.03	0.55	-0.04	0.02	0.14	0.16
I4	0.91	0.41	0.24	-0.01	0.67	0.09	-0.03	-0.06	0.18
I5	1.02	0.37	0.08	0.26	0.57	0.03	0.10	-0.02	0.10
GR1	0.01	0.90	0.07	-0.01	-0.02	0.16	-0.06	0.04	0.06
GR2	0.01	0.89	0.08	0.06	-0.02	0.19	0.12	-0.03	0.01
GR3	0.09	0.81	0.10	-0.04	0.05	0.19	0.03	-0.06	0.01
GR4	0.03	0.91	0.07	0.06	-0.01	0.17	0.01	0.02	-0.04
GR5	0.29	0.82	-0.01	-0.02	0.11	0.12	-0.08	0.13	-0.01
R1	0.08	0.84	0.04	0.07	-0.04	-0.05	0.27	0.03	0.02
R2	-0.01	0.80	0.06	0.03	0.05	0.06	0.58	-0.01	-0.01
R3	0.09	0.78	0.01	0.04	0.09	-0.01	0.85	-0.03	0.06
R4	0.02	0.87	-0.01	0.06	0.02	0.03	0.42	-0.03	-0.05
R5	0.04	0.87	0.03	0.05	-0.01	-0.04	0.59	-0.02	-0.01
C1	0.15	0.79	0.05	-0.01	0.01	-0.06	-0.08	0.46	-0.07
C2	0.28	0.80	0.08	0.01	0.19	0.03	-0.01	0.61	-0.01
C3	0.08	0.83	0.12	0.01	0.05	0.01	-0.07	0.51	-0.04
C4	0.09	0.79	0.19	-0.01	0.05	-0.01	0.05	0.61	0.04
C5	0.22	0.78	0.09	0.01	0.07	-0.02	-0.02	0.64	0.06
H1	0.23	0.88	-0.01	-0.11	0.01	-0.06	-0.01	-0.03	0.72
H2	0.04	0.88	-0.02	0.01	0.03	-0.01	0.05	0.04	0.68
H3	0.14	0.94	-0.05	0.05	0.01	0.07	-0.01	-0.03	0.54
H4	0.15	0.87	-0.07	0.03	0.01	0.06	0.08	-0.03	0.24
H5	0.06	0.86	-0.05	0.02	0.01	0.01	-0.01	0.08	0.68

Note. B-ESEM = bifactor structural equation model; G = B-ESEM global factor; S = B-ESEM specific factor; *M* = mean, *SD* = standard deviation

APPENDIX O: PROFILES USING FIXED STARTING VALUES

Appendix Figure 10. The pattern of means of the two global and seven specific aspiration factors from a latent profile analysis of the factor scores from a bifactor structural equation model of the Aspiration Index in Chapter 4 (the Australian sample, left panel), and the pattern of means derived by using the starting values from Chapter 4 to constrain the starting values in a latent profile analysis of the American sample (from Chapter 5, center panel), and the pattern of means from an independent latent profile analysis in Chapter 5 (the American sample, right panel).



Note. EXT: Global extrinsic factor; INT: Global intrinsic factor; W: Wealth specific factor; F: Fame specific factor; I: Image specific factor; G: Personal growth specific factor; R: Relationships specific factor; H: Physical health specific factor; C: Community giving specific factor; Profile 1/P1: *Disengaged from relationships and health*; Profile 2/P2: *Aspiring for interpersonal relationships more than community relationships*; Profile 3/P3: *Aspiring for community relationships more than interpersonal relationships*. CrossVal: Profiles derived using starting values from Chapter 4 to cross validate the profile shapes.

APPENDIX P: HIERARCHICAL REGRESSIONS USING PROFILES FROM CONSTRAINED STARTING VALUES

Appendix Table 12.

Hierarchical regression results comparing models using the factor scores from a bifactor exploratory structural equation modelling of the Aspiration Index (Model 1), to models that also include class membership probabilities from a constrained latent profile analysis of the factor scores (Model 2) using starting values derived from the output from the latent profile analysis in Chapter 4 (the Australian sample), pooled across 25 imputations of class membership in Chapter 5 (the American sample)

	Emotional WB		Psych WB		Social WB		Nonattachment		Engaged Living	
	M1	M2	M1	M2	M1	M2	M1	M2	M1	M2
Aspirations										
Extrinsic G	0.04***	0.03***	0.09***	0.08***	0.24***	0.23***	-0.01	-0.01	0.09***	0.09***
Intrinsic G	0.21***	0.21***	0.21***	0.21***	0.10***	0.09***	0.32***	0.32***	0.23***	0.23***
Wealth S	-0.03*	-0.03*	-0.04*	-0.04*	-0.14***	-0.14***	0.02	0.02	-0.05**	-0.05***
Fame S	-0.02	0.02	-0.02	-0.01	-0.03	-0.03	-0.19***	-0.19***	-0.12***	-0.12**
Image S	-0.00	-0.00	-0.02	-0.02	-0.00	-0.00	-0.00	-0.00	-0.01	-0.02
Growth S	0.07	0.07	0.19***	0.19***	-0.26***	-0.26***	0.21***	0.21***	0.21***	0.21***
Relationships S	0.12***	0.13***	0.12***	0.12***	-0.05*	-0.06*	0.02	0.03	0.08***	0.09***
Community S	0.14***	0.14***	0.24***	0.23***	0.17***	0.17***	0.18***	0.17***	0.25***	0.24***
Health S	0.14***	0.14***	0.16***	0.16***	0.06**	0.06**	0.13***	0.13***	0.17***	0.18***
Profile membership (relative to Profile 1)										
Profile 2		-0.01		-0.01		0.02		-0.05		-0.07
Profile 3		0.05		0.07		0.08		0.06		0.09
Pooled sig. test										
M1 vs M2	$F(2,585) = 0.95, p = n.s$		$F(2,343) = 1.69, p = n.s$		$F(2,437) = 0.93, p = n.s$		$F(2,461) = 3.89, p < .05$		$F(2,375) = 8.39, p < .001$	
Pooled R^2	0.120	0.120	0.166	0.166	0.185	0.185	0.205	0.206	0.186	0.189
Pooled $R^2 \Delta$		0.000		0.000		0.000		0.001		0.003

Appendix Table 12 continued.

	AutSat		AutFrustr		CompSat		CompFrustr	
	M1	M2	M1	M2	M1	M2	M1	M2
Aspirations								
Extrinsic G	0.11***	0.10***	0.16***	0.17***	0.07***	0.06***	0.13***	0.13***
Intrinsic G	0.24***	0.24***	0.03	0.05*	0.23***	0.23***	-0.9	0.02
Wealth S	-0.06**	-0.06**	0.05*	0.05*	0.03	0.03	-0.00	-0.00
Fame S	-0.10*	-0.09*	-0.16***	-0.16***	0.04	0.05	-0.11*	-0.11*
Image S	-0.07*	-0.07*	0.07*	0.07*	-0.09**	-0.09**	0.12***	0.12***
Growth S	-0.06	-0.05	-0.09	-0.09	0.14*	0.15**	-0.18**	-0.18***
Relationships S	-0.02	0.00	-0.07**	-0.06*	0.10***	0.10***	-0.09***	-0.07**
Community S	0.08**	0.07*	-0.07**	-0.07*	0.13***	0.12***	-0.08**	-0.07**
Health S	0.08***	0.08***	-0.12***	-0.11***	0.18***	0.18***	-0.13***	-0.12***
Profile membership (relative to Profile 1)								
Profile 2		-0.04		-0.07		-0.04		-0.10
Profile 3		0.11		-0.12		0.11		-0.17*
Pooled sig. test M1 vs M2	$F(2,426) = 6.22, p < .01$		$F(2,487) = 1.84, p > .05$		$F(2,368) = 5.87, p > .01$		$F(2,351) = 3.27, p > .05$	
Pooled R^2	0.126	0.128	0.082	0.082	0.148	0.150	0.061	0.062
Pooled $R^2 \Delta$		0.002		0.000		0.002		0.001

Appendix Table 12 continued.

	RelSat		RelFrustr	
	M1	M2	M1	M2
Aspirations				
Extrinsic G	-0.01	-0.02	0.22***	0.22***
Intrinsic G	0.31***	0.30***	-0.13***	-0.11***
Wealth S	-0.02	-0.02	-0.02	-0.02
Fame S	-0.08*	-0.08	-0.25***	-0.25***
Image S	-0.03	-0.03	0.10***	0.10***
Growth S	0.08	0.09	0.03	0.02
Relationships S	0.20***	0.20***	-0.06*	-0.04
Community S	0.11***	0.10***	0.03	0.04
Health S	0.05*	0.05*	-0.01	0.00
Profile membership (relative to Profile 1)				
Profile 2		-0.02		-0.10*
Profile 3		0.10		-0.14*
Pooled sig. test				
M1 vs M2	$F(2,322) = 3.58, p < .05$		$F(2,286) = 2.90, p > .05$	
Pooled R^2	0.192	0.194	0.157	0.158
Pooled $R^2 \Delta$		0.002		0.001

Note. *** $p < .001$, ** $p < .01$, * $p < .05$. M1 = Model 1 (using the two global and seven specific aspiration variables to predict the dependent variables); M2 = Model 2 (using the aspiration variables, plus the profile membership variable to predict outcomes). G = Global factor, S = specific factor, WB = well-being. The profile membership estimates included here for Profile 2 (*Aspiring for interpersonal relationships more than community relationships*) and Profile 3 (*Aspiring for community relationships more than interpersonal relationships*) are relative to Profile 1 (*Disengaged from relationships and health*). Grey highlighting for the pooled significance tests indicate variables for which Model 2 was a significantly better fit than Model 1. R^2 is reported to three decimal places as significant differences in models were identified to the third decimal place.

APPENDIX Q: COMPARISON OF CONSTRAINED PROFILES

Appendix Table 13.

Means, standard errors, and R^2 for the models with no covariates (Model 1) and the ones that control for all the individual factors of the Aspiration Index (Model 2) in Chapter 5 (the American sample) across the three profiles derived using a constrained latent profile analysis that used starting values taken from the latent profile analysis in Chapter 4 (the Australian sample)

		Profile 1		Profile 2		Profile 3		R^2
		M	SE	M	SE	M	SE	
Nonattachment	Model 1	-0.39^a	0.02	0.09^b	0.02	0.50^c	0.03	0.09
	Model 2	0.02	0.03	-0.03^a	0.02	0.08^b	0.03	0.21
Engaged Living	Model 1	-0.36^a	0.02	0.05^b	0.02	0.57^c	0.03	0.09
	Model 2	0.02	0.03	-0.05^a	0.02	0.12^b	0.04	0.19
Autonomy Satisfaction	Model 1	-0.30^a	0.02	0.04^b	0.02	0.48^c	0.04	0.07
	Model 2	0.01	0.03	-0.04^a	0.02	0.12^b	0.04	0.13
Competence Satisfaction	Model 1	-0.36^a	0.03	0.08^b	0.02	0.49^c	0.03	0.08
	Model 2	0.00	0.03	-0.04	0.02	0.12	0.04	0.15
Competence Frustration	Model 1	0.08^a	0.02	-0.05^b	0.02	0.01	0.04	0.01
	Model 2	0.08^a	0.04	-0.02	0.02	-0.09^b	0.04	0.06
Relatedness Satisfaction	Model 1	-0.42^a	0.03	0.12^b	0.02	0.46^c	0.03	0.10
	Model 2	-0.01	0.03	-0.02^c	0.02	0.10^b	0.03	0.19

Note. Model 1 uses profile membership as a sole predictor of the outcome variable; Model 2 uses profile membership as a predictor whilst controlling for the two global and seven specific aspiration factors from the B-ESEM of the Aspiration Index; ^{a b c} = the means with matching superscripts (across each row) indicate that the respective profiles do not differ on the outcome variable, differing superscripts signify profiles that do differ, a mean with no superscript is not different from the other means in that row; **bold** = further signifies a profile that differs significantly from another profile on the outcome variable. Profile 1: *Disengaged from relationships and health*; Profile 2: *Aspiring for interpersonal relationship more than community relationships*; Profile 3: *Aspiring for community relationships more than interpersonal relationships*.

APPENDIX R: FIT INDICES FROM CONSTRAINED AND UNCONSTRAINED MODELS

Appendix Table 11.

Results from an independent latent profile analysis of the factor scores from a B-ESEM of the Aspiration Index in Chapter 5 (the American sample) which are highlighted in grey, compared with a constrained latent profile analysis in Chapter 5, using fixed starting values derived from the output from Chapter 4 (the unshaded row)

Study	Model	LL	#fp	AIC	CAIC	BIC	ABIC	Entropy	aLMR	BLRT	sm. n
Chapter 4	3 Profiles	-53101.32	56	106314.65	106315.71	106690.41	106512.45	0.736	≤ .001	≤ .001	1536
Chapter 4	3 Profiles	-61993.943	0	123987.89	123987.89	123987.89	123987.89	0.748	≤ .001	≤ .001	975

Note. B-ESEM: Bifactor exploratory structural equation model; LL: Model LogLikelihood; #fp: Number of free parameters; Scaling: Scaling factor associated with MLR loglikelihood estimates; AIC: Akaike Information Criteria; CAIC: Constant AIC; BIC: Bayesian Information Criteria; ABIC: Sample-Size adjusted BIC; aLMR: Adjusted Lo-Mendell-Rubin likelihood ratio test; BLRT: Bootstrapped likelihood ratio test; sm. n: the sample size of the smallest profile.