The Ripple Effects of Prioritizing Personal Excellence or Pleasure: Impacts on the Surrounding World

by

Keith Pearce

A dissertation submitted to the School of Graduate Studies at the University of Ottawa in partial fulfillment of the requirements for the doctoral degree in Psychology

School of Psychology

Faculty of Social Sciences

University of Ottawa

Abstract

Previous research has looked at how two dominant approaches to pursuing the good life – eudaimonia (pursuit of growth, excellence, authenticity) and hedonia (pursuit of pleasure, comfort) relate to benefits for the self. This thesis looked beyond personal well-being and investigated how eudaimonic and hedonic orientations relate to benefits beyond the self and broader scope of concern. Manuscript 1 assessed the link between eudaimonic and hedonic orientations and self-reported and observational prosocial behaviour, self-focused and other-focused values, as well as time perspectives and abstract thinking. Manuscript 2 explored the association between eudaimonic and hedonic orientations and hindering social behaviours, and helping under various circumstances. Next, Manuscript 3 examined reasons for engaging in prosocial behaviours, including self-focused and other-focused motives. Lastly, Manuscript 4 went beyond self-report measures by studying the distinction between eudaimonic and hedonic orientations on reactions to pictures depicting human/animal/nature happiness/health and suffering/degradation based on self-report affect and empathy, facial expressions, and psychophysiological measures (skin conductance and heart rate). Manuscript 1 showed that eudaimonic orientation related to a broader focus, including scope of concern (i.e., a wider variety of prosocial behaviours, prosocial values), a balanced time perspective (present and future focus) and abstract mindset (i.e., high-level construal), while hedonic orientation tended to be more narrowly focused on the self and present moment. Manuscript 2 revealed that eudaimonic orientation related positively to helping under abstract and costly situations, and negatively with hindering social behaviours; hedonic orientation was related to negative impacts beyond the self. Manuscript 3 showed that eudaimonic orientation was a balance of helping to benefit both the self and others, while hedonic orientation was primarily related to helping for

personal benefits. Manuscript 4 showed that eudaimonic orientation related to greater self-report joy and suffering beyond the self (relative to hedonia), while findings for facial expressions and psychophysiological responses were inconclusive. This research provides a unique contribution to the well-being literature by investigating the impacts that eudaimonic and hedonic orientations have on society using a comprehensive array of self-report questionnaires and a novel picture paradigm. Limitations of the present research include that most studies were based on self-report which can produce social desirability bias, and that the studies were correlational which limits casual inferences about the findings. Future research would benefit from experimental studies assessing the link between eudaimonia and hedonia and broad scope of concern.

Acknowledgements

I would like to express my gratitude to my supervisor Dr. Veronika Huta for her steadfast support throughout my doctoral studies. Her guidance, valuable input and encouragement were appreciated during my PhD studies. Working with Dr. Huta was a great pleasure; her passion about this area of research was highly motivating and enlightening and made me contemplate the topic on a much deeper level. Her immense knowledge of the field and stimulating discussions during our meetings has widened my perspective on positive psychology and research in general.

I would also like to thank my thesis committee members: Dr. Luc Pelletier, Dr. Joseph De Koninck, and Dr. Stuart Hammond for their insight and comments which motivated me to think about my topic more deeply and from different angles.

I also thank my fellow colleagues Misha Voloaca, whose technical skills were invaluable during the design of Manuscript 4, and Arthur Braaten, who helped with experimental protocol and rating of facial expressions in Manuscript 4.

Last, but not least, I offer my sincere thanks to my family, including my parents and siblings for their continuous support and encouragement throughout my academic endeavours. You have always been there for me to offer kind words of inspiration, advice, and hope, which kept me motivated to pursue my goals. I am greatly thankful for the opportunities that you have provided for me in life. I could not have completed this without you, and I will be forever grateful for your belief in me, and of the time and dedication you invested during my graduate studies and throughout my life.

Statement of Co-Authorship

As first author of all papers, I was involved in the design, statistical analyses, and writing of each manuscript. My supervisor, Dr. Veronika Huta, was also involved in the design of the studies as well as the refining and revising of written drafts, and insights about the statistical analyses. Misha Voloaca was third author on Manuscript 1 and contributed to the design of Study 2 of Manuscript 1. This covered pro-environmental behaviours (which was not included in the thesis), but this portion was submitted as part of Manuscript 1 for publication.

In Manuscript 4, the third author, Arthur Braaten, was involved in rating the degree of participant's facial expressions towards picture stimuli, and assisted with data collection in the Inspire laboratory (University of Ottawa). The fourth author, Misha Voloaca, assisted with study design (i.e., setting up the experiment in Eprime) and data collection in the Inspire laboratory.

Table of Contents

Abstract ... ii
Acknowledgements ... iv
Statement of Co-Authorship ... v
Table of Contents ... vi
Chapter 1: General Introduction ... 1
Past Work on Eudaimonia and Hedonia and Personal Well-Being ... 2
Objectives and Overview of the Present Research ... 3
Overview of Hypotheses ... 4
Rationale for Studying Effects of Eudaimonic and Hedonic Orientations beyond the Self ... 5
Definition Categories in the Literature on Operationalizing Eudaimonia and Hedonia ... 7
Definitions of Hedonia ... 7
Definitions of Eudaimonia ... 8
Trait and State Levels of Eudaimonic and Hedonic Orientations ... 11
Prosocial Behaviour and Prosocial Values ... 12
Rationale for the Links between Eudaimonic Orientation and Prosocial Behaviour and Prosocial Values ... 14
Helping Under Different Circumstances ... 18
Hindering Social Behaviours and Egoistic Values ... 20
Rationale for the Links between Hedonic Orientation and Hindering Social Behaviours and Egoistic Values ... 21
Motives for Helping ... 23
Eudaimonic and Hedonic Orientations and Affective and Physiological Personal Well-being ... 25
Other-oriented Emotional Responses ... 26
Psychophysiological Responses: The Autonomic Nervous System ... 27
Contributions of the Present Research ... 33
References ... 36
Chapter 2: Manuscript 1 ... 81

Abstract....82
Study 1 Introduction....84
Method....96
Participants....96
Measures....96
Results....102
Study 1.1 and 1.2....106
Method....107
Results....108
Study 1.3....109
Method....109
Results....110
General Discussion....111
References....119
Table 1....137
Table 2....139
Table 3....140
Figure 1....141
Figure 2....142
Appendix A Descriptive Statistics (Means and Standard Deviations) for Variables....143
Appendix B Principal Components Analysis with Varimax Rotation of the Altruism Scale by Johnson and Colleagues (1989)....144
Chapter 3: Manuscript 2....146
Abstract....147
Study 1 Introduction....149
Method....159
Participants....159
Measures....159

Results 163

Study 2 Introduction 165

Method 165

Participants 165

Measures 165

Results 166

General Discussion 168

References 176

Table 1 197

Table 2 198

Table 3 199

Table 4 200

Table 5 201

Appendix A Principal Components Analysis with Varimax Rotation of Items Assessing: Helpful Social Behaviours, and Hindering Social Behaviours 202

Appendix B Principal Components Analysis of Items with Varimax Rotation Assessing: General Behaviours to Benefit Others, and General Behaviours to Avoid Harming Others 203

Appendix C Principal Components Analysis with Varimax Rotation of Items Assessing: Willingness to Helping Even When Recipient Cannot Be Seen and Preference to Help When Recipient Can Be Seen 204

Appendix D Principal Components Analysis of Items Assessing: Willingness to Helping Even When Results are in the Future, and Preference to Help When Results are Immediate 205

Appendix E Principal Components Analysis with Varimax Rotation of Items Assessing: Willingness to Help Even When it is Personally Costly and Reluctance to Help When it is Personally Costly 206

Chapter 4: Manuscript 3 207

Abstract 208

Study 1 Introduction 209

Method....218
Participants....218
Measures....219
Results....223
Discussion....227
References....235
Table 1....258
Table 2....259
Table 3....260
Figure 1....261
Appendix A Descriptive Statistics (Means and Standard Deviations) for Variables....262
Appendix B Principal Components Analysis with Varimax Rotation of the New Scales Assessing Motives for Helping....263
Chapter 5: Manuscript 4....265
Abstract....266
Study 1 Introduction....268
Method....282
Participants....282
Procedure....282
Measures....283
Results....286
Study 2 Introduction....288
Method....289
Participants....289
Procedure....290
Measures....292
Apparatus....293
Results....296

General Discussion 301
References 314
Table 1 348
Table 2 349
Table 3 350
Table 4 351
Table 5 352
Table 6 353
Table 7 355
Figure 1 357
Appendix A Picture Selection Process 358
Appendix B Principal Components Analysis with Varimax Rotation for Trait Emotions 359
Appendix C Descriptives for Individual Pictures 360
Appendix D Intercorrelations of Affect Valence for All Picture Categories 363
Appendix E Consent Form 364
Appendix F Script for Study 2 Procedures 365
Chapter 6: General Discussion 366
Eudaimonic Orientation as a Blend of Self and Other Concern 367
Eudaimonic Orientation as a Balanced Time Perspective 370
Eudaimonic Orientation and an Abstract Mindset 371
Hedonic Orientation and Narrow Concrete Focus 372
Hedonic Orientation and Hindering Effects on the Broader Surroundings 373
Meaning as a Core Feature of Eudaimonic Orientation 374
Eudaimonic and Hedonic Orientations and Psychophysiology 375
Implications of the Present Research 377
Limitations and Future Directions 379
References 385

List of Tables

Manuscript 1

Table 1 Correlations of Eudaimonic and Hedonic Orientations with Well-being Beyond the Self and Broad and Narrow Scopes of Concern 137

Table 2 Intercorrelations between dependent variables 139

Table 3 Means of Variables for individuals with different combinations of eudaimonia and hedonia 140

Manuscript 2

Table 1 Descriptives (Mean and Standard Deviations) for Variables 197

Table 2 Study 1 Correlations of eudaimonic and hedonic orientations with tendency to help or hinder others and circumstances when people are willing to help 198

Table 3 Intercorrelations between dependent variables 199

Table 4 Study 2 Correlations of eudaimonic and hedonic orientations with tendency to help or hinder others and circumstances when people are willing to help 200

Table 5 Correlations of Self-rated and Other-rated (Close Friends and Relatives) Eudaimonic and Hedonic Orientations With Other-rated Outcomes 201

Manuscript 3

Table 1 Correlations of Eudaimonic and Hedonic Orientations with Motives for Helping, Degree of Helping, and Proposed Mediators 258

Table 2 Intercorrelations among Dependent Variables 259

Table 3 Mean Ratings of Degree of Selflessness and Selfishness for Each Helping Motive by Three Judges 260

Manuscript 4

Table 1 Descriptive Characteristics for Trait and State Self-Reported Affect, Empathic Concern, Attractiveness and Revulsion Evaluations, Potential Confounds, Facial Valence, and Psychophysiological Measures 348

Table 2 Correlations of Eudaimonic and Hedonic Orientations with Self-reported Affect, Empathic Concern, Attractiveness and Revulsion Evaluations, and Potential Confounds 349

Table 3 Correlations of Eudaimonic and Hedonic Orientations with Facial Valence and Psychophysiological Measures 350

Table 4 Intercorrelations of Trait Self-report and Trait Psychophysiological Measures 351

Table 5 Intercorrelations of State Self-report, Facial Valence and Psychophysiological Measures.....352

Table 6 Descriptives for Picture Categories (Humans, Animals and Nature) of Self-reported Affect, Facial Valence, and Psychophysiological Measures.....353

Table 7 Correlations of Eudaimonic Orientation and Hedonic Orientations and State Affect Responses, Facial Valence and Psychophysiological Measures to Humans, Animals and Nature Images.....355

List of Figures

Manuscript 1

Figure 1.....141

Figure 2.....142

Manuscript 3

Figure 1.....261

Manuscript 4

Figure 1 357

Chapter 1: General Introduction

There are various approaches for leading a good life, which depends on one's conception of what constitutes happiness and/or well-being (Delle Fave et al., 2016; Veehoven, 2003). There has been vigorous investigation of well-being since the inception of Positive Psychology almost 20 years ago (Gable & Haidt, 2005; Linley, Joseph, Harrington, & Wood, 2006; Seligman & Csikszentmihalyi, 2000). This movement was a response to the prevailing emphasis on mental illness and suffering, and focused instead on flourishing and human strengths (see Duckworth, Steen, & Seligman, 2005). The nature and pursuit of well-being (optimal psychological functioning) has been debated in philosophy and psychology for many years. There are typically three broad ways of pursuing well-being in life – two of them are generally beneficial for the self, and a third is generally unhealthy (i.e., extrinsic/materialistic orientation; Kasser & Ryan, 1996).

In the research presented here, we focused on the first two healthy well-being orientations which have dominated the well-being literature; eudaimonia and hedonia (Biswas-Diener, Kashdan, & King, 2009; Huta, 2013a; Ryan & Deci, 2001; Waterman, 1993). Generally speaking, eudaimonia is the pursuit or state of developing the best within oneself in accordance with one's deeper principles and values while hedonia is the pursuit or state of pleasure, enjoyment and absence of pain (Deci & Ryan, 2008; Huta, 2013a; Waterman, 1993). There are many goals and strivings which can be subsumed under these two umbrella perspectives. These two well-being orientations answer the important question "What does one want out of life?" What people want out of life shapes how individuals evaluate what is desirable, what to pursue in life and the actions they take to achieve this.

Past Work on Eudaimonic and Hedonic Orientations and Personal Well-Being

Most research comparing eudaimonic and hedonic orientations has focused on their links with personal well-being. An abundance of evidence shows that eudaimonic and hedonic orientations have both been linked to personal well-being, lower mental illness and greater physical health (e.g., Anić & Tončić, 2013; Avsec & Kavčič, 2012; Bauer & McAdams, 2010; Chen, Tsai, & Chen, 2010; Grimm, Kemp, & Jose, 2015; Henderson, Knight, & Richardson, 2013; Huta & Ryan, 2010; Joshanloo & Ghaedi, 2009; Kavčič & Avsec, 2014; Keyes, Shmotkin, & Ryff, 2002; King, Hicks, Krull, & Del Gaiso, 2006; Peterson, Park, & Seligman, 2005; Peterson, Ruch, Beermann, Park, & Seligman, 2007; Proyer, Annen, Eggimann, Schneider, & Ruch, 2011; Schueller & Seligman, 2009; Steger, Kashdan, & Oishi, 2008; Waterman et al., 2008; Waterman et al., 2010; Wood & Joseph 2010). The nexus between eudaimonic and hedonic orientations and personal well-being has been found across different ages and cultures (e.g., Alper, 2015; Avsec, Kavčič, & Jarden, 2016; Chan, 2009; Park, Peterson, & Ruch, 2009; Ruch, Harzer, Proyer, Park, & Peterson, 2010).

However, research shows that eudaimonic and hedonic orientations fill different niches in fostering personal well-being. In particular, eudaimonic orientation has been associated with greater meaning (e.g., Disabato, Goodman, Kashdan, Short, & Jarden, 2016; Henderson et al., 2013; Huta & Ryan, 2010), elevating experiences (awe, inspiration and transcendence), self-connectedness (Henderson et al., 2013; Huta & Ryan, 2010), and life satisfaction (e.g., Kumano, 2011; Park et al., 2009, Peterson et al., 2005; Steger, Oishi, & Kesebir, 2011; Vella-Brodrick, Park, & Peterson, 2007). Hedonic orientation tends to relate to positive affect, low negative affect and carefreeness (Henderson et al., 2013; Huta & Ryan, 2010; McGregor & Little, 1998; Steger et al., 2008).

While it is well established that eudaimonic and hedonic orientations have benefits for the self, there is a paucity of research directly looking at the effects of these two orientations on the well-being of the surrounding world. One study found that eudaimonically oriented individuals raised multiple forms of well-being in close others (e.g., increased meaning, self-connectedness, elevation) whereas hedonically oriented people raised carefreeness but also negative affect in close others (Huta, Pelletier, Baxter, & Thompson, 2012; see also a reanalysis of close friends and relatives separately in Huta, Pearce, Voloaca, & Myskiw, 2014). Another study found that parent's eudaimonic orientation was associated with greater well-being in their adult children as compared to parent's hedonic orientation (Huta, 2012). To our knowledge, these are the only two studies which have directly assessed the nexus between eudaimonic and hedonic orientations and care beyond the self.

Objectives and Overview of the Present Research

This thesis looked beyond personal well-being outcomes associated with eudaimonic and hedonic orientations. This research investigated how an individual's pursuit of eudaimonia and/or hedonia impacts the people around them and generally relates to a broader perspective beyond the self, beyond the immediate moment, and beyond what is concrete to a more abstract understanding of the "bigger picture." This thesis used a multi-method approach, addressing broad scope of concern at the level of self-reported behaviours, observed behaviours, values, emotional reactions, and psychophysiology.

Five studies were conducted to address the links between eudaimonic and hedonic orientations and broad and narrow scope of concern. Manuscript 1 (submitted for publication) was a self-report study which examined broad and narrow focus in several ways[1]. Specifically, we assessed the link between eudaimonic and hedonic orientations and prosocial behaviour, self-

focused and other-focused values, as well as time perspectives and abstract thinking. Three additional brief studies, called Study 1.1, Study 1.2 and Study 1.3, were added to assess the links of eudaimonic and hedonic orientations with observational measures of prosocial behaviour, and a different measure of other-focused and self-focused values.

Manuscript 2 compared eudaimonic and hedonic orientations with helpful social behaviours and hindering social behaviours, and helping under various circumstances. Next, Manuscript 3 examined motives for engaging in prosocial behaviours, including self-focused (egoistic) and other-focused (prosocial) motives to examine one's underlying reasons for helping.

Lastly, Manuscript 4 studied the distinction between eudaimonic and hedonic orientations and concern beyond the self using an experimental paradigm that examined people's reactions to various photos. Specifically, Study 1 was an online study which investigated the nexus between eudaimonic and hedonic orientations and affective and empathic responses to photos of humans, animals and nature in happy/healthy and suffering/degraded circumstances. Study 2 was an in-lab study which extended this research by exploring self-report affect, empathic concern, facial expressions, and psychophysiological reactions (heart rate and skin conductance) to happy/healthy and suffering/degraded humans/animals/nature photos.

Overview of Hypotheses

Overall, we expected eudaimonic orientation to relate to a broader scope of concern, and hedonic orientation to relate to a narrower focus on the self. Hedonia is postulated to be about "taking, for me, now", while eudaimonia is posited to be about "building, something broader, for the longer term" (Huta, 2015a p. 224). We acknowledge that hedonia is essential for self-nourishment and self-care – it is healthy to satisfy one's needs and desires. Hedonic orientation is

expected to entail a healthy concern for self responsibility, and entitlement of pleasure and well-being (Ryan, Huta, & Deci, 2008), but less concern beyond the self. Eudaimonic orientation is predicted to relate to investment in broader aspects of both the self and the surrounding world. Eudaimonic aims are likely to be situated in a moral framework which is informed by conceptions of what is universally of excellence in all human beings (Huta, 2015a). Thus, eudaimonic pursuits are expected to foster a mindset concerned with virtue, doing what is right, and responsibility towards both the self and others.

Rationale for Studying Effects of Eudaimonic and Hedonic Orientations beyond the Self

There are several important reasons for investigating the impacts eudaimonic and hedonic orientations have beyond the self. Firstly, examining the impacts on the well-being of the surrounding community is a natural extension of examining impacts on personal well-being. One's philosophy about what constitutes a good life influences how one makes choices and lives (Wong, 2012). Investigating the interplay between personal pursuits of well-being and collective concern has many practical merits as cooperation and interpersonal interactions are integral in everyday life.

Secondly, this research addresses a criticism in the literature that eudaimonia emphasizes self-interest and is possibly detrimental to concern for the surrounding world. Specifically, some researchers believe that eudaimonia fosters egocentrism, elitism, alienation, competition and is antithetical to cooperation (see review by Annas, 2008; Kashdan, Biswas-Diener, & King, 2008; see review by Waterman, 1981). Furthermore, definitions of eudaimonia have focused on the self including self-flourishing, developing one's best potentials and talents, personal expressiveness (Waterman, 1993; Waterman, Schwartz, & Conti, 2008), personal growth and mastery of one's environment (Burns & Machin, 2012; Gallagher, Lopez, & Preacher, 2009). Those who

endeavour to develop their identity (authenticity) could over-strive for success and recognition (Covington, 2000). Eudaimonic concepts such as self-achievement (e.g., agency goals) have also been linked to narcissism (Aghababaei & Błachnio, 2015; Sedikides, Hart, Cisek, & Routledge, 2013), and self-interested variables such as power and dominance (Aspden, Ingledew, & Parkinson, 2012); and personal growth and purpose in life have been linked to pride (Barrett-Cheetham, Williams, & Bednall, 2016). Thus, some scholars posit that eudaimonia and hedonia are not clearly distinct, and that both serve to fulfil personal development or doing good for the self (Kashdan et al., 2008).

However, many scholars believe that eudaimonia entails not only self-flourishing, but also concern and responsibility beyond the self – doing good for the world. In fact, eudaimonia was defined by Aristotle (see *The Basic Works of Aristotle*, 2001) as active behaviour that exhibits excellence and virtue. Aristotle's view of the good life centered on both intellectual virtues (e.g., knowledge, reason), as well as moral virtues such as justice, kindness, courage, and honesty (see also Annas, 1993; Baril, 2014; Kristjánsson, 2015; Lebar, 2013). We were in a position to test this controversy empirically.

Lastly, this research provides deeper insight and a richer characterization of the mindset of eudaimonic and/or hedonic orientations. This research allows us to go beyond the content of eudaimonic and hedonic orientations (i.e., what you are after in life), to examine the eudaimonic-hedonic distinction at a more cognitive level (e.g., level of construal, time perspective, breadth of scope of concern). Indeed, all these variables have been posited to be conceptualized at different levels of construal (e.g., a focus on the concrete vs. the abstract, a focus on the present vs. the future, and a focus on the self vs. others and the socially distant society; Trope & Liberman, 2010).

Definition Categories in the Literature on Operationalizing Eudaimonia and Hedonia

The origins of the concepts of eudaimonia and hedonia can be traced back many years ago in philosophy. Modern psychology definitions of eudaimonia and hedonia fall into four main definition categories (see Huta & Waterman, 2014): (a) Orientations (values, motives and goals), (b) Behaviours (behavioural content, activity characteristics), (c) Experiences (subjective experiences, emotions, cognitive appraisals), and/or (d) Functioning (indices of positive psychological functioning, mental health, and flourishing).

In our view, eudaimonia and hedonia are best conceptualized as orientations, and that is how we conceptualize them here – the attitudes, values, motives and goals a person can choose. Specifically, eudaimonia is defined as the *pursuit* of excellence, authenticity, and personal growth, and hedonia is defined as the *pursuit* of pleasure, comfort, and enjoyment (Huta, 2013a). We use the terms *eudaimonia* and *hedonia* when referring generally to any of the four definition categories. Conceptualizing eudaimonia and hedonia as orientations has many benefits including: focusing on one's efforts rather than their successes, and focusing on one's personal criteria, priorities and processes of life rather than outcomes. Furthermore, conceptualizing eudaimonia and hedonia as motives may be practically advantageous since motives and pursuits are malleable overtime, and can be possibly employed in intervention studies (Huta, 2013b). Additionally, by studying eudaimonia and hedonia as pursuits they can be used as independent variables to more clearly predict various outcomes.

Definitions of Hedonia

The discussion of hedonia as a form of well-being has been prevalent for several years, tracing back to Aristippus (435-360 BCE), a Greek philosopher from the 4th century B.C., who believed that the goal of life was to maximize pleasure and minimize pain to derive happiness

(Watson, 1985). According to Aristippus, the route to a fulfilling life was immediate sensory gratification (Huta, 2013b). The doctrine of hedonism influenced later philosophers such as Epicurus (342-270 BCE), David Hume (1711-1776), Jeremy Bentham (1748-1832) and John Stuart Mill (1806-1973) in founding Utilitarianism – the greatest happiness for the greatest number of persons (Huta, 2013b).

Contemporary psychology definitions of hedonia typically center on pleasure, including: seeking pleasure, enjoyment, comfort, or relaxation and homeostasis (e.g., Huta & Ryan, 2010; Peterson et al., 2005; Vittersø, Søholt, Hetland, Thoresen, & Røysamb, 2009); seeking to experience pleasant moods or emotions (e.g., Augustine, Hemenover, Larsen, & Shulman, 2010; Fischer, Manstead, Evers, Timmers, & Valk, 2004); engaging in pleasurable behaviours such as casual sex, attending a big party, sporting event or concert (Steger et al., 2008); feelings of pleasure and avoidance of pain (Kahneman, Diener, & Schwartz, 1999;Vittersø, 2013; Vittersø, Overwein, & Martinsen 2009; Vittersø & Søholt, 2011; Waterman et al., 2008); pleasures of the mind and body (Kubovy, 1999); savouring pleasurable experiences (Bryant & Veroff, 2007); experiencing positive emotions (e.g., Fredrickson's Broaden-and-Build model; Fredrickson, 2001; Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004); and Subjective Well-being (SWB) which constitutes happiness, high positive affect, low negative affect, and life satisfaction (Delle Fave, Brdar, Freire, Vella-Brodrick, & Wissing, 2011; Diener, 1984; Diener, Suh, Lucas, & Smith, 1999; Fowers, 2012; Ryan et al., 2008).

Thus, it is clear from the literature that hedonia has been conceptualized typically as maximizing pleasure, enjoyment or satisfaction, and avoiding discomfort or pain.

Definitions of Eudaimonia

Eudaimonia is a multifaceted concept that has been operationalized in many ways. The

concept of eudaimonia was popularized by Aristotle, during the 4th century B.C., who articulated in his essay, *Nicomachean Ethics*, that well-being is based on expressing virtue or living well as opposed to strictly experiencing pleasure and indulging in desires (Aristotle, 2001). Eudaimonia is reflective, and based on being true to one's inner self (i.e., one's daimon), living in accord with one's virtues, and the full development of one's potentials (Badhwar, 2014; Bloomfield, 2014; Norton, 1976). Eudaimonic concepts appear in Humanistic Psychology such as Jung's (1933) idea of individuation – becoming aware, autonomous and well integrated, Allport's (1955) notion of maturity whereby one expresses one's true self, Rogers' (1961) idea of a fully functioning person, Maslow's (1970) concept of self-actualization, and reaching one's highest potential, and Erikson's (1968) identity development theory through self-discovery.

Contemporary psychology conceptions of eudaimonia are varied, with a myriad of elements. A systematic review of the eudaimonic literature by Huta and Waterman (2014) showed that four concepts appear in most or all measures of eudaimonia:

Authenticity: Concurrence with one's true self and values (Huta, 2015a); having intrinsic goals (e.g., personal growth, community concern, affiliation) which are part of one's identity; autonomously motivated as part of Self-determination theory (SDT, acting in line with one's true self, integrating different aspects of the self; Ryan & Deci, 2000; Ryan & Deci, 2001; Ryan et al., 2013); pursuing constitutive goals whereby the means and ends are related (Fowers, Mollica, & Procacci, 2010); experiencing value, individuality, and/or personal expressiveness (e.g., Smallenbroeck, Zelenski, & Whelan, 2017; Waterman, 1990; Waterman et al., 2008; Waterman et al., 2010); being in touch with oneself (e.g., Fleeson & Wilt, 2010; Harter, 2002; Lenton, Bruder, Slabu, & Sedikides, 2013; Sheldon, Ryan, Rawsthorne, & Ilardi, 1997; Slabu, Lenton, Sedikides, & Bruder, 2014; Wood, Linley, Maltby, Baliousis, & Joseph, 2008); self-acceptance

(Ryff, 1989); and eudaimonic identity development (e.g., self-discovery, self-actualization; Waterman, 1993; Waterman, 2008; Waterman, 2011).

Excellence: Striving for high standards in one's ethics and performance (Aristotle, 2001; see Haybron, 2007; Huta, 2015a); pursuing excellence (Huta & Ryan, 2010); developing one's best possible self (King, 2001); exercising signature strengths (Seligman, 2002); responsible action – doing what is morally right (Wong, 2011); and pursuing human goods (e.g., justice, knowledge) with excellence (Fowers, 2010).

Growth: Actualizing one's unique potentials, learning, improving, and maturing (Huta, 2015a); seeking challenge, valuing growth, honing skills and abilities (Abuhamdeh & Csikszentmihalyi, 2012; Delle Fave, Massimini, & Bassi, 2011; Ryan & Deci, 2001; Ryan et al., 2008; Steger et al., 2008); psychological well-being (e.g., feeling one has personally grown in life; Ryff, 1989); and eudaimonic growth (i.e., a transformative self, having a good life narrative; Bauer, 2016).

Meaning: Having or seeking significance, coherence, and purpose in life and concern for the greater good (Delle Fave et al., 2011; Martela & Steger, 2016; Ryff, 1989; Schlegel, Hicks, King, & Arndt, 2011; Steger, 2009; see Steger, 2012; Steger, Kashdan, Sullivan, & Lorentz, 2008; Wong, 2011); desire to serve a higher meaningful purpose (Peterson et al., 2005; Seligman, 2002); and engaging in meaningful activities or behaviours such as expressing gratitude, volunteering, donating money and so on (Ryan et al., 2008; Steger et al., 2008).

Though numerous researchers consider meaning to be a fundamental component of eudaimonia (e.g., Peterson & Seligman, 2004; Schnell, 2009; Seligman, 2002; Steger, Frazier, Oishi, & Kaler, 2006; Wong, 1998), no research has directly linked meaning (e.g., concern beyond the self) with the other three purportedly selfish components of eudaimonia – personal

growth, excellence and authenticity. This thesis sought to demonstrate this link empirically. We used the Hedonic and Eudaimonic Motives for Activities (HEMA; Huta & Ryan, 2010) scale in the present program of research as it conveniently includes the three self-focused elements of eudaimonia (personal growth, excellence and authenticity), as well as the main elements of hedonia (pleasure, enjoyment, comfort).

Taken together, research on eudaimonia is nascent, and conceptions of the term are complex, ambiguous, broad, and varied (see Huta, 2013b). However, literature in the field is burgeoning, revealing that eudaimonia is a real and core feature of the human condition. Recent efforts have been made to clarify the operationalization of eudaimona and provide insight on its attributes, correlates, predictors and outcomes (see Huta, 2013b; Huta, 2015a; Huta, 2015b; Huta & Waterman, 2014; Waterman, 1993; Waterman, 2008).

Trait and State Levels of Eudaimonic and Hedonic Orientations

It should be noted that eudaimonic and hedonic orientations can occur at both the trait level (the typical degree to which an individual pursues eudaimonia or hedonia) and state level (the degree to which an individual pursues eudaimonia or hedonia in a momentary activity or brief period of time; Huta, 2013a). This dissertation studies these orientations at the trait level. This does not imply heritability or extreme stability, but a set of priorities that differs in intensity across individuals, and may gradually change within individuals over the lifespan.

Not Mutually Exclusive Orientations

Eudaimonic and hedonic orientations are not viewed as mutually exclusive but rather treated as two unipolar dimensions whereby one can be high (or low) on both. Many researchers agree that there is overlap or synergy (i.e., complementary roles) between eudaimonia and hedonia, both theoretically and statistically (e.g., Bauer, McAdams, & Pals, 2008; Bujacz,

Vittersø, Huta, & Kaczmarek, 2014; Coyne, 2013; Kashdan et al., 2008; Keyes et al., 2002; see Proctor, Tweed, & Morris, 2015; Ryan & Deci, 2000; Vallerand, 2016; Waterman et al., 2008). However, there are also points of divergence (e.g., demonstrated in factor analysis) suggesting that eudaimonia and hedonia are distinct concepts (e.g., Compton, Smith, Cornish, & Qualls, 1996; Huta & Ryan, 2010; Keyes et al., 2002; Ryan & Huta, 2009; Vittersø, Oelmann, & Wang, 2009; Waterman et al., 2008). A recent report showed that eudaimonic orientation and hedonic orientation had moderate correlations as trait orientations (r=.35), but correlated negatively as state orientations (r=-.30; Huta, 2016). Thus, the amount of overlap between eudaimonia and hedonia depends on how they are defined.

In the next sections, the literature on concern beyond the self (i.e., prosocial behaviour) is reviewed, and rationales for our specific hypotheses are explicated.

Prosocial Behaviour and Prosocial Values

Prosocial behaviour is defined broadly as any voluntary act intended to benefit another such as comforting, helping, giving and/or sharing and cooperation (Bierhoff, 2002; Eisenberg, Fabes, & Spinrad, 2006; Staub, 1979). It can encompass a wide range of behaviours such as helpful interventions (Cialdini, Schaller, Houlihan, Arps, Fultz, & Beaman, 1987; see Fisher et al., 2011), donating money or blood (Frey & Meier, 2004; Piliavin & Callero, 1991), and volunteer work (voluntary unpaid work; Penner & Finkelstein, 1998; Snyder & Omoto, 2009).

This thesis examined the frequency of engagement in a variety of prosocial behaviours including difficult, easy, face-to-face and indirect acts towards acquaintances, strangers, and the broader society, generative behaviours (i.e., concern for future generations; McAdams & de St. Aubin, 1992), and observational prosocial behaviours. Furthermore, this research assessed prosocial values.

Prosocial values – concern for the welfare of others (Crocker & Canevello, 2008; Schwartz & Bilsky, 1987), were included under the umbrella of broad concern for others. Values are desirable goals that serve as guiding principles in life, and can be used to evaluate behaviours, people, and events (Grouzet et al., 2005; see Schwartz, 2005; Schwartz, 2012). Values are important to study as they reflect what is important in one's life (Schwartz & Bilsky, 1987) and play a role in behavioural intentions.

The literature on prosocial behaviour is quite vast (see Bierhoff, 2002; Dovidio, Piliavin, Schroeder, & Penner, 2006; Eisenberg, Eggum-Wilkens, Spinrad, & Schroeder, 2015; see Penner, Dovidio, Piliavin & Schroeder, 2005 for a review). Most of the theoretical constructs of prosocial behaviour derive from child development research, which has typically assessed complex developmental and psychological processes over human development (see Eisenberg & Fabes, 1998; McGinley, Opal, Richaud, & Mesurado, 2014). Less research has looked at individual differences in prosociality. Of the research addressing individual differences in prosocial behaviour, much work has been in the context of personality or character traits, finding that agreeableness (Carlo, Okun, Knight, & Guzman, 2005; Graziano, Habishi, Sheese, & Tobin, 2007), and humility and honesty (Hilbig, Glockner, & Zettler, 2014) predict prosociality. Research also documents that self-transcendence values (i.e., concern for the welfare of others) relate to engagement in prosocial tendencies and behaviours (Barry, Padilla-Walker, Madsen, & Nelson, 2008; Caprara, Alessandri, & Eisenberg, 2012; Caprara & Steca, 2007). A large literature has shown that empathy – concern for others and the capacity for experiencing others' feelings, is conducive to acting prosocially (e.g., Batson, 1991; Carlo, Hausmann, Christiansen, & Randall, 2003; Eisenberg et al., 1989).

There have been a few studies promulgating the notion that dispositional happiness fosters helping behaviours. For instance, happier people are more likely to become volunteers (e.g., Plagnol & Huppert, 2010), donate more in dictator games (Konow & Earley, 2008), and display more helping behaviour (Krueger, Hicks, & McGue, 2001; Singh, Bassi, Junnarkar, & Negri, 2015; Son & Wilson, 2012). Additionally, individuals induced to experience positive emotions such as elevation (feeling uplifted) display a greater likelihood of engaging in subsequent helping behaviours (Algoe & Haidt, 2009; Haidt, 2003; Landis, Sherman, Piedmont, Kirkhart, Rapp, & Bike, 2009). As delineated above, the literature has focused on the effects of trait happiness on prosocial behaviour, rather than looking at an orientation to pleasure per se. To our knowledge no studies have directly investigated the link between eudaimonic and hedonic orientations and engagement in prosocial behaviour beyond close others. Furthermore, the effects of happiness on helping are expected to be more emphemereal compared to helping for eudaimonic reasons.

Rationale for the Links between Eudaimonic Orientation and Prosocial Behaviour and Prosocial Values

Theoretical rationales. Many psychology researchers already believe that broad concern is part of the very definition of eudaimonia. Broad concern concepts in definitions of eudaimonia include: serving the greater good and concern with the welfare of humankind (Peterson et al., 2005; Seligman, 2002); warm positive relations with others (Ryff, 1989; Wong, 2011); social well-being and social contribution (Keyes, 2002); collaborative relationships (Fowers, 2012); relatedness and community contribution (Deci & Ryan, 2000; McMahan & Renken, 2011; Ryan et al., 2008); commitment to socially shared goals (Delle et al., 2011); social responsiveness, good relationships, and long-term evaluations of one's life (Steger et al., 2006; Steger & Shin,

2012; Steger, Shin, Shim, & Fitch-Martin, 2013); a "quiet ego" which balances personal needs with the needs of others as part of an inclusive identity (Bauer, 2008; Bauer & McAdams, 2004; Wayment, Bauer, & Sylaska, 2014); a heroic life confluent with a eudaimonic life (Franco, Efthimiou, & Zimbardo, 2016); and a meaningful life founded on contributing to the welfare of others (Baumeister, Vohs, Aaker, & Garbinsky, 2013).

We believe that broad scope of concern is a core feature of eudaimonia; prosocial behaviour is integral to eudaimonia in the philosophical literature, as well many psychology researchers embrace this notion, as delineated above. However, some researchers disagree that eudaimonia entails virtuous behaviour, and instead emphasizes self-flourishing. Indeed, an alternative hypothesis is that a focus on person growth, excellence and authenticity could potentially foster self-focused behaviours including competition with others, perfectionism, narcissism, and selfishness. Furthermore, the concepts of authenticity, excellence, and growth which have been part of the various definitions of eudaimonia, do not explicitly refer to concerns beyond the self, and thus it is worth empirically confirming that there is in fact a positive relationship with care beyond the self.

We believe that the pursuit of personal growth in the eudaimonic sense includes maturation and developing skills (Huta, 2015a). Growth of this kind implies pushing oneself to improve in various facets of life which could also include growing morally and contributing to others (e.g., helping others in one's career, parenting, interpersonal relationships, supporting a cause). Personal growth may be conducive to a sense of meaning or purpose in life which is typically achieved by contributing to the surrounding world or connecting with others (Delle Fave et al., 2013; Klein, 2016; Sommer, Baumeister, & Stillman, 2012; Stavrova & Luhmann, 2016).

A focus on excellence can mean pursuing high standards and striving for the best in oneself, as well as making informed ethical decisions (Aristotle, 2001; Huta & Waterman, 2014; Fowers, 2012). Furthermore, many cultures, religions and worldviews encapsulate kindness to others as part of a moral existence which individuals may strive to obtain.

Authenticity is about being real to oneself, self-awareness, candour, deep reflection and constant enquiries, and sincerity (Kreber, Klampfleitner, McCune, Bayne, & Knottenble, 2007). Being authentic to the self presumably requires respect for the dignity of others. Those who prioritize developing their true self will likely be attuned to the idea that concern for the broader world ultimately contributes to flourishing for both the self and others. Impeding the welfare of others will likely create internal conflict for those pursuing eudaimonia.

Although we believe that eudaimonia is best conceptualized subjectively, we do posit that it can be understood in a noble sense from an objective perspective (Damon, 2003). For instance, one can be motivated by meaning and growth to engage in violent acts, yet this is neither morally justifiable nor admirable from an objective perspective (Damon, 2003). Therefore, while we believe that eudaimonia is subjective, we feel that the meaning component, in the context of other elements of eudaimonia, is enmeshed with a general sense of respect and integrity for the welfare of others, one's community and the greater society.

Empirical findings. Much of the work on eudaimonia and hedonia and prosocial behaviour has been on engagement in helping behaviours and the ensuing well-being outcomes (i.e., eudaimonic functioning and hedonic experience). Prosocial behaviour (including giving behaviour, acts of kindness and formal and informal volunteering) has consistently been linked to both hedonic experience and eudaimonic functioning (e.g., Aknin, Dunn, & Norton, 2011; Bowman, Brandenberger, Lapsley, Hill, & Quaranto, 2010; Dunn, Aknin, & Norton, 2008; see

Konrath, 2013; Lyubomirsky, Sheldon, & Schkade, 2005; Nelson, Layous, Cole, & Lyubomirsky, 2016; Otake, Shimai, Tanaka-Matsumi, Otsui, & Fredericksson, 2006; Schwartz, Meisenhelder, Ma, & Reed, 2003; Sheldon & Lyubomirsky, 2004; Thoits & Hewitt, 2001; Weinstein & Ryan, 2010).

There is only a small amount of empirical evidence addressing the opposite question – whether one's personal well-being orientation differentially relates to involvement in other-benefitting behaviours. In addition to the studies that have directly examined the links of eudaimonic and hedonic orientations with well-being beyond the self, as cited previously, there are a few studies providing indirect evidence. For instance, eudaimonic orientation has been associated with kindness/generosity and leadership (Buschor, Proyer, & Ruch, 2013; Peterson et al., 2007); growth-seeking and learning have been linked positively to self-reported perspective-taking, and negatively to antisocial behaviour (Wayment et al., 2014), and positively to compassionate values (Kuncewicz, Niiya, & Crocker, 2015), benevolence (Caliskan, Sapmaz, & Uzunkol, 2015), and valuing intrinsic goals (e.g., affiliation and community concern; Anić & Tončić, 2013; Bauer, McAdams, & Sakaeda, 2005); individualism (e.g., self-actualization and achievement) has been associated with volunteering behaviour (Kemmelmeier & Hartje, 2007); self-actualizers tend to be compassionate with profound interpersonal relationships (Maslow, 1962); meaningfulness has been linked to being a giver, trying to help the needy, buying gifts for others, listening, and identifying with the role of caring for children (Baumeister et al., 2013); eudaimonic orientation has been linked to an Authoritarian parenting style characterized by responsiveness and support (Huta, 2012); and eudaimonic concepts such as competence, achievement striving, and dutifulness (Cox Wilt, Olson, & McAdams, 2010), meaning in life

(Hofer, Busch, Au, Polackova, Tavel, & Tsien 2014), and growth motivation (Bauer, Park, Montoya, & Wayment, 2015), have been linked to generativity.

Variables related to eudaimonia, such as elevation (Algoe & Haidt, 2009; Cox, 2010; Schnall, Roper, & Fessler, 2010), autonomy (Gagné, 2003) and gratitude (Bartlett & Desteno, 2006), have also been linked to a host of prosocial behaviours such as donating to charities, supporting causes and eliciting positive feelings in others.

Taken together, we expected eudaimonic orientation to involve greater positive effects beyond the self based on cogent theoretical rationales and empirical findings. We unpacked this question further by investigating different situations where individuals can offer help.

Helping Under Different Circumstances

This thesis looked at broad categories of helping circumstances which we felt would discriminate eudaimonic orientation from hedonic orientation. There are numerous situations where an individual can offer help (Carlo & Randall, 2002; Johnson et al., 1989; Rushton, Chrisjohn, & Fekken, 1981). We assessed situations that were concrete and face-to-face versus those that were not face-to-face, situations where the results were immediate versus those where the results were delayed, and costly helping behaviours versus low costly helping behaviours.

We predicted that eudaimonic orientation would be characterized by a more abstract and future oriented mindset (Bauer, 2008; Huta, 2015b). Our hypotheses were based within the framework of construal level theory (CLT), which proposes that information can be construed at either a high-level (focus on global features of an event or action, or socially conveyed meanings) or a low-level (focus on local concrete features or details; Trope & Liberman, 2003; see Trope & Liberman, 2010 for a review). Eudaimonic pursuits tend to be founded within a cognitive or meaning framework, which encompasses broad values and goals which tend to

transpire in the future. Eudaimonic pursuits may foster an abstract mindset which transcends self-interest to genuinely contribute to the bigger picture, as well as deliberation about one's long-term goals. Research on CLT has shown a bidirectional relationship between psychological distance and level of mental representation, such that psychologically distant (versus near) objects (i.e., events or people) are represented by a higher constural, and abstract representations increase perceptions of psychological distance of objects (Trope & Liberman 2010). Similarly, we believe that eudaimonic and hedonic orientations relate to levels of construal, and that different levels of construal will influence eudaimonic and hedonic mindsets. For instance, we conjecture that a eudaimonic orientation will foster a more abstract mindset focused on the future, while a focus on high abstractions (e.g., on the future, or the why of behaviours) will also produce preference for eudaimonc pursuits/activities over hedonic pursuits/activities. We expected eudaimonic orientation to relate to helping in abstract situations (anonymous and delayed benefits to the other). Eudaimonic orientation was also predicted to relate to helping in costly situations as eudaimonic pursuits tend to emphasize striving and challenge (e.g., Waterman et al., 2008), which we expected to translate into the helping domain.

Hedonic orientation was hypothesized to show linkages with helping under some circumstances: concrete helping (face-to-face with immediate benefits) and less costly helping. Helping in concrete situations may confer immediate pleasure or gratification for a hedonically oriented person (e.g., boost self-esteem, enhance reputation, returned benefits). Also, the benefits to the self of easy helping may outweigh the costs, if little time and effort are invested. Hedonic pursuits are expected to be characterized by a lower-level construal as pleasure and comfort tend to be more immediate and concrete goals (Kim, Kang, & Choi, 2014).

Hindering Social Behaviours and Egoistic Values

This thesis also explored the association between eudaimonic and hedonic orientations and mild hindering social behaviours including lying, being manipulative and/or moody/disagreeable (Anguiano-Carrasco & Vigil-Colet, 2011; Coyne, Archer, & Eslea, 2006). We felt it was important to not only investigate the positive impacts that either eudaimonic or hedonic orientations may have on others or the broader community/society, but also the potential hindering effects.

Traditionally, most of the work on negative behaviours has focused on aggression and antisocial behaviours either in childhood or adolescence (e.g., Cairns, Cairns, Neckerman, Ferguson, & Gariépy, 1989; Crick, 1996; Gordon, Dalton, Kolbert, Kanyongo, & Crothers, 2014; Little, Henrich, Jones, & Hawley, 2003; Raine et al., 2006; Tremblay, 2000). Research on negative behaviour in adults abounds in the field of non-clinical narcissism – feelings of superiority, entitlement to privileges, and craving admiration from others (Brummelman, Thomaes, & Sedikides, 2016; Campbell, Rudich, & Sedikides, 2002; Sedikides, Rudich, Gregg, Kumashiro, & Rusbult, 2004). Recent research has also explored minor negative behaviours that encompass indirect social and relational aggression in late adolescence or young adulthood (Archer, 2001; Bjorkqvist, 1994; Crothers, Kolbert, Kanyongo, Field, & Schmitt, 2014; Crothers, Schreiber, Field, & Kolbert, 2009). We focused on these behaviours in the present research as they are more relevant to a young adult sample – they do not entail overt physical aggression and are not extremely antisocial. Additionally, egoistic values – the need to maintain and defend positive images of the self (Crocker & Canevello, 2008; Kasser & Ryan, 1996), were assessed.

By undertaking this research, we can gain a deeper understanding of the interplay between one's approach to personal well-being and proclivity towards hampering or harming

others. It was surmised that hedonic orientation would relate to a narrower scope of concern, and hence to undesirable behaviours that may interfere with the well-being of others.

Rationale for the Links between Hedonic Orientation and Hindering Social Behaviours and Egoistic Values

Theoretical rationales. Several researchers have explicitly defined or described hedonia with narrow scope of concern concepts: focusing on self-interest and self-gratification (Berzonsky, Cieciuch, Duriez, & Soenens, 2011; Schwartz, 2012); prioritizing self-interest and practical gain (Wong, 2011); self-enhancement and improving one`s feelings (Schwartz, 2005; Steg, Perlaviciute, van der Werff, & Lurvink, 2014); emphasis on the present (Kim et al., 2014; Lindenberg & Steg, 2007; Zimbardo & Boyd, 1999); psychological egoism (LaFollette, 1988; Sober, 1999); engaging in activities that produce immediate but short-lived pleasure (e.g., causal sex, buying jewellery for oneself; Brickman & Campbell, 1971; Hallam et al., 2014; Steger et al., 2008); hedonic motives which fulfil immediate emotional experiences (Tamir, 2015); and consumption behaviour (Dittmar, 1992).

Hedonic orientation tends to involve concrete goals which fulfil immediate needs or desires. In light of the aforementioned theoretical accounts, it is conjectured that one who predominantly pursues hedonic goals will likely focus on maximizing pleasure, which may detract from a broader concern for others. This may in turn foster behaviours that could potentially harm others, or lead to disregard for the greater society. For instance, those who capitalize on attaining pleasure may be more impulsive, and engage in risky behaviours (e.g., drunk driving) which can be pleasurable, but also lead to negative implications for others (Zimbardo & Boyd, 1999). Emphasis on comfort or relaxation could also foster a carefree, laissez faire attitude or indolence whereby one displays less effort to actively contribute beyond

the self as this may engender discomfort. Lastly, some people can derive pleasure or entertainment from certain negative behaviours such as manipulating others or gossiping (Britt, 2015; Gabriels & De Backer, 2016; McClelland, 2010).

We acknowledge that the pursuit of pleasure per se can also be eudaimonic and intrinsically motivated (Ryan et al., 2008). However, an emphasis on pursuing pleasure or crass endeavours may stall the pursuit of excellence, compromising societal flourishing. There are multiple routes to pleasure; some antecedents of pleasure can comprise goals that conflict with caring about the broader world (e.g., exploitation of others, shallow values; Burroughs & Rindfleisch, 2002; Grouzet et al., 2005; Ryan et al., 2008). Therefore, overall, the degree of hedonic orientation is expected to relate to mild hindering social behaviours.

Empirical findings. Although there is a paucity of direct evidence, some research suggests that aspects of hedonia may be related to some mild negative behaviour. For instance, hedonism values are linked with delinquency (Bilsky & Hermann, 2016); and hedonically oriented individuals have been found to raise negative affect in relatives (Huta et al., 2014). Those with a present hedonistic time perspective have been found to be more inclined to display aggressive behaviours (e.g., hostility and anger) and impulsive tendencies (Stolarski, Zajenkowski, & Zajenkowska, 2016; Worrell, Andretta, & McKay, 2016; Zimbardo & Boyd, 1999), and more likely to engage in risky behaviours such as alcohol consumption, drugs and tobacco use (Braitman & Henson, 2015; Cole, Andretta, & McKay, 2016; Keough, Zimbardo, & Boyd, 1999; Willis, Sandy, & Yeager, 2001), risky driving (Zimbardo, Keough, & Boyd, 1997), and risky sexual behaviour (Rothspan & Read, 1996).

Hedonic goals and/or values have also been related to self-enhancing extrinsic goals including valuing material goods, attractive appearance/image, reputation/fame and power (Anić

& Tončić, 2013; Berzonsky et al., 2011; Brdar & Anić, 2010; Caliskan et al., 2015). Additionally, studies have found that narcissism is linked with hedonic experience (Aghababaei & Błachnio, 2015; Zemojtel-Piotrowska, Piotrowski, & Clinton, 2015) – presumably those who seek pleasure may also covet self-interested or negative behaviours that can be self-gratifying.

Motives for Helping

Individuals can engage in prosocial behaviours for multitudinous reasons, thus this thesis also looked at one's proximal motives for engaging in prosocial behaviours. According to the functional approach, individuals participate in behaviours to the extent that they satisfy goals (Clary & Snyder, 1991). It is critical to study one's intentions behind helping others as this can influence continued or subsequent helping (e.g., see Eisenberg et al., 2015). There is a multiplicity of helping motives which fall under two broad classes: self-focused motives (i.e., egoistic motives; Barclay, 2004; Cialdini, Brown, Lewis, Luce, & Neuberg, 1997), and other-focused motives (i.e., prosocial motives; Batson, 1998, 2011; Eisenberg et al., 2006).

We assessed a variety of other-focused motives for helping: humanitarian values (i.e., valuing another's welfare; Clary et al., 1998); to have a positive impact; and autonomous motives (concern with another's needs, acting of one's own volition; Weinstein & Ryan, 2010). Self-focused motives included: to get a benefit in return (Trivers, 1971); to gain reputation and recognition (e.g., Ekstrom, 2010; Engelmann & Fischbacher, 2009; Kurzban, DeScioli, & O'Brien, 2007; Rockenbach & Milinski, 2006); to enhance career prospects (Clary et al., 1998); and controlled motives (Weinstein & Ryan, 2010). We also assessed mixed other-focused and self-focused helping motives: to have the pleasurable feeling of caring (Warm-Glow theory, Andreoni, 1990); to enhance understanding and skills (Clary et al., 1998); to connect and bond socially (Clary et al., 1998); to conform socially (Reyniers & Bhalla, 2013); to build self-esteem

(Clary et al, 1998); to forget one's own problems; and to alleviate one's own aversive feelings upon witnessing distress (e.g., Cialdini et al., 1987).

In line with our previous hypotheses, we expected that one's degree of eudaimonic orientation would be associated with other-focused helping motives due to a broader concern beyond the self and appreciation of the interconnectedness of all living entities. Hedonic orientation was expected to show greater linkages with self-focused helping motives as hedonia prioritizes need satisfaction. Both eudaimonic and hedonic orientations were expected to relate to mixed other-focused and self-focused helping motives. These motives can provide internal rewards, personal growth, enhanced interpersonal relationships and overall well-being, which we expected to relate to both orientations.

The first three manuscripts in this thesis focused predominantly on eudaimonic and hedonic orientations and retrospective recall of the frequency of engagement in prosocial behaviours, or self-report ratings of prosocial and egoistic values. The next step was to use a novel methodology to contrast eudaimonic and hedonic orientations on personal well-being and care beyond the self. Specifically, Manuscript 4 looked at trait affect and psychophysiological indices of trait personal well-being, as well as self-report emotional reactions, video recorded facial expressions, and psychophysiological responses (skin conductance and heart rate) to human, animal and nature happiness/health and suffering/degradation depicted in pictures. Static images have been utilized frequently to elicit emotions (Bradley, Codispoti, Cuthbert, & Lang, 2001; Bradley & Lang, 2000; Mikels, Fredrickson, Larken, Lindberg, Maglio, & Reuter-Lorenz, 2005), which can provide underlying information about one's motivations (e.g., to approach or withdraw from a certain event; Bradley & Lang, 2000). We are not aware of any studies that

have investigated the association between eudaimonic and hedonic orientations and emotional reactions in a picture context.

Eudaimonic and Hedonic Orientations and Affective and Physiological Personal Well-being

As discussed previously, various studies have linked both eudaimonic orientation and hedonic orientation with self-reported indices of personal well-being, such as positive affect and happiness (Anić & Tončić, 2013; Henderson et al., 2013; Huta & Ryan, 2010; Ito & Kodama, 2007; Lenton, Bruder, Slabu, & Sedikides, 2013; Tončić, & Anić, 2015; Vittersø et al., 2009), as well as physical health (e.g., Fredrickson et al., 2013; see Ryff, 2006; Ryff, Singer, & Love, 2004; Ryff et al., 2006).

When it comes to psychophysiological measures, past studies on eudaimonia and hedonia have focused on well-being experiences and functioning. Considerable progress has been made in deciphering hedonic experience in the brain (see Suardi, Sotgiu, Costa, Cauda, & Rusconi, 2016), including sensory pleasures and higher pleasures (Berridge & Kringelbach, 2011). The ventral striatum, in particular, has been activated during hedonic behaviours (e.g., choosing to receive rewards; Telzer, Fuligni, Lieberman, & Gálvan, 2014). Eudaimonic functioning (e.g., having personal growth in life, self-acceptance, purpose in life) has been linked to greater resting left prefrontal activation (Urry et al., 2004), which may be indicative of goal directed approach behaviour, and also implicated in empathy (Decety & Moriaguchi, 2007), and to right insular cortex gray matter volume (Lewis, Kanai, Rees, & Bates, 2013), which is believed to play a role in emotional awareness (Gu, Hof, Friston, & Fan, 2013). Thus, these studies provide some evidence that there may be physiological distinctions between eudaimonia and hedonia (mainly at the level of well-being outcomes thus far).

Manuscript 4 was the first to study psychophysiological variables (specifically autonomic activity) in relation to eudaimonic and hedonic orientations on personal well-being and care beyond the self. Furthermore, Manuscript 4 was the first study to include videos of facial expressions (using a hidden camera), and the links with well-being orientations. The psychophysiological and facial valence measures tested the same prediction as the self-report measures, and thus served as complementary assessments of emotional responsiveness. However, these measures were added in an effort to bypass some of the limitations of self-report (i.e., self-presentation bias). Furthermore, psychophysiological measures may assess visceral automatic reactions to emotional stimuli, whereas self-report may capture a combination of both affective and cognitive emotional processes.

Other-Oriented Emotional Responses

Although scholars continue to debate how empathy is defined, empathy is typically conceptualized as an affective state stemming from the comprehension of another's emotional state or condition, and feeling what another individual is feeling or expected to feel (Eisenberg, Eggum, & Di Giunta, 2010; Eisenberg et al., 2006). Empathy can include knowing a person's internal state, projecting oneself into another's situation, or cognitively imagining how one would feel in the other's place (see Batson, 2009).

We base our research on the premise that empathic and sympathetic (i.e., feelings of sorrow or concern for another) reactions form the basis of most prosocial intentions and behaviour (Batson, 1987; Batson, 1991; see Dovidio et al., 2006 for a review; Eisenberg et al., 2002; Eisenberg et al., 2006; Feldmanhall, Dalgleish, Evans, & Mobbs, 2015; Hoffman, 1976; Nils-Torge & Hans-Ruediger, 2012; Pavey, Greitemeyer, & Sparks, 2012; Welp & Brown, 2013). This includes both compassion towards another's suffering (Condon & DeSteno, 2011;

Loewenstein & Small, 2007; Tangney, Stuewig, & Mashek, 2007), and enjoying and vicariously experiencing another's positive emotions (see Morelli, Lieberman, & Zaki, 2015).

Eudaimonic orientation was predicted to be associated with negative affect to images of human/animal/nature suffering/degradation and stronger positive affect to images of human/animal/nature happiness/health due to a tendency to put oneself in another`s position and understand their plight or joy. Hedonic orientation was expected to have no significant relationship with negative affect reactions to suffering/degradation, and less positive affect to happiness/health due to less proficiency to project into the perspective of another (or connect with humans, animals or nature). Prioritizing hedonia may lead to preoccupation with pleasure for the self, and a mindset which is less apt to contemplate beyond immediate desires. Furthermore, we expected that hedonic orientation would encompass avoidance of discomfort, and thus less inclination to empathize especially with negative circumstances.

Psychophysiological Responses: The Autonomic Nervous System

Emotions are widely accepted to consist of multiple components including subjective, behavioural, and physiological components (Neumann & Westbury, 2011). Emotions are believed to be influenced by the autonomic nervous system which functions largely below consciousness, and acts as a control system, regulating bodily functions and internal organs of the body (Andreassi, 2007; Dawson, Schell & Filion, 2007). A prevalent view of the interaction between emotion and physiology is that emotions are influenced by efferent (outwardly conducting nervous impulses to an effector organ) effects of the autonomic nervous system (Scherer, 2009). These effects are elicited by appraising an event as relevant to personal goals and values, which are expected to influence subjective feeling, physiology and motor expressions

(Scherer, 2009). Specifically, signals in the brain may engage various circuits in the autonomic nervous system reflective of one's emotional experience (see Hess, 2011).

There are two classes of systems that are involved in physiological responses: (1) The sympathetic nervous system and (2) The parasympathetic nervous system (Andreassi, 2000). Emotional responses are accompanied by physiological changes which are brought about by changes in sympathetic and parasympathetic activity (Andreassi, 2007). Abundant research has investigated how these two systems relate to emotional responding (Cacioppo, Berntson, Larsen, & Ito, 2000; Christie & Friedman, 2004; see Hastings, Miller, Kahle, & Zahn-Waxler, 2013; See Kreibig, 2010 for a review). The sympathetic system functions to quickly mobilize the body's response under stressful situations or fight-or-flight responses, while the parasympathetic system is responsible for the rest and repair phase of the body, and is described as a dampening system (Andreassi, 2000; Dawson et al., 2007; Jones & Gagnon, 2007). Therefore, these changes can provide some information about emotional responses (e.g., the sympathetic system may be activated during fear, stress, or threat, while the parasympathetic system may be activated during relaxation or low arousal compassion; Cacioppo et al., 2000).

The two most commonly assessed psychophysiological measures of emotional processing are skin conductance and cardiovascular activity (Mauss & Robinson, 2009). Skin conductance activity directly reflects sympathetic nervous system activity, and thus may provide insight about general emotional arousal/reactivity and attention (Dawson et al., 2007). Skin conductance is also useful for its simplicity and visibility. Heart rate (HR) is more complex; therefore, the analyses in this dissertation were more exploratory. HR is controlled by both the sympathetic and parasympathetic systems, thus there may be an activation of the sympathetic nervous system (accelerated HR), an activation of the parasympathetic system (decelerated HR), or a

coactivation of both systems (Berntson et al., 2007). We included HR in our physiological measures since HR deceleration to unpleasant images, in particular, has been surmised to be indicative of an orientating response beyond the self (Hess, 2011). Additionally, HR can provide some insight about parasympathetic activation (e.g., relaxed, outward focus; Dawson et al., 2007). This is described in more detail in the section on HR.

Skin conductance. Skin conductance is a measure of the electrical activity of the skin (measured in microsimiens), typically through sweat glands on the palmar and plantar surfaces (Dawson et al., 2007; Fowles, 1986). Human eccrine sweat glands are predominantly controlled by sympathetic innervation; sweat will rise in ducts depending on the degree of activation of the sympathetic nervous system (which can be activated by emotional stimuli; Dawson et al., 2007).

The two most commonly assessed measures of skin conductance include skin conductance level (SCL, the background longer-term changes in sympathetic nervous system activity), and skin conductance responses (SCRs, phasic short-term peaks in SCL in response to specific stimuli; Andreassi, 2007; Boucsein et al., 2012, Dawson et al., 2007; Neumann & Westbury, 2011). We review the literature on both SCL and SCRs as these measures are mostly redundant. However, this thesis focused only on SCRs as we were interested in physiological responses to brief picture viewing.

Studies have found a positive association between emotional empathy and skin conductance in both children and adults (Eisenberg & Fabes, 1998; Lanzetta & Englis, 1989; Mehrabian, Young, & Sato, 1988). The link between skin conductance changes and helping behaviour is mixed. Some studies report that an increase in children's and youth's SCR is associated with personal distress and avoidance behaviours (i.e., avoiding helping others; Eisenberg, Fabes, Bustamante, Mathy, Miller, & Lindholm, 1988a; Fabes, Eisenberg, &

Eisenbud, 1993), while others show that increased SCR relates to greater prosocial behaviours (Holmgren, Eisenberg, & Fabes, 1998). A recent study showed that adults with greater SCRs to witnessing others in pain were more likely to engage in costly altruistic behaviour – receiving pain in place of the other person (Hein, Lamm, Brodbeck, & Singer, 2011). Furthermore, research reveals that SCRs tend to be lower for populations that may have deficits in empathy such as violent offenders (Seidel et al., 2013; Wahlund, Sorman, Gavazzeni, Fischer, & Kristiansson, 2009). Overall, a recent review on emotions and physiology showed that skin conductance typically increase in response to empathy (see Kreibig, 2010; though some studies have linked exposure to sadness to decreased SCL, e.g., Britton, Taylor, Berridge, Mikels, & Liberzon, 2006; Kreibig, Wilhelm, Roth, & Gross, 2007).

Heart rate. The association between emotional empathy and cardiac measures is less consistent, with some studies showing a positive association and others showing a negative association (Oliveira-Silva & Goncalves, 2011). Both children (Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991; Eisenberg et al., 1988a) and adults (Christie & Friedman, 2004; Eisenberg et al., 1988b; Eisenberg et al., 1989; Kreibig et al., 2007; Palomba, Sarlo, Angrilli, Mini, & Stegagno, 2000; Tsai, Levenson, & Carstensen, 2000) have displayed HR deceleration to film clips displaying sad scenes (e.g., loss of a pet, physical handicap, bereavement), and increases in HR to films depicting distress or fear (e.g., Bernat, Patrick, Benning, & Tellegen, 2006; Kreibig et al., 2007). In other studies, increased cardiac activity has been associated with donations to a needy other (e.g., Barraza, Alexander, Beavin, Terris, & Zak, 2015), and less empathic individuals (e.g., those high on grandiose manipulation) show reduced HR activity in response to victims in violent situations (Fanti et al., 2017).

Hoffman (1982) postulates that HR depends on the intensity of the stimulus; if the intensity is strong individuals will have an increase in HR indicative of vicarious affective arousal. If the intensity is low, the individual may experience a deceleration in HR indicative of an orienting response and outward focus on the other. Similarly, sadness has been identified as a low arousal form of negative affect, whereas fear and distress have been identified as high arousal forms of negative affect in the circumplex model of affect (Posner, Russell, & Peterson, 2005).

The ostensibly contradicting findings for skin conductance and HR activity can be explained by the hypothesis of differential or co-activated autonomic response patterns (e.g., co-activation of both the sympathetic and parasympathetic systems) typically to unpleasant material (Berntson, Cacioppo, & Quigley, 1993; Palomba et al., 2000). According to the defense cascade model (Lang, Bradley & Cuthbert, 1997), if stimuli are moderately unpleasant, it may prompt an orienting response or general arousal in which a measurable SCR is present. However, heart rate will only accelerate if the stimuli are very intense or threatening, in which case the sympathetic system dominates. Otherwise, lower arousal emotions such as sadness are likely to be accompanied by a decelerated HR whereby the parasympathetic system dominates.

Physiological response systems can also be interpreted within the context of the activation of separate positive and negative motivational systems (e.g., appetitive-defensive/approach-withdrawal; Bradley, Cuthbert & Lang, 1999; Cacioppo & Berntson, 1994; Tellegen, Watson, & Clark, 1999). According to the appetitive-defensive model, valence (pleasant vs. unpleasant) reflects which motivational system is activated (Bradley et al. 1999), and arousal level reflects the intensity of activation. Thus, very strong physiological reactions (particularly HR) to *intense* negative images may suggest a defense reaction (i.e., self-aversive

personal distress), whereas only moderate physiological responses to intense negative images (or decelerated responses to *mild* or *moderate* negative images) may suggest compassion towards the other. Thus, the HR response to a negative image is likely to be a function of the intensity of that image, as well as the participant's own tendency to have an aversive rather than engaged reaction to others' suffering. With regards to positivity, high physiological reactions to high arousal positive images may suggest approach behaviour.

In sum, the literature on autonomic responses is equivocal (see Hastings et al., 2013). To resolve inconsistencies in the literature, we incorporated multiple methods of assessing emotional reactions concurrently, including self-report, facial expressions and psychophysiological assessments. Overall, we expected eudaimonic orientation to be associated with an elevated SCR, and greater negative facial expressions to human/animal/nature suffering/degradation images which would suggest reactivity towards the images, and perhaps a greater proficiency to step outside the self and see from another's point of view. Hedonic orientation was conjectured to have no significant relation to SCR magnitude, and negative facial expressions to suffering/degradation images (i.e., less arousal or reactivity) due to less concern beyond the self. Analyses for HR were exploratory. We suspected eudaimonic orientation to relate to greater HR deceleration to suffering/degradation images, relative to hedonic orientation, as these images were postulated to evoke low arousal concern/sadness for another.

HR and skin conductance to happiness/health images were exploratory given the mixed findings in the literature, and the notion that positive images may be less indicative of empathic responses compared to negative images. Most studies have examined physiological responses to general happiness or joy as opposed to feeling happy for another (e.g., viewing happy facial expressions, recollecting happy moments). Research has found that HR and SCL usually

accelerate in response to these inductions (Boiten, 1998; Gehricke & Fridlund, 2003; Jönsson & Sonnby-Borgström, 2003; see Kreibig, 2010; Louwerse et al., 2014). In particular, high arousal positive images or videos such as amusement/mirth (e.g., Foster, Webster, & Williamson, 2003; Giuliani, McRae, & Gross, 2008), and erotica (Carvalho, Leite, Galdo-Álvarez, & Gonçalves, 2011; Cuthbert, Schupp, Bradley, Birbaumer, & Lang, 2000) are typically associated with increased SCL. However, other studies show that HR and SCL can decelerate to low arousal positive stimuli which evoke contentment (e.g., film clips and/or standardized imagery inducing serenity and relaxation; Christie & Friedman, 2004; Palomba et al., 2000; Van Diest et al., 2001; Vrana, 1993). Since this thesis used positive images that may evoke low or high arousal, we did not formulate any specific hypotheses about psychophysiological responses to happiness/health images.

Contributions of the Present Research

This program of research will contribute to the advancement of two distinct ways of pursuing the good life by forging new methodologies to analyze the dynamics between personal well-being and collective concern. This research will be a unique contribution to the literature by being the first to directly investigate the influences that eudaimonic and hedonic orientations have beyond the self, using a multi-method approach. Most prior studies have focused on only one element of eudaimonia (e.g., personal growth, authenticity or excellence in isolation) or hedonia (predominantly pleasure). This thesis incorporates the three self-focused elements of eudaimonic orientation together and the two chief elements of hedonia together. Additionally, this research is valuable for understanding mechanisms involved in empathy towards others and the surrounding world.

We believe that eudaimonic orientation entails a striving for reaching one's highest potentials, but that this is infused with a broader concern for others and the surrounding world. This is best captured by Maslow's articulation of an individual in a peak experience:

> As he **[**that is, the person in the peak experiences**]** gets to be more purely and singly himself he is more able to fuse with the world, with what was formerly not-self, for example, the lovers come closer to forming a unit rather than two people, the I-Thou monism becomes more possible, the creator becomes one with his work being created, the mother feels one with her child. That is, the greatest attainment of identity, autonomy, or selfhood is itself simultaneously a transcending of itself, a going beyond and above selfhood. The person can then become relatively egoless (Maslow, 1961/1999b, p. 117, footnotes omitted).

We believe that this research can shed light on what lies beneath the eudaimonic-hedonic distinction, i.e., what gives rise to a constellation of priorities such as growth, excellence, and authenticity, as opposed to priorities such as pleasure and comfort. Ultimately, pursuits of excellence, authenticity and personal growth are likely to be enriching and fulfilling for both personal and societal development.

Endnotes

1. The paper submitted for publication included a second study which assessed the link between eudaimonic and hedonic orientations and pro-environmental behaviours and biospheric values. These variables were included with the variables in Study 1.3 of the thesis (altruistic and egoistic values) which was called Study 2 (in the publication). The environment section was not included in the thesis as the thesis focused on broad scope of concern towards people.

References

Abuhamdeh, S., & Csikszentmihalyi, M. (2012). The importance of challenge for the enjoyment of intrinsically motivated, goal-directed activities. *Personality and Social Psychology Bulletin,* 38, 317–330. doi:10.1177/0146167211427147

Aghababaei, N., & Blachnio, A. (2015). Well-being and the dark triad. *Personality and Individual Differences*, 86, 365-368. doi: 10.1016/j.paid.2015.06.043

Aknin, L. B., Dunn, E. W., & Norton, M. I. (2011). Happiness runs in a circular motion: Evidence for a positive feedback loop between prosocial spending and happiness. *Journal of Happiness Studies,* 13*,* 347-355. doi: 10.1007/s10902-011-9267-5

Algoe, S., & Haidt, J., (2009). Witnessing Excellence in Action: The other-praising emotions of elevation, admiration, and gratitude. *Journal of Positive Psychology,* 4, 105-127. doi: 10.1080/17439760802650519

Allport, G. (1955). *Becoming: Basic Considerations for a Psychology of Personality*. New Haven, CT: Yale University Press.

Alper, K. (2015). Pyschometric properties of the Orientations to Happiness Scale and measurement of invariance between samples of Turkish and Russian university students. *Social Indicators Research*, 122, 945-959.

Andreassi, J.L. (2000). *Psychophysiology: Human behaviour and physiological response* (4th Ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Andreassi, J. L. (2007). *Psychophysiology: Human behaviour and physiological response* (5th Ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Andreoni J. (1990). Impure altruism and donations to public goods: A theory of warm-glow giving. *The Economic Journal*, 100, 464–477.

Anguiano-Carrasco C., & Vigil-Colet, A. (2011). Assessing indirect aggression in aggressors and targets: Spanish adaptation of the Indirect Aggression Scales. *Psicothema*, 23, 146-152.

Anić, P., & Tončić, M. (2013). Orientations to happiness, subjective well-being and life goals. *Psihologijske teme,* 22, 135-153.

Annas, J. (1993). *The morality of happiness*. Oxford, UK: Oxford University Press.

Annas, J. (2008). Virtue ethics and the charge of egoism. In P. Bloomfield (Ed.), *Morality and self-interest* (pp. 205-221). Oxford, UK: Oxford University Press.

Archer, J. (2001). A strategic approach to aggression. *Social Development*, 10, 267-271. doi: 10.1111/1467-9507.00163

Aristotle. (2001). Nichomachean ethics. In R. McKeon (Ed.), *The basic works of Aristotle* (pp. 928-1112). New York, NY: The Modern Library.

Aspden, T., Ingledew, D.K., & Parkinson, J.A. (2012). Motives and health-related behaviour: incremental prediction by implicit motives. *Psychology and Health*, 27, 51-71. doi: 10.1080/08870446.2010.541911

Augustine, A. A., Hemenover, S. H., Larsen, R. J., & Shulman, T.E. (2010). Composition and consistency of the desired affective state: The role of personality and motivation. *Motivation and Emotion*, 34, 133-143. doi: 10.1007/s11031-010-9162-0

Avsec, A., & Kavčič, T. (2012). Psychometric properties of the Slovene version of the Orientations to Happiness questionnaire. *Horizons of Psychology*, 21, 7-18. doi: 10.20419/2012.21.354

Avsec, A., Kavčič, T., & Jarden, A. (2016). Synergistic paths to happiness: Findings from seven countries. *Journal of Happiness Studies*, 17, 1371-1390. doi: 10.1007/s10902-015-9648-2

Badhwar, N.K. (2014). *Well-being: Happiness in a worthwhile life*. New York, NY: Oxford University Press.

Barclay, P. (2004). Trustworthiness and competitive altruism can also solve the "tragedy of the commons." *Evolution and Human Behaviour*, 25, 209–220. Retrieved from http://dx.doi.org/10.1016/j.evolhumbehav.2004.04.002

Baril, A. (2014). Eudaimonia in contemporary virtue ethics. In S.V. Hooft (Ed.), *The handbook of virtue ethics* (pp.17-27). New York: Routledge.

Barraza, J.A., Alexander, V., Beavin, L.E., Terris, E.T., & Zak, P.J. (2015). The heart of the story: peripheral physiology during narrative exposure predicts charitable giving. *Biological Psychology*, 105, 138-143. doi: 10.1016/j.biopsycho.2015.01.008

Barrett-Cheetham, E., Williams, L. A., & Bednall, T. (2016). A differentiated approach to the link between positive emotion and well-being. *Journal of Positive Psychology,* 11, 595-608. doi: 10.1080/17439760.2016.1152502

Barry, C. M., Padilla-Walker, L. M., Madsen, S. D., & Nelson, L. J. (2008). Impact of maternal relationship quality on emerging adults' prosocial tendencies. *Journal of Youth and Adolescence*, 37, 581-591. doi:10.1007/s10964-007-9238-7

Bartlett, M.Y., & DeSteno, D. (2006). Gratitude and prosocial behaviour: Helping when it costs you. *Psychological Science*, 17, 319-325. doi:10.1111/j.1467-9280.2006.01705.x

Batson, C. D. (1987). Prosocial motivation: Is it ever truly altruistic? In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 20, pp. 65-122). New York: Academic Press.

Batson, C. D. (1991). *The altruism question: Toward a social-psychological answer*. Hillsdale, NJ: Erlbaum.

Batson, C. D. (1998). Altruism and prosocial behaviour. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., pp. 282-316). New York: McGraw-Hill.

Batson, C.D. (2009). These things called empathy: Eight related but distinct phenomena. In J. Decety & W. Ickes (Eds.), *The social neuroscience of empathy* (pp. 3-15). Cambridge, MA: MIT Press.

Batson, C.D. (2011). *Altruism in humans*. New York: Oxford University Press.

Bauer, J.J. (2008). How the ego quiets as it grows: Ego development, growth stories, and eudaimonic personality development. In H.A. Wayment & J.J. Bauer (Eds.), *Transcending self-interest: Psychological explorations of the quiet ego* (pp. 199–210). Washington, DC: American Psychological Association.

Bauer, J.J. (2016). Eudaimonic growth: The development of the goods in personhood (or cultivating a good life story). In J. Vittersø (Ed.), *Handbook of eudaimonic well-being* (pp. 147-174). Springer International Publishing. doi: 10.1007/978-3-319-42445-3_10

Bauer, J.J., & McAdams, D.P. (2004). Personal growth in adults' stories of life transitions. *Journal of Personality,* 72, 573-602. doi: 10.1111/j.0022-3506.2004.00273.x

Bauer, J.J., & McAdams, D.P. (2010). Eudaimonic growth: Narrative growth goals predict increases in ego development and subjective well-being three years later. *Developmental Psychology*, 46, 761-772. doi: 10.1037/a0019654

Bauer, J. J., McAdams, D. P., & Pals, J. L. (2008). Narrative identity and eudaimonic well-being. *Journal of Happiness*, 9, 81-104. doi:10.1007/s10902-006-9021-6

Bauer, J.J., McAdams, D.P., & Sakaeda, A.R. (2005). Interpreting the good life: Growth memories in the lives of mature, happy people. *Journal of Personality and Social Psychology*, 88, 203-217. doi: 10.1037/0022-3514.88.1.203

Bauer, J. J., Park, S. W., Montoya, R. M., & Wayment, H. A. (2014). Growth motivation toward two paths of eudaimonic self-development. *Journal of Happiness Studies*, 1-26. doi: 10.1007/s10902-014-9504-9

Baumeister, R.F., Vohs, K.D., Aaker, J.L., & Garbinsky, E.N. (2013). Some key differences between a happy life and a meaningful life. *The Journal of Positive Psychology*, 8, 505-516. doi: 10.1080/17439760.2013.830764

Bernat, E., Patrick, C. J., Benning, S. D., & Tellegen, A. (2006). Effects of picture content and intensity on affective physiological response. *Psychophysiology*, 43, 93–103. doi: 10.1111/j.1469-8986.2006.00380.x

Berntson, G.G., Cacioppo, J.T., & Quigley, K.S. (1993). Cardiac psychophysiology and autonomic space in humans: empirical perspectives and conceptual implications. *Psychological Bulletin,*114, 296-322.

Berridge, K.C., & Kringelbach, M.L. (2011). Building a neuroscience of pleasure and well-being. *Psychology of Well-Being: Theory, Research and Practice,* 1, 1-3. doi:10.1186/2211-1522-1-3

Berzonsky, M. D., Cieciuch, J., Duriez, B., & Soenens, B. (2011). The how and what of identity formation: Associations between identity styles and value orientations. *Personality and Individual Differences*, 50, 295-299. doi: 10.1016/j.paid.2010.10.007

Bierhoff, H.W. (2002). *Prosocial behaviour*. New York: Psychology Press.

Bilsky, W., & Hermann, D. (2016). Individual values and delinquency: On considering universals in the content and structure of values. *Psychology, Crime & Law, 22*, 921-944. doi: 10.1080/1068316X.2016.1202250

Biswas-Diener, R., Kashdan, T., & King, L.A. (2009). Two traditions of happiness research, not two distinct types of happiness. *Journal of Positive Psychology*, 4, 208–211. doi: 10.1080/17439760902844400

Björkqvist, K. (1994). Sex differences in physical, verbal and indirect aggression: A review of recent research. *Sex Roles*, 30, 177-188. doi: 10:1007/BF01420988

Bloomfield, P. (2014). *The virtues of happiness: A theory of the good life*. New York: Oxford University Press.

Boiten, F.A. (1996). Autonomic response patterns during voluntary facial action. *Psychophysiology*, 33, 123–131. doi: 10.1111/j.1469-8986.1996.tb02116.x

Bowman, N., Brandenberger, J., Lapsley, D., Hill, P., & Quaranto, J. (2010). Serving in college, flourishing in adulthood: Does community engagement during the college years predict adult well-being? *Applied Psychology*, 2, 14-34. doi: 10.1111/j.1758-0854.2009.01020.x

Bradley, M. M., Codispoti, M., Cuthbert, B. N., & Lang, P. J. (2001). Emotion and motivation I: Defensive and appetitive reactions in picture processing. *Emotion*, 1, 276-298. doi: 10.1037//1528-3542.1.3.276

Bradley, M.M., Cuthbert, B.N., & Lang, P.J. (1999). Affect and the startle reflex. In M.E. Dawson, A. Schell, & A. Boehmelt (Eds.), *Startle modification: Implications for neuroscience, cognitive science and clinical science* (pp. 157-186). Stanford, CA: Cambridge University Press.

Bradley, M. M., & Lang, P. J. (2000). Measuring emotion: Behaviour, feeling, and physiology. In R. D. Lane & L. Nadel (Eds.), *Cognitive neuroscience of emotion* (pp. 242-276). New York: Oxford University Press.

Bradley, M., & Lang, P. J. (2007). Emotion and motivation. In J. T. Cacioppo, L. G. Tassinary, & G. G. Berntson (Eds.), *Handbook of psychophysiology* (3rd ed., pp. 581–607). Cambridge: Cambridge University Press.

Braitman, A.L., & Henson, J.M. (2015). The impact of time perspective latent profiles on college drinking: a multidimensional approach. *Substance Use and Misuse*, 50, 664-673. doi: 10.3109/10826084.2014.998233

Brdar, I., & Anić, P. (2010). Adolescents' life goals, orientations to happiness and psychological needs: Which is the best path to happiness? *Psihologijske teme,* 19, 169-187.

Brickman, P., & Campbell, D. T. (1971). Hedonic relativism and planning the good society. In M. H. Appley (Ed.), *Adaptation-level theory* (pp. 287-305). New York: Academic Press.

Britt, R.K. (2015). Participation on celebrity gossip blogs: A study of celebrity attitudes and gratifications. *North American Journal of Psychology,* 17, 403-416.

Britton, J.C., Taylor, S.F., Berridge, K.C., Mikels, J.A., & Liberzon, I. (2006). Differential subjective and psychophysiological responses to socially and nonsocially generated emotional stimuli. *Emotion*, 6, 150–155. doi: 10.1037/1528-3542.6.1.150

Brummelman, E., Thomaes, S., & Sedikides, C. (2016). Separating narcissism from self-esteem. *Current Directions in Psychological Science*, 25, 8-13. doi: 10.1177/0963721415619737

Bryant, F. B., & Veroff, J. (2007). *Savoring: A new model of positive experience*. Mahwah, NJ: Lawrence Erlbaum.

Bujacz, A., Vittersø, J., Huta, V., & Kaczmarek, L.D. (2014). Measuring hedonia and eudaimonia as motives for activities: Cross-national investigation through traditional and Bayesian structural equation modeling. *Frontiers in Psychology*, 5, 984. doi: 10.3389/fpsyg.2014.00984

Burns, R.A., & Machin, M.A. (2009). Investigating the structural validity of Ryff's Psychological Well-being scales across two samples. *Social Indicators Research*, 93, 359-375. doi: 10.1007/s11205-008-9329-1

Burroughs, J.E, & Rindfleisch, A. (2002). Materialism and well-being: A conflicting values perspective. *Journal of Consumer Research,* 29, 348–370. doi: 10.1086/344429

Buschor, C., Proyer, R. T., & Ruch, W. (2013). Self- and peer-rated character strengths: How do they relate to satisfaction with life and orientations to happiness? *The Journal of Positive Psychology*, 8, 116-127. doi:10.1080/17439760.2012.758305

Cacioppo J. T., & Berntson, G.G (1994). Relationship between attitudes and evaluative space. A critical review: with emphasis on the separability of positive and negative substrates. *Psychological Bulletin*, 115, 401–423.

Cacioppo, J.T., Berntson, G.G., & Klein, D.J. (1992). What is an emotion? The role of somatovisceral afference, with special emphasis on somatovisceral "illusions". *Review of Personality and Social Psychology*, 14, 63-98.

Cacioppo J. T., Berntson, G.G., Larsen, J., & Ito, T.A. (2000). The psychophysiology of emotion. In R. Lewis & J.M. Haviland-Jones (Eds.), *The handbook of emotion* (2nd ed., pp. 173-191). New York: Guilford Press.

Cairns, R.B., Cairns, B.D., Neckerman, H.J., Ferguson, L.L., & Gariépy, J.L. (1989). Growth and aggression: I. Childhood to early adolescence. *Developmental Psychology*, 25, 320–330. doi: 10.1037/0012-1649.25.2.320

Çalışkan, H., Sapmaz, F., & Uzonkol, E. (2015). Value preferences of university students as predictors of life goals. *Social Indicators Research*, 124, 111-125. doi: 10.1007/s11205-014-0778-4

Campbell, K.W., Rudich, E.A., & Sedikides, C. (2002). Narcissism, self-esteem, and the positivity of self-views: Two portraits of self-love. *Personality and Social Psychology Bulletin*, 28, 358-368. doi: 10.1177/0146167202286007

Caprara, G. V., Alessandri, G., & Eisenberg, N. (2012). Prosociality: The contribution of traits, values, and self-efficacy beliefs. *Journal of Personality and Social Psychology*, 102, 1289-1303. doi:10.1037/a0025626

Caprara, G.V., & Steca, P. (2007). Prosocial agency: The contribution of values and self-efficacy beliefs to prosocial behaviour across ages. *Journal of Social and Clinical Psychology*, 26, 220–241. doi: 10.1521/jscp.2007.26.2.218

Carlo, G., Hausmann, A., Christiansen, S., & Randall, B. A. (2003). Sociocognitive and behavioural correlates of a measure of prosocial tendencies for adolescents. *Journal of Early Adolescence*, 23, 107–134. doi: 10.1177/0272431602239132

Carlo, G., Okun, M. A., Knight, G. P., & de Guzman, M. R. T. (2005). The interplay of traits and motives on volunteering: Agreeableness, extraversion and prosocial value motivation. *Personality and Individual Differences*, 38, 1293-1305. doi: 10.1016/j.paid.2004.08.012

Carlo, G., & Randall, B. A., (2002). The Development of a Measure of Prosocial Behaviors for Late Adolescents. *Journal of Youth and Adolescence*, 31, 31-44. doi: 10.1023/A:1014033032440

Carvalho, S., Leite, J., Galdo-Álvarez, S., & Gonçalves, O. (2011). Psychophysiological correlates of sexually and non-sexually motivated attention to film clips and workload task. *Applied Psychophysiology and Biofeedback*, 37, 279-294. doi:10.1371/journal.pone.0029530

Chan, D. W. (2009). Orientations to happiness and subjective well-being among Chinese prospective and in-service teachers in Hong Kong. *Educational Psychology*, 29, 139-151. doi: 10.1080/01443410802570907

Chen, L., Tsai, Y. M., & Chen, M. Y. (2010). Psychometric analysis of the orientations to happiness questionnaire in Taiwanese undergraduate students. *Social Indicators Research*, 98, 239-249. doi: 10.1007/s11205-009-9473-2

Christie, I. C., & Friedman, B. H. (2004). Autonomic specificity of discrete emotion and dimensions of affective space: A multivariate approach. *International Journal of Psychophysiology*, 51, 143–153. doi:10.1016/j.ijpsycho.2003.08.002

Cialdini, R.B., Brown, S.L., Lewis, B.P. Luce, C., & Neuberg, S.L. (1997). Reinterpreting the empathy-altruism relationship: when one into one equals oneness. *Journal of Personality and Social Psychology*, 73, 481-494.

Cialdini, R. B., Kenrick, D. T., & Baumann, D. J. (1982). Effects of mood on prosocial behaviour in children and adults. In N. Eisenberg (Ed.), *The development of prosocial behaviour* (pp. 339–359). New York, NY: Academic Press.

Cialdini, R. B., Schaller, M., Houlihan, D., Arps, K., Fultz, J., & Beaman, A. L. (1987). Empathy-based helping: Is it selflessly or selfishly motivated? *Journal of Personality and Social Psychology*, 52, 749–758.

Clary, E.G., & Snyder, M. (1991). A functional analysis of altruism and prosocial behaviour: The case of volunteerism. In M. Clark (Ed.), *Review of personality and social psychology: Vol. 12* (pp. 119–148). Newbury Park, CA: Sage.

Clary, E. G., Snyder, M., Ridge, R. D., Copeland, J., Stukas, A. A., Haugen, J. A., & Miene, P. K. (1998). Understanding and assessing the motivations of volunteers: A functional approach. *Journal of Personality and Social Psychology*, 74, 1516-1530.

Cole, J. C., Andretta, J. R., & McKay, M. T. (2016). The relationship between temporal profiles and alcohol-related problems in university undergraduates: Results from the United Kingdom. *Addictive Behaviours*, 55, 15–18. doi: 10.1016/j.addbeh.2015.12.001

Compton, W.C., Smith, M.L., Cornish, K.A., & Qualls, D.L. (1996). Factor structure of mental health measures. *Journal of Personality and Social Psychology*, 71, 406-413. doi: 10.1037/0022-3514.71.2.406

Condon, P., & DeSteno, D. (2011). Compassion for one reduces punishment for another. *Journal of Experimental Social Psychology*, *47*, 698-701. doi: 10.1016/j.jesp.2010.11.016

Covington, M.V. (2000). Intrinsic versus extrinsic motivation in schools. *Current Directions in Psychological Science*, 9, 22-25. doi: 10.1111/1467-8721.00052

Cox, K.S. (2010). Elevation predicts domain-specific volunteerism 3 months later. *The Journal of Positive Psychology*, 5, 333-341. doi: 10.1080/17439760.2010.507468

Cox, K.S., Wilt, J., Olson, B., & McAdams, D.P. (2010). Generativity, the big five, and psychosocial adaptation in midlife adults. *Journal of Personality*, 78, 1185-1208. doi: 10.1111/j.1467-6494.2010.00647.x

Coyne, J.C. (2013). Highly correlated hedonic and eudaimonic well-being thwart genomic analysis. *Proceedings of the National Academy of Sciences of the United States of America*, 110, e4183. doi: 10.1073/pnas.1315212110

Coyne, S.M., Archer, J., & Eslea, M. (2006). We're not friends anymore! Unless…": the frequency and harmfulness of indirect, relational, and social aggression. *Aggressive Behaviour,* 32, 294-307. doi: 10.1002/ab.20126

Crick, N.R. (1996). The role of overt aggression, relational aggression, and prosocial behaviour in the prediction of children's future social adjustment. *Child Development,* 67, 2317–2327. doi: 10.1111/j.1467-8624.1996.tb01859.x

Crocker, J., & Canevello, A. (2008). Creating and undermining social support in communal relationships: The role of compassionate and self-image goals. *Journal of Personality and Social Psychology*, 95, 555-575. doi: 10.1037/0022-3514.95.3.555

Crothers, L. M., Kolbert, J. B., Kanyongo, G. Y., Field, J. E., & Schmitt, A. J. (2014). Relational and social aggression and reflective processing in a university sample. *Journal of Aggression, Maltreatment, and Trauma, 23*, 670-681. doi: 10.1080/10926771.2014.920451

Crothers, L. M., Schreiber, J. B., Field, J. E., & Kolbert, J. B. (2009). Development and measurements through confirmatory factor analysis of the Young Adult Social Behaviour Scale (YASB): An assessment of relational aggression in adolescence and young adulthood. *Journal of Psychoeducational Assessment,* 27, 17-28.

Csikszentmihalyi, M., & Seligman, M.E.P. (2000). Positive psychology: An introduction. *American Psychologist*, 55, 5-14. doi: 10.1037/0003-066X.55.1.5

Cuthbert, B. N., Bradley, M. M., & Lang, P. J. (1996). Probing picture perception: Activation and emotion. *Psychophysiology*, 33, 103-111.

Cuthbert, B., Schupp, H.T., Bradley, M.M., Birbaumer, N., & Lang, P.J. (2000). Brain potentials in affective picture processing: Covariation with autonomic arousal and affective report. *Biological Psychology*, 52, 95-111. doi: 10.1016/S0301-0511(99)00044-7

Damon, W. (2003). *Noble purpose: The joy of living a meaningful life*. West Conshohocken, PA: Templeton Foundation Press.

Dawson, M. E., Schell, A. M., & Filion, D. L**.** (2007). The electrodermal system. In J. T. Cacioppo, L. G. Tassinary, & G. G. Berntson (Eds.), *Handbook of psychophysiology* (3rd ed., pp. 159-181). New York: Cambridge University Press.

Debats, D. L. (1999). Sources of meaning: An investigation of significant commitments in life. *Journal of Humanistic Psychology*, 39, 30–57.

Decety, J., & Moriaguchi, Y. (2007). The empathic brain and its dysfunction in psychiatric populations: implications for intervention across different clinical conditions. *BioPsychoSocial Medicine*, 1, 22. doi:10.1186/1751-0759-1-22

Deci, E.L., & Ryan, R.M. (2008). Hedonia, eudaimonia and well-being: An introduction. *Journal of Happiness Studies,* 9, 1–11. doi:10.1007/s10902-006-9018-1

Delle Fave, A., Brdar, I., Freire, T., Vella-Brodrick, D., & Wissing, M.P. (2011). The eudaimonic and hedonic components of happiness: Qualitative and quantitative findings. *Social Indicators Research*, 100, 185-207. doi: 10.1007/s11205-010-9632-5

Delle Fave, A., Brdar, I., Wissing, M.P., Araujo, U., Castro, A.S., Freire, T., Hernandez-Pozo, M.D.R.,…Jose, P. (2016). Lay definitions of happiness across nations: The primacy of inner harmony and relational connectedness. *Frontiers in Psychology,* 7, 30. doi: 10.3389/fpsyg.2016.00030

Delle Fave, A., Brdar, I., Wissing, M.P, & Vella-Brodrick, D., &. (2013). Sources and motives for personal meaning in adulthood. *The Journal of Positive Psychology*, 8, 61-73. doi:10.1080/17439760.2013.830761

Delle Fave, A., Massimini, F., & Bassi, M. (2011). *Psychological selection and optimal experience across cultures: Social empowerment through personal growth*. New York, NY: Springer.

Diener, E. (1984). Subjective well-being. *Psychological Bulletin*, 95, 542–575.

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin,* 125*,* 276-302.

Disabato, D.J., Goodman, F.R., Kashdan, T.B., Short, J.L., & Jarden, A. (2006). Different types of well-being: A cross-cultural examination of hedonic and eudaimonic well-being. *Psychological Assessment*, 28, 471-482. doi: 10.1037/pas0000209

Dittmar, H. (1992). *The social psychology of material possessions: To have is to be*. New York, NY: St. Martin's Press.

Dovidio, J.F., Piliavin, J.A., Schroeder, D.A., & Penner, L.A. (2006). *The Social Psychology of Prosocial Behaviour*. Mahwah, NJ: Lawrence Erlbaum.

Duckworth, A.L., Steen, T.A., & Seligman, M.E.P. (2005). Positive psychology in clinical practice. *Annual Review of Clinical Psychology*, 1, 629-651. doi: 10.1146/annurev.clinpsy.1.102803.144154

Dunn, E.W., Aknin, L.B., & Norton, M.I. (2008). Spending money on others promotes happiness. *Science*, 319, 1687-1688. doi: 10.1126/science.1150952

Eisenberg, N., Eggum, N. D., & Giunta, L.D. (2010). Empathy-related responding: Associations with prosocial behaviour, aggression, and intergroup relations. *Social Issues Policy Review*, 4, 143–180. doi:10.1111/j.1751-2409.2010.01020.x

Eisenberg, N., Eggum, N.D., & Spinrad, T.L. (2015). The development of prosocial behaviour. In D.A Schroeder & W.G. Graziano (Eds.), *Oxford handbook of prosocial behaviour* (pp.114-136). New York, NY: Oxford University Press.

Eisenberg, N., & Fabes, R. (1998). Prosocial development. In W. Damon (Editor-in-Chief) & N. Eisenberg (Eds.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (pp. 701-778). New York: Wiley.

Eisenberg, N., Fabes, R.A., Bustamante, D., Mathy, R.M., Miller, P.A., & Lindholm, E. (1988a). Differentiation of vicariously induced emotional reactions in children. *Developmental Psychology*, 24, 237–246.

Eisenberg N, Fabes, R.A., Miller, P.A., Fultz, J., Shell, R., Mathy, R.M., & Reno, R.R. (1989). Relation of sympathy and personal distress to prosocial behaviour: A multimethod study. *Journal of Personality and Social Psychology*, 57, 55-66.

Eisenberg, N., Fabes, R.A., Schaller, M., Carlo, G., & Miller, P.A. (1991). The relations of parental characteristics and practices to children's vicarious emotional responding. *Child Development*, 62, 1393–1408.

Eisenberg, N., Fabes, R.A., Schaller, M., Miller, P.A., Carlo, G., Poulin, R., Shea, C., & Shell, R. (1991). Personality and socialization correlates of vicarious emotional responding. *Journal of Personality and Social Psychology*, 61, 459-470.

Eisenberg, N., Fabes, R.A., Shepard, S.A., Murphy, B.C., Jones, J., & Guthrie, I.K. (1998). Contemporaneous and longitudinal prediction of children's sympathy from dispositional regulation and emotionality. *Developmental Psychology*, 34, 910–24.

Eisenberg, N., Fabes, R.A., & Spinrad, T.L. (2006). Prosocial Development. *In Handbook of Child Psychology, Vol.3, Social, Emotional, and Personality Development.* 6th ed., eds. W. Damon & R. Lerner, 647–702. Hoboken, NJ: John Wiley & Sons.

Eisenberg, N., Guthrie, I., Cumberland, A., Murphy, B.C., Shepard, S.A., Zhou, Q., & Carlo, G. (2002). Prosocial development in early adulthood: A longitudinal study. J*ournal of Personality and Social Psychology*, 82, 993–1006.

Eisenberg, N., Schaller, M., Fabes, R.A., Bustamante, D., Mathy, R.M., Shell, R., & Rhodes, K. (1988b). The differentiation of personal distress and sympathy in children and adults. *Developmental Psychology*, 24, 776-775.

Eisenberg, N., Valiente, C., & Champion, C. (2004). Empathy-related responding: Moral, social, and socialization correlates. In A. G. Miller (Ed.), *The Social Psychology of Good and Evil: Understanding Our Capacity for Kindness and Cruelty* (pp. 386-415). New York: Guilford Press.

Ekström, M. (2012). Do watching eyes affect charitable giving? Evidence from a field experiment. *Experimental Economics,* 15, 530-546. doi: 10.1007/s10683-011-9312-6

Engelmann, D., & Fischbacher, U. (2009). Indirect reciprocity and strategic reputation building in an experimental helping game. *Games and Economic Games*, 67, 399-407.

Erikson, E. H. (1968). *Identity: Youth and crisis*. New York: Norton.

Fabes, R. A., Eisenberg, N., & Eisenbud, L. (1993). Behavioural and physiological correlates of children's reactions to others' distress. *Developmental Psychology*, 29, 655–663.

Fanti, K.A., Kyranides, M.N., Georgiou, G., Petridou, M., Colins, O.F., Tuvblad, C., & Andershed, H. (2017). Callous-unemotional, impulsive-irresponsible, and grandiose-manipulative traits: Distinct associations with heart rate, skin conductance, and startle responses to violent and erotic scenes. *Psychophysiology,* 54, 663-672. doi: 10.1111/psyp.12837

Feldmanhall, O., Dalgleish, T., Evans, D., & Mobbs, D. (2015). Empathic concern drives costly altruism. *NeuroImage,* 105, 347-356. Retrieved from http://doi.org/10.1016/j.neuroimage.2014.10.043

Fischer, A. H., Manstead, A. S. R., Evers, C., Timmers, M., & Valk, G. (2004). Motives and norms underlying emotion regulation. In P. Philippot & R. S. Feldman (Eds.), *The regulation of emotion* (pp. 187-210). Mahwah, NJ: Lawrence Erlbaum.

Fisher, P., Krueger, J. I., Greitemeyer, T., Vogrincie, C., Kastenmiller, A., Frey, D., Henne, M., Wicher, M., & Kainbacher, M. (2011). The bystander-effect: A meta-analytic review of bystander intervention in dangerous and non-dangerous emergencies. *Psychological Bulletin,* 137, 517–537. doi: 10.1037/a0023304

Fleeson, W., & Wilt, J. (2010). The relevance of Big Five trait content in behaviour to subjective authenticity: Do high levels of within-person behavioural variability undermine or enable authenticity achievement? *Journal of Personality*, 78, 1353-1382. doi:10.1111/j.1467-6494.2010.00653.x

Foster, P.S., Webster, D.G., & Williamson, J. (2003). The psychophysiological differentiation of actual, imagined, and recollected mirth. *Imagination, Cognition and Personality* 22, 163–180.

Fowers, B.J. (2012). An Aristotelian framework for the human good. *Journal of Theoretical and Philosophical Psychology*, 32, 10-23.

Fowers, B. J., Mollica, C. O., & Procacci, E. N. (2010). Constitutive and instrumental goal orientations and their relations with eudaimonic and hedonic well-being. *Journal of Positive Psychology*, 5, 139–153. doi:10.1080/17439761003630045

Fowles, D.C. (1986): The eccrine system and electrodermal activity. In M.G.H. Coles, E. Donchin, & S.W. Porges (Eds.), *Psychophysiology,* (pp. 51-96). New York, NY: Guilford Press.

Franco, Z.E., Efthimiou, O., & Zimbardo, P.G. (2016). Heroism and eudaimonia: Sublime actualization through the embodiment of virtue. In J. Vittersø (Ed.), *Handbook of eudaimonic well-being* (pp. 337-348). Springer International Publishing. doi: 10.1007/978-3-319-42445-3_22

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: the broaden and-build theory of positive emotions. *American Psychologist*, 56, 218–226.

Fredrickson, B.L., Grewen, K.M., Coffeya, K.A., Algoe, S.B., Firestine, A.M., Arevalo, J.M., Ma, J.,…& Cole, S.W. (2013). A functional genomic perspective on human well-being. *Proceedings of the National Academy of Sciences*, 110, 13684–13689. doi: 10.1073/pnas.1305419110

Frey, B.S., & Meier, S. (2004). Prosocial behaviour in a natural setting. *Journal of Economic Behaviour and Organization*, 54, 65-88. doi:10.1016/j.jebo.2003.10.001

Friedman, E. M., Hayney, M., Love, D.G., Singer, B. H., & Ryff, C. D. (2007). Plasma interleukin-6 and soluble IL-6 receptors are associated with psychological well-being in older women. *Health Psychology*, 26, 305–313. doi: 10.1037/0278-6133.26.3.305

Gable, S.L., & Haidt, J. (2005). What (and why) is positive psychology? *Review of General Psychology*, 9, 103-110. http://dx.doi.org/10.1037/1089-2680.9.2.103

Gabriels, K., & De Backer, C. J. S (2016). Virtual gossip: How gossip regulates moral life in virtual worlds. *Computers in Human Behaviour,* 63, 683-693. doi.org/10.1016/j.chb.2016.05.065

Gagne´, M. (2003). The role of autonomy support and autonomy orientation in prosocial behaviour engagement. *Motivation and Emotion*, 27, 199–223.

Gallagher, M.W., Lopez, S.J., & Preacher, K.J. (2009). The hierarchical structure of well-being. *Journal of Personality*, 77, 1025-1050. doi: 10.1111/j.1467-6494.2009.00573.x

Garandeau, C.F., & Cillessen, A.N.H. (2006). From indirect aggression to invisible aggression: A conceptual view on bullying and peer group manipulation. *Aggression and Violent Behaviour*, 11, 612-625. doi: 10.1016/j.avb.2005.08.005

Gehricke, J.-G., & Fridlund, A.J. (2002). Smiling, frowning, and autonomic activity in mildly depressed and nondepressed men in response to emotional imagery of social contexts. *Perceptual and Motor Skills*, 94, 141–151. doi: 10.2466/pms.2002.94.1.141

Giuliani, N., McRae, K., & Gross, J.J. (2008). The up- and down-regulation of amusement: Experiential, behavioural, and autonomic consequences. *Emotion*, 8, 714-719. doi: 10.1037/a0013236

Gordon, G., Dalton, S., Kolbert, J.B., Kanyongo, G.Y., & Crothers, L.M. (2014). Proactive and reactive aggression and cognitive and affective empathy among students in middle childhood. *International Journal of School and Cognitive Psychology*, 1, 1-6. doi:10.4172/ 1234-3425.1000105

Graziano, W. G., Habashi, M. M., Sheese, B. E., & Tobin, R. M. (2007). Agreeableness, empathy, and helping: A person x situation perspective. *Journal of Personality and Social Psychology,* 93, 583–599. doi: 10.1037/0022-3514.93.4.583

Grimm, C., Kemp, S., & Jose, P.E. (2015). Orientations to happiness and the experience of everyday activities. *The Journal of Positive Psychology*, 10 (3), 207-218. doi: 10.1080/17439760.2014.941382

Grouzet, F. M. E., Kasser, T., Ahuvia, A., Dols, J. M. F., Kim, Y., Lau, S., Ryan, R.M., . . . Sheldon, K. M. (2005). The structure of goal contents across 15 cultures. *Journal of Personality and Social Psychology*, 89, 800–816. doi:10.1037/0022-3514.89.5.800

Gu, X., Hof, P.R., Friston, K.J., & Fan, J. (2013). Anterior insular cortex and emotional awareness. *Journal of Comparative Neurology,* 521, 3371-3388. doi: 10.1002/cne.23368

Haidt, J. (2003). Elevation and the positive psychology of morality. In C. L. M. Keyes & J. Haidt (Eds.), *Flourishing: Positive psychology and the life well-lived* (pp. 275–289). Washington, DC: American Psychological Association.

Hallam, W. T., Olsson, C. A., O'Connor, M., Hawkins, M., Toumbourou, J. W., Bowes, G., McGee, R., & Sanson, A. (2014). Association between adolescent eudaimonic behaviours and emotional competence in young adulthood. *Journal of happiness studies*, 15, 1165-1177, doi: 10.1007/s10902-013-9469-0

Harter, S. (2002). Authenticity. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 382–394). Oxford, UK: Oxford University Press.

Hastings, P. D., Miller, J. G., Kahle, S., & Zahn-Waxler, C. (2014). The neurobiological bases of empathic concern for others. In M. Killen & J. G. Smetana (Eds.), *Handbook of moral*

development (2nd ed., pp. 411– 434). Mahwah, NJ: Erlbaum. doi: 10.4324/9780203581957.ch19

Haybron, D.M. (2007). Well-being and virtue. *Journal of Ethics and Social Philosophy*, 2, 1-26.

Hayney, M. S., Dienberg Love, G., Buck, J. M., Ryff, C. D., Singer, B., & Muller, D. (2003). The association between psychosocial factors and vaccine-induced cytokine production. Vaccine, 21, 2428–2432.

Hein, G., Lamm, C., Brodbeck, C., & Singer, T. (2011). Skin conductance response to the pain of others predicts later costly helping. *PLoS ONE*, e22759. Retrieved from https://doi.org/10.1371/journal.pone.0022759

Hempel, R.J., Tulen, J.H., van Beveren, N.J., Mulder, P.G., & Hengeveld, M.W. (2007). Subjective and physiological responses to emotion-eliciting pictures in male schizophrenic patients. *International Journal of Psychophysiology*, 64, 174–183. Retrieved from http://dx.doi.org/10.1016/j.ijpsycho.2007.01.008

Henderson, L.W., Knight, T., & Richardson, B. (2013). An exploration of the well-being benefits of hedonic and eudaimonic behaviour. *The Journal of Positive Psychology*, 8, 322-336. doi: 10.1080/17439760.2013.803596

Hilbig, B.E., Glöckner, A., & Zettler, I. (2014). Personality and prosocial behavior: linking basic traits and social value orientations. *Journal of Personality and Social Psychology*, 107, 529-539. doi: 10.1037/a0036074

Hitlin, S., & Piliavin, J.A. (2004). Values: Reviving a dormant concept. *Annual Review of Sociology,* 30, 359–393.

Hofer, J., Busch, H., Au, A.,Poláčková, S.I., Tavel, P., & Tsien, W.T. (2014). For the benefit of others: generativity and meaning in life in the elderly in four cultures. *Psychology and Aging,* 29, 764-775. doi: 10.1037/a0037762

Hoffman, M. L. (1976). Empathy, role-taking, guilt, and development of altruistic motives. In T. Likona, (Ed.), *Moral development: Theory, research and social issues* (pp. 124-143). New York: Holt, Rinehart & Winston.

Hoffman, M.L. (1982). Development of prosocial motivation: Empathy and guilt. In N. Eisenberg-Berg, (Ed.). *Development of Prosocial Behaviour*. New York: Academic Press, 281-313.

Holmgren, R.A., Eisenberg, N., & Fabes, R.A. (1998). The relations of children's situational empathy-related emotions to dispositional prosocial behaviour. *International Journal of Behavioural Development*, 22, 169–93.

Huta, V. (2012). Linking peoples' pursuit of eudaimonia and hedonia with characteristics of their parents: Parenting styles, verbally endorsed values, and role modeling. *Journal of Happiness Studies*, 13, 47–61. doi:10.1007/s10902-011-9249-7

Huta, V. (2013a). Pursuing eudaimonia versus hedonia: Distinctions, similarities, and relationships. In A. Waterman (Ed.), *The best within us: Positive psychology perspectives on eudaimonic functioning* (pp. 139-158). Washington, DC: American Psychological Association.

Huta, V. (2013b). Eudaimonia. In S. David, I. Boniwell, & A.C. Ayers (Eds.), *Oxford Handbook of Happiness* (pp. 201-213). Oxford, UK: Oxford University Press.

Huta, V. (2015a). The complementary roles of eudaimonia and hedonia and how they can be pursued in practice. In S. Joseph (Ed.), *Positive psychology in practice: promoting human*

flourishing in work, health, education, and everyday life (2nd ed., pp. 159-182). Wiley. doi: 10.1002/9781118996874.ch10

Huta, V. (2015b). An overview of hedonic and eudaimonic well-being concepts. In L. Reinecke, M. B. Oliver (Eds.), *The Routledge handbook of media use and well-being* (Chapter 2). New York, NY: Routledge.

Huta (2016). *Eudaimonia versus Hedonia: What's the difference? And is it real?*. Symposium presented at the Third Canadian Conference on Positive Psychology, Niagara-on-the-Lake, Ontario.

Huta, V., Pearce, K., Voloaca, M., & Myskiw, K. (July, 2014). *Research findings to date on hedonic and eudaimonic motivation*. Symposium given at the Second Canadian Conference on Positive Psychology, Ottawa, Ontario.

Huta, V., Pelletier, L, G., Baxter, D., & Thompson, A. (2012). Does an individual's eudaimonia benefit other people? *The Journal of Positive Psychology,* 7, 399-404. doi.org/10.1080/17439760.2012.705318

Huta, V., & Ryan, R. M. (2010). Pursuing pleasure or virtue: The differential and overlapping well-being benefits of hedonic and eudaimonic motives. *Journal of Happiness Studies*, 11, 735-762. doi: 10.1007/s10902-009-9171-4

Huta, V., & Waterman A. S. (2014). Eudaimonia and its distinction from hedonia: Developing a classification and terminology for understanding conceptual and operational definitions. *Journal of Happiness Studies,* 15, 1425-1456. doi:10.1007/s10902-013-9485-0

Huta, V., & Zuroff, D. C. (2007). Examining mediators of the link between generativity and well-being. *Journal of Adult Development,* 14*,* 47-52. doi: 10.1007/s10804-007-9030-7

Ito, M., & Kodama, M. (2007). Sense of authenticity, affectivity, and cultural construal of the self among Japanese university students. *Psychological Reports*, 100, 83-86. doi:10.2466/pr0.100.1.83-86

James, W. (1985). *The varieties of religious experience: edited with an introduction*. In M.E. Marty (Ed.). New York: Penguin Classics.

Johnson, R. C., Danko, G.P., Darvill, T.J., Bochner, S., Bower, J.K., Huang, Y-H., Park, J.Y.,… Pennington, D. (1989). Cross cultural assessment of altruism and its correlates. *Personality and Individual Differences,* 10, 855-868.

Johnston, C. S., Luciano, E. C., Maggiori, C., Ruch, W., & Rossier, J. (2013). Validation of the German version of the Career Adapt-Abilities Scale and its relation to orientations to happiness and work stress. *Journal of Vocational Behavior*, 83, 295-304. doi:10.1016/j.jvb.2013.06.002

Jones, N.A., & Gagnon, C.M. (2007). The neurophysiology of empathy. In T.F.D. Farrow & P.W.R., Woodruff (Eds.), *Empathy in mental illness* (pp. 217-238). New York: Cambridge University Press.

Jönsson, P., & Sonnby-Borgström, M. (2003). The effects of pictures of emotional faces on tonic and phasic autonomic cardiac control in women and men. *Biological Psychology*, 62, 157–173.

Joshanloo, M., & Ghaedi, G. (2009). Value priorities as predicators of hedonic and eudaimonic aspects of well-being. *Personality and Individual Differences*, 47, 294–294. doi: 10.1016/j.paid.2009.03.016

Jung, C. G. (1933). *Modern Man in Search of a Soul*. New York, NY: Harcourt, Brace, & World.

Kahneman, D., Diener, E., & Schwarz, N. (1999). *Well-being: The foundations of hedonic psychology*. New York: Russell Sage Foundation.

Kahneman, D., Krueger, A.B., Schkade, D.A., Schwarz, N., & Stone, A.A (2004). A survey method for characterizing daily life experience: The day reconstruction method. *Science*, 306, 1776–17780. doi: 10.1126/science.1103572

Kashdan, T. B., Biswas-Diener, R., & King, L. A. (2008). Reconsidering happiness: The costs of distinguishing between hedonics and eudaimonia. *Journal of Positive Psychology,* 3, 219-233. doi: 10.1080/17439760802303044

Kasser, T., & Ryan, R.M. (1996). Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin*, 22, 280–287.

Kavčič, T., & Avsec, A. (2013). Happiness and pathways to reach it: Dimension-centered versus person-centered approach. *Social Indicators Research*, 118, 141-156. doi: 10.1007/s11205-013-0411-y

Kemmelmeier, M., & Hartje, J.A. (2007). Individualism and prosocial action: Cultural variations in community volunteering. In A.M. Columbus (Ed.), *Advances in psychology research, Vol. 51* (pp. 149-161). Hauppauge, NY: Nova Science Publisher.

Keough, K.A, Zimbardo, P.G., & Boyd, J.N. (1999). Who's smoking, drinking, and using drugs? Time perspective as a predictor of substance use. *Basic and Applied Psychology*, 21, 149–164.

Keyes, C.L.M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior*, 43, 207-222.

Keyes, L.M., Shmotkin, D., & Ryff, C.D. (2002). Optimizing well-being: The empirical encounter of two traditions. *Journal of Personality and Social Psychology*, 8, 1007- 1022. doi: 10.1037//0022-3514.82.6.1007

Kim, J., Kang, P., & Choi, I. (2014). Pleasure now, meaning later: Temporal dynamics between pleasure and meaning. *Journal of Experimental Social Psychology*, 55, 262-270. doi: 10.1016/j.jesp.2014.07.018 0022-1031

King, A. (2001). The health benefits of writing about life goals. *Personality and Social Psychology Bulletin,* 27, 798-807

King, L. A., Hicks, J. A., Krull, J. L., & Del Gaiso, A. K. (2006). Positive affect and the experience of meaning in life. *Journal of Personality and Social Psychology,* 90, 179-196. doi: 10.1037/0022-3514.90.1.179

Klein, N. (2016). Prosocial behaviour increases perceptions of meaning in life. *The Journal of Positive Psychology*. doi: 10.1080/17439760.2016.1209541

Knafo-Noam, A., & Markovitch, N. (2005). Individual differences in prosociality: The roles of parenting, temperament, and genetics. In *Encyclopedia on Early Child Development.* Retrieved from http://www.child-encyclopedia.com/prosocial-behaviour/according-experts/individual-differences-prosociality-roles-parenting

Konow, J., & Earley, J. (2008). The hedonistic paradox: Is homo economicus happier? *Journal of Public Economics*, 92, 1-33. doi:10.1016/j.jpubeco.2007.04.006

Konrath, S. H. (2013). The power of philanthropy and volunteering. In F.A. Huppert & CL. Cooper (Eds.), *Interventions and Policies to Enhance Well-being: Well-being: A Complete Reference Guide* (pp. 387-424). John Wiley & Sons. doi: 10.1002/9781118539415.wbwell11

Kreber, C., Klampfleitner, M., McCune, V., Bayne, S., & Knottenble, M. (2007). What do you mean by 'authentic'? A comparative review of the literature on conceptions of authenticity in teaching. *Adult Education Quarterly*, 58, 22-44.

Kreibig, S.D. (2010). Autonomic nervous system activity in emotion: A review. *Biological Psychology*, 84, 394–421. doi: 10.1016/j.biopsycho.2010.03.010

Kreibig, S.D., Wilhelm, F.H., Roth, W.T., & Gross, J.J. (2007). Cardiovascular, electrodermal, and respiratory response patterns to fear- and sadness-inducing films. *Psychophysiology*, 44, 787–806. doi: 10.1111/j.1469-8986.

Kristjánsson, K. (2015). *Aristotelian Character Education*. London: Routledge.

Krueger, R.F., Hicks, B.M., & McGue, M. (2001). Altruism and antisocial behavior: independent tendencies, unique personality correlates, distinct etiologies. *Psychological Science*, 12, 397–402. doi:10.1111/1467-9280.00373

Kubovy, M. (1999). On the pleasures of the mind. In D. Kahneman, E.D. Diener, & N. Schwarz (Eds.), *Well-Being: The foundations of hedonic psychology* (pp. 134-154). New York: Russell Sage Foundation.

Kumano, M. (2011). Orientations to happiness in Japanese people: Pleasure, meaning and engagement. *Shinrigaku Kenkyu*, 81, 619-624.

Kuncewicz, D., Niiya, Y., & Crocker, J. (2015). Are compassionate and self-image goals comparable across cultures? *Polish Psychological Bulletin*, 46, 513-522. Retrieved from https://doi.org/10.1515/ppb-2015-0058

Kurzban, R., DeScioli, P., & O'Brien, E. (2007). Audience effects on moralistic punishment. *Evolution and Human Behaviour*, 28, 75–84. doi:10.1016/j.evolhumbehav.2006.06.001

LaFollette, H. (1988). The truth in psychological egoism. In J. Feinberg (Ed.), *Reason and responsibility* (7th ed., pp. 500-507). Belmont, CA: Wadsworth.

Landis, S.K., Sherman, M.F., Piedmont, R.L., Kirkhart, M.W., Rapp, E.M., & Bike, D.H. (2009). The relation between elevation and self-reported prosocial behaviour: Incremental validity over the Five-Factor Model of Personality. *The Journal of Positive Psychology*, 4, 71-84. doi: 10.1080/17439760802399208

Lang, P. J., Bradley, M. M., & Cuthbert, B. (1997). Motivated attention: Affect, activation, and action. In P. J. Lang, R. F. Simons, & M. Balaban (Eds.), *Attention and orienting: Sensory and motivational processes* (pp. 97–135). London: Lawrence Erlbaum Associates Publishers.

Lanzetta, J., & Englis, B. G. (1989). Expectations of cooperation and competition and their effects on observers' vicarious emotional responses. *Journal of Personality and Social Psychology*, 56, 543-554.

LeBar, M. (2013). *The Value of Living Well*. New York: Oxford University Press.

Lenton, A. P., Bruder, M., Slabu, L., & Sedikides, C. (2013). How does ‘‘being real’’ feel? The experience of state authenticity. *Journal of Personality*, 81, 276-289. doi:10.1111/j.1467-6494.2012. 00805.x

Lewis, G.J., Kanai, R., Rees, G., & Bates, T.C. (2013). Neural correlates of the 'good life': eudaimonic well-being is associated with insular cortex volume. *Social Cognitive and Affective Neuroscience*, 9, 615-618. doi:10.1093/scan/nst032

Lindenberg, S., & Steg, L. (2004). Normative, gain and hedonic goal frames guiding environmental behaviour. *Journal of Social Issues*, 63, 117-137. doi: 10.1111/j.1540-4560.2007.00499.x

Lindfors, P. (2014). Physiological correlates of mental well-being. In C.L.M. Keyes (Ed.), *Mental well-being: International contributions to the study of positive mental health* (pp. 259-274). New York, NY: Springer Science and Business Media.

Lindfors, P., & Lundberg, U. (2002). Is low cortisol release an indicator of positive health? *Stress and Health*, 18, 153–160.

Linley, P. A., Joseph, S., Harrington, S., & Wood, A. M. (2006). Positive psychology: Past, present, and (possible) future. *The Journal of Positive Psychology*, 1, 3–16. doi: 10.1080/17439760500372796

Little, T.D., Henrich, C.C., Jones, S.M., & Hawley, P.H. (2003) Disentangling the "whys" from the "whats" of aggressive behaviour. *International Journal of Behavioral Development,* 27, 122-133. doi: 10.1080/0165025024400128

Loewenstein, G., & Small, D.A. (2011). The Scarecrow and the Tin Man: The vicissitudes of human sympathy and caring. *Review of General Psychology*, 11, 112-126. doi: 10.1037/1089-2680.11.2.112

Louwerse, A., Tulen, J.H.M, van der Geest, J.N., van der Ende, J. Verhults, F.C., & Greaves-Lord, K. (2013). Autonomic responses to social and nonsocial pictures in adolescents with autism spectrum disorder. *Autism Research*, 7, 17-27. doi: 10.1002/aur.1327

Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005a). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology*, 9, 111–131. doi: 10.1037/1089-2680.9.2.111

Lyubomirsky, S., Tkach, C., & Sheldon, K. M. (2004). Pursuing sustained happiness through random acts of kindness and counting one's blessings: Tests of two six-week interventions. Unpublished raw data.

Martela F., & Steger M. F. (2016). The three meanings of meaning in life: Distinguishing coherence, purpose, and significance. *The Journal of Positive Psychology*, 11, 531–545. doi: 10.1080/17439760.2015.1137623

Maslow, A.H. (1961). Peak experiences as acute identity experiences. *The American Journal of Psychoanalysis*, 21, 254-262. doi: 10.1007/BF01873126

Maslow, A. H. (1962). *Toward a psychology of being.* Princeton, NJ: Van Nostrand.

Maslow, A. H. (1970). *Motivation and personality*. New York: Harper & Row.

Mauss, I.B., & Robinson, M.D. (2009). Measures of emotion: A review. *Cognition and Emotion*, 23, 209-237. doi: 10.1080/02699930802204677

McAdams, D.P., & de St. Aubin, E. (1992). A theory of generativity and its assessment through self-report, behavioural acts and narrative themes in autobiography. *Journal of Personality and Social Psychology,* 62, 1003-1015.

McClelland, R.T. (2010). Normal narcissism and its pleasures. *Journal of Mind and Behaviour*, 31, 85-126.

McGinley, M., Opal, D., Richaud, M. C., & Mesurado, B. (2014). Cross-cultural evidence of multidimensional prosocial behaviours: An examination of the Prosocial Tendencies Measure (PTM). In Padilla-Waker L., Carlo G. (Eds.), *Prosocial development: A multidimensional approach* (pp. 258-278). New York, NY: Oxford University Press.

McGregor, I., & Little, B. R. (1998). Personal projects, happiness, and meaning: On doing well and being yourself. *Journal of Personality and Social Psychology*, 74, 494-512.

McMahan, E., & Renken, M.D. (2011). Eudaimonic conceptions of well-being, meaning in life, and self-reported well-being: Initial test of a mediational model. *Personality and Individual Differences*, 51, 589-594. doi: 10.1016/j.paid.2011.05.020

Mehrabian, A., Young, A. L., & Sato, S. (1988). Emotional empathy and associated individual differences. *Current Psychology: Research & Reviews*, 7, 221-240. doi:10.1007/BF02686670

Mikels, J.A., Fredrickson, B.L., Larkin, G.R., Lindberg, C.M., Maglio, S.J., & Reuter-Lorenz, P.A. (2005). Emotional category data on images from the International Affective Picture System. *Behaviour Research Methods*, 37, 626-630.

Morelli, S.A., Lieberman, M.D., & Zaki, J. (2015). The emerging study of positive empathy. *Social and Personality Psychology Compass, 9*, 57-68. doi: 10.1111/spc3.12157

Nave, C. S., Sherman, R. A., & Funder, D. C. (2008). Beyond self-report in the study of hedonic and eudaimonic well-being: Correlations with acquaintance reports, clinician judgments and directly observed social behaviour. *Journal of Research in Personality,* 42, 643-659. doi:10.1016/j.jrp.2007.09.001

Neiss, M.B., Leigland, L.A., Carlson, N.E., & Janowsky, J.S. (2009). Age differences in perception and awareness of emotion. *Neurobiology of Aging*, 30, 1305–1313. Retrieved from http://dx.doi.org/10. 1016/j.neurobiolaging.2007.11.007

Nelson, S. K., Layous, K., Cole, S.W., & Lyubomirsky, S. (2016). Do unto others or treat yourself? The effects of prosocial and self-focused behaviour on psychological flourishing. *Emotion*, 16 850-861. doi:10.1037/emo0000178

Nils-Torge, T., & Hans-Ruediger, P. (2012). Not only the miserable receive help: Empathy promotes prosocial behaviour toward the happy. *Current Psychology,* 31, 393-413. doi:10.1007/s12144-012-9157-y

Nisbet, E. K., Zelenski, J. M., & Murphy, S. A. (2009). The Nature Relatedness Scale: Linking individuals' connection with nature to environmental concern and behaviour. *Environment and Behaviour*, 41, 715-740.

Norton, D.L. (1976). *Personal destinies*. Princeton, NJ: Princeton University Press.

Oliveira-Silva, P., & Goncalves, O.F. (2011). Responding empathically: A question of heart, not a question of skin. *Applied Psychophysiology and Biofeedback*, 36, 201-207. doi: 10.1007/s10484-011-9161-2

Otake, K., Shimai, S., Tanaka-Matsumi, J., Otsui, K., & Frederickson, B. L. (2006). Happy people become happier through kindness: A counting kindnesses intervention. *Journal of Happiness Studies*, 7, 361–375. doi: 10.1007/s10902-005-3650-z

Palomba, D., Sarlo, M. Angrilli, A., Mini, A., & Stegagno, L. (2000). Cardiac responses associated with affective processing of unpleasant film stimuli. *International Journal of Psychophysiology*, 27, 55–67. doi: 10.1016/S0167-8760(99)00099-9

Park, N., Peterson, C., & Ruch, W. (2009). Orientations to happiness and life satisfaction in twenty-seven nations. *The Journal of Positive Psychology*, 4, 273–279. doi: 10.1080/17439760902933690

Pavey, L., Greitemeyer, T., & Sparks, P. (2012). I help because I want to, not because you tell me to: Empathy increases autonomously motivated helping. *Personality and Social Psychology Bulletin*, 38(5), pp. 681-689. doi: 10.1177/0146167211435940

Penner, L.A., Dovidio, J.F., Piliavin, J.A., & Schroeder, D.A. (2005). Prosocial behaviour: A multilevel approach. *Annual Review of Psychology*, 56, 365-392. doi: 10.1146/annurev.psych.56.091103.070141

Penner, L. A., & Finkelstein, M. A. (1998). Dispositional and structural determinants of volunteerism. *Journal of Personality and Social Psychology*, 74, 525-537. doi: 10.1037/0022-3514.74.2.525

Peterson, C., Park, N., & Seligman, M. E. P. (2005). Orientations to happiness and life satisfaction: The full life versus the empty life. *Journal of Happiness Studies*, 6, 25-41. doi:10.1007/s10902-004-1278-z

Peterson, C., Ruch, W., Beermann, U., Park, N., & Seligman, M. E. P. (2007). Strengths of character, orientations to happiness, and life satisfaction. *Journal of Positive Psychology*, 2, 1-8. doi: 10.1080/17439760701228938

Peterson, C., & Seligman, M. E. P. (2004). *Character strengths and virtues: A handbook and classification.* Washington, DC: American Psychological Association.

Piliavin, J.A., & Callero, P.L. (1991). *Giving blood: The development of an altruistic identity*. Baltimore: John Hopkins University Press.

Plagnol, A.C. & Huppert, F.A. (2010). Happy to help? Exploring the factors associated with variations in rates of volunteering across Europe. *Social Indicators Research*, 97, 157-176. doi: 10.1007/s11205-009-9494-x

Posner, J., Russell, J.A., & Peterson, B.S. (2005).The circumplex model of affect: An integrative approach to affective neuroscience, cognitive development, and psychopathology. *Development and Psychopathology*, 17, 715-734. doi:10.1017/S0954579405050340

Pressman, S. D., & Cohen, S. (2005). Does positive affect influence health? *Psychological Bulletin*, 131, 925–971.

Proyer, R. T., Annen, H., Eggimann, N., Schneider, A., & Ruch, W. (2012). Assessing the "good life" in a military context: How does life- and work-satisfaction relate to orientations to

happiness and career-success among Swiss professional officers? *Social Indicators Research*, 106, 577-590. doi:10.1007/s11205-011-9823-8

Raine, A., Dodge, K., Loeber, R., Gatzke-Kopp, L., Lynam, D., Rynolds, C., Jianghong, L., & Stouthamer-Loeber, M. (2006). The reactive-proactive aggression questionnaire: Differential correlates of reactive and proactive aggression in adolescent boys. *Aggressive Behaviour,* 32, 159-171. doi:10.1002/ab.20115

Reyniers, D., & Bhalla, R. (2013). Reluctant altruism and peer pressure in charitable giving. *Judgment and Decision Making*, 8, 7-15.

Rockenbach, B., & Milinski, M. (2006). The efficient interaction of indirect reciprocity and costly punishment. *Nature*, 444, 718-723. doi:10.1038/nature05229

Rogers, C.R. (1961). *On becoming a person: A therapist's view of psychotherapy*. Boston: Houghton Mifflin Company.

Rothspan, S., & Read, S.J. (1996). Present verses future time perspective and HIV risk among heterosexual college students. *Health Psychology,* 15, 131-134.

Ruch, W., Harzer, C., Proyer, R. T., Park, N., & Peterson, C. (2010). Ways to happiness in German-speaking countries. *European Journal of Psychological Assessment,* 26, 227–234. doi: 10.1027/1015-5759/a000030

Rushton, J. P., Chrisjohn, R. D., & Frekken, G. C. (1981). The altruistic personality and the self-report altruism scale. *Personality and Individual Differences*, 2, 1–11.

Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist,* 55, 68-78.

Ryan R.M., & E.L. Deci (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology,* 52, 141–166.

Ryan, R.M., & Huta, V. (2009). Wellness as healthy functioning or wellness as happiness: the importance of eudaimonic thinking (response to the Kashdan et al. and Waterman discussion). *Journal of Positive Psychology*, 4, 202-204. doi: 10.1080/17439760902844285

Ryan, R. M., Huta, V., & Deci, E. L. (2008). Living well: A self-determination theory perspective on eudaimonia. *Journal of Happiness Studies*, 9, 139-170. doi: 10.1007/s10902-006-9023-4

Ryff, C.D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology,* 57*,* 1069-1081.

Ryff, C. D. (2012). Varieties of resilience and their biological underpinnings. *European Health Psychologist*, 14, 70-75.

Ryff, C. D., Dienberg Love, G., Urry, H. L., Muller, D., Rosenkranz, M. A., Friedman, E. M., Davidson, R. J.,…Singer, B. (2006). Psychological well-being and ill-being: Do they have distinct or mirrored biological correlates? *Psychotherapy and Psychosomatics*, 75, 85–95. doi: 10.1159/000090892

Ryff, C.D., & Keyes, C.L.M. (1995). The structure of psychological well-being revisited. *Journal of Personality and Social Psychology*, *69*, 719-727.

Ryff, C. D., Singer, B. H., & Dienberg Love, G. (2004). Positive health: Connecting well-being with biology. *Philosophical Transactions of the Royal Society of London, Series B*, 359, 1383–1394. doi: 10.1098/rstb.2004.1521

Sanchez-Navarro, J.P., Martinez-Selva, J.M., & Roman, F. (2006). Uncovering the relationship between defence and orienting in emotion: Cardiac reactivity to unpleasant pictures.

International Journal of Psychophysiology, 61, 34–46. Retrieved from http://dx.doi.org/10.1016/j.ijpsycho.2005.10.023

Schlegel, R.J., Hicks, J.A., King, L.A., & Arndt, J. (2011). Feeling like you know who you are: Perceived true self-knowledge and meaning in life. *Personality and Social Psychology Bulletin*, *37,* 745-756. doi: 10.1177/0146167211400424

Schnall, S., Roper, J., & Fessler, D. M. T. (2010). Elevation leads to altruistic behaviour. *Psychological Science*, 21, 315-320. doi: 10.1177/0956797609359882

Schnell, T. (2009). The sources of Meaning and Meaning in Life Questionnaire (SoMe): Relations to demographics and well-being. *The Journal of Positive Psychology*, 4, 483–499. doi: 10.1080/17439760903271074

Schueller, S.M., & Seligman, M.E.P. (2010). Differential pursuit of pleasure, engagement, and meaning: Relationships to subjective and objective well-being. *Journal of Positive Psychology*, 5, 253-263. doi: 10.1080/17439761003794130

Schwartz, S. H. (2005). Basic human values: Their content and structure across countries. In A. Tamayo & J. B. Porto (Eds.), *Valores e comportamento nas organizações [Values and behaviour in organizations]* (pp. 21-55). Petrópolis, Brazil: Vozes.

Schwartz, S. H. (2012). An overview of the Schwartz theory of basic values. *Online Readings in Psychology and Culture,* 2. doi: 10.9707/2307-0919.1116.

Schwartz, S. H., & Bilsky, W. (1987). Toward a universal psychological structure of human values. *Journal of Personality and Social Psychology,* 53, 550-562.

Schwartz, C., Meisenhelder, J.B., Ma, Y., & Reed, G. (2003). Altruistic social interest behaviours are associated with better mental health. *Psychosomatic Medicine*, 65, 778-785. doi:10.1097/01.PSY.0000079378.39062.D4

Sedikides, C., Hart, C. M., Cisek, S. Z., & Routledge, C. (2013). Finding meaning in the mirror: The existential pursuits of narcissists. In J. A. Hicks & C. Routledge (Eds.), *The experience of meaning in life: Perspectives from the psychological sciences* (pp. 189-200). New York, NY: Springer.

Sedikides, C., Rudich, E. A., Gregg, A. P., Kumashiro, M., & Rusbult, C. (2004). Are normal narcissists psychologically healthy?: Self-esteem matters. *Journal of Personality and Social Psychology*, *87*, 400–416. doi:10.1037/0022-3514.87.3.400

Seidel, E., Pfabigan, D.M., Keckeis, K., Wucherer, A.M., Jahn, T., Lamm, C., & Derntl, B. (2013). Empathic competencies in violent offenders. *Psychiatry Research*, 210, 1168-1175. doi: 10.1016/j.psychres.2013.08.027

Seligman, M.E.P. (2002). *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfillment*. New York, NY: Free Press.

Sheldon, K. M., & Lyubomirsky, S. (2004). Achieving sustainable new happiness: Prospects, practices, and prescriptions. In A. Linley & S. Joseph (Eds.), *Positive psychology in practice* (pp. 127-145). Hoboken, NJ: John Wiley & Sons.

Sheldon, K. M., Ryan, R. M., Rawsthorne, L. J., & Ilardi, B. (1997). Trait self and true self: Cross-role variation in the big-five personality traits and its relations with psychological authenticity and subjective wellbeing. *Journal of Personality and Social Psychology*, 73, 1380–1393.

Singh, K., Bassi, M., Junnarkar, M., & Negri, L. (2015). Mental health and psychosocial functioning in adolescence: an investigation among Indian students from Delhi. *Journal of Adolescence*, 39, 59-69. doi: 10.1016/j.adolescence.2014.12.008

Slabu, L., Lenton, A. P., Sedikides, C., & Bruder, M., (2013). Trait and state authenticity across cultures. *Journal of Cross-Cultural Psychology*, 45, 1347-1373. doi: 10.1177/0022022114543520

Smallenbroek, O., Zelenski, J.M., & Whelan, D.C. (2017). Authenticity as a eudaimonic construct: The relationships among authenticity, values, and valence. *The Journal of Positive Psychology*, 12, 197-209. doi: 10.1080/17439760.2016.1187198

Smith, D.P., Hillman, C.H., Duley, A.R., 2005. Influences of age on emotional reactivity during picture processing. *The Journals of Gerontology, Series B, Psychological Sciences and Social Sciences*, 60, 49–56. doi: 10.1093/geronb/60.1.P49

Snyder, M., & Omoto, A.M. (2009). Who gets involved and why? The psychology of volunteerism: Principles, policies and practices. In E. Liu, M. J. Holosko, & T. W. Lo (Eds.), *Youth empowerment and volunteerism: Principles, policies and practices* (pp. 3-26). Hong Kong: City of University of Hong Kong Press.

Sober, E. (1999). Psychological egoism. In H. LaFollette (Ed.), *The Blackwell guide to ethical theory* (pp. 129-148). doi: 10.1111/b.9780631201199.1999.00008.x

Sommer, K.L., Baumeister, R.F., & Stillman, T.F. (2012). The construction of meaning from life events: empirical studies of personal narratives. In P.P. Wong (Ed.), *The human quest for meaning: theories, research, and applications* (pp.297–313). New York, NY: Routledge/Taylor & Francis Group.

Son, J., & Wilson, J. (2012). Volunteer work and hedonic, eudemonic, and social well-being. *Sociological Forum*, 27, 658-681. doi: 10.1111/j.1573-7861.2012.01340.x

Staub, E. (1979). *Positive social behavior and morality: Socialization and development* (Vol. 2). New York: Academic Press.

Stavrova, O., & Luhmann, M. (2016). Social connectedness as a source and consequence of meaning in life. *The Journal of Positive Psychology*, 11, 470–479. doi: 10.1080/17439760.2015.1117127

Steg, L., Perlaviciute, G., van der Werff, E., & Lurvink, J. (2014). The significance of hedonic values for environmentally relevant attitudes, preferences, and actions. *Environment and Behaviour*, 46, 163-192. doi: 10.1177/0013916512454730

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53, 80-93. doi: 10.1037/0022-0167.53.1.80

Steger, M.F., Kashdan, T.B., & Oishi, S. (2008). Being good by doing good: Daily eudaimonic activity and well-being. *Journal of Research in Personality*, 42, 22-42. doi:10.1016/j.jrp.2007.03.004

Steger, M.F., Kashdan, T.B., Sullivan, B.A., & Lorentz, D. (2008). Understanding the search for meaning in life: Personality, cognitive style, and the dynamic between seeking and experiencing meaning. *Journal of Personality*, 76, 199-228. doi: 10.1111/j.1467-6494.2007.00484.x

Steger, M.F., Oishi, S., & Kesebir, S. (2011). Is a life without meaning satisfying? The moderating role of the search for meaning in satisfaction with life judgments. *The Journal of Positive Psychology*, 6, 173–180. doi: 10.1080/17439760.2011.569171

Steger, M. F., & Shin, J. Y. (2012). Happiness and meaning in a technological world. In P. Brey, A. Briggle, & E. Spence (Eds.), *The good life in a technological age* (pp. 92–108). New York, NY: Routledge.

Steger, M.F., Shin, J.Y., Shim, Y., & Fitch-Martin, A. (2013). Is meaning in life a flagship indicator of well-being? In A.S., Waterman (Ed), *The best within us: Positive psychology perspectives on eudaimonia*, (pp. 159-182). Washington, DC, US: American Psychological Association. doi: 10.1037/14092-009

Stolarski, M., Zajenkowski, M., & Zajenkowska, A. (2016). Aggressive? from time to time … uncovering the complex associations between time perspectives and aggression. *Current Psychology*, 35, 1–10. doi: 10.1007/s12144-016-9422-6

Suardi, A., Sotgiu, I, Costa, T., Cauda, F., & Rusconi, M. (2016). The neural correlates of happiness: A review of PET and fMRI studies using autobiographical recall methods. *Cognitive Affective and Behavioural Neuroscience*, 16, 383-392. doi: 10.3758/s13415-016-0414-7

Tamir, M. (2015). Why do people regulate their emotions? A taxonomy of motives in emotion regulation. *Personality and Social Psychology Review*, 20, 199-222. doi: 10.1177/1088868315586325

Tangney, J.P., Stuewig, J., & Mashek, D.J. (2007). Moral emotions and moral behaviours. *Annual Review of Psychology*, 58, 345-372. doi: 10.1146/annurev.psych.56.091103.070145

Tellegen, A., Watson, D., & Clark, L.A. (1999). On the dimensional and hierarchical structure of affect. *Psychological Science*, 10, 297–309.

Telzer, E.H., Fuligni, A.J., Lieberman, M.D, & Gálvan, A. (2014). Neural sensitivity to eudaimonic and hedonic rewards differentially predict adolescent depressive symptoms over time. *Proceedings of the National Academy of Sciences*, 1-6. doi: 10.1073/pnas.1323014111

Thoits, P.A., & Hewitt, L.N. (2001). Volunteer work and well-being. *Journal of Health and Social Behaviour*, 42, 115-131.

Tremblay, R.E. (2000). The development of aggressive behaviour during childhood: What have we learned in the past century? *International Journal of Behavioural Development*, 24, 129–141.

Trivers, R.L. (1971). The Evolution of Reciprocal Altruism. *The Quarterly Review of Biology*, 46, 35-57.

Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review,* 110, 403–421. doi: 10.1037/0033-295X.110.3.403

Trope, Y., & Liberman, N. (2010). Construal level theory of psychological distance. *Psychological Review,* 117, 440–463. doi: 10.1037/a0018963

Tsai, J.L., Levenson, R.W., & Carstensen, L.L. (2000). Autonomic, subjective and expressive responses to emotional films in older and younger Chinese Americans and European Americans. *Cultural Diversity and Ethnic Minority Psychology*, 15, 684–693

Urry, H.L., Nitschke, J.B., Dolski, I., Jackson, D.C., Dalton, J.M., Mueller, C.J., Rosenkranz, M.A,…Davidson, R.J. (2004). Making a life worth living: Neural correlates of well-being. *Psychological Science*, 15, 362-372. doi: 10.1111/j.0956-7976.2004.00686.x

Vallerand, R.J. (2016). On the synergy between hedonia and eudaimonia: The role of passion. In J. Vittersø (Ed.), *Handbook of eudaimonic well-being* (pp. 191-204). Springer International Publishing.

Van Diest, I., Winters, W., Devriese, S., Vercamst, E., Han, J.N., Van de Woestijne, K.P., & Van den Bergh, O. (2001). Hyperventilation beyond fight/flight: respiratory responses during emotional imagery. *Psychophysiology*, 38, 961–968

Veenhoven, R. (2003). Arts-of-living. *Journal of Happiness Studies,* 4*,* 373–384.

Vella-Brodrick, D.A., Park, N., & Peterson, C. (2009). Three ways to be happy: Pleasure, engagement, and meaning–findings from Australian and US samples. *Social Indicators Research*, 90, 165-179. doi:10.1007/s11205-008-9251-6

Vittersø, J. (2013). Feelings, meanings, and optimal functioning: Some distinctions between hedonic and eudaimonic well-being. In A. S. Waterman (Ed.), *The best within us: Positive psychology perspectives on eudaimonia* (pp. 39-55). Washington, DC: APA Books.

Vittersø, J., & Søholt, Y. (2011). Life satisfaction goes with pleasure and personal growth goes with interest: Further arguments for separating hedonic and eudaimonic well-being. *Journal of Positive Psychology*. *6*, 326-335.

Vittersø, J., Søholt, Y., Hetland, A., Thoresen, I. A., & Røysamb, E. (2009). Was Hercules happy? Some answers from a functional model of human well-being. *Social Indicators Research*, 95, 1-18. doi:10.1007/s11205-009-9447-4

Vrana, S.R. (1993). The psychophysiology of disgust: differentiating negative emotional context with facial EMG. *Psychophysiology*, 30, 279–286.

Wahlund, K., Sorman, K., Gavazzeni, J., Fischer, H., & Kristiansson, M. (2010). Attenuated subjective ratings and skin conductance responses to neutral and negative pictures in non-psychopathic mentally disordered offenders with various diagnoses. *Psychiatry Research*, 180, 30-34. doi: 10.1016/j.psychres.2009.09.009

Waterman, A.S. (1981). Individualism and interdependence. *American Psychologist*, *36*, 762-773.

Waterman, A. S. (1990). The relevance of Aristotle's conception of eudaimonia for the psychological study of happiness. *Theoretical & Philosophical Psychology,* 10*,* 39–44. doi:10.1037/h0091489

Waterman, A.S. (1993). Two conceptions of happiness: Contrasts of personal expressiveness (eudaimonia) and hedonic enjoyment. *Journal of Personality and Social Psychology*, 64, 678-691.

Waterman, A.S. (2008). Reconsidering happiness: A eudaimonist's perspective. *Journal of Positive Psychology*, 3, 234-252. doi: 10.1080/17439760802303002

Waterman, A.S. (2011). Eudaimonic identity theory: Identity as self-discovery. In S.J. Schwartz, K. Luyckx, & V.L. Vignoles (Eds.), *Handbook of identity theory and research* (pp. 357-379). New York, NY: Springer Science and Business Media.

Waterman, A.S., Schwartz, S.J., & Conti, R. (2008). The implications of two conceptions of happiness (hedonic enjoyment and eudaimonia) for the understanding of intrinsic motivation. *Journal of Happiness Studies*, 9, 41–79. doi:10.1007/s10902-006-9020-7

Waterman, A.S., Schwartz, S.J., Zamboanga, B.L., Ravert, R.D., Williams, M.K., Bede Agocha, V., Yeong Kim, S.,…Donnellan, B. (2010). The questionnaire for eudaimonic well-being: Psychometric properties, demographic comparisons and evidence of validity. *The Journal of Positive Psychology,* 5, 41-61. doi: 10.1080/17439760903435208

Wayment, H.A., Bauer, J.J., & Sylaska, K. (2014). The quiet ego scale: Measuring the compassionate self-identity. *Journal of Happiness Studies,* 16, 999-1033. doi:10.1007/s10902-014-9546-z

Weinstein, N., & Ryan, R.M. (2010). When helping helps: Autonomous motivation for prosocial behaviour and its influence on well-being for the helper and recipient. *Journal of Personality and Social Psychology*, 2, 222-244. doi: 10.1037/a0016984

Welp, L.R., & Brown, C.M. (2013). Self-compassion, empathy, and helping intentions, *The Journal of Positive Psychology*, 9, 54-65. doi: 10.1080/17439760.2013.831465

Wills, T.A., Sandy, J.M., & Yeager, A.M. (2001). Time perspective and early-onset substance use: A model based on stress-coping theory. *Psychology of Addictive Behaviours*, 15, 118–125.

Wong, P. T. P. (1998). Meaning-centered counselling. In P. T. P. Wong & P. Fry (Eds.), *The human quest for meaning: A handbook of psychological research and clinical applications* (pp. 395–435). Mahwah, NJ: Erlbaum.

Wong, P.T.P. (2011). Positive psychology 2: Towards a balanced interactive model of the good life. *Canadian Psychology*, 52, 69-81. doi: 10.1037/a0022511

Wong, P.T.P. (2012). Toward a dual-systems model of what makes a life worth living. In P.T.P, Wong (Ed.), *The Human Quest for Meaning* (pp. 3-23). New York, NY: Taylor & Francis Group.

Woo, H.D., Kim, D.W., Hong, Y.S., Kim, Y-M., Seo, J-H., Choe, B.M., Park, J.H.,…Kang, J-W. (2014). Dietary patterns in children with attention deficit/hyperactivity disorder (ADHD). *Nutrients*, 6, 1539–1553. doi: 10.3390/nu6041539

Wood, A. M., & Joseph, S. (2010). The absence of positive psychological (eudemonic) well-being as a risk factor for depression: A ten year cohort study. *Journal of Affective Disorders*, 122, 213–217. doi: 10.1016/j.jad.2009.06.032

Wood, A.M., Linley, P.A., Maltby, J., Baliousis, M., & Joseph, S. (2008). The authentic personality: A theoretical and empirical conceptualization and the development of the authenticity scale. *Journal of Counselling Psychology, 55,* 385-399. doi: 10.1037/0022-0167.55.3.385

Worrell, F.C., McKay, M.T., & Andretta, J.R. (2015). Concurrent validity of Zimbardo time perspective inventory profiles: a secondary analysis of data from the United Kingdom. *Journal of Adolescence,* 42, 128–139. doi: 10.1016/j.adolescence.2015.04.006

Zemojtel-Piotrowska, M., Piotrowski, J., & Clinton, A. (2015). Materialism, subjective well-being and psychological entitlement: Interplay between materialism and social functioning. *Ceskoslovenská psychologie*, 59, 60-70.

Zimbardo, P. G., & Boyd, J. N. (1999). Putting time in perspective: A valid, reliable individual-differences metric. *Journal of Personality and Social Psychology*, 77, 1271-1288.

Zimbardo, P. G., Keough, K. A., & Boyd, J. N. (1997). Present time perspective as a predictor of risky driving. *Personality and Individual Differences, 23,* 1007-1023. doi: 10.1016/S0191-8869(97)00113-X

Running head: SEEING BEYOND THE SELF, PRESENT AND CONCRETE

Chapter 2: Manuscript 1

Seeing Beyond the Self, the Present, and the Concrete: A comparison of Eudaimonic and Hedonic Orientations to Life

Keith Pearce

Veronika Huta

Mihnea Voloaca

University of Ottawa

Abstract

We examined how eudaimonic orientation (prioritizing growth, excellence and authenticity) and hedonic orientation (prioritizing pleasure, comfort) related to contributing/thinking beyond the self, present, and concrete. Study 1 (N=191) assessed prosocial behaviours, prosocial and egoistic values, time perspectives and abstract thinking. Studies 1.1 and 1.2 assessed observational measures of prosocial behaviours, and Study 1.3 included a more comprehensive measure of prosocial and egoistic values. Study 1 showed that eudaimonic orientation related to easy, difficult, face-to-face, and indirect prosocial behaviours; hedonic orientation related to easy and face-to-face ones. Only eudaimonic orientation related to prosocial values. Eudaimonic orientation, but not hedonic orientation, related to general indices of broad scope of concern: big picture thinking (taking society and broad implications into account), view of people as ecosystem (seeing all life as interconnected) future time perspective, and abstract/high-level construal of events. Big picture thinking and view of people as ecosystem mediated between eudaimonic orientation and a composite of prosocial behaviours. Hedonic orientation related to general indices of narrow scope of concern: egoistic values (valuing power and wealth, Study 1.3), present hedonistic time perspective, and present fatalistic time perspective. Though there were no significant findings for eudaimonic orientation and observed prosocial behaviour in Study 1.1, hedonic orientation related negatively to this measure providing indirect support that hedonic orientation is less linked to prosocial behaviour. Study 1.2 showed that eudaimonic orientation related to willingness to donate money for homeless lunches and that big picture thinking mediated between eudaimonic orientation and this measure. Eudaimonic orientation also related to egoistic values (valuing ambition), and present hedonistic time perspective, suggesting that eudaimonic orientation combines broad concerns with some narrow ones. In sum,

while past studies found that both hedonic orientation and eudaimonic orientation relate to personal well-being, we found asymmetry favouring eudaimonic orientation when contributing and thinking beyond the self, here, and now.

Keywords: eudaimonia; eudaimonic; hedonism; prosocial behaviour; altruism; time perspective; abstraction; action identification theory

Seeing Beyond the Self, the Present, and the Concrete:
A Comparison of Eudaimonic and Hedonic Orientations to Life

In well-being research and in the field of philosophy, scholars have identified two main ways in which people pursue a good life: eudaimonic orientation (seeking growth, excellence, authenticity; Huta, 2013a; Huta & Ryan, 2010; Ryan & Deci, 2001) and hedonic orientation (seeking pleasure, comfort). Most previous research has focused on the link between an individual's pursuit of hedonia and/or eudaimonia and that individual's personal well-being. As the next natural step, we believe it is important to investigate effects beyond the individual. The individual has increasingly large circles of influence, beginning with the self, then extending to close others, and then beyond. One study has previously examined the impact of hedonic/eudaimonic orientations on close others (Huta, Pelletier, Baxter, & Thompson, 2012). In the research presented here, therefore, we examined effects on the broader community/society.

Previous findings indicate that both eudaimonic and hedonic orientations are positively linked to personal well-being (e.g., Anić & Tončić, 2013; Avsec & Kavčič, 2012; Chen, Tsai, & Chen, 2010; Henderson, Knight, & Richardson, 2013; Huta & Ryan, 2010; Kavčič & Avsec, 2013; Park, Peterson, & Ruch, 2009; Peterson, Park, & Seligman, 2005; Peterson, Ruch, Beermann, Park, & Seligman, 2007; Proyer, Annen, Eggimann, Schneider, & Ruch, 2012; Ruch, Harzer, Proyer, Park, & Peterson, 2010; Schueller & Seligman, 2009; Vella-Brodrick, Park, & Peterson, 2007). However, as detailed below, we predicted that only a eudaimonic orientation would be linked to behaviours and values that have positive effects on other people and the broader world, i.e., on *well-being beyond the self*. Furthermore, we predicted that this effect beyond the self would be mediated by a *broad scope of concern* – a tendency to think beyond the self (i.e., big picture thinking), to feel interconnected with others (i.e., view of people as

ecosystem), beyond the immediate moment (i.e., future thinking), and beyond the concrete features of an event to more abstract implications (i.e., high-level construals).

Finally, we were interested in exploring the links of hedonic and eudaimonic orientations with several indices of a *narrow scope of concern* – egoistic values, focusing on the present, and thinking in concrete terms – to test our prediction that hedonic orientation would be linked to narrow concerns.

Defining Eudaimonic and Hedonic Orientations

It is important to first specify how we operationalized *eudaimonia* and *hedonia.* In a review of psychology definitions of eudaimonia and hedonia, Huta and Waterman (2014) showed that they fall into four *definition categories*: orientations, behaviours, experiences, and functioning. We operationalized eudaimonia and hedonia as orientations (e.g., priorities, motives, values, goals, etc.), because we wished to see how an individual's priorities affect the world around them.

The *elements of our definitions* were also based on the review by Huta and Waterman (2014). The review showed that four elements appear in most or all measures of eudaimonia, regardless of the definition category: authenticity, excellence, personal growth, and meaning. Huta (2015) argued that these four elements together form the core of eudaimonia and fleshed out each element into sub-elements:

Authenticity: self-honesty, self-discovery, self-congruence/autonomy

Excellence: virtue/ethics, quality performance

Personal growth: self-realization, learning, maturity

Meaning: caring about the bigger picture, understanding it, and contributing to it

She added that the "bigger picture" in the meaning element "may include broader aspects of your own life or identity, a purpose, the long term, your community, society, or the ecosystem" (p. 161).

However, the meaning element is closely tied to the outcomes we wished to study, so it would be circular to include the concept in our operationalization of eudaimonia. We therefore operationalized eudaimonic orientation using the HEMA scale (Hedonic and Eudaimonic Motives for Activities, Huta & Ryan, 2010). This scale includes three of the four elements of eudaimonia identified by Huta and Waterman (2014) – growth, excellence, and authenticity – but it does not explicitly include meaning – the one element which emphasizes broad thinking beyond the self.

Using the HEMA eudaimonic orientation scale also allowed us to test a controversial argument in the literature. Some scholars have argued theoretically that eudaimonic aims such as personal growth, excellence, and authenticity – which are largely self-focused – will foster egocentrism, narcissism, elitism, unscrupulous competition, or harm to others (see reviews by Annas, 2008; Kashdan, Biswas-Diener, & King, 2008; Waterman, 1981). By assessing only the self-focused component of eudaimonic orientation, we were able to test how it actually relates to caring beyond the self.

The HEMA was also suitable for assessing hedonic orientation, as it covers the pursuit of pleasure (enjoyment, fun, satisfaction), and the pursuit of comfort (relaxation, ease, absence of distress), and thus includes both elements of hedonia identified by Huta and Waterman (2014).

Defining Well-being Beyond the Self

We conceptualized well-being beyond the self in several ways: self-reported prosocial behaviours, and generative behaviours; observations of prosocial behaviours (agreeing to do

volunteer work after the study, agreeing to have friends/relatives report on oneself, and agreeing to donate money for lunches for the homeless); and self-reports of prosocial values.

Prosocial behaviours are voluntary acts intended to benefit another such as helping, giving, comforting, or sharing (Bierhoff, 2002; Staub, 1979); they impact anyone from close others to neighbours, acquaintances, and strangers, and thus their circle of influence includes the broader community. *Generative behaviours* promote the well-being of future generations and mankind, through acts such as guiding young people, creating new products and ideas, or taking leadership roles (Erikson, 1950; McAdams & de St. Aubin, 1992); they impact anyone from close others to society in general, and thus can have an even broader reach than prosocial behaviours. Generative behaviours also have a broader reach in time, and more indirect or diffuse effects.

We also included prosocial values in our assessment of well-being beyond the self. Values are broad desirable goals that serve as general guiding principles in life (Schwartz, 2005; Schwartz & Bilsky, 1990), and criteria for decisions and behaviours (Bardi & Schwartz, 2003). *Prosocial values* involve a concern for the welfare and needs of others (Crocker & Canevello, 2008; De Groot & Steg, 2007).

Values do not assess impact beyond the self as directly as self-reported and observed behaviours, and they could conceivably be classified with the more general concept of broad scope of concern. Nevertheless, we grouped our measure of prosocial values with well-being beyond the self because they asked participants to differentiate between different priorities (e.g., working for the welfare of others, valuing equal opportunity), which could give us a more nuanced picture of the difference between eudaimonic and hedonic orientations.

Defining Broad Scope of Concern

We conceptualized broad scope of concern – which was expected to mediate between eudaimonic orientation and well-being beyond the self – in several ways: what we called big picture thinking, future time perspective, abstract thinking, and view of people as ecosystem.

We conceptualized *big picture thinking* as a general tendency to think beyond the immediate self to the welfare of a larger system, i.e., to take other people, society, and the world into account (Peterson et al., 2005). Time perspective is a way of cognitively relating to the psychological concepts of the past, present and future, which affects decision making and subsequent actions (Boniwell, Osin, Linley, & Ivanchenko, 2010). A *future time perspective* entails thinking about the future, planning for the future, and considering the long-term consequences of one's actions (Zimbardo & Boyd, 1999). We conceptualized *abstract thinking* as a tendency to construe events and objects in terms of their implications, consequences, and socially conveyed meanings, (i.e., high-levels of construal), rather than their concrete features and details (i.e., low-levels of construal), as outlined in Action Identification Theory (Michaels, Parkin, & Vallacher, 2013; Vallacher & Wegner, 1989; Vallacher & Wegner, 1987). *View of people as ecosystem* was derived from Crocker and Canevello's (2008) research which emphasizes the interconnectedness and interdependence of oneself with all life.

Defining Narrow Scope of Concern

Though we focused primarily on broad scope of concern, it was informative to contrast this with narrow scope of concern, to test whether hedonic orientation is associated with narrow scope of concern, and to explore whether eudaimonic orientation is exclusively broad or includes both broad and narrow concerns. We therefore assessed several indices of narrow scope of

concern: self-focused values (i.e., egoistic values), present time perspective, and concrete thinking.

Self-focused values include a concern for upholding one's self-image (Crocker & Canevello, 2008), and enhancing the self through means such as wealth, power, ambition, and dominance (De Groot & Steg, 2007). A present time perspective has been differentiated into two subtypes, and we studied both: a *present hedonistic time perspective*, which is a focus on concrete factors in the immediate sensory moment, characterized by self-indulgence, risk-taking and pleasure-seeking (Zimbardo & Boyd, 1999); and a *present fatalistic time perspective*, which reflects a belief that life is controlled by external forces and a disengagement from planning for the future (Zimbardo & Boyd, 1999). *Concrete thinking* can be operationalized as the opposite of abstract thinking – focusing on the details of an event or object as opposed to its abstract qualities (Vallacher & Wegner, 1987).

Hypotheses About Well-being Beyond the Self

Hypothesis 1. We predicted that eudaimonic orientation, but not hedonic orientation, would relate positively to indices of well-being beyond the self, including prosocial/generative behaviours and values.

Theoretical rationales. Though we set out to empirically test the link between the self-focused elements of eudaimonic orientation and prosocial concerns, quite a few researchers share our theoretical expectation that eudaimonic orientation is associated with caring for others. Prosocial concepts in definitions or descriptions of eudaimonia include: serving the greater good (Seligman, 2002; Peterson et al., 2005); positive relations with others (Ryff, 1989); social well-being, and social contribution (Keyes, 2002); responsible action (Wong, 2012); collaborative relationships (Fowers, 2012); relatedness and community contribution (Deci & Ryan, 2000;

Ryan, Huta, & Deci, 2008); commitment to socially shared goals (Delle Fave, Massimini, & Bassi, 2011); social responsiveness and good relationships (Steger, 2012; Steger, Frazier, Oishi, & Kaler, 2006; Steger & Shin, 2012; Steger, Shin, Shim, & Fitch-Martin, 2013); prosocial activities (e.g., volunteering time, giving money to someone in need; Steger, Kashdan, & Oishi, 2008); a "quiet ego" which balances personal needs with the needs of others (Bauer, 2008; Bauer & McAdams, 2004; Bauer, McAdams, & Sakaeda, 2005; Wayment, Bauer, & Sylaska, 2014); and a meaningful life based on contributing to others (Baumeister, Vohs, Aaker, & Garbinsky, 2013).

Even when eudaimonic orientation is defined entirely in terms of self-focused elements – personal growth, excellence, and authenticity – we would expect it to relate positively, on average, with well-being beyond the self. We believe that these elements are understood in their noble sense more often than not, especially if we define eudaimonic orientation as the coexistence of all three elements. As detailed in Huta (2015), the pursuit of growth in the eudaimonic sense is the pursuit of learning, developing skills, actualizing one's unique potentials, and maturing as a human being; it is not about growing one's empire or bank account. Growth of this kind typically entails movement toward more complex and integrated thinking (Bauer, Schwab, & McAdams, 2011; Loevinger 1966). Eudaimonic authenticity is about following deeply held values and one's true nature, not momentary impulses (Huta, 2012). Presumably, when people have done enough soul-searching and personal integrating, it is difficult to honestly subscribe to antisocial values, as these would create inner conflicts. The eudaimonic concept of excellence involves the pursuit of ethical and moral excellence, the best in oneself, ideals, and high quality performance (Huta, 2013b). In combination with authenticity,

even the pursuit of high performance tends to be about meeting personal standards or exceeding one's past performance, rather than outperforming other people.

Past empirical evidence. When reviewing past empirical work, we will focus only on studies which defined eudaimonia and hedonia as orientations like we did, and which assessed one or more of the self-focused elements of eudaimonia (growth, excellence, authenticity) and/or one or both elements of hedonic orientation (pleasure, comfort).

Huta and colleagues (2012) used the HEMA scale and examined the link of eudaimonic and hedonic orientations with a person's impact on close friends and relatives. The authors found that eudaimonically oriented individuals had multiple positive effects on the well-being of close others, whereas hedonically oriented individuals had double-edged effects, promoting carefreeness in friends but also raising negative affect in relatives (the reanalysis of friends and relatives separately appeared in Huta, Pearce, Voloaca, & Myskiw, 2014). Huta (2012) used the HEMA scale and found that adult children of eudaimonically oriented parents derived a wide variety of well-being benefits from their own eudaimonic and hedonic pursuits, whereas children of hedonically oriented parents derived fewer benefits. Autonomous motivation (a component of authenticity) has been related to prosocial behaviour (Gagné, 2003). Placing priority on personal growth has been related to generative values (Bauer, Park, Montoya, & Wayment, 2015; Wayment et al., 2014), and to reduced antisocial behaviours (Wayment et al., 2014).

Baumeister and colleagues (2013) operationalized eudaimonia and hedonia as feelings of meaning and happiness, respectively, rather than orientations. Nevertheless, they assessed several variables pertinent to our research, so we add their findings here and below. The authors performed an exploratory study with many single-item measures, and found that meaning related

more than happiness to the following: being a giver, trying to help the needy, buying gifts for others, listening, and identifying with the role of caring for children.

Hypotheses About Broad Scope of Concern

Hypothesis 2. We predicted that eudaimonic orientation, but not hedonic orientation, would relate positively to indices of broad scope of concern, including big picture thinking, future time perspective, abstract thinking, and view of people as ecosystem.

Hypothesis 3. Furthermore, we predicted that indices of broad scope of concern would mediate the relationship between eudaimonic orientation and well-being beyond the self.

Theoretical rationales. Several researchers have explicitly defined or described eudaimonia with broad scope of concern concepts: the meaningful life, i.e., taking the big picture into account (Seligman, 2002; Seligman, 2011); having a purpose that is consistent with higher and meaningful values (Wong, 2012); purpose in life (McGregor & Little, 1998; Ryff, 1989); self-transcendence, i.e., seeking a cause beyond the self (Maslow, 1969; see also Koltko-Rivera, 2006); planning, practice, and perseverance which requires an extended time perspective (Bauer, 2008); and an understanding of one's relationships with others (Weinstein, Ryan, & Deci, 2012; Wong, 2012).

This makes sense. The pursuit of growth is necessarily purposeful and future-oriented, and it requires an ability to step outside the here and now and have abstract values and ideals guide one's actions. The pursuit of excellence and virtue requires contemplation of the long-term consequences of one's choices, and the construction of a framework for understanding how the big picture works, to serve as a basis for deciding which choices are preferable. Even the pursuit of authenticity requires some conception of what is true or truer, and that again needs to be situated within some conception of the bigger picture.

All of the skills and mindsets required for eudaimonic pursuits should also foster prosocial behaviour. That is why we expect broad scope of concern to mediate the relationship between eudaimonic orientation and well-being beyond the self. Big picture thinking, future time perspective, abstract thinking, and view of people as ecosystem should help an individual see beyond the immediate self and consider the welfare of other people and the surrounding world.

Past empirical evidence. Several studies have shown links between indices of broad scope of concern and elements of eudaimonic orientation. Holistic thinking and perspective-taking have been linked to placing priority on personal growth (Wayment et al., 2014). Self-transcendent concerns (Beaumont, 2009), a big picture orientation (Hirschi, 2011), and a future time perspective (Luyckx, Lens, Smits, & Goossens, 2010) have been linked to identity commitment (a component of authenticity). A high-level of construal has been linked to concordance between one's values and behaviours (i.e., authenticity; Park & Hedgcock, 2015; Torelli & Kaikati, 2009), and having meaningful goals (Davis, Kelley, Kim, Tang, & Hicks, 2015).

A future time perspective has been linked to eudaimonic concepts such as following ethical rules (excellence; Nordhall & Agerström, 2013), academic engagement (growth, excellence; King, 2006), academic achievement (excellence; de Bilde, Vansteenkiste, & Lens, 2011; Mello & Worrell, 2006; Peetsma & van der Veen, 2011; Phan, 2009), persistence (growth, excellence; Zaleski, Cycon, & Kurc, 2001), having personal projects congruent with personal values (authenticity; Paixao, 1996), purpose in life (Boniwell et al., 2010), and preferring meaningful options (e.g., attending a lecture) when making distant future decisions vs. near future decisions (Kim et al., 2014); a present time perspective has related negatively to commitment and persistence (de Bilde et al., 2011). Additionally, higher-level construals lead to

greater self-control and decreased preferences for immediate outcomes (Fujita, Trope, Liberman, & Levin-Sagin, 2011).

Hypotheses About Narrow Scope of Concern

Hypothesis 4. We predicted that hedonic orientation would relate positively to indices of narrow scope of concern, including egoistic values, present hedonistic time perspective, present fatalistic time perspective, and concrete thinking. Our approach to analyses with eudaimonic orientation was exploratory. We offer some speculations below.

Theoretical rationales. Several researchers have explicitly defined or described hedonia with narrow scope of concern concepts: focusing on self-interest and self-gratification (Berzonsky, Cieciuch, Duriez, & Soenens, 2011; Schwartz, 2012); prioritizing self-interest and practical gain (Wong, 2011); focusing on the present (Kim, Kang, & Choi, 2014; Lindenberg & Steg, 2007; Zimbardo & Boyd, 1999); and engaging in activities that produce immediate but short-lived pleasure (e.g., sex without love, buying jewellery for oneself; Brickman & Campbell, 1971; Hallam, Olsson, O'Connor, & Sanson, 2013; Steger et al., 2008).

We similarly expected hedonic orientation to involve little concern beyond personal needs, desires, and impulses. A focus on pleasure and comfort is rooted in physical and emotional mechanisms, unlike eudaimonic orientation, which is more strongly carried by abstract cognitive processes. We would therefore expect hedonic orientation to be largely fixed to the immediate self, and to involve a focus on the aspects of life that are more tangible, material, and concrete.

Analyses for eudaimonic orientation and narrow concern were exploratory. We suspected that eudaimonic orientation would also relate to living intensely in the present moment. Researchers have characterized eudaimonia as involving deep engagement or being absorbed in

an activity in a given moment (Csikszentmihalyi, 1990; Vittersø, 2013). Others have theorized that mindfulness – being attentive in the moment – can orient a person toward intrinsic aspirations such as personal growth (Deci, Ryan, Schultz, & Niemiec, 2015).

Past empirical evidence. An orientation toward pleasure has been related to impulsivity; to concrete goals including money, wealth, and material goods; and to self-focused goals including, attractive appearance/image, and popularity/reputation/fame (Anić & Tončić, 2013; Berzonsky et al., 2011; Brdar & Anić, 2010; Brdar, Rijavec, & Miljković, 2009). A present time perspective has related positively to pursuits that are often pleasure-oriented in nature, including sensation-seeking (Zimbardo & Boyd, 1999), risky sexual behaviour (Rothspan & Read, 1996), use of alcohol and illegal drugs (Keough et al., 1999; Willis, Sandy, & Yaeger, 2001), and unhealthy eating behaviours (Guthrie, Butler, Lessl, Ochi, & Ward, 2014).

There is some evidence suggesting that eudaimonic orientation may relate to aspects of narrow concern. Eudaimonic concepts such as purpose in life have been linked to a positive self-image (Hill, Edmonds, Peterson, Luyckx, & Andrews, 2016); and pride is linked to personal growth (Barrett-Cheetham, Williams & Bednall, 2016). However, given the scarce evidence as aforementioned, we did not formulate any specific hypotheses for eudaimonic orientation and links with narrow scope of concern.

Study 1

In Study 1, we focused on well-being beyond the self in the prosocial domain, and thus examined the links of eudaimonic and hedonic orientations with prosocial/generative behaviours and values. We also tested our hypotheses regarding links with broad scope of concern and narrow scope of concern, and our hypothesis about the mediating role of broad scope of concern in the relationship between eudaimonic orientation and prosocial behaviour.

Method

Participants

A total of 246 participants completed the study. However**,** participants who responded too fast (greater than 20 questions per minute), who did not complete all items of the HEMA, and those who had greater than 10% missing data on the variables were excluded prior to performing analyses in an effort to include more reliable data. The final sample was 189 undergraduates from a Canadian university (77% female). Most (83%) were aged 18-20 years, with 14% aged 21-25, 2% older than 26, and 1% younger than 18. The ethnic distribution was 63% Caucasian, 8% Black, 7% Asian, 6% Arabic, and 17 % Other ethnicity. The distribution of majors was 51% Social Sciences (18% Psychology), 17% Health Sciences, 14% Sciences/Engineering and 18% Arts/Humanities.

Procedure

Participants completed the study on a research website through Limesurvey and answered a number of self-report questionnaires. Participants received course credit for completing the study.

Measures

In addition to the details provided below, the means and standard deviations of all measures are provided in Appendix A.

Hedonic and Eudaimonic Motives for Activities (HEMA, Huta & Ryan, 2010). The two subscales of this measure assess *hedonic orientation* (five items, α=.83, "seeking relaxation", "seeking pleasure", "seeking enjoyment", "seeking to take it easy", and "seeking fun"), and *eudaimonic orientation* (four items, α=.77, "seeking to develop a skill, learn, or gain insight into something", "seeking to do what you believe in", "seeking to pursue excellence or a

personal ideal", and "seeking to use the best in yourself"). The instructions read: "To what degree do you typically approach your activities with each of the following intentions, whether or not you actually achieve your aim?", and the items are rated on a Likert scale from 1 (not at all) to 7 (very much). Previous studies have reported high reliabilities (α >.80) for these scales (Huta & Ryan, 2010).

Altruistic behaviour (Johnson et al., 1989). On this measure, participants report how often they have engaged in prosocial behaviours (56 items, α=.95). Items are rated from 1 (never) to 5 (very often). Previous research has reported good psychometric results (e.g., .94 test re-test reliability; Johnson et al., 1989).

We classified the items of the scale into several content domains that may be particularly relevant to the eudaimonic-hedonic distinction:

Difficult helping (23 items, α=.91), e.g., "I have helped push or restart a stranger's car when it was stalled," "I have defended someone I didn't know from being physically harmed."

Easy helping (13 items, α=.85), e.g., "I have given directions to a stranger," "I have delayed an elevator and held the door open for a stranger."

Wrongdoing to help another (six items, α=.77), e.g., "On occasion, I have 'stretched the truth' to help someone out of an embarrassing situation," "I have 'bent the rules' to help someone I didn't know that well."

Being a team player (seven items, α=.81), e.g., "I have 'picked up the slack' for another worker when he or she couldn't keep up the pace," "When playing a team sport, I often sacrifice an opportunity to score when I see that another player has a better chance."

Community contribution (seven items, α=.71), the only category containing items where the recipient of the contribution is typically unknown to the contributor, e.g., "I have donated blood," "I have donated goods or clothes to a charity."

We followed up this theoretical classification with principal components analysis (PCA). We found that 15 factors had eigenvalues above one, but the scree plot suggested viable solutions up to six factors only. We therefore first extracted six factors; in the Varimax-rotated solution, the costly helping items separated into two factors, but we were unable to identify a consistent conceptual difference between them. We therefore extracted a 5-factor solution (accounting for 44% of the variance). The Varimax-rotated solution was easily interpretable, it represented the five concepts we had expected, and the loadings were reasonably clean. Most items (47 out of 56) loaded most on the factor they were expected to represent, and nearly all items (54 out of 56) had their second-highest loading on the expected factor with a loading within .10 units of their highest loading (the remaining items were: "donating blood", which loaded most with easy helping, but we kept it with community contribution because the recipient is typically unknown; and "helping an acquaintance get something important that they needed", which loaded most with easy helping but was kept with difficult helping on conceptual grounds). In our analyses, we used the full altruism scale as well as the five subscales; the items assigned to each subscale appear in Appendix B.

Generative behaviour (McAdams & de St. Aubin, 1992). This instrument assesses the frequency with which individuals engage in generative behaviours that contribute to future generations or leave a legacy behind (40 items, plus 10 filler items, α=.96, e.g., "Contributed time or money to a political or social cause," "Made something for somebody and then gave it to them," and "Picked up garbage or trash off the street or some other area that is not my property."

The item "Became a parent (had a child, adopted a child, or became a foster parent)" was removed because it had too little variability in our sample. Participants reported how frequently they engaged in each behaviour over the past two months, using 0 = never, 1 = once, or 2 = more than once. Though we perceived conceptual differences between items, a PCA did not produce clearly interpretable factors, and thus we did not examine subscales.

Observed prosocial behaviour. A real-time measure of *observed prosocial behaviour* was obtained by asking participants if they were willing to provide their email address so that we could contact them about volunteering for a supposed charity event at a later date. The outcome was coded 0 (did not provide email) or 1 (did provide email). Afterwards, participants were informed that the charity event was fictional and given the option of withdrawing from the study if they wished. Participant's email addresses were deleted from our database.

Ecosystem goals and egosystem goals (Crocker & Canevello, 2008). We used the ecosystem goals subscale as our measure of prosocial values (six items, α=.79, e.g., "Make a positive difference in someone else's life", "Avoid doing anything that would be harmful to others"), and the egosystem goals subscale as our measure of self-focused values (six items, α=.70, e.g., "Get others to recognize or acknowledge your intelligence", "Avoid showing your weaknesses"), after dropping one item that confounded the two concepts together ("Avoid doing things that aren't helpful to you and others"). Items begin with "In the past week how much did you *want* or *try* to" and are rated 1 (not at all) to 5 (extremely). Previous studies have reported high internal consistency (prosocial values: α=.90, self-focused values: α=.83).

View of people as ecosystem. We developed an additional measure ourselves, which focused specifically on Crocker's and Canevello's (2008) notion of viewing the social world as an interconnected and interdependent system (three items, α=.81, "All life is interconnected; we

have a sense of responsibility for one another", "I see myself and my own needs and desires as part of a larger system of interconnected people and other living things who also have needs and desires", and "My actions have consequences for others and repercussions for the entire social system"). The items are rated from 1 (strongly disagree) to 7 (strongly agree).

Orientation to Happiness – Meaningful Life subscale (Peterson et al. 2005). This subscale was originally developed to serve as a measure of eudaimonia, and that is how it is typically used. In the present paper, we used it as our measure of *big picture thinking* because it explicitly asks about taking the big picture into account (six items, α=.85, e.g., ''I have spent a lot of time thinking about what life means and how I fit into its big picture", "My life serves a higher purpose", "In choosing what to do, I always take into account whether it will benefit other people"). Instructions read: "All of the questions reflect statements that many people would find desirable, but we want you to answer only in terms of whether the statement describes how you actually live your life". Items are rated from 1 (very much unlike me) to 5 (very much like me).

We also had a second reason for including this scale. In the literature on eudaimonia and hedonia, there are two questionnaires which operationalize both concepts as orientations (see Huta & Waterman, 2014): the HEMA, and the Orientations to Happiness questionnaire, where the meaningful life subscale was designed to operationalize eudaimonia. Though we primarily treated the meaningful life subscale as a measure of "big picture thinking" in the present study, we wished to also study the degree of convergent validity between the two operationalizations of eudaimonic orientation.

Zimbardo Time Perspective Inventory (Zimbardo & Boyd, 1999). We focused on the three subscales of this measure that were relevant to our hypotheses: future time perspective (13 items, α=.81, e.g., "I keep working at difficult, uninteresting tasks if they will help me get

ahead", "Before making a decision, I weigh the costs against the benefits", "I make lists of things to do"); and the two types of a present time perspective; present hedonistic time perspective (15 items, α=.84, e.g., "I try to live my life as fully as possible, one day at a time", "I find myself getting swept up in the excitement of the moment", "I make decisions on the spur of the moment"), and present fatalistic time perspective (nine items, α=.83, e.g., "You can't really plan for the future because things change so much", "My life path is controlled by forces I cannot influence", "It doesn't make sense to worry about the future, since there is nothing that I can do about it anyway"). Instructions read: "Read each item and, as honestly as you can, answer the question: "How characteristic or true is this of you?" and items are rated 1 (very untrue) to 5 (very true). This scale has acceptable internal and test-retest reliability as well as convergent and discriminant validity (see Zimbardo & Boyd, 1999).

Behaviour Identification Form (Vallacher & Wegner, 1989). This was the measure we used to assess higher level *abstract thinking* and lower level *concrete thinking* (25 items, α=.82). In each item, an activity is given, and the participant is asked to choose which of two descriptions better represents how they see the activity, with one description being more abstract and the other being more concrete (e.g., for the activity "Making a list", the options are "Getting organized" and "Writing things down"; for the activity "Reading" the options are "Gaining knowledge" and "Following lines of print"). We represented abstract thinking by the percentage of items where the abstract description was chosen. Conversely, we represented concrete thinking as the percentage of items where the concrete description was chosen.

Social desirability (Crowne & Marlowe, 1960). This measure of social desirability assesses whether participants are responding truthfully or are misrepresenting themselves in order to manage their self-presentation (33 items, α=.76, e.g., "I never hesitate to go out of my

way to help someone in trouble", and "It is sometimes hard for me to go on with my work if I am not encouraged"). Items are answered using a true/false format. Social desirability scores were derived by taking the percentage of socially desirable responses across participants.

A Note About Control Variables

We controlled for gender in all analyses, because previous studies have found significant links between gender and various indices of prosocial behaviours and values (e.g., de Caroli & Sagone, 2014; Eagly & Crowley, 1986; Eisenberg, Carlo, Murphy, & Van Court, 1995; Wilson & Musick, 1997).

Furthermore, after reporting our results in Table 1, we also reran all analyses while controlling for social desirability (in addition to gender). Some researchers have argued that self-reports of prosocial behaviours and values can be susceptible to self-presentation bias (Danheiser & Graziano, 1982; King & Bruner, 2000; Osin, 2006), and that controlling for a measure of social desirability can remove this bias (Van de Mortel, 2008). In contrast, other researchers have argued that controlling for a measure of social desirability can remove meaningful variance that represents genuinely virtuous behaviour (e.g., De Vries, Zettler, & Hilbig, 2014; McCrae & Costa, 1983; Zettler, Hilbig, Moshagen, & De Vries, 2015) which is of concern when studying eudaimonia. Thus, in discussing the results shown in Table 1, we focus on the results that did not control for social desirability, but we do provide the results controlling for social desirability in parentheses.

Results

Preliminary Demographic Analyses

Gender was unrelated to most variables in the study, except that females scored higher than males on prosocial values ($t=2.07$, $p<.05$).

Eudaimonic orientation was unrelated to age group (coded as < 21 years or ≥ 21 years), while hedonic orientation was higher in the younger participants ($r=.03$ $p > .50$, and $r=.17$, $p < .05$, respectively). Older participants scored higher on difficult helping ($r=.18$, $p<.05$). Younger participants scored higher on self-focused values ($r=.19$ $p<.01$).

One-way ANOVAs with Scheffé post-hocs showed that ethnicity (Caucasian, Asian, African/Black, Arabic and Other) related to some variables: eudaimonic orientation ($F=4.76$, $p<.05$, Caucasian < Arabic), and self-focused values ($F=3.55$, $p<.05$, Caucasian < Arabic). There was a significant ethnicity difference in agreeing to do volunteer work after the study (χ^2 (4) $=11.10$, $p<.05$); 20% Caucasian, 31% Asian, 53% African/Black, 27% Arabic and 41% Other ethnicity said yes to volunteering.

Semi Partial Correlation Analyses

Analyses were run in SPSS version 22. Table 1 shows semi-partial correlations of eudaimonic and hedonic orientations with all the outcome variables after controlling for gender. Table 2 shows intercorrelations between all the variables.

Hypothesis 1 – Measures of well-being beyond the self. We expected eudaimonic orientation, but not hedonic orientation, to relate positively to these measures. Eudaimonic orientation did relate positively to nearly all of them – all subtypes of prosocial behaviours, generative behaviours, and prosocial values – though its link with the observed prosocial behaviour did not quite reach significance ($p=.06$). Unexpectedly, hedonic orientation also related positively to two measures of well-being beyond the self: easy helping, and wrongdoing to help another.

Hypothesis 2 – Measures of broad scope of concern. We expected eudaimonic orientation, but not hedonic orientation, to relate positively to these measures. The hypothesis

was supported for all four measures – big picture thinking, future time perspective, abstract thinking and view of people as ecosystem. In fact, hedonic orientation was negatively related to future time perspective.

Hypothesis 3 – Mediating role of broad scope of concern. We expected big picture thinking, future time perspective, abstract thinking, and view of people as ecosystem to mediate the relationship between eudaimonic orientation and well-being beyond the self. For this analysis, we operationalized well-being beyond the self with the full prosocial behaviours scale, because it is particularly comprehensive, and behaviours are more clearly distinct from the mediators than are values.

When looking at correlations between the mediators and prosocial behaviour (controlling for gender), big picture thinking ($r=.40$, $p<.01$), view of people as ecosystem ($r=.42$, $p<.01$), and abstract thinking ($r=.16$, $p<.05$) had significant positive correlations with prosocial behaviours, while future time perspective did not ($r=.13$, $p>.05$).

The mediation analysis was performed using the SPSS Process macro by Hayes (2012), using 1,000 bootstrap samples. Bootstrapping methods have been recommended as they make fewer unrealistic assumptions than other mediation tests (e.g., Sobel test which assumes normality of the sampling distribution), and tend to have the best Type I error control, and more power (Fritz & MacKinnon, 2007; see Hayes, 2009; 2012).

With the four mediators entered simultaneously (controlling for gender at each stage of the model), big picture thinking was a significant predictor of prosocial behaviour ($\beta=.21$, $SE=.09$, $p=.017$) and a significant mediator (indirect effect $\beta=.07$, $SE=.04$, 95% CI = .02, .16). View of people as ecosystem was a significant predictor of prosocial behaviour ($\beta=.28$, $SE=.08$, $p=.001$) and a significant mediator (indirect effect $\beta=.10$, $SE=.03$, 95% CI = .05, .17). Future

time perspective did not contribute to prosocial behaviour (β=-.03, SE=.07, p=.666) and it was not a significant mediator (indirect effect β=-.01, SE=.02, 95% CI = -.06, .02). Abstract thinking no longer made an incremental contribution to prosocial behaviour (β=.02, SE=.07, p=.779) and it was not a significant mediator (indirect effect β=.01, SE=.02, 95% CI= -.03, .06). The variables explained 23% of the variance in prosocial behaviour. The proportion mediated is not reported due to the small sample size, which can give unstable effects (MacKinnon, Warsi, & Dwyer, 1995).

The total effect of eudaimonic orientation on prosocial behaviour was β=.28 (SE=.07, p=.000). After controlling for the mediators, the direct effect of eudaimonic orientation on prosocial behaviour was β=.11 (SE=.07, p=.125), indicating a full mediation.

Hypothesis 4 – Measures of narrow scope of concern. We expected hedonic orientation to relate positively to these measures, while we did not make a specific prediction regarding eudaimonic orientation. Hedonic orientation did relate positively to two of the measures – present hedonistic time perspective, and present fatalistic time perspective. However, hedonic orientation did not relate to self-focused values or concrete thinking.

We discovered that eudaimonic orientation related positively to present hedonistic time perspective, but it was unrelated to present fatalistic time perspective or self-focused values. Eudaimonic orientation related negatively to concrete thinking (though this was a given, since concrete thinking was operationalized as the exact opposite of abstract thinking).

Eudaimonic and Hedonic Orientation Controlling for Each Other

We ran additional semi-partial analyses whereby eudaimonic and hedonic orientations controlled for each other (and gender) to test the unique associations of these orientations with the variables. Hedonic orientation no longer had a significant positive correlation with prosocial

behaviour (r=.09, p>.10) and easy helping (r=.09, p>.10), and related negatively to abstract thinking (r= -.15, p<.05) and positively to concrete thinking (r=.15, p<.05). Eudaimonic orientation no longer related to a present hedonistic time perspective (r=.08, p>.10).

Four Categories of Pursuits of Well-being

Though this was not part of our formal hypotheses, we performed an Analysis of Covariance (ANCOVA; controlling for gender) comparing four groups of individuals on each of the dependent variables: those with a full life (above the median on both eudaimonic and hedonic orientation), eudaimonic life (above the median on eudaimonic orientation, below the median on hedonic orientation), hedonic life (above the median on hedonic orientation, below the median on eudaimonic orientation) and the empty life (below the median on both eudaimonic and hedonic orientation). The overall model was significant (for Wilks' Lambda, F = 1.98, p = .000).

The results appear in Table 3. We focus on comparisons between the full life and eudaimonic life and between the full life and hedonic life to see how being predominantly eudaimonic or hedonic differs from scoring high on both orientations. Overall, the full life and eudaimonic life only differed on three variables; the full life was higher on present hedonistic and present fatalistic time perspectives, and the eudaimonic life was higher on future time perspective. The hedonic life was significantly lower than the full life on big picture thinking, view of people as ecosystem, abstract thinking, and future time perspective.

We felt that the pattern of findings was quite revealing, as detailed in the General Discussion following Study 1.3.

Studies 1.1 and 1.2

In Study 1, eudaimonic orientation related to all the self-report measures of prosocial behaviours and values, but it related only marginally to the observed prosocial behaviour measure. To see if the link with an observed measure might become clearer if the measure was

worded in more specific terms, we added variations of the observed measure at the ends of two additional studies, which we call Studies 1.1 and 1.2. Thus, these studies assessed prosocial behaviours beyond self-report to overcome issues such as social desirability. These studies also assessed gender and social desirability, making it possible to control for these in the same way as in Study 1 (the links of eudaimonic orientation and hedonic orientation with variables other than observed prosocial behaviour are reported in separate publications).

Method

Study 1.1 was an online study completed by a different sample of undergraduates (N=407, 79% female, M_{age}=19.91, SD_{age}=3.98) from the same university as Study 1. At the end of the study, for the observed prosocial behaviour measure, participants were asked to provide their emails if they were willing to have the experimenter contact a friend or relative to complete a short questionnaire about the participant's prosocial behaviour; participants were coded as 0 = did not provide their email, or 1 = provided their email (all emails were subsequently deleted from our database). The measure of social desirability was the Balanced Inventory of Desirable Responding (BIDR) Version 6 - Form 40A (Paulhus, 1991), which consists of 40 items (α=.77, e.g., "It would be hard for me to break any of my bad habits" reverse scored, "I never regret my decisions"), rated from 1 (not true) to 7 (very true).

Study 1.2 was also an online study completed by a different sample of undergraduates (N=443, 79% female, M_{age} =19.34, SD_{age}=3.04) from the same university as Study 1. At the end of the study, for the observed prosocial behaviour measure, participants were asked to provide their emails if they were willing to have the experimenter contact them at a later date to collect money to provide lunches for the homeless. Participants were coded as 0 = did not provide their email, or 1 = provided their email (all emails were subsequently deleted from our database).

Participants were also given an option of how much money they would like to donate; $2, $5, $10, and more than $20. A square root transformation was applied to this variable due to high kurtosis (2.6).

This study also assessed big picture thinking (Orientation to Happiness Meaningful life subscale, Peterson et al., 2005; α=.80) so we were able to test if big picture thinking mediated the link between eudaimonic orientation and the observed measure of prosocial behaviour in this study (which was more specific than the observed measure in Study 1). The measure of social desirability was the Social Desirability Scale (Stöber, 2001; 17 items, α=.74, e.g., "I always admit my mistakes openly and face the potential negative consequences", "I always eat a healthy diet"); items are rated from 1 (never) to 7 (all the time).

Results

Semi-Partial Correlation Analyses

As shown in Table 1, eudaimonic orientation related positively to the observed prosocial behaviour measure in Study 1.2 and the donation amount, supporting Hypothesis 1 with an assessment that did not rely on self-report. Interestingly, eudaimonic orientation was unrelated to the observed prosocial behaviour measure in Study 1.1, but hedonic orientation was negatively related to it, which supported Hypothesis 1 in an indirect way, showing a distinction between eudaimonic and hedonic priorities. None of the results changed from significant to nonsignificant, or vice versa, when controlling for eudaimonic/hedonic orientation.

Mediation Analyses

As in Study 1, these analyses were performed using Hayes' (2012) process Macro, which estimates direct and indirect effects for dichotomous outcomes using logistic regression. When entering big picture thinking in the mediation model, it showed a significant relationship with

agreeing to donate money for homeless lunches (β=.36, SE=.13, p=.007), and had a significant indirect effect (β=.16, SE=.07, 95% CI =.04, .30). The total effect of eudaimonic orientation on this observed prosocial behaviour measure was significant, β=.32 (SE=.12, p=.009). After controlling for the mediator, the direct effect of eudaimonic orientation on observed prosocial behaviour was β=.16 (SE=.14, p=.233), suggesting a full mediation (see figure 2). Nagelkerke R^2 showed that the predictors explained 6% of the variance in observed prosocial behaviour.

Study 1.3

In Study 1, neither eudaimonic nor hedonic orientation related to self-focused values. In Study 1.3 we included a new measure which comprised a more comprehensive array of prosocial values and egoistic values; this questionnaire also asked participants more clearly how they prioritize different values. These egoistic values covered a broader array of self-focused values including materialism, power/influence, and ambition. This measure also asked participants the degree to which they prioritize specific goals, which could provide a more nuanced distinction between eudaimonic and hedonic orientations. This study was an online study completed by a different sample of undergraduates (N=143, M_{age}=19.42, SD=2.09, 79% female) from the same university as Study 1 (the links of eudaimonic orientation and hedonic orientation with variables other than prosocial and self-focused values are reported in separate manuscripts).

Method

Participants completed the Values scale (De Groot & Steg, 2012), which asked participants to rate the degree to which various values are a guiding principle in their life from -1 (opposed to my value), 0 (not important), to 7 (extremely important).

We used the altruistic value orientation subscale as our measure of prosocial values (four items, α=.68, “Helpful: working for the welfare of others”, “Social justice: correcting injustice,

care for the weak", "Equality: equal opportunity for all", "A world at peace: free of war and conflict"); and the egoistic value orientation subscale as our measure of self-focused values (five items, α=.68, "Wealth: material possessions, money", "Social power: control over others, dominance", "Authority: the right to lead or command", "Ambitious: hard-working, aspiring" and "Influential: having an impact on people and events"). There is also a biospheric values scale, but we did not focus on concern for the environment in this study.

In PCA, we looked at altruistic and egoistic items. Three factors had eigenvalues above one and the scree plot indicated up to two factors. In the 2-factor Varimax-rotated solution, which explained 53% of the variance, most items loaded as intended reflecting altruistic and egoistic values. However, the item "Ambitious: hard-working, aspiring" loaded most with the altruistic factor rather than the egoistic factor. We therefore performed analyses with the following: the full altruistic values scale, the full egoistic values scale, a "power and wealth values" scale consisting of the items that did form a distinct egoistic factor (α=.70, material possessions, social power, authority, influential), and the "ambitious" item individually. We also decided to add results for the individual items of the altruistic values scale to provide a detailed analysis.

Results

Semi-Partial Correlation Analyses

As shown in Table 1, Hypothesis 1 was supported; eudaimonic orientation related positively to the full altruistic values subscale, and three of the four altruistic values (helping others, social justice and equality). Hedonic orientation had no relationship with any altruistic values. Hypothesis 4 was partially supported; both eudaimonic and hedonic orientations related to the full egoistic values subscale. However, eudaimonic orientation showed a different pattern

from hedonic orientation when it came to self-focused values: it did not relate to valuing power and wealth, but it did relate to valuing ambition. Hedonic orientation related to power and wealth values, but not valuing ambition.

Eudaimonic and Hedonic Orientations Controlling for Each Other

Eudaimonic orientation no longer had a significant correlation with the full egoistic values subscale ($r=.11$, $p>.10$), when controlling for hedonic orientation.

General Discussion

The Relationship of Eudaimonic Orientation with Well-being Beyond the Self

Overall, we found that eudaimonic orientation was much more consistently related to prosocial/generative behaviours and values than was hedonic orientation. Thus, while past studies found that both eudaimonic orientation and hedonic orientation were important for personal well-being, we found an asymmetry favouring eudaimonic orientation when it came to well-being beyond the self. We think that hedonia is an essential part of personal well-being. But when it comes to helping others, and building society, it seems that eudaimonic processes are needed.

Our findings also provide empirical evidence to address some claims that eudaimonia seems selfish, elitist, and potentially harmful to others. We found that eudaimonic priorities had a positive relationship with prosocial behaviours, not a negative one. In fact, it was hedonic orientation which entailed little concern beyond the self.

Our findings are in line with theoretical claims that eudaimonia is closely tied to caring beyond the self (e.g., Bauer, 2008; Keyes, 2002; Seligman, 2002; Steger et al., 2008; Wong, 2012). We agree with these theoretical arguments, and together with our empirical findings, we believe they provide grounds for assessing eudaimonic orientation in terms of all four concepts

identified by Huta and Waterman (2014): growth, excellence, authenticity, and meaning (where meaning is defined as caring about, understanding, and contributing to the bigger picture). At present, no measure exists to assess all four elements – for example, the HEMA includes growth, excellence, and authenticity (Huta & Ryan, 2010), and the Orientation to Happiness scale focuses primarily on meaning (Peterson et al., 2005).

Though eudaimonic orientation correlated with indices of well-being beyond the self, when comparing the eudaimonic life and the hedonic life with the full life, there were no differences for prosocial/generative behaviours and prosocial values. Hedonic orientation may not necessarily interfere with concern beyond the self if one also has eudaimonic goals. Though, when we controlled for eudaimonic orientation, we found that hedonic orientation had no relationship with any prosocial behaviour measure. Thus, it appears that eudaimonic orientation is predominantly driving the connection with concern beyond the self, and may buffer some of the narrow focused aspects of hedonic orientation. Interestingly, there were few differences between the hedonic life and the empty life (relative to the eudaimonic life and the empty life) on well-being beyond the self, suggesting that an emphasis on hedonic pursuits adds little benefits beyond the self.

Studies 1.1 and 1.2 added an alternative approach to assessing prosocial behaviours by looking at observational measures as opposed to self-report. There was less nexus between eudaimonic orientation and observed prosocial behaviours. Participants may have felt uncomfortable having their close others report on them (in Study 1.1), or they may have felt general discomfort with providing their emails to volunteer for ambiguous causes (Study 1). We address some ideas for future research in the limitations and future directions section.

Mediating Role of Broad Scope of Concern

We found that only eudaimonic orientation was related to measures of broad scope of concern, including big picture thinking, future time perspective, abstract thinking and view of people as ecosystem. Also, a eudaimonic life was higher on all indices of broad scope of concern compared to a hedonic life. Furthermore, we found that big picture thinking and view of people as ecosystem mediated the link between eudaimonic orientation and prosocial behaviours, and that big picture thinking mediated the nexus between eudaimonic orientation and an observed measure of prosocial behaviour (agreeing to donate money to homeless lunches) in Study 1.2.

This gives us a deeper understanding of the nature of eudaimonic orientation, and its distinction from hedonic orientation. It suggests that there is a set of *general cognitive styles and processes* that go hand in hand with the set of goals that define eudaimonic orientation, being triggered by these goals and also promoting these goals. These general cognitive styles and processes might be summarized as an ability to step outside of the "self, here, now" and to consider the "larger system, in conceptual terms, over time", as proposed theoretically by Huta (2015). This conceptualization is in accord with Steger and Shin's (2012) theory that hedonia is likely based on "hot" brain systems, whereas eudaimonia is likely based on "cold" brain systems. The "hot" systems are deeper in the human brain and shared with other species, and they provide quick subjective judgments about momentary welfare and safety based on emotional and implicit processing of pleasure and pain. The "cold" systems are in the cerebral cortex, which is more recently evolved and more unique to humans, and they provide thoughtful evaluations of one's overall circumstances, values, goals, and functioning, as well as abstract and long-term evaluations of one's life.

The Relationship of Hedonic Orientation with Narrow Scope of Concern

We found that hedonic orientation related to the majority of our indices of narrow scope of concern – valuing power and wealth, present hedonistic time perspective, and present fatalistic time perspective.

We think that many aspects of a narrow scope of concern are constructive when it comes to personal well-being. In fact, the ability to sometimes give priority to the "self, here, and now" is essential for flourishing. It carves out the personal space we each need, it brings things back to basics, and it brings fullness to the moment.

Our findings do suggest that hedonic orientation can be a *double-edged sword*, though. We have already discussed the fact that hedonic priorities are not associated with a lot of contribution beyond the self. But even in the personal domain, it seems that hedonia needs to be pursued wisely. We found that hedonic orientation related to the extrinsic values of wealth and power, which has been negatively related to well-being (e.g., life satisfaction, positive affect; Dittmar, Bond, Hurst, & Kasser, 2014; see Kasser, 2002, for a review; Kim, Kasser, & Lee, 2003; Sheldon & Kasser, 2001; Solberg, Diener, & Robinson, 2004; Wang, Liu, Jiang, & Song, 2017), and is believed to arise when people are insecure and when genuine human needs have not been met (Kasser, 2000). Additionally, people who place higher values on extrinsic goals have lower empathy (Sheldon & Kasser, 1995), and participate in less prosocial behaviours (e.g., Briggs, Landry, & Wood, 2007). Fatalistic thinking – believing that one has little control over one's life – may also be an expression of insecurity, and has been linked to anxiety and aggression (Holman & Zimbardo, 2009), and to reduced helpfulness (Baumeister, Masicampo, & DeWall, 2009),

We found that hedonic orientation did not relate to two indices of a narrow scope of concern – valuing ambition, and concrete thinking. Perhaps the concept of ambition implied hard work, which would be personally costly. And perhaps our finding regarding concrete thinking was an artifact of the way it was operationalized – as the exact opposite of abstract thinking. Alternatively, perhaps there truly is no systematic relationship between a hedonic orientation and concrete thinking; perhaps all that can be said is that eudaimonic orientation relates to abstract thinking.

When Hedonic Orientation Relates to Well-being Beyond the Self

Although eudaimonic orientation was much more linked to measures of well-being beyond the self, we found unexpectedly that hedonic orientation did relate to some measures. This made the picture more nuanced, and also raised some interesting hypotheses for future research. The pattern of findings suggested that hedonic orientation may relate positively to well-being beyond the self when it includes some benefit and little cost to the self, the results are immediate, and the results are clearly visible (rather than indirect, diffuse, distant, or uncertain), which parallels the three aspects of narrow scope of concern that we studied –"me, here, and now".

More specifically, hedonic orientation related to easy helping (perhaps because it immediately produced feelings of pride, immediately elicited expressions of appreciation from others, or increased the probability of benefiting from reciprocal help), and wrongdoing to help another (perhaps because it strengthened social connections, promoted a favourable reputation, or increased the likelihood of reciprocal help).

Hedonic orientation was unrelated to difficult helping (which would be personally costly), being a team player (where personal costs may cancel out personal benefits), community

contribution and generativity (where the recipient is often unseen and thus cannot provide immediate gratification or commit to reciprocating the help).

When Eudaimonic Orientation Relates to Narrow Scope of Concern

Although hedonic orientation was more consistently linked to measures of a narrow scope of concern, we found that eudaimonic orientation did relate to some measures. Eudaimonic orientation related to valuing ambition (perhaps because this is part of the pursuit of excellence), and also related to a present hedonistic time perspective, indicating an ability to live fully in the present.

These findings indicate that eudaimonic orientation is not simply about self-sacrifice and delay of gratification. Instead, eudaimonia appears to be a *balance of broad and narrow concerns*, a more encompassing approach to life than a strictly hedonic orientation. Our findings are in line with the concept of the quiet ego – an identity that incorporates others without losing the self (Bauer & Wayment, 2008; Wayment et al., 2014), and Wong's (2012) notion of eudaimonia as a holistic balance of concern for others and the self.

Limitations and Future Directions

A limitation of these studies was their correlational and cross-sectional nature; our results suggest that eudaimonia is related to broad scope of concern while hedonia is related to narrow scope of concern, but we cannot make claims about causality. Longitudinal studies directly assessing the link between eudaimonic and hedonic orientations with prosocial behaviours should lend further support to the idea that eudaimonic pursuits are beneficial for the world at large. Furthermore, future studies would benefit from studying participants of various ages as opposed to undergraduate students who may be involved in different types of prosocial behaviours (e.g., informal volunteering vs. formal volunteering, spontaneous helping vs. planned

helping; Hoppmann, Coats, & Blachard-Fields, 2007; Sze, Gyurak, Goodkind, & Levenson, 2011).

The findings in this paper suggest several directions for future work. Our findings on the cognitive styles and processes underpinning eudaimonic orientation can help us formulate hypotheses about a wide variety of additional correlates that could be studied, such as empathy and perspective-taking (Davis, 1983, Eisenberg & Fabes, 1998), moral reasoning, self-complexity and prospection.

Our findings linking hedonic orientation with extrinsic values and fatalistic thinking suggest that it will be important to distinguish healthy and less healthy motives for hedonic pursuits (and eudaimonic pursuits, for that matter).

To confirm our interpretations of the prosocial variables that did relate to hedonic orientation, it is worthwhile to directly ask participants about circumstances when they are likely to help (e.g., difficult vs. easy, indirect vs. face-to-face outcomes, delayed vs. immediate outcomes), and about their motives for helping when they do help (e.g., personal gain vs. genuine interest in the other's welfare).

To follow up on our findings that eudaimonic orientation related to valuing ambition, and having a present hedonistic time perspective, it is worthwhile to continue investigating how much eudaimonia relates to a narrow scope of concern. To some degree, eudaimonic orientation appears to entail hedonic considerations as well, a concept that has been proposed by several researchers (Bauer, McAdams, & Pals, 2008; Waterman, 1993).

Future studies would benefit by examining alternative observed prosocial behaviours (e.g., conducted in a lab setting). Future studies could also look at assessing abstract thinking using different paradigms (e.g., global and local visual processing task, gestalt images) or having

separate abstract and concrete scales. Additionally, time perspective scales focusing on a non-hedonistic present time perspective could be employed (e.g., Husman & Snell, 2008).

Finally, given that our findings clearly confirm a consistent positive relationship between eudaimonic orientation and caring about well-being beyond the self, we would argue that it is important to move toward a measure of eudaimonic orientation which includes all four concepts identified by Huta and Waterman (2014) – growth, excellence, authenticity, and meaning.

References

Agerström, J., & Björklund, F. (2013). Why people with an eye toward are more moral: The role of abstract thinking. *Basic and Applied Social Psychology,* 35, 373-381. doi: 10.1080/01973533.2013.803967

Anić, P., & Tončić, M. (2013). Orientations to happiness, subjective well-being and life goals. *Psihologijske teme,* 22, 135-153.

Annas, J. (2008). Virtue ethics and the charge of egoism. In P. Bloomfield (Ed.), *Morality and self-interest* (pp. 205-221). Oxford, UK: Oxford University Press.

Aristotle (2001). *The Nicomachean ethics (R. Crisp, Trans.).* Cambridge: Cambridge University Press.

Avsec, A., & Kavčič, T. (2012). Psychometric properties of the Slovene version of the orientations to Happiness Questionnaire. *Horizons of Psychology*, 21, 7-18. doi: 10.20419/2012.21.354

Bardi, A., & Schwartz, S. H. (2003). Values and behaviour: Strength and structure of relations. *Personality and Social Psychology Bulletin,* 29, 1207–1220. doi: 10.1177/0146167203254602

Bauer, J.J. (2008). How the ego quiets as it grows: Ego development, growth stories, and eudaimonic personality development. In H.A. Wayment & J.J. Bauer (Eds.), *Transcending self-interest: Psychological explorations of the quiet ego* (pp. 199–210). Washington, DC: American Psychological Association.

Bauer, J.J., & McAdams, D.P. (2004). Personal growth in adults′ stories of life transitions. *Journal of Personality,* 72, 573-602.

Bauer, J.J., McAdams, D.P., & Pals, J.L. (2008). Narrative identity and eudaimonic well-being. *Journal of Happiness Studies*, 9, 81-104. doi:10.1007/s10902-006-9021-6

Bauer, J.J., McAdams, D.P., & Sakaeda, A.R. (2005). Interpreting the good life: Growth memories in the lives of mature, happy people. *Journal of Personality and Social Psychology*, 88, 203-217. doi: 10.1037/0022-3514.88.1.203

Bauer, J. J., Park, S. W., Montoya, R. M., & Wayment, H. A. (2015). Growth motivation toward two facets of eudaimonic self-development. *Journal of Happiness Studies*, 16*,* 185-210. doi: 10.1007/s10902-014-9504-9

Bauer, J.J., Schwab, J.R. & McAdams, D.P. (2011). Self-actualizing: Where ego development finally feels good? *The Humanistic Psychologist,* 39, 121-136. doi: 10.1080/08873267.2011.564978

Bauer, J.J., & Wayment, H.A. (2008). The psychology of the quiet ego. In H.A. Wayment & J.J. Bauer (Eds.), *Transcending self-interest: Psychological explorations of the quiet ego* (pp. 7-19). Washington, DC: American Psychological Association.

Baumeister, R. F., Masicampo, E. J., & DeWall, C. N. (2009). Prosocial benefits of feeling free: Disbelief in free will increases aggression and reduces helpfulness. *Personality and Social Psychology Bulletin,* 35, 260-268. doi: 10.1177/0146167208327217

Baumeister, R.F., Vohs, K.D., Aaker, J.L., & Garbinsky, E.N. (2013). Some key differences between a happy life and a meaningful life. *The Journal of Positive Psychology*, 8, 505-516. doi: 10.1080/17439760.2013.830764

Beaumont, S.L. (2009). Identity processing and personal wisdom: An information-oriented identity style predicts self-actualization and self-transcendence. *Identity: An International Journal of Theory and Research*, 9, 95-115. doi: 10.1080/15283480802669101

Berzonsky, M. D., Cieciuch, J., Duriez, B., & Soenens, B. (2011). The how and what of identity formation: Associations between identity styles and value orientations. *Personality and Individual Differences*, 50, 295-299. doi: 10.1016/j.paid.2010.10.007

Bierhoff, H.W. (2002). *Prosocial behaviour*. New York: Psychology Press.

Boniwell, I., Osin, E., Linley, P.A, & Ivanchenko, G.V. (2010). A question of balance: Time perspective and well-being in British and Russian samples. *The Journal of Positive Psychology*, 5, 24-40. doi: 10.1080/17439760903271181

Brdar, I., & Anić, P. (2010). Adolescents' life goals, orientations to happiness and psychological needs: Which is the best path to happiness? *Psihologijske teme,* 19, 169-187.

Brdar, I., Rijavec, M., & Miljković, D. (2009). Approaches to happiness, life goals and well-being. In T. Freire (Ed.), *Understanding positive life. Research and practice on positive psychology* (pp. 45-64). Lisboa: Climepsi Editores.

Brickman, P., & Campbell, D. (1971). Hedonic relativism and planning the good society. In M. H. Apley (Ed.), *Adaptation-level theory: A symposium* (pp. 287–302). New York: Academic Press.

Briggs, E., Landry, T., & Wood, C. (2007). Beyond just being there: an examination of the impact of attitudes, materialism, and self-esteem on the quality of helping behaviour in youth volunteers. *Journal of Nonprofit and Public Sector Marketing*, 18, 27–45. doi: 10.1300/J054v18n02_02

Chan, D. W. (2009). Orientations to happiness and subjective well-being among Chinese prospective and inservice teachers in Hong Kong. *Educational Psychology*, 29, 139–151. doi: 10.1080/01443410802570907

Chen, G. (2010). Validating the Orientations to Happiness Scale in a Chinese sample of university students. *Social Indicators Research,* 99, 431–442. doi:10.1007/s11205-010-9590-y

Chen, L.H., Tsai, Y., & Chen, M. (2010). Psychometric analysis of the Orientations to Happiness Questionnaire in Taiwanese undergraduate students. *Social Indicators Research*, 98, 239-249. doi: 10.007/s11205-009-9473-2

Cheng, Y. Y., Shein, P. P., & Chiou, W. B. (2012). Escaping the impulse to immediate gratification: the prospect concept promotes a future oriented mindset, prompting an inclination toward delayed gratification. *British Journal of Psychology*, 103, 129–141. doi: 10.1111/j.2044-8295.2011.02067.x

Crocker, J., & Canevello, A. (2008). Creating and undermining social support in communal relationships: The role of compassionate and self-image goals. *Journal of Personality and Social Psychology*, 95, 555-575. doi: 10.1037/0022-3514.95.3.555

Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, 24, 349-354. doi: 10.1037/h0047358

Csikszentmihalyi, M. (1990). *Flow: The Psychology of Optimal Experience.* New York, NY: Harper and Row.

Danheiser, P.R., & Graziano, W.G. (1982). Self-monitoring and cooperation as a self-presentational strategy. *Journal of Personality and Social Psychology*, 42, 497-505. doi: 10.1037/0022-3514.42.3.497

Davis, M.H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44, 113-126.

Davis, W.E., Kelley, N.J., Kim, J., Tang, D., & Hicks, J.A. (2015). Motivating the academic mind: High-level construal of academic goals enhances goal meaningfulness, motivation and self-concordance. *Motivation & Emotion*, 40, 193-202. doi: 10.1007/s11031-015-9522-x

De Bilde, J., Vansteenkiste, M., & Lens, W. (2011). Understanding the association between future time perspective and self-regulated learning through the lens of self-determination theory. *Learning and Instruction*, 21, 332-344. doi:10.1016/j.learninstruc.2010.03.002.

De Caroli, M.E., & Sagone, E. (2014). Belief in a just world, prosocial behaviour, and moral disengagement in adolescence. *Procedia Social and Behavioral Sciences*, 116, 596-600. doi: 10.1016/j.sbspro.2014.01.263

Deci, E. L., & Ryan, R. M. (2000). The 'what' and 'why' of goal pursuits: Human needs and the self-determination of behaviour. *Psychological Inquiry*, 11, 227-268.

De Groot, J.I.M., & Steg, L. (2008). Value orientations to explain environmental attitudes and beliefs: how to measure egoistic, altruistic, and bisopheric value orientations. *Environment and Behaviour*, 40, 330-354. doi: 10.1177/0013916506297831

Delle Fave, A., Massimini, F., & Bassi, M. (2011). *Psychological selection and optimal experience across cultures: Social empowerment through personal growth*. New York, NY: Springer.

De Vries, R. E., Zettler, I., & Hilbig, B. E. (2014). Rethinking trait conceptions of social desirability scales: Impression management as an expression of honesty-humility. *Assessment*, *21*, 286-299. doi: 10.1177/1073191113504619

Dittmar, H., Bond, R., Hurst, M., & Kasser, T. (2014). The relationship between materialism and personal well-being. A meta-analysis. *Journal of Personality and Social Psychology,* 107, 879-924. doi: 10.1037/a0037409

Eagly, A.H., & Crowley, M. (1986). Gender and helping behaviour: A meta-analytic review of the social psychological literature. *Psychological Bulletin*, 100, 283-308. doi: 10.1037/0033-2909.100.3.283.

Eisenberg, N., Carlo, G., Murphy, B., & Van Court, P. (1995). Prosocial development in late adolescence: a longitudinal study. *Child Development,* 66, 1179-1197.

Eisenberg, N., & Fabes, R. (1998). Prosocial development. In W. Damon (Editor-in-Chief) & N. Eisenberg (Eds.), *Handbook of child psychology: Vol. 3. Social, emotional, and personality development* (pp. 701-778). New York: Wiley.

Fowers, B. J. (2012). Placing virtue and the human good in psychology. *Journal of Theoretical and Philosophical Psychology*, 32, 1-9. doi:10.1037/a0025819

Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science, 18*, 233-239.

Fujita, K., Trope, Y., Liberman, N., & Levin-Sagi, M. (2011). Construal levels and self-control. *Journal of Personality and Social Psychology,* 90, 351-367. doi: 10.1037/0022-3514.90.3.351

Gagne´, M. (2003). The role of autonomy support and autonomy orientation in prosocial behaviour engagement. *Motivation and Emotion*, 27, 199–223.

Guthrie, L. C., Butler, S. C., Lessl, K., Ochi, O., & Ward, M. M. (2014). Time perspective and exercise, obesity, and smoking: Moderation of associations by age. *American Journal of Health Promotion*, 29, 9-16. doi: 10.4278/ajhp.130122-QUAN-39

Hallam, W.T., Olsson, C.A., O'Connor, M., & Sanson, A. (2013). Association between adolescent eudaimonic behaviours and emotional competence in young adulthood. *Journal of Happiness Studies*, 15, 1-13. doi: 10.1007/s10902-013-9469-0

Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs*, 76, 408-420. doi: 10.1080/03637750903310360

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]. Retrieved from http://www.afhayes.com/public/process2012.pdf

Henderson, L.W., Knight, T., & Richardson, B. (2013). An exploration of the well-being benefits of hedonic and eudaimonic behaviour. *The Journal of Positive Psychology*, 8, 322-336. doi: 10.1080/17439760.2013.803596

Hirschi, A. (2011). Vocational identity as a mediator of the relationship between core self-evaluations and life and job satisfaction. *Journal of Applied Psychology,* 60, 622-644. doi: 10.1111/j.1464-0597.2011.00450.x

Holman, E.A., & Zimbardo, P. (2009). The social language of time: The time perspective social network connection. *Basic and Applied Social Psychology*, 31, 136-147. doi: 10.1080/01973530902880415

Husman, J., & Shell, D.F. (2008). Beliefs and perceptions about the future: A measurement of future time perspective. *Learning and Individual Differences,* 18, 166–175. doi:10.1016/j.lindif.2007.08.001

Huta, V. (2012). Linking peoples' pursuit of eudaimonia and hedonia with characteristics of their parents: Parenting styles, verbally endorsed values, and role modeling. *Journal of Happiness Studies, 13*, 47–61. doi:10.1007/s10902-011-9249-7

Huta, V. (2013a). Pursuing eudaimonia versus hedonia: Distinctions, similarities, and relationships. In A. Waterman (Ed.), *The best within us: Positive psychology perspectives on eudaimonic functioning* (pp. 139–158). Washington, DC: APA Books.

Huta, V. (2013b). Eudaimonia. In S. David, I. Boniwell, & A. C. Ayers (Eds.), *Oxford Handbook of Happiness* (pp. 201–213). Oxford, England: Oxford University Press.

Huta, V. (2015). The complementary roles of eudaimonia and hedonia and how they can be pursued in practice. In S. Joseph (Ed.), *Positive psychology in practice: Promoting human flourishing in work, health, education, and everyday life* (2nd ed., pp. 159-184). doi: 10.1002/9781118996874.ch10

Huta, V., Pearce, K., Voloaca, M., & Myskiw, K. (July, 2014). *Research findings to date on hedonic and eudaimonic motivation*. Symposium given at the Second Canadian Conference on Positive Psychology, Ottawa, Ontario.

Huta, V., Pelletier, L, G., Baxter, D., & Thompson, A. (2012). Does an individual's eudaimonia benefit other people? *The Journal of Positive Psychology,* 7, 399-404. doi:10.1080/17439760.2012.705318

Huta, V., & Ryan, R. M. (2010). Pursuing pleasure or virtue: The differential and overlapping well-being benefits of hedonic and eudaimonic motives. *Journal of Happiness Studies*, 11, 735-762. doi: 10.1007/s10902-009-9171-4

Huta, V., & Waterman A. S. (2014). Eudaimonia and its distinction from hedonia: Developing a classification and terminology for understanding conceptual and operational definitions.

Journal of Happiness Studies, 15, 1425-1456. doi:10.1007/s10902-013-9485-0

Huta, V., & Zuroff, D. C. (2007). Examining mediators of the link between generativity and well-being. *Journal of Adult Development,* 14, 47–52. doi:10.1007/s10804-007-9030-7

Johnson, R. C., Danko, G.P., Darvill, T.J., Bochner, S., Bower, J.K., Huang, Y-H., Park, J.Y.,… Pennington, D. (1989). Cross cultural assessment of altruism and its correlates. *Personality and Individual Differences,* 10, 855-868.

Kashdan, T. B., Biswas-Diener, R., & King, L. A. (2008). Reconsidering happiness: The costs of distinguishing between hedonics and eudaimonia. *Journal of Positive Psychology,* 3, 219-233. doi: 10.1080/17439760802303044

Kasser, T. (2000). Two versions of the American dream: Which goals and values make for a high quality of life? In E. Diener & D. Rahtz (Eds.), *Advances in quality of life theory and research* (pp. 3-12). Kluwer, Dordrecht: Netherlands.

Kasser, T. (2002). *The high price of materialism*. Cambridge, MA: MIT Press.

Kasser, T., & R. M. Ryan (1996). Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin,* 22, 280–287.

Kavčič, T., & Avsec, A. (2014). Happiness and pathways to reach it: Dimension-centred vs. person-centred approach. *Social Indicators Research*, 118, 141–156. doi: 10.1007/s11205-013-0411-y

Keough, K.A., Zimbardo, P.G., & Boyd, J.N. (1999). Who's smoking, drinking, and using drugs? Time perspective as a predictor of substance use. *Basic and Applied Social Psychology*, 21, 149-164.

Keyes, C.L.M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behaviour*, 43, 207-222.

Kim, J., Kang, P., & Choi, I. (2014). Pleasure now, meaning later: Temporal dynamics between pleasure and meaning. *Journal of Experimental Social Psychology*, 55, 262-270. Doi: 10.1016/j.jesp.2014.07.0180022-1031.

Kim, Y., Kasser, T., & Lee, H. (2003). Self-concept, aspirations, and well-being in South Korea and the United States. *Journal of Social Psychology*, 143, 277–290. doi: 10.1080/00224540309598445

King, R.B. (2016). Does your approach to time matter for your learning? The role of time perspectives on engagement and achievement, *Educational Psychology*, 36, 1264-1284. doi: 10.1080/01443410.2015.1045835

King, M.F., & Gordon, B.C. (2000). Social desirability bias: A neglected aspect of validity testing. *Psychology and Marketing*, 17, 79-103. doi: 10.1002/(SICI)1520-6793(200002)17:2<79::AID-MAR2>3.0.CO;2-0

Koltko-Rivera, M.E. (2006). Rediscovering the later version of Maslow's hierarchy of needs: Self-transcendence and opportunities for theory, research and unification. *Review of General Psychology,* 10, 302-317. doi: 10.1037/1089-2680.10.4.302

Levy, S.R., Freitas, A.L., & Salovey, P. (2002). Construing action abstractly and blurring social distinctions: Implications for perceiving homogeneity among, but also empathizing with and helping others. *Journal of Personality and Social Psychology,* 83, 1224-1238. doi: 10.1037//0022-3514.83.5.1224

Lindenberg, S. & Steg, L. (2007). Normative, gain and hedonic goal frames guiding environmental behaviour. *Journal of Social Issues*, 63, 117-137. doi: 10.1111/j.1540-4560.2007.00499.x

Loevinger, J. (1966). The meaning and measurement of ego development. *American Psychologist,* 21, 195–206.

Luyckx, K., Lens, W., Smits, I., & Goossens, L. (2010). Time perspective and identity formation: Short-term longitudinal dynamics in college students. *International Journal of Behavioural Development*, 34, 238–247. doi:10.1177/0165025409350957

MacKinnon, D.P, Warsi, G., & Dwyer, J.H. (1995). A simulation study of mediated effect measures. *Multivariate Behavioural Research*, 30, 41–62.

Maslow, A. H. (1969). The farther reaches of human nature. *Journal of Transpersonal Psychology*, 1, 1–9.

McAdams, D.P., & de St. Aubin, E. (1992). A theory of generativity and its assessment through self-report, behavioural acts and narrative themes in autobiography. *Journal of Personality and Social Psychology,* 62, 1003-1015.

McCrae, R. R., & Costa, P. T. (1983). Social desirability scales: More substance than style. *Journal of Consulting and Clinical Psychology*, 51, 882-888. doi: 10.1037/0022-006X.51.6.882.

McGregor, I., & Little, B.R. (1998). Personal projects, happiness and meaning: On doing well and being yourself. *Journal of Personality and Social Psychology*, 74, 494-512.

Mello, Z.R., & Worrell, F.C. (2006). The relationship of time perspective to age, gender, and academic achievement among academically talented adolescents. *Journal for the Education of the Gifted*, 29, 271-289.

Nordhall, O., & Agerström, J. (2013). Future-oriented people show stronger moral concerns. *Current Research in Social Psychology*, 21, 52-63.

Osin, E.N. (2006). Social desirability in positive psychology: Bias or desirable sociality? In T. Freire (Ed.), *Understanding positive life: Research and practice on positive psychology* (pp. 421-442). Lisboa, Portugal: Climepsi Editores.

Paixão, M. P. (1996). Understanding the motivational and cognitive processes involved in the elaboration and evaluation of personal projects (doctoral dissertation). Faculty of Psychology and Education, University of Coimbra, Portugal.

Park, J., & Hedgcock, W.H. (2015). Thinking concretely or abstractly: The influence of fit between goal progress and goal construal on subsequent self-regulation. *Journal of Consumer Psychology,* 26, 395-409. doi: /10.1016/j.jcps.2015.12.003

Park, N., Peterson, C., & Ruch, W. (2009). Orientations to happiness and life satisfaction in twenty-seven nations. *The Journal of Positive Psychology*, 4, 273–279. doi: 10.1080/17439760902933690

Paulhus, D.L. (1991). Measurement and control of response bias. In J.P. Robinson, P.R., Shaver, & L.S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp. 17-59). New York: Academic Press.

Peetsma, T. T. D., & Van der Veen, I. (2011). Relations between the development of future time perspective in three life domains, investment in learning, and academic achievement. *Learning and Instruction*, 21, 481–494. doi:10.1016/j.learninstruc.2010.08.001

Peterson, C., Park, N., & Seligman, M. E. P. (2005). Orientations to happiness and life satisfaction: The full life versus the empty life. *Journal of Happiness Studies*, *6*, 25-41. doi:10.1007/s10902-004-1278-z

Peterson, C., Ruch, W., Beermann, U., Park, N., & Seligman, M. E. P. (2007). Strengths of character, orientations to happiness, and life satisfaction. *Journal of Positive Psychology*, 2, 1-8. doi: 10.1080/17439760701228938

Phan, H. P. (2009). Amalgamation of future time orientation, epistemological beliefs, achievement goals and study strategies: Empirical evidence established. *British Journal of Educational Psychology*, 79, 155–173. doi: 10.1348/000709908X306864

Proyer, R. T., Annen, H., Eggimann, N., Schneider, A., & Ruch, W. (2012). Assessing the "good life" in a military context: How does life- and work-satisfaction relate to orientations to happiness and career-success among Swiss professional officers? *Social Indicators Research*, 106, 577-590. doi:10.1007/s11205-011-9823-8

Rothspan, S., & Read, S.J. (1996). Present verses future time perspective and HIV risk among heterosexual college students. *Health Psychology,* 15, 131-134.

Ruch, W., Harzer, C., Proyer, R. T., Park, N., & Peterson, C. (2010). Ways to happiness in German speaking countries: The adaptation of German paper-pencil and online version of the Orientations to Happiness Scale. *European Journal of Psychological Assessment*, 26, 224-231. doi:10.1027/1015-5759/a000030

Ryan, R.M. & Deci, E.L. (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology,* 52, 141–166. doi: 10.1146/annurev.psych.52.1.141

Ryan, R. M., Huta, V., & Deci, E. L. (2008). Living well: A self-determination theory perspective on eudaimonia. *Journal of Happiness Studies*, *9*, 139-170. doi: 10.1007/s10902-006-9023-4

Ryff, C. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology,* 57*,* 1069–1081.

Schueller, S.M., & Seligman, M.E.P. (2010). Differential pursuit of pleasure, engagement, and meaning: Relationships to subjective and objective well-being. *Journal of Positive Psychology*, 5, 253-263. doi: 10.1080/17439761003794130

Schwartz, S. H. (2005). Basic human values: Their content and structure across countries. In A. Tamayo & J. B. Porto (Eds.), *Valores e comportamento nas organizações (Values an behavior in organizations*) (pp. 21-55). Petrópolis, Brazil: Vozes.

Schwartz, S. H. (2012). An Overview of the Schwartz Theory of Basic Values. *Online Readings in Psychology and Culture,* 2. doi: 10.9707/2307-0919.1116.

Schwartz, S. H., & Bilsky, W. (1987). Toward a psychological structure of human values. *Journal of Personality and Social Psychology,* 53, 550-562.

Seligman, M. E. P. (2002). *Authentic happiness*. New York: Free Press.

Seligman, M. E. P. (2011). *Flourish: A visionary new understanding of happiness and well-being.* New York, NY: Free Press.

Sheldon, K.M., & Kasser T. (1995). Coherence and congruence: Two aspects of personality integration. *Journal of Personality and Social Psychology*, 68, 531–543.

Sheldon, K. M., & Kasser, T. (2001). ‘‘Getting older, getting better’’: Personal strivings and psychological maturity across the life span. *Developmental Psychology*, 37, 491–501. doi: 10.1037/0012-1649.37.4.491

Solberg, E., Diener, E., & Robinson, M. D. (2004). Why are materialists less satisfied? In T. Kasser & A. Kanner (Eds.), *Psychology and consumer culture: The struggle for a good life in a materialistic world* (pp. 29–48). Washington, DC: American Psychological Association

Staub, E. (1979). *Positive social behaviour and morality: Socialization and development (Vol. 2).* New York: Academic Press.

Steger, M.F. (2012). Making meaning in life. *Psychological Inquiry*, 23, 381-385. doi: 10.1080/1047840X.2012.720832

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53, 80-93. doi: 10.1037/0022-0167.53.1.80

Steger, M.F., Kashdan, T.B., & Oishi, S. (2008). Being good by doing good: Daily eudaimonic activity and well-being. *Journal of Research in Personality*, 42, 22-42. doi:10.1016/j.jrp.2007.03.004

Steger, M. F., & Shin, J Y. (2012). Happiness and meaning in a technological age: A psychological approach. In P. Brey, A. Briggle, & E. Spence (Eds.), *The good life in a technological age* (pp. 92-108). New York: Routledge.

Steger, M.F., Shin, J.Y, Shim, Y., & Fitch-Martin, A. (2013). Is meaning in life a flagship indicator of well-being? In A.S., Waterman (Ed.), *The best within us: Positive psychology perspectives on eudaimonia* (pp. 159-182). Washington, DC, US: American Psychological Association. Retrieved from http://dx.doi.org/10.1037/14092-009.

Stöber, J. (2001). The Social Desirability Scale-17 (SDS-17): Convergent validity, discriminant validity, and relationship with age. *European Journal of Psychological Assessment*, 17, 222-232. doi: 10.1027//1015-5759.17.3.222

Torelli, C.J., & Kaikati, A.M. (2009). Values as predictors of judgments and behaviours: The Role of abstract and concrete mindsets. *Journal of Personality and Social Psychology,* 91, 231-247. doi: 10.1037/a0013836

Vallacher, R.R., & Wegner, D.M. (1987). What do people think they're doing? Action identification and human behaviour. *Psychological Review,* 94, 3-15.

Vallacher, R.R., & Wegner, D.M. (1989). Levels of personal agency: Individual variation in action identification. *Journal of Personality and Social Psychology*, 57, 660-671.

Van de Mortel, T.F. (2008). Faking it: Social desirability response bias in self-report research. *Australian Journal of Advanced Nursing*, 25, 40-48.

Vella-Brodrick, D.A., Park, N., & Peterson, C. (2009). Three ways to be happy: Pleasure, engagement, and meaning – findings from Australian and US samples. *Social Indicators Research*, 90, 165-179. doi:10.1007/s11205-008-9251-6

Vittersø, J. (2013). Feelings, meanings, and optimal functioning: Some distinctions between hedonic and eudaimonic well-being. In A. S. Waterman (Ed.), *The best within us: Positive psychology perspectives on eudaimonia* (pp. 39–55). Washington, DC: APA Books.

Wang, R., Liu, H., Jiang, J. & Song, Y. (2017). Will materialism lead to happiness? A longitudinal analysis of the mediating role of psychological needs satisfaction. *Personality and Individual Differences,* 105, 312-317. doi: 10.1016/j.paid.2016.10.014

Waterman, A. S. (1981). Individualism and interdependence. *American Psychologist*, 36, 762-773.

Waterman, A. S. (1993). Two conceptions of happiness: Contrasts of perspective expressiveness (eudaimonia) and hedonic enjoyment. *Journal of Personality and Social Psychology,* 64, 678–691.

Wayment, H.A., Bauer, J.J., & Sylaska, K. (2014). The quiet ego scale: Measuring the compassionate self-identity. *Journal of Happiness Studies*, 16, 999-1033 doi:10.1007/s10902-014-9546-z

Weinstein, N., & Ryan, R.M. (2010). When helping helps: Autonomous motivation for prosocial behaviour and its influence on well-being for the helper and recipient. *Journal of Personality and Social Psychology*, 2, 222-244. doi: 10.1037/a0016984

Willis, T.A., Sandy, J.M., & Yaeger, A.M. (2001). Time perspective and early-onset substance use: A model based on stress-coping theory. *Psychology of Addictive Behaviours*, 15, 118-25. doi: 10.1037/0893-164X.15.2.118

Wilson, J., & Musick, M. (1997). Who cares? Toward an integrated theory of volunteer work. *American Psychological Review*, 62, 694-713.

Wong, P.T.P. (2011). Positive psychology 2: Towards a balanced interactive model of the good life. *Canadian Psychology*, 52, 69-81. doi: 10.1037/a0022511

Wong, P.T.P. (2012). Toward a dual-systems model of what makes a life worth living. In P.T.P, Wong (Ed.), *The Human Quest for Meaning* (pp. 3-23). New York, NY: Taylor & Francis Group.

Zaleski, Z., Cycon, A., & Kurc, A. (2001). Future time perspective and subjective well-being in adolescent samples. In P. Schmuck, & K.M. Sheldon (Eds.), *Life goals and well-being: Towards a positive psychology of human striving* (pp. 58–67). Goettingen, Germany: Hogrefe & Huber Publishers.

Zettler, I., Hilbig, B. E., Moshagen M., & De Vries, R. E. (2015). Dishonest responding or true virtue? A behavioral test of impression management. *Personality and Individual Differences*, 81, 107-111. doi.org/10.1016/j.paid.2014.10.007

Zimbardo, P. G., & Boyd, J. N. (1999). Putting time in perspective: A valid, reliable individual-differences metric. *Journal of Personality and Social Psychology*, 77, 1271-1288

Table 1

Correlations of Eudaimonic and Hedonic Orientations with Well-being Beyond the Self and Broad and Narrow Scopes of Concern

N=189 in Study 1, N=407 in Study 1.1, N=443 in Study 1.2 N=143 in Study 1.3	Study	Eudaimonic Orientation	Hedonic Orientation	t-test comparing correlations
Well-being Beyond the Self – Self-reported Behaviours				
Prosocial behaviours (full scale) (Johnson et al., 1989, altruism)	1	.28** (.28**)	.16* (.17*)	1.38
Difficult helping (face-to-face)	1	.28** (.28**)	.12 (.13)	1.83
Easy helping (face-to-face)	1	.30** (.27**)	.16* (.18*)	1.62
Being a team player (face-to-face)	1	.16* (.15*)	.13 (.13†)	.34
Wrongdoing to help another (face-to-face)	1	.17* (.21**)	.19** (.17*)	.23
Community contribution (often not face-to-face)	1	.26** (.22**)	.05 (.08)	2.39*
Generative behaviours (McAdams & de St. Aubin, 1992)	1	.18* (.18*)	.10 (.10)	.90
Well-being Beyond the Self – Observed Behaviours				
Agreeing to do volunteer work after the study (yes, no)	1	.13† (.11)	-.04 (-.02)	1.89
Agreeing to have friends/relatives rate own prosocial behaviour (yes, no)	1.1	-.04 (-.04)	-.13* (-.11*)	1.50
Agreeing to donate money for homeless lunches (yes, no)	1.2	.12** (.09†) +	-.01 (.00)	2.23*
Donations to homeless for lunches (square root transformed)	1.2	.12* (.09†) +	-.02 (-.01)	2.40*
Well-being Beyond the Self – Values				
Prosocial values (Crocker & Canevello, 2008, ecosystem goals)	1	.25** (.19**)	.12† (.15*)+	1.48
Prosocial values (full scale) (de Groot & Steg, 2008, altruistic values)	1.3	.22**	.05	1.71
Working for the welfare of others	1.3	.19*	.13	.60
A world at peace	1.3	.03	-.07	.88
Social justice	1.3	.23**	.07	1.61
Equal opportunity	1.3	.19*	.00	1.90
Broad Scope of Concern				
Big picture thinking (Peterson et al., 2005, meaning Orientation)	1	.36** (.35**)	-.05 (-.04)	4.88**
Future time perspective (Zimbardo & Boyd, 1999)	1	.28** (.25**)	-.21** (-.19**)	5.87**
Abstract thinking (Vallacher & Wegner, 1989, high construal level)	1	.31** (.24**)	-.08 (-.04)	4.57**
View of people as ecosystem	1	.35** (.30**)	.09 (.11)	3.05**
Narrow Scope of Concern				
Self-focused values (Crocker & Canevello, 2008, egosystem goals)	1	.12 (.16*)+	.14† (.12)	.22

Self-focused values (full scale) (de Groot & Steg, 2008, egoistic values)	1.3	.18*	.23**	.41
Power and wealth	1.3	.09	.22**	1.31
Ambition	1.3	.47**	.12	3.88**
Present hedonistic time perspective (Zimbardo & Boyd, 1999)	1	.16* (.17*)	.39** (.39**)	2.75**
Present fatalistic time perspective (Zimbardo & Boyd, 1999)	1	-.13 (-.11)	.26** (.25**)	4.53**
Concrete thinking (Vallacher & Wegner, 1989, low construal level)	1	-.31** (-.24**)	.08 (.04)	4.57**
Social Desirability				
Social Desirability (Marlowe & Crowne, 1960)	1	.25**	-.13	4.40**
Balanced Inventory of Desirable Responding (Paulhus, 1991)	1.1	.28**	-.18**	7.93**
The Social Desirability Scale (Stöber, 2001)	1.2	.28**	-.06	6.08**
Hedonic and Eudaimonic Orientations				
Hedonic Orientation (Huta & Ryan, 2010)	1	.23** (.27**)		
	1.1	.10* (.17**)		
	1.2	.25** (.28**)		
	1.3	.24**		

Note. For Studies 1, 1.1, 1.2, and 1.3 correlations are semi-partial, controlling for gender. Correlations in parentheses are those which controlled for gender and social desirability. + These correlations changed from nonsignificant to statistically significant when controlling for social desirability, which was assessed in Studies 1, 1.1, and 1.2; all other relationships in these studies remained significant or remained nonsignificant when controlling for social desirability. T-tests are not provided for correlations controlling for social desirability. ** p<.01, *p<.05, † p<.10

Table 2

Intercorrelations between Dependent Variables

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1.	Prosocial behaviours	1	.90**	.86**	.78**	.76**	.68**	.46**	.20**	.38**	.41**	.40**	.13	.15*	.07	.33**	.09	-.15*
2.	Difficult helping		1	.69**	.59**	.64**	.52**	.47**	.20**	.25**	.32**	.33**	.06	.14	-.01	.25**	.16*	-.14
3.	Easy helping			1	.61**	.57**	.57**	.38**	.19**	.47**	.44**	.40**	.14*	.15*	.15*	.35**	-.08	-.15*
4.	Being a team player				1	.57**	.46**	.26**	.04	.33**	.29**	.24**	.17*	.08	.04	.22**	-.07	-.08
5.	Wrongdoing to help another					1	.46**	.35**	.19**	.22**	.32**	.34**	.08	.03	.10	.35	.12	-.03
6.	Community contribution						1	.37**	.19**	.34**	.32**	.35**	.20**	.16*	.04	.28**	.07	-.16*
7.	Generative behaviours							1	.00	.28**	.18*	.31*	.08	.12	.16*	.28**	.13*	-.12
8.	Agreeing to do volunteer work								1	.05	.22**	.19**	.03	.07	-.07	-.06	-.06	-.07
9.	Prosocial values									1	.44**	.30**	.25**	.16**	.27**	.32**	-.06	-.16*
10.	View of people as ecosystem										1	.53**	.23**	.17*	.11	.28**	.00	-.17*
11.	Big picture thinking											1	.33**	.30**	.25**	.22**	.00	-.30**
12.	Future time perspective												1	.21**	.20**	-.11	-.25**	-.21**
13.	Abstract thinking													1	.16*	.04	-.13	-1**
14.	Self-focused values														1	.19*	.16*	-.16*
15.	Present-hedonistic time perspective															1	.46**	-.04
16.	Present-fatalistic time perspective																1	.13
17.	Concrete thinking																	1

Note. The correlation between abstract thinking and concrete thinking is -1 since concrete thinking was operationalized as the opposite of abstract thinking.
** p<.01, *p<.05

Table 3
Means of Variables for Individuals with Different Combinations of Eudaimonia and Hedonia

	Full Life: high Eud. & high Hed. (N=62)	Eudaimonic Life: high Eud. & low Hed. (N=36)	Hedonic Life: high Hed. & low Eud. (N=36)	Empty Life: low Eud. & low Hed. (N=52)	F test	Partial eta squared
Well-being Beyond the Self – Behaviour						
Prosocial behaviour (full scale)	2.58[a]	2.63[a]	2.43[a,b]	2.20[b]	4.55**	.07
Difficult helping	1.96[a]	2.02[a]	1.80[a,b]	1.54[b]	4.88**	.08
Easy helping	3.20[a]	3.18[a]	2.92[a,b]	2.79[b]	3.70*	.06
Wrongdoing to help another	2.76[a]	2.69[a]	2.63[a]	2.23[b]	3.64*	.06
Being a team player	3.08	3.02	2.87	2.76	1.07	.02
Community contribution	2.59[a,b]	2.78[b]	2.50[a]	2.24[a]	4.15**	.07
Generative behaviours	1.99	2.12	1.96	1.84	1.61	.03
Well-being Beyond the Self – Observed Behaviours						
Agreeing to do volunteer work after the study (yes, no)	.28	.39	.25	.21	1.35	.02
Well-being Beyond the Self – Values						
Prosocial values	4.04[a]	3.90[a,b]	3.74[a,b]	3.65[b]	2.93*	.05
Broad Scope of Concern						
Big picture thinking	3.83[a]	4.21[a]	3.12[b]	3.47[b]	9.53**	.14
Future time perspective	3.41[a]	3.73[b]	3.00[c]	3.32[a]	7.18**	.11
Abstract thinking	.65[a]	.69[a]	.54[b]	.64[a]	3.70*	.06
View of people as ecosystem	5.13[a]	5.04[a]	4.05[b]	4.21[b]	6.69**	.10
Narrow Scope of Concern						
Self-focused values	3.52	3.49	3.30	3.36	1.07	.02
Present hedonistic time perspective	3.75[a]	3.34[b]	3.56[a,b]	3.30[b]	5.63**	.09
Present fatalistic time perspective	2.90[a]	2.43[b]	2.87[a]	2.81[a]	2.71*	.05
Concrete thinking	.34[a]	.29[a]	.46[b]	.37[a]	3.70*	.06
Social Desirability						
Social desirability (Marlowe & Crowne, 1960)	.49[a,b]	.54[a]	.43[b]	.47[a,b]	1.95*	.03

Note. Eud. Eudaimonia, Hed. Hedonia. Within each row, different superscripts indicate significantly different means at $p<.05$ with least significant difference (LSD) post hoc tests; when superscripts are not given, the univariate F test was nonsignificant, so that examination of post hoc results was inappropriate.

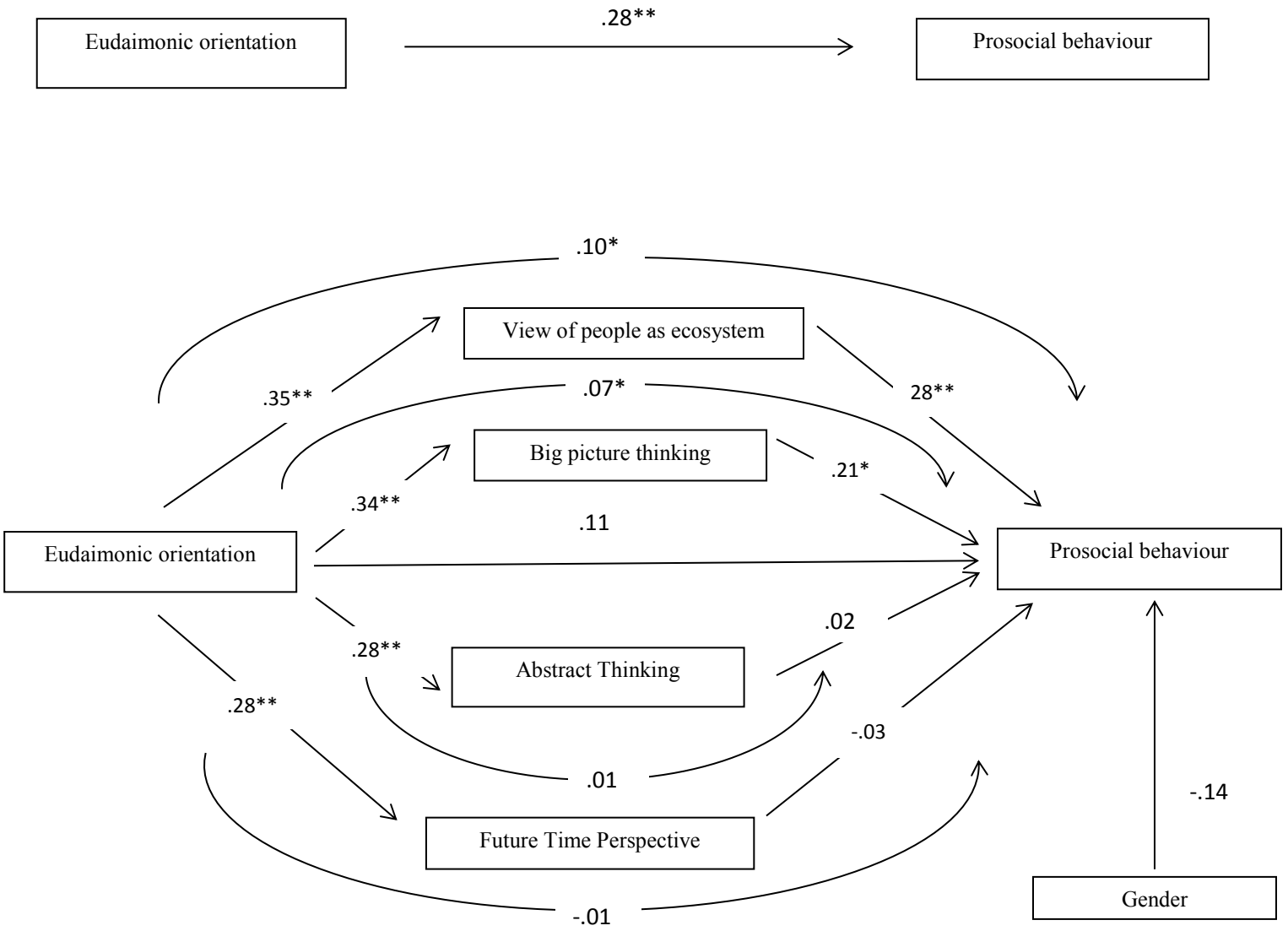

Figure 1. Broad scope of concern as a mediator between eudaimonic orientation and prosocial behaviour

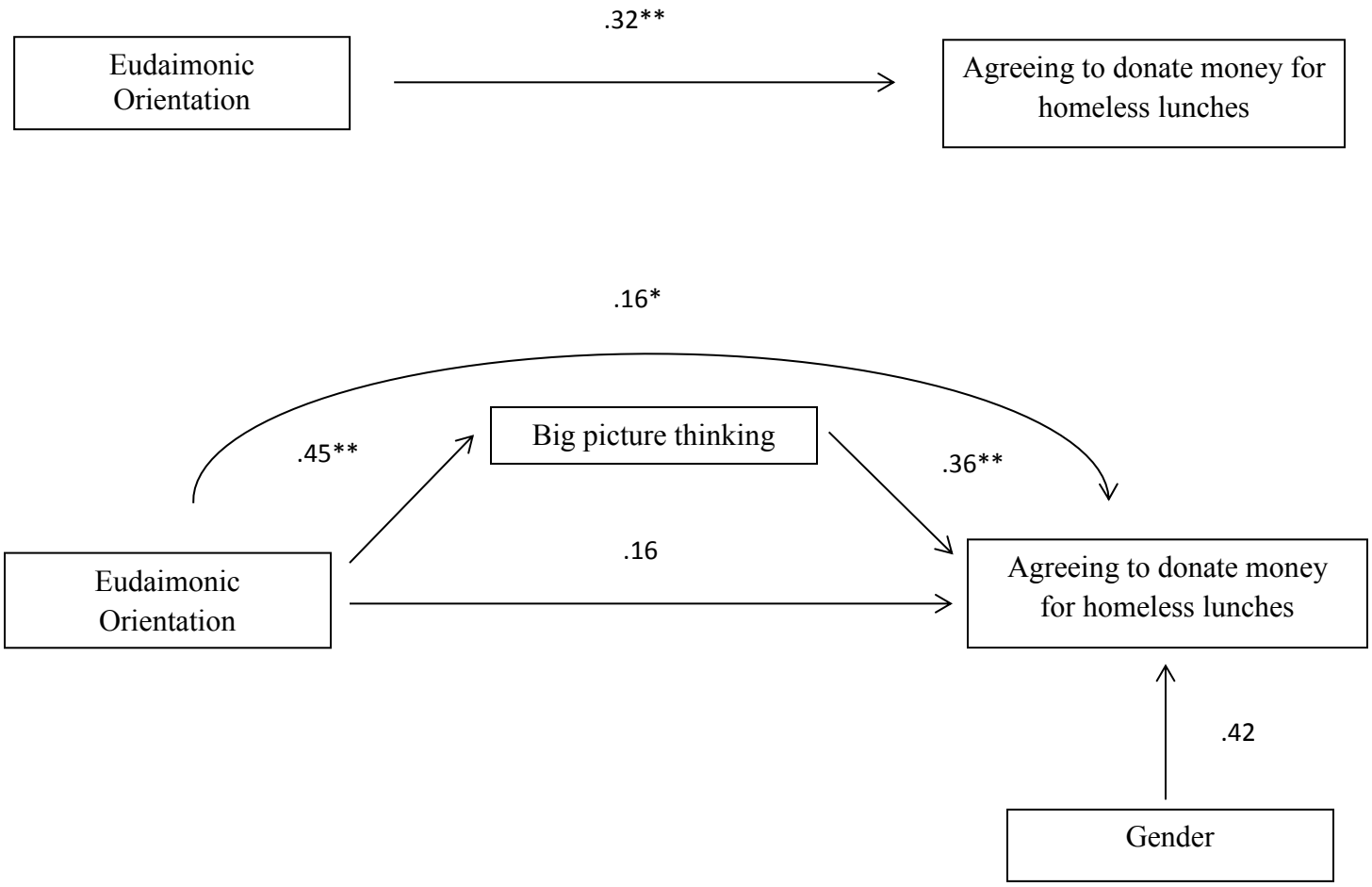

Figure 2. Big picture thinking as a mediator between eudaimonic orientation and observed prosocial behaviour

Appendix A

Descriptive Statistics (Means and Standard Deviations) for Variables

	Mean	SD
Hedonic and Eudaimonic Orientations		
Eudaimonic orientation (Huta & Ryan, 2010)	5.61	.91
Study 1.1	5.69	.88
Study 1.2	5.58	.92
Study 1.3	5.47	1.08
Hedonic orientation (Huta & Ryan, 2010)	5.44	1.00
Study 1.1	5.33	.99
Study 1.2	5.37	.95
Study 1.3	5.12	1.01
Well-being Beyond the Self – Self-reported Behaviours		
Prosocial behaviours (full scale) (Johnson et al., 1989, altruism)	2.43	.54
Difficult helping (face-to-face)	1.77	.60
Easy helping (face-to-face)	3.01	.64
Being a team player (face-to-face)	2.52	.77
Wrongdoing to help another (face-to-face)	2.94	.83
Community contribution (often not face-to-face)	2.54	.66
Generative behaviours (often not face-to-face) (McAdams & de St. Aubin, 1992)	1.97	.51
Well-being Beyond the Self – Observed Behaviours		
Agreeing to do volunteer work after the study (yes, no)	.27	.45
Agreeing to have friends/relatives rate own prosocial behaviour (yes, no)	.17	.38
Agreeing to donate money for homeless lunches (yes, no)	.23	.42
Well-being Beyond the Self – Values		
Prosocial values (Crocker & Canevello, 2008, ecosystem goals)	3.89	.64
Prosocial values (full scale) (de Groot & Steg, 2008, altruistic values)	5.32	1.19
Working for the welfare of others	4.72	1.69
A world at peace	5.30	1.83
Social justice	5.35	1.78
Equal opportunity	5.86	1.56
Broad Scope of Concern		
Big picture thinking (Peterson et al., 2005, meaning orientation)	3.63	.83
Future time perspective (Zimbardo & Boyd, 1999)	3.42	.58
Abstract thinking (Vallacher & Wegner, 1989, high construal level)	.64	.20
View of people as ecosystem	4.70	1.22
Narrow Scope of Concern		
Self-focused values (Crocker & Canevello, 2008, egosystem goals)	3.46	.55
Self-focused values (full scale) (de Groot & Steg, 2008, egoistic values)	3.45	1.38
Power and wealth	2.89	1.60
Ambition	5.69	1.45
Present hedonistic time perspective (Zimbardo & Boyd, 1999)	3.54	.55
Present fatalistic time perspective (Zimbardo & Boyd, 1999)	2.80	.71
Concrete thinking (Vallacher & Wegner, 1989 low construal level)	.36	.20
Social Desirability		
Social Desirability (Marlowe & Crowne, 1960)	.48	.16
Balanced Inventory of Desirable Responding (Paulhus, 1991)	4.09	.55
The Social Desirability Scale (Stöber, 2001)	5.02	.62

Appendix B

Principal Component Analysis with Varimax Rotation of the Altruism Scale by Johnson and Colleagues (1989)

	I	II	III	IV	V
Difficult Helping					
I have stopped on a highway to help a stranger fix a flat tire	**.81**	.00	.15	.11	.05
I have voluntarily served as a witness in a court of law	**.70**	-.11	.18	.20	.11
I have helped a neighbour who needed it to harvest his crops	**.65**	.10	.25	-.01	.17
I have walked a stranger through a dangerous area	**.62**	.29	.12	.06	.00
I have loaned my car to friends or neighbors	**.59**	.21	.13	-.09	.08
I have called the police after witnessing a crime and identified myself	**.57**	.11	.24	.05	.02
I have sacrificed a parking space for a stranger	**.56**	.19	.29	.14	.19
I have helped a neighbour whom I didn't know that well work on his or her house	**.53**	.37	-.02	.15	.32
I have attempted to calm someone who was behaving in a frighteningly strange or psychotic fashion	**.51**	.25	.07	.31	.11
I have calmed someone I didn't know who was behaving in a visibly disturbed or frightened manner in public	**.51**	.29	.10	.45	.11
I have been offered responsibilities at work which I have declined in favour of a more qualified colleague	**.49**	.12	.15	.27	.08
I have defended someone I didn't know from being physically harmed	**.49**	.32	.28	.28	-.05
I have volunteered to nurse an acquaintance who was ill	***.46***	.47	.12	.29	-.07
I have helped an acquaintance to move households	***.45***	.52	-.13	.21	.14
I have saved someone's life	**.42**	.16	.03	.20	-.05
I have given a stranger a lift in my car	**.41**	.26	-.08	.16	.11
I have helped push or restart a stranger's car when it was stalled	***.40***	.43	.14	-.04	.01
I have moved my car into a dangerous position to avoid hitting a pedestrian	**.39**	.30	.31	.14	.03
I have looked after a neighbour's pets without being asked and without being paid for it	**.34**	.29	.10	.17	.25
I have helped an acquaintance obtain something important that he or she needed	***.28***	.46	.10	.33	.11
I have taken a lost child to a store manager so its parents could be found	***.27***	.37	.03	.15	-.02
Easy Helping					
I have offered to help a handicapped or elderly stranger across a street	.37	**.63**	.16	.02	.16
I have given money to a stranger who needed it (or asked me for it)	.07	**.58**	.01	.22	.11
I have helped someone I didn't know get up when (s)he slipped or tripped and fell down	.25	**.56**	.24	.23	.09
I have helped carry a stranger's belongings (books, parcels, etc.)	.16	**.56**	.18	.02	.09
I have offered my seat on a bus or tram to a stranger who was standing	.13	**.54**	.13	.00	.19
I have delayed an elevator and held the door open for a stranger	-.15	**.49**	.19	.25	.17
I have given directions to a stranger	.08	**.48**	.36	.00	.21
I have made change for a stranger	.09	**.47**	.27	.18	-.03
I have let a neighbour whom I didn't know too well borrow an item of some value to me	.29	**.44**	.06	.18	.26

I have allowed someone to go ahead of me in a line or queue	.02	**.44**	.22	.04	.29
I have answered the questions of someone doing a door-to-door or telephone survey	.28	**.37**	.05	-.05	.06
I have helped a classmate who I did not know that well with a homework assignment when my knowledge was greater than his or hers	.01	**.36**	.24	.22	.35
I have paid a little more to buy an item from a merchant who I felt deserved my support	.17	**.34**	.28	.24	.14
I have pointed out a clerk's error (in a bank, at the market) in undercharging me for an item	.27	***.28***	.32	-.06	-.02
Being a Team Player					
I have 'picked up the slack' for another worker when he or she couldn't keep up the pace	.04	.15	**.73**	.28	.05
I have helped a new fellow-employee at work get settled on the job and learn the tasks involved, even though it was not part of my job	.13	.37	**.62**	.12	.05
As part of a group of people, I have done menial jobs that needed doing without being asked even though they were not part of my responsibilities	.18	.05	**.60**	.21	.20
I have worked past my shift to help someone make a productive quota	.27	.25	**.57**	-.04	.15
I have shared credit for an accomplishment when I could easily have taken it all	.07	.03	**.55**	.37	.25
In heavy traffic, I have slowed to let someone coming toward me make a turn in front of me even though it meant having to wait through the red light	.40	.21	**.46**	-.12	.10
I have stuck my neck out to 'cover for' a work-mate	.27	.29	**.46**	.40	-.03
When playing a team sport, I often sacrifice an opportunity to score when I see that another player has a better chance	.17	-.10	**.43**	.11	.18
Wrongdoing to Help Another					
On occasion, I have 'stretched the truth' to help someone out of an embarrassing situation	.07	.06	.32	**.71**	.06
I have helped an acquaintance out of a personally embarrassing situation and kept it confidential for his or her sake	.22	.25	.21	**.64**	-.03
I have 'bent the rules' to help someone I didn't know that well	.17	.29	.28	**.60**	.04
I have deceived someone when I felt it was for their own good	.12	-.16	.02	**.59**	.29
I have done something I honestly felt was wrong in order to help someone I didn't know that well out of trouble	.31	.36	-.08	**.44**	.10
I have absorbed the blame for the mistake(s) of a work-mate when he or she needed the help	.30	.45	.19	***.37***	.18
Community Contribution					
I have done volunteer work for a charity	.04	.19	.22	-.03	**.72**
I have donated goods or clothes to a charity	-.03	.24	.23	.00	**.62**
I have contributed my time and labour to community improvement activities	.23	.06	.19	.22	**.60**
I have volunteered to work in a hospital	.31	.22	-.06	.06	**.47**
I have given money to a charity	.03	.41	.11	.12	**.45**
I have worked on a committee of a legal but unpopular minority organization	.45	.03	-.06	.32	***.41***
I have donated blood	.14	.30	-.08	-.07	***.08***

Note. The bolded loading for a given item indicates the category the item was assigned to. Bolded loadings which are also italicized indicate items which loaded more strongly with a category other than the one they were assigned to.

Running head: HELPING AND HINDERING OTHERS UNDER DIFFERENT SITUATIONS

Chapter 3: Manuscript 2

How Eudaimonic and Hedonic Orientations Relate to Helping and Hindering Others and Preferences to Help Under Various Circumstances

Keith Pearce

Veronika Huta

University of Ottawa

Abstract

In two studies (N=243, N=244) we examined how eudaimonic (prioritizing growth, excellence, authenticity) and hedonic (prioritizing pleasure, comfort) orientations related to behaviours that benefit or hinder others and to willingness to help others in different situations. Of the two orientations, only eudaimonic orientation related to helpful social behaviours, general behaviours to benefit others, and general behaviours to avoid harming others across both studies. Hedonic orientatation related positively to social behaviours which hinder other people, whereas eudaimonic orientation related negatively to these, across both studies. When examining different helping situations, eudaimonic orientation related to willingness to help others even when the results are in the future, the recipient cannot be seen and the helping is personally costly, in both studies. Hedonic orientation related to a preference to help others when the results are immediate, the recipient can be seen, and the helping is not personally costly only in Study 1. These findings supported a characterization of eudaimonia as an orientation toward long-term, abstract, and big picture concerns, while hedonia was associated with more negative influences beyond the self. Hedonic orientation was not consistently linked to concrete helping (i.e., face-to-face helping and helping when the results are immediate) nor reluctance to help if it is personally costly, suggesting that hedonic orientation may not necessarily relate to a concrete mindset and helping under easy situations, rather hedonia may relate to a lack of abstractness and lack of costly helping. While both types of concerns are likely to benefit personal well-being, our findings suggest that eudaimonic concerns are more likely to translate into benefits for other people.

Keywords*:* eudaimonia; eudaimonic; hedonia; prosocial behaviour; egoism; construal level theory; action identification theory

How Eudaimonic and Hedonic Orientations Relate to Helping and Hindering Others and Preferences to Help Under Various Circumstances

The literature on the ways people pursue well-being has emphasized two chief perspectives with long philosophical roots: eudaimonic orientation (pursuing growth, excellence, authenticity) and hedonic orientation (pursuing pleasure, comfort; Deci & Ryan, 2001; Huta, 2013a; Huta, 2013b; Waterman, 1993). The benefits of eudaimonic and hedonic orientations for personal well-being are well established (e.g., Anić & Tončić, 2013; Avsec & Kavčič, 2012; Henderson, Knight, & Richardson, 2013; Huta & Ryan, 2010; Park, Peterson, & Ruch, 2009; Peterson, Park & Seligman, 2005; Peterson, Ruch, Beermann, Park, & Seligman, 2007; Schueller & Seligman, 2009). However, there is a paucity of research examining the effects of eudaimonic and hedonic orientations beyond the self – only two prior studies directly addressed this topic. One study found that eudaimonically oriented individuals raised multiple forms of well-being in close others, whereas hedonically oriented people raised carefreeness but also negative affect in close others (Huta, Pelletier, Baxter, & Thompson, 2012; see also a reanalysis of close friends and relatives separately in Huta, Pearce, Voloaca, & Myskiw, 2014). A second study showed that eudaimonic orientation correlated more strongly with a composite of helping behaviours, but that hedonic orientation also showed a positive correlation (Pearce, Huta, & Voloaca, 2017). An examination of different subtypes of helping behaviours suggested a pattern, such that hedonic orientation seemed only related to helping behaviours with immediate and concretely visible benefits, and those that incurred fewer personal costs, perhaps affording an opportunity for immediate gratification.

Therefore, the evidence thus far suggests that eudaimonic orientation may be more helpful to others than hedonic orientation; hedonic orientation may be a double-edged sword

interpersonally, such that it has some helpful effects but also some hindering effects on others. Also, hedonic orientation may only relate to helping behaviour if the behaviour is easy, the recipient can be seen, and the effects are immediate.

In the research presented here, we wished to test each of these predictions by directly and explicitly asking participants to report on the degree of helpful behaviours and hindering behaviours, avoiding harm to others, and willingness and/or preference to help under various circumstances (e.g., costly vs. easy, face-to-face vs. not face-to-face, and helping when the results are immediate vs. delayed).

This study also addressed a controversy in the literature. Some researchers suggest that eudaimonia is selfish, elitist, or antithetical to the well-being of the surrounding world due to the emphasis on self-flourishing (see Annas, 2008; Kashdan et al., 2008). However, Aristotle's (2001) conception of eudaimonia focused on virtuous behaviour (see also Slote, 2001), and philosophers and psychologists have conceptualized eudaimonia not only as individual flourishing, but also the individual as a social being who is interconnected with others (Seligman, 2002; Wong, 2012). We thus directly assessed helpful and hindering social behaviours.

Eudaimonic and Hedonic Orientations

There are four core definitional elements which appear in most or all measures of eudaimonia: authenticity (self-honesty, self-discovery, self-congruence), excellence (ethics, quality performance), personal growth (self-realization, learning, maturity), and meaning (caring about the bigger picture, understanding it, and contributing to it). There are two core definitional elements of hedonia: pleasure (enjoyment, fun, satisfaction), and comfort (relaxation, ease, absence of distress; Huta & Waterman, 2014).

We operationalized eudaimonic and hedonic orientations using the HEMA scale (Hedonic and Eudaimonic Motives for Activities, Huta & Ryan, 2010). The HEMA was suitable as it measures the three self-focused elements of eudaimonic orientation – growth, excellence, and authenticity – but not the prosocial element – meaning – which would be redundant with our dependent variables. The HEMA also includes the two main hedonic elements of hedonic orientation.

Degree of Helping Behaviour, and General Behaviours to Benefit Others

Definitions. Prosocial behaviour is defined as voluntary acts intended to benefit another such as comforting, helping, giving and/or sharing (Eisenberg & Fabes, 1990; Staub, 1979; Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007). We used "helping" as the core concept in all our positive dependent variables. This study specifically assessed *helpful social behaviours* and *general behaviours to benefit others*. Helpful social behaviours (e.g., honouring trust) were evaluated to contrast *hindering social behaviours*. We also believe that general behaviours to benefit others are a distinct construct from *general behaviours to avoid harming others*, thus we created a variable that assessed general benevolence and helping[1].

Hypothesis 1. Eudaimonic orientation, relative to hedonic orientation, will have a stronger positive relationship with helpful social behaviours and with general behaviours to benefit others.

Theoretical rationales. Many researchers already include prosocial constructs and/or positive relationships in their conception of eudaimonia (e.g., Fowers, 2012; Ryan, Huta, & Deci, 2008; Seligman, 2002; Steger, Kashdan, & Oishi, 2008; Wong, 2012). Eudaimonia has been posited to foster a broader mindset which contemplates the well-being of the larger society, rather than a narrow focus on the self.

Past empirical evidence. In addition to the studies that have directly examined the links of eudaimonic and hedonic orientations with well-being beyond the self, as cited above, there are a few studies providing indirect evidence. Eudaimonic concepts such as autonomy (Gagné, 2003; Ryff, 1989) and growth motivation (Bauer, Park, Montoya, & Wayment, 2015) have been linked to prosocial behaviour, generativity, and positive relations with others. Parental eudaimonic orientation has also been linked to the well-being benefits that adult children derive in their eudaimonic and hedonic activities (Huta, 2012). Additionally, mastery goals (growth) have been connected to collaborating with others (see Poortvliet, 2009; Poortvliet & Darnon, 2010), social perspective taking (i.e., cooperative behaviour; Gehlbach, 2006), and teamwork behaviour (Porter, 2005).

Hedonic orientation was expected to relate to helping only in specific situations, thus hedonic orientation may show a weak link (or no link) with helpful social behaviours and general behaviours to benefit others. These hypotheses will be discussed in the section on helping situations.

Degree of Hindering Behaviour, and General Behaviours to Avoid Harming Others

Definitions. Negative effects on others were assessed with minor negative social behaviours, which we called hindering social behaviours, such as lying, being manipulative or moody with others (Coyne, Archer, & Eslea, 2006; Crothers, Schreiber, Field, & Kolbert, 2009). Negative effects on others were also based on a negative correlation with general behaviours to avoid harming others.

Hypothesis 2. Hedonic orientation will have a positive relationship, while eudaimonic orientation will have a negative relationship with hindering social behaviours. Eudaimonic

orientation, but not hedonic orientation, will have a positive relationship with general behaviours to avoid harming others.

Theoretical rationales. We expected hedonic orientation to involve less concern beyond personal needs, desires, and impulses. A focus on pleasure and comfort is rooted in physical and emotional mechanisms and thus is largely fixed to the immediate self (Steger & Shin, 2012). A fun-loving person can bring enjoyment to others, and can draw others into memorable adventures. Sometimes, however, a person who is focused on immediate pleasure might cause harm to others, either inadvertently or for personal advantage.

Past empirical evidence. Research suggests that a focus on pursuing pleasure may lead to outcomes which could potentially harm or hinder others. For instance, hedonic goals predict engagement in various selfish or inappropriate activities: delinquency, viewing pornography, and gambling (Bilsky & Hermann, 2016); materialistic values (Anić & Tončić, 2013; Brdar, Rijavec, & Miljković, 2009); extrinsic life goals (Çalışkan, Sapmaz, & Uzunkol, 2015); self-enhancement goals (Rechter & Sverdlik, 2016); and selfish behaviours (e.g., purchasing jewellery for oneself; Steger et al., 2008). Furthermore, hedonia is negatively connected with prosocial activities (Carlo, Hausmann, Christiansen, & Randall, 2003; see Eisenberg & Spinrad, 2014; Rechter & Sverdlik, 2016; Sagiv, Sverdlik, & Schwarz, 2011), self-transcendence goals (e.g., benevolence – protecting the welfare of others; Rechter & Sverdlik, 2016), and humility (Peterson et al., 2007). Likewise, a present-hedonistic time perspective (seeking pleasure) and sensation seeking (which arguably has elements of hedonia), is related to various risky and harmful behaviours: alcohol, drugs, and tobacco use (Apostolidis, Fieulaine, Simonin, & Rolland, 2006; Daugherty & Brase, 2010; Duangpatra, Bradley, & Glendon, 2009; Fieulaine & Martinez, 2010; Keough, Zimbardo, & Boyd, 1999), risky driving (Arnett, 1990; Zimbardo,

Keough, & Boyd, 1997), risky sexual behaviour (Donohew, Zimmerman, Cupp, Novak, Colon, & Abell, 2000; Robbins & Bryan, 2004; Rothspan & Read, 1996; Wagner, 2001), and criminal behaviour and social violations (Horvarth & Zuckerman, 1993; see Maples, Berke, Few, & Miller, 2016; Pérez & Torrubia, 1985).

Eudaimonic orientation was not expected to relate to hindering social behaviours. Eudaimonic concepts such as search for meaning in life (Brassai, Piko, & Steger, 2011), purpose in life (Machell, Disabato, & Kashdan, 2016; Shek, Ma, & Cheung, 1994), and curiosity (growth; Kashdan et al., 2013), have been linked with attenuated antisocial behaviours and less aggressive tendencies.

Helping Situations

People can offer help in various situations ranging from concrete (e.g., public) to abstract (e.g., anonymous; Carlo & Randall, 2002; Levine, Martinez, Brase, & Sorenson, 1994; Pearce & Amato, 1980), and personally costly to less personally costly (Bierhoff, 2002; LaBuda, Rivardo, Fidazzo, & Smith, 2015; see Penner, Dovidio, Piliavin, & Schroeder, 2005).

We created categories of different helping situations which we felt underpinned the eudaimonic-hedonic distinction. These categories are best conceptualized as pairs of opposites: (1) Preference to help when recipient can be seen vs. willingness to help even when recipient cannot be seen, (2) Preference to help when results are immediate vs. willingness to help even when results are in the future, and (3) Reluctance to help when it is personally costly vs. willingness to help even when it is personally costly.

The present research can be interpreted within the framework of construal level theory (CLT), which proposes that information can be construed at either a high-level (which captures global, superordinate, primary features of an event) or a low-level (which captures local,

subordinate, secondary concrete features; Trope & Liberman, 2003; see Trope & Liberman, 2010 for a review). According to CLT, temporal distance plays a role in levels of construal; distant-future events are construed at a higher abstract level than near-future events (Förster, Friedman, & Liberman, 2004; Liberman & Trope, 1998). Kim and colleagues' (2014) temporal dynamics hypothesis posits that meaning (eudaimonic element) may particularly constitute a high-level construal as it focuses on cognition (which tends to be abstract; Mischel, Shoda, & Rodriguez, 1989) and the *why* aspect of goals. In contrast, pleasure may constitute a low-level construal as it focuses on affect (which tends to be more concrete), and is also more context-dependent.

CLT research shows a nexus between abstract thinking and various facets of moral behaviour (see Eyal & Liberman, 2012). For example, being induced with abstract construals make the emotional rewards of prosocial behaviour more salient (Aknin, Boven, & Johnson-Graham, 2014), and fosters prosocial behaviour and tendencies (Levy, Freitas, & Salovey, 2002; Singh & Teoh, 2014). Furthermore, moral appraisals are more extreme for temporally distal behaviours (Agerström & Björklund, 2013; Eyal, Liberman, & Trope, 2008, Study 1), and future oriented individuals are more committed to following ethical rules and condemning those who transgress them (Nordhall & Agerström, 2013). Thus, literature shows that moral concern tends to be accentuated when an abstract and/or future mindset is induced as morality tends to be an abstract concept founded on general rules (Liberman, Sagristano, & Trope, 2001).

Hypothesis 3. Eudaimonic orientation, but not hedonic orientation, will relate positively to willingness to help even when the recipient cannot be seen, and when the results are in the future. Hedonic orientation, but not eudaimonic orientation, will relate positively to a preference to help when the recipient can be seen, and when the results are immediate.

Theoretical rationales. Eudaimonic orientation is postulated to be long-term, abstract and big-picture focused, whereas hedonic orientation is posited to be short-term, concrete and self-focused (Bauer, 2008; Bauer, Schwab, & McAdams, 2011; see Pearce et al., 2017). Values are commonly viewed as abstract cognitive constructs which transcend specific actions and situations (Maio, Hahn, Frost, & Cheung, 2009, Schwartz, 2012). Because eudaimonia emphasizes broad values and aspects of one's identity, we'd expect an abstract mindset to underlie eudaimonic orientation. Abstract helping situations, in particular, may require cognitive processes to pursue behaviours in accordance with one's morals and fairness standards (Kinnunen & Windmann, 2013). Eudaimonic pursuits may orient one to envision how their behaviour will help an individual, community or cause, that is not directly observable and whose benefits reach beyond the immediate moment.

Hedonic orientation is about proximal goals and immediate desires (Baumeister, Aaker, Garbinsky, 2013; Kahneman, Diener, & Schwartz, 1999; Kim, Kang, & Choi, 2014; Waterman, 1993), and is thus expected to relate to a lower-level concrete construal. Pleasure, in the hedonic sense, tends to be rooted in an immediate psychological system (Steger & Shin, 2012), which likely capitalizes on concrete outcomes or events that transpire in the near future.

Another reason we expect hedonic orientation to relate to concrete helping is that these situations may be more personally advantageous. Specifically, face-to-face interactions can increase the chances of future reciprocity and/or can be pleasant (e.g., seeing the smile on one's face, social rewards). Also, people may help to avoid the imposition of social sanctions when others are present, including the recipient (Carlo & Randall, 2002).

Past empirical evidence. Research shows that eudaimonic orientation correlates with abstract cognitive virtues such as wisdom and judgment (Peterson et al., 2007) and abstract

thinking (Pearce et al., 2017); eudaimonic concepts (e.g., purpose in life) have been associated with a future time perspective which tends to be more abstract (Boniwell, Osin, Linley, & Ivanchenko, 2010; Zaleski, Cycon, & Kurc, 2001).

Hedonistic moral reasoning relates positively to public (i.e., more concrete) prosocial tendencies (Carlo et al., 2003) and negatively with anonymous (i.e., more abstract) prosocial tendencies in young adults (Yu, Yan, & Chen, 2004); helping when others are present has been associated with activation in reward/pleasure brain regions (Izuma, Saito, & Sadatao, 2009). Additionally, hedonic orientation relates to materialism and extrinsic goals which tend to be more concrete goals (Anić & Tončić, 2013).

Hypothesis 4. Eudaimonic orientation, but not hedonic orientation, will relate positively to a willingness to help even when it is personally costly. Hedonic orientation, but not eudaimonic orientation, will relate positively to reluctance to help when it is personally costly.

Theoretical rationales. The elements of eudaimonic orientation – personal growth, excellence, and authenticity, involve motives that typically require effort and dedication (Huta & Waterman, 2014; Waterman et al., 2010). Researchers have conceptualized eudaimonia as a balance of challenge and skills (Delle Fave, Massimini, & Bassi, 2011; Waterman, Schwartz, & Conti, 2008), complexity (Vittersø, Oelmann, & Wang, 2009; Vittersø, Søholt, Hetland, Thoresen, & Røysamb, 2010) and striving (Aristotle, 2001). Similarly, prosocial behaviour often requires investment of energy and effort with some cost to the self (Bierhoff, 2002; Gailliot, 2010; Gneezy, Imas, Brown, Nelson, & Norton, 2012).

Definitions and characteristics of hedonia include avoidance of discomfort or pain (Huta & Ryan, 2010; Kahneman et al., 1999), and easiness or less effort (Vittersø et al., 2009; Vittersø et al., 2010).

Past empirical evidence. Hedonic orientation has been found to relate more strongly to passive activities that involve less physical exhaustion (e.g., listening to music, socializing) (Anić, 2014), and McGregor and Little (1998) found that people whose self-identity was focused on fun/enjoyment/pleasure had personal projects that were high in efficacy (i.e., low in difficulty, stress, and challenge).

The eudaimonic concept of concordance between values and behaviour has been linked to high-cost prosocial behaviours (Padilla-Walker & Fraser, 2014). Mastery goals (striving for learning, growth) are associated with effort, persistence and seeking challenging tasks (Elliot, McGregor, & Gable, 1999); and authenticity has been linked to academic mastery goals (Walker, Winn, & Lutjens, 2012).

The Present Study

The initial sample size was 588 participants. However, we omitted participants who did not complete all nine items of the HEMA, those who had greater than 10% missing data on the dependent variables, those who responded too fast (greater than 20 questions per minute), and those who failed to correctly answer three validity check questions. These participants were excluded prior to performing analyses as their data was unreliable. The final sample was 487 participants. We randomly split the sample in half (Study 1 N=243, Study 2 N=244) to run correlations on two different samples, and test the reliability of our findings.

Study 1

We examined the factor structure of our scale assessing each of the different helping situations we created, using principal component analysis (PCA). We assessed the correlations of eudaimonic and hedonic orientations with our measures of positive social behaviours, hindering social behaviours, and the different helping situations.

Method

Participants

There were 243 participants (82% female, M_{age}=19.84, SD_{age}=3.94) from a Canadian university. Participants came from a variety of ethnic backgrounds: 56% Caucasian, 17% Asian, 7% African/Black, 9% Arab, and 11% Other ethnicity. Participants came from a variety of academic disciplines: 14% Psychology, 18% other Social Sciences, 29% Health Sciences, 24% Sciences/Engineering, and 15% Arts/Humanities.

Procedure

Participants completed the study on a research website through Limesurvey and answered a number of self-report questionnaires. Participants received course credit for completing the study.

Measures

Hedonic and Eudaimonic Motives for Activities (HEMA, Huta & Ryan, 2010). This instrument assesses how individuals pursue daily activities; whether they pursue pleasure and comfort (hedonia scale, five items, α=.83, "seeking relaxation," "seeking pleasure," "seeking enjoyment," "seeking to take it easy," and "seeking fun"); or excellence, personal growth and authenticity (eudaimonia scale, four items, α=.79, "seeking to develop a skill, learn, or gain insight into something," "seeking to do what you believe in," "seeking to pursue excellence or a personal ideal," and "seeking to use the best in yourself"). The instructions read: "To what degree do you typically approach your activities with each of the following intentions, whether or not you actually achieve your aim?" The items are rated on a Likert scale from 1 (not at all) to 7 (very much).

Helpful social behaviours and hindering social behaviours. We developed this scale to assess helpful social behaviours (10 items, α=.81, e.g., "Dealing with interpersonal conflict in an honest, straightforward manner," "Honouring your friends' needs for secrets and confidentiality") and hindering social behaviours (eight items, α=.78, e.g., "Knowing (or suspecting) you're being unfair to someone but doing it anyway," "Knowingly (or semi-knowingly) being manipulative"). Some items were drawn from the Young Adult Social Behaviour Scale (Crothers et al., 2009) and The Indirect Social/Relational/Aggression Scale (Coyne et al., 2006), and additional items were developed by the authors. Instructions read "How often do you engage in the following behaviours?" Items are rated from 1 (never) to 7 (very often).

We decided to use Principal Component Analysis (PCA) for all analyses as it includes the variance represented by the items, rather than exploratory factor analysis (EFA) which only includes the variance the items have in common. In PCA, four factors had eigenvalues greater than 1, but the scree plot suggested three factors. We ran a fixed 3-factor solution, Varimax-rotated, but the factors were not clearly interpretable. We ran a 2-factor solution, Varimax rotated, which explained 40% of the variance, and the items cleanly separated into the expected factors (see Appendix A).

General Behaviours to benefit others versus General Behaviours to avoid harming others. We developed this scale to assess general behaviours to avoid harming others (five items, α=.78, e.g., "I avoid doing things that might be unpleasant for others," "I refrain from doing things that might be hurtful to other people") and to demonstrate that this concept is distinct from general behaviours to benefit others (five items, α=.82, e.g., "I help someone when they need it," "I do favours for other people"). Instructions read "The following items ask about the

circumstances when you engage in helping activities or are inclined to help. Think of helping activities very broadly here as including helping an individual, a community, or a whole society." Items are rated from 1=strongly disagree to 7=strongly agree.

PCA revealed two factors with eigenvalues above 1, and the scree plot suggested two factors. We extracted two factors, which explained 57% of the variance, with Varimax rotation, and the items cleanly separated into the two factors as predicted; see Appendix B).

Helping situations. We developed this scale to assess preferences to help in different situations. The instructions read: "The following items ask about the circumstances when you engage in helping activities or are inclined to help. Think of helping activities very broadly here as including helping an individual, a community, or a whole society". Items are rated from 1=strongly disagree to 7=strongly agree.

Initially we ran a PCA on all 30 items of our helping situation scale and we found that five factors had eigenvalues greater than 1 which accounted for 63% of the variance. The scree plot suggested that viable solutions had up to four factors. Abstract helping items tended to load together (e.g., non-face-to-face helping and helping with delayed results), and concrete helping items tended to load together (e.g., face-to-face helping and helping with immediate results). Reluctance to help when it is personally costly formed its own factor, while willingness to help even when it is personally costly loaded on two factors. We tried extracting various numbers of factors (e.g., fixed 5-factor, fixed 6-factor) using Varimax rotation and decided that the best method for interpreting the findings were to perform three separate PCAs for the following pairs of opposites described below. Although we did expect some correlation between the concepts, the items did not cluster neatly enough to justify oblique rotation; we therefore interpreted the more robust Varimax rotated solution in all analyses.

Preference to help when recipient can be seen vs. willingness to help even when recipient cannot be seen. In PCA, two factors had eigenvalues above 1. We extracted two factors, accounting for 61% of the variance, and the items cleanly separated into the two factors as predicted (1) Preference to help when recipient can be seen (five items, α=.85, e.g., "I prefer to help someone I can see face-to-face, rather than someone I don't get to meet," "I would rather help someone if I'm directly interacting with them") and (2) Willingness to help even when recipient cannot be seen (five items, α=.82, e.g., "I am likely to engage in helping activities even when I don't really get to see the recipient," "I tend to help even if it's not face-to-face"; see Appendix C).

Preference to help when results are immediate vs. willingness to help even when results are in the future. In PCA, two factors had eigenvalues above 1. We extracted two factors, accounting for 65% of the variance, and the items cleanly separated into the two factors as predicted (1) Preference to help when results are immediate (five items, α=.89, e.g., "I prefer the kinds of helping where I get to have a positive effect right away," "I get the most out of helping others when the benefits to them are immediate") and (2) Willingness to help even when results are in the future (five items, α=.81, e.g., "I am inclined to help others even when they might not benefit until far into the future," "I like helping even when I might not find out the consequences in my lifetime"; see Appendix D).

Reluctance to help when it is personally costly vs. willingness to help even when it is personally costly. In PCA, two factors had eigenvalues above 1. We extracted two factors, accounting for 61% of the variance, and the items cleanly separated into the two factors as predicted (1) Reluctance to help when it is personally costly (five items, α=.82, "I'm reluctant to help someone if it's going to cost me money or resources," "I'm not a big fan of helping

someone if it's going to make me feel stressed"), and (2) Willingness to help even when it is personally costly (five items, α=.83, e.g., "I help someone even when it involves a lot of time or effort," "I help even if it means I have to make a big personal sacrifice"; See Appendix E).

Balanced Inventory of Desirable Responding (BIDR) Version 6 - Form 40A (Paulhus, 1991). This scale assesses the degree to which one wishes to make a good impression or appear desirable (40 items, α=.77, e.g., "It would be hard for me to break any of my bad habits" reversed, and "I never regret my decisions"). This scale was used to control for socially desirable responding. Items are rated from 1 (not true) to 7 (very true).

Results

Preliminary Demographic Analyses

Table 1 shows descriptive statistics for Study 1. There were some gender differences: females scored higher on willingness to help even when recipient cannot be seen ($t=3.17$, $p<.01$), and willingness to help even when results are in the future ($t=2.35$, $p<.05$). Males scored higher on preference to help when results are immediate ($t=3.10$, $p<.01$).

One-way ANOVAs with Scheffé post-hocs showed that ethnicity (Caucasian, Asian, African/Black, Arabic and Other) related to helpful social behaviours ($F=4.63$, $p<.01$, Caucasian < Asian and Arabic); and willingness to help even when results are in the future ($F=5.25$, $p<.01$, Caucasian<Arabic).

We felt it was worthwhile to control for gender given that there were more gender differences, and previous studies have reported significant links between gender and various indices of prosocial behaviours and values (e.g., de Caroli & Sagone, 2014; Eagly & Crowley, 1986).

Semi-Partial Correlation Analyses

Analyses were run in SPSS version 22. Table 2 shows semi-partial correlations of eudaimonic and hedonic orientation with all the outcome variables, controlling for gender. In addition, the table shows semi-partial correlations controlling for both gender and social desirability in parentheses. When reporting and discussing the results in the main text, we focus on the results that do not control for social desirability, as social desirability measures may assess meaningful variance (and not just error variance) in research on virtuous behaviour (Bradburn & Sudman, 1979; McCrae & Costa, 1983). Nevertheless, we add the results when controlling for social desirability to provide conservative tests of our hypotheses. Table 3 provides correlations among all dependent variables.

Hypothesis 1. Our hypothesis was supported. Only eudaimonic orientation related positively to helpful social behaviours and general behaviours to benefit others.

Hypothesis 2. Our hypothesis was supported. Hedonic orientation related positively, while eudaimonic orientation related negatively (marginally) to hindering social behaviours. Only eudaimonic orientation related positively to general behaviours to avoid harming others.

Hypothesis 3. Our hypothesis was supported. Only eudaimonic orientation related positively to abstract helping, e.g., willingness to help even when the recipient cannot be seen, and willingness to help even when the results are in the future. Only hedonic orientation related positively to concrete helping, e.g., preference to help when the recipient can be seen, and preference to help when results are immediate.

Hypothesis 4. Our hypothesis was supported. Eudaimonic orientation related positively (hedonic orientation related negatively) to willingness to help even when it is personally costly.

Hedonic orientation related positively (eudaimonic orientation related negatively) to reluctance to help when it is personally costly.

Eudaimonic Orientation and Hedonic Orientation Controlling for Each Other

We also ran semi-partial correlations with eudaimonic and hedonic orientation controlling for each other (and gender). There were only a few significant changes: hedonic orientation was now negatively linked to helpful social behaviour ($r=-.13$, $p<.05$); willingness to help even when recipient cannot be seen ($r=-.12$, $p<.05$); and willingness to help even when results are in the future ($r=-.16$, $p<.01$). Eudaimonic orientation was negatively linked to hindering social behaviours ($r=-.14$, $p<.05$).

Study 2

In Study 2 we tested the reliability of our findings by running semi-partial correlations on a different sample of undergraduate students from the same university as Study 1.

Method

Participants

Study 2 consisted of 244 participants (76% female, $M_{age}=19.77$, $SD_{age}=3.72$) from a Canadian university. Participants came from a variety of ethnic backgrounds: 58% Caucasian, 14% Asian, 8% African/Black, 8% Arab, and 11% Other ethnicity, and academic disciplines: 13% Psychology, 23% other Social Sciences, 22% Health Sciences, 32% Sciences/Engineering, and 10% Arts/Humanities.

Measures

The same measures in Study 1 were in Study 2.

Results

Preliminary Demographic Analyses

Table 1 shows descriptive characteristics for Study 2. There were some gender differences: females scored higher on helpful social behaviours ($t=4.69$, $p<.01$), general behaviours to benefit others ($t=3.76$, $p<.01$), willingness to help even when recipient cannot be seen ($t=4.71$, $p<.01$), and willingness to help even when results are in the future ($t=4.38$, $p<.01$).

Age correlated positively with eudaimonic orientation ($r=.14$, $p<.01$), and social desirability ($r=.21$, $p<.01$), and negatively with hindering social behaviours ($r= -.26$, $p<.01$), preference to help when recipient can be seen ($r= -.20$, $p<.01$), preference to help when results are immediate ($r= -.21$, $p<.01$) and reluctance to help when it is personally costly ($r= -.14$, $p<.05$).

One-way ANOVAs with Scheffé post-hocs showed that ethnicity (Caucasian, Asian, African/Black, Arabic and Other) related to eudaimonic orientation ($F=3.64$, $p<.01$, Asian<Other), and willingness to help even when it is personally costly ($F=3.96$, $p<.01$, Asian<Caucasian and African/Black).

To be consistent with Study 1, we controlled only for gender in our analyses.

Semi-Partial Correlation Analyses

Table 4 presents semi-partial correlations of eudaimonic and hedonic orientations with each of the variables (controlling for gender), as well as alpha values for each of the scales (which were relatively high). Table 3 presents intercorrelations among all dependent variables.

Hypothesis 1. Findings were mostly replicated. Consistent with Study 1, eudaimonic orientation related to helpful social behaviours and general behaviours to benefit others.

However, hedonic orientation also related to helpful social behaviours (but less strongly than did eudaimonic orientation).

Hypothesis 2. Findings were replicated. Hedonic orientation had a positive correlation, while eudaimonic orientation had a negative correlation with hindering social behaviours. Only eudaimonic orientation related positively to general behaviours to avoid harming others.

Hypothesis 3. Findings were partially replicated. Consistent with Study 1, only eudaimonic orientation related positively to willingness to help even when recipient cannot be seen, and willingness to help even when results are in the future. However, unlike in Study 1, hedonic orientation did not relate positively to preference to help when the recipient can be seen, and had only a marginally significant positive correlation with preference to help when results are immediate.

Hypothesis 4. Findings were mostly replicated. Consistent with Study 1, only eudaimonic orientation related positively to willingness to help even when it is personally costly, (and negatively with reluctance to help when it is personally costly). However, unlike in Study 1, hedonic orientation did not relate positively to reluctance to help when it is personally costly (nor did it relate negatively to willingness to help even when it is personally costly).

Eudaimonic and Hedonic Orientations Controlling for Each Other

There were no changes in significance when running correlations with eudaimonic and hedonic orientation controlling for each other (and gender).

Additional Assessments – Informant Ratings

We also collected data from participant's friends or relatives to help avoid any biases in self-report responding. These analyses were based on the entire dataset (N=487), as the sample size was insufficient for each study separately. Participants were given the option of contacting a

friend or relative who would be interested in completing a short questionnaire about the participant regarding their degree of eudaimonic and/or hedonic orientation, helpful and hindering social behaviours, and tendencies to help in different circumstances. Participants were provided with a code to link their data with their relative or friend.

Unfortunately, very few relatives and/or friends (N=16) completed the survey to obtain sufficient informant ratings. Spearman correlations were conducted due to the very small sample size; there was adequate correlations between other ratings and self ratings of eudaimonic orientation ($r=.47$, $p>.10$), and hedonic orientation ($r=.30$, $p>.10$), and lower correlations for self-report eudaimonic orientation and other-report hedonic orientation ($r=.12$, $p>.10$), and self-report hedonic orientation and other-report eudaimonic orientation ($r=-.27$, $p>.10$). Overall, other ratings of participant's eudaimonic orientation correlated strongly with other ratings of participant's helpful social behaviours, general behaviours to benefit others, willingness to help even when recipient cannot be seen, willingness to help even when results are in the future, and willingness to help even when it is personally costly (see Table 5). This provides some evidence that participants were not responding in socially desirable ways.

General Discussion

The research presented here provides insight on two of the dominant ways of pursuing personal well-being and their links with positive and hindering effects on others. Furthermore, this research delved into situations when eudaimonically and hedonically oriented individuals are likely to offer help. Overall, we found consistency in our results for the links between eudaimonic orientation and concern beyond the self, and helping in abstract and costly situations. Hedonic orientation showed consistent links with hindering social behaviours, but was less consistently linked with concrete helping, and easy helping (hedonia only related to these

variables in Study 1). Below we outline some themes that emerged and interpretations of our findings.

Eudaimonic Orientation and Well-being Beyond the Self

Previous research has shown that both eudaimonic and hedonic orientations have well-being benefits for the self, as cited in the introduction. This study found asymmetry favouring eudaimonic orientation for positive effects beyond the self, corroborating previous results linking eudaimonic orientation with greater well-being benefits for close others (Huta et al., 2012), and contributions to society (Pearce et al., 2017). Our data challenges theoretical claims that eudaimonic orientation may foster selfishness (Kashdan et al., 2008), and instead bolsters theoretical notions that eudaimonic orientation embodies compassion, greater concern for society, virtuous behaviour, and good interpersonal relationships (Aristotle, 2001; Bruni, 2010; Seligman, 2002; Wong, 2012).

The Potential Hindering Effects of Hedonic Orientation

The current findings suggest that hedonic orientation may sometimes have negative influences on others and the surrounding world. This lends further support to Huta and colleagues' (2012) finding that people who scored high on hedonic orientation increased negative affect in their relatives. Those who emphasize pleasure and enjoyment as predominant approaches to well-being may be more inclined to engage in certain behaviours which can be self-gratifying, but also potentially harmful to others (e.g., Zimbardo & Boyd, 1999). Furthermore, pursuits such as pleasure, which draw attention to sensual experiences in the near-future, are more likely to be impulsive and undermine self-control efforts (Fujita, Trope, Liberman, & Levin-Sagi, 2006). Those who focus on hedonia may be embroiled in the concrete

means to achieving pleasure with less contemplation of the bigger picture consequences of their behaviours.

We do not attempt to pigeonhole hedonic orientation as entirely selfish and detrimental to the well-being of the surrounding world. Pursuing joy and relaxation is vital for personal well-being, and individuals who are relaxed and in good spirits may pursue hedonic goals in concert with eudaimonic goals (Waterman et al., 2010). Furthermore, engagement in prosocial behaviours can be pleasant and generosity has been found to have hedonic benefits (e.g., Aknin, Broesch, Hamlin, & Van de Vondervoot, 2015; Andreoni, 1990; Borgonovi, 2008; Dunn, Aknin, & Norton, 2014; Lyubomirsky, Sheldon, & Schkade, 2005). Thus, hedonically oriented people may find that prosocial behaviour is personally reinforcing. However, we make the distinction between seeking pleasure and experiencing pleasure; going into an activity with the central purpose of pursuing pleasure or comfort will likely detract from contributing to others, shifting focus to the self (and perhaps less regard for the welfare of others).

The Abstract-Concrete Distinction

Across both studies we found that eudaimonic orientation related to abstract helping situations, suggesting that this may be a core feature of a eudaimonic mindset. The present findings can be interpreted within the framework of construal level theory (Liberman & Trope, 2003; Trope & Liberman, 2010); eudaimonic orientation tended to involve an abstract focus on socially and temporally distal helping behaviours. Hedonic orientation showed some links with concrete helping. However, these findings were not replicated in Study 2, suggesting that hedonic orientation may not involve a concrete focus per se, but perhaps less focus on abstract goals or behaviours (relative to eudaimonic orientation).

Our pattern of results implies that eudaimonic orientation may be characterized by an ability to see beyond the concretely visible and the immediate moment. Helping in abstract situations often requires eudaimonic elements such as cognitive deliberation and planning (Bekkers & Ottoni-Wilhelm, 2016). For instance, one has to imagine how their behaviours will impact an individual they are not directly interacting with, or how one's present actions will influence the future (i.e., prospection; Baumeister & Vohs, 2016; Seligman, Railton, Baumeister, & Sripada, 2013). Eudaimonic elements – growth, excellence and authenticity tend to be higher abstract pursuits, which align with existential concerns (i.e., the *why* of behaviours) such as one's purpose in life. Furthermore, unlike hedonic orientation, eudaimonic orientation tends to highlight the process/journey towards goals, which may be more abstract than the outcome (e.g., pleasure; Huta & Ryan, 2010; Ryan et al., 2008). Lastly, high-level construals tend to be more integrative and coherent (Nussbaum, Trope, & Liberman, 2003); similarly, eudaimonic goals emphasize coherency in one's goals and identity. Contrarily, hedonic pursuits are more contextualized (e.g., pleasure is typically an outcome to a specific event or experience).

Our pattern of results implies that hedonic orientation appears to be about fulfilling immediate desires. Hedonic orientation was significantly (and marginally) related to preference to help when the results are immediate, suggesting the role of concreteness in hedonia (perhaps because this produces pleasure, boosts one's self-esteem, or reputation). Study 1 did show that hedonic orientation related to helping in face-to-face situations perhaps because these circumstances can be pleasant (e.g., seeing the smile on someone's face, social interactions) and increase the potential for future reciprocity (e.g., direct paybacks). However, across both studies our findings suggest that hedonic orientation may have little relation to helping in general (under both concrete and abstract situations).

Costly Helping versus Easy Helping

Our findings suggest that eudaimonic orientation is related to helping in costly situations. Eudaimonic pursuits may preclude some of the unpleasant aspects of making sacrifices to benefit others due to a meaning framework that provides the scaffolding for unselfish pursuits. Engaging in helping behaviour may require altering or relinquishing one's existing goals in a moment to align with the goals of another (Gailliot, 2010). Eudaimonic goals may be about striving not only for self-development but the world at large, and comprehending that taking care of both the self and others ultimately encourages the greater system to flourish.

Hedonic orientation was not related to helping in costly situations in Study 1 – perhaps because this may interfere with one's pleasure and comfort (e.g., using resources or time which can be used to satisfy the self instead, or producing general discomfort or exhaustion). Indeed, a hedonic orientation has been linked to feeling carefree (Huta & Ryan, 2010). Hedonic orientation may relate to helping in situations where the personal benefits outweigh the costs. However, these findings would need to be replicated in future studies as hedonic orientation did not consistently relate to preference to help when it is less personally costly. Hedonic orientation may relate to helping in other situations that were not directly tested in this study such as circumstances that harvest social connections, enhance one's image/reputation or increase the chances of returned benefits.

Limitations and Future Directions

The findings in this paper suggest several avenues for future work. There is the possibility that social desirability influenced the present results; employing alternative methods beyond self-report can help to limit this issue. For instance, cooperation or prosocial behaviour in economic games can be useful for observing sharing and giving behaviours in real-time (e.g.,

Andreoni & Miller, 1993; Klimecki, Mayer, Jusyte, Scheeff, & Schönenberg, 2016; see Ledyard, 1995; Lönnqvist, Verkasalo, Wichardt, & Walkowitz, 2013). A larger sample size of informant ratings would also be ideal for measuring one's prosocial and negative behaviours – unfortunately the sample size in the current study was too small to make conclusive interpretations. Future research could also assess psychophysiological measures of empathy (e.g., brain activity, hormone levels, autonomic nervous system activity) to supplement self-report data.

Helping situations could also be observed behaviourally. For instance, researchers could assess participant's willingness to help in concrete situations (e.g., directly interacting with an individual in need), abstract situations (e.g., donating to a cause), and personally costly or less personally costly situations (e.g., a task with varying degrees of effort and time). Furthermore, the underlying motives for helping behaviour could be investigated to explore the degree to which one helps for selfish or truly altruistic reasons (Batson, 1991). Additionally, easy helping could be more directly assessed as opposed to our measure which looked at a reluctance to help when it is personally costly (e.g., "I prefer to help in situations that involve less effort or time").

Another limitation included the population studied; future studies could cover more diverse age groups who may engage in different types of prosocial behaviours (Richter & Kunzmann, 2011; Wieck & Kunzmann, 2015). Additionally, the eudaimonic-hedonic distinction may be more marked in a non-university sample.

Another area that could use more research is hindering social behaviours. A more comprehensive measure of general negative behaviours which harm the surrounding world could be assessed (e.g., theft, vandalism, physical and psychological aggression, bullying, narcissism, pollution), as well as those that may be particularly relevant to eudaimonic orientation, such as

perfectionism (Fletcher & Neumeister, 2012), excessively competing with others (e.g., Poortvliet, Janssen, Van Yperen, & Van de Vliert, 2014), or going to extremes for what one believes in (McGregor, Prentice, & Nash, 2013). Lastly, eudaimonic and hedonic orientations could be studied in the context of classic moral dilemmas (e.g., Foot, 1967) to assess the rational and emotional processes implicated in these orientations during moral decisions.

Conclusion

This research replicates and extends prior work on the link between eudaimonic and hedonic orientations and concern beyond the self (Pearce et al., 2017). Ultimately, personal growth, authenticity and excellence appear to be the chief ingredients for contributions beyond the self and towards the future. The paper also provides a second important message about cognitive process implicated in eudaimonic and hedonic orientations. In particular, though we believe that eudaimonia is best defined as prioritizing values such as authenticity, excellence, and growth, we propose that such values require and foster certain cognitive processes, including abstract, long-term, and effortful thinking. Though we believe that hedonia is best defined as prioritizing the values of pleasure and comfort, we propose that at least to a certain extent such values may emerge from and foster cognitive processing that deals with concrete, and immediate concerns (though future work is needed to replicate this). This characterization is very much in line with the distinction between the pleasure system and mattering system of the brain proposed by Steger and Shin (2012).

Endnotes

1. We ran a Principal Component Analysis (PCA), Varimax-rotated, with helpful social behaviours, general behaviours to benefit others, hindering social behaviours and general behaviours to avoid harming others to see if these concepts were distinct. There were seven eigenvalues greater than 1, but the scree plot suggested up to four factors. We ran a 4-factor Varimax rotated solution (48% of the variance explained) and found that most helpful social behaviours and general behaviours to benefit others formed one factor, while hindering social behaviours and general behaviours to avoid harming others formed separate factors. We felt this was sufficient grounds to create four separate scales; we separated helpful social behaviours from general behaviours to benefit others for the sake of conceptual symmetry.

References

Agerström, J., & Björklund, F. (2013). Why people with an eye toward are more moral: The role of abstract thinking. *Basic and Applied Social Psychology,* 35, 373-381. doi: 10.1080/01973533.2013.803967

Aknin, L.B., Broesch, T., Hamlin, J.K., & Van de Vondervoot, J.W. (2015). Prosocial behaviour leads to happiness in a small-scale rural society. *Journal of Experimental Psychology: General*, 144, 788-795. doi.org/10.1037/xge0000082

Aknin, L. B., Van Boven, L., & Johnson-Graham, L. (2014). Abstract construals make the emotional rewards of prosocial behaviour more salient. *Journal of Positive Psychology*, 10, 458-462. doi: 10.1080/17439760.2014.967801

Andreoni, J. (1990). Impure altruism and donations to public goods. A theory of warm-glow giving. *Economic Journal*, 100, 464-477.

Andreoni, J., & Miller, J.H. (1993). Rational cooperation in the finitely repeated prisoner's dilemma: Experimental Evidence. *Economic Journal*,103, 570-85.

Anić, P. (2014). Hedonic and eudaimonic motives for favourite leisure activities. *Primenjena Psihologija* 7, 5–21

Anić, P. & Tončić, M. (2013). Orientations to happiness, subjective well-being and life goals. *Psihologijske teme,* 22, 135-153.

Annas, J. (2008). Virtue ethics and the charge of egoism. In P. Bloomfield (Ed.), *Morality and self-interest* (pp. 205-221). Oxford, UK: Oxford University Press.

Apostolidis T., Fieulaine, N., Simonin, L., & Rolland, G. (2006). Cannabis use, time perspective and risk perception: Evidence of a moderating effect. *Psychology & Health*, 21, 571–592. doi: 10.1080/14768320500422683

Aristotle (2001). *The Nicomachean ethics (R. Crisp, Trans.).* Cambridge: Cambridge University Press.

Arnett, J. (1990). Drunk driving, sensation seeking, and egocentrism among adolescents. *Personality and Individual Differences,* 11*,* 541-546*.*

Avsec, A., & Kavčič, T. (2012). Psychometric properties of the Slovene version of the Orientations to happiness questionnaire. *Horizons of Psychology*, 21, 7-18. doi: 10.20419/2012.21.354

Batson, C. D. (1991). *The altruism question: Toward a social-psychological answer*. Hillsdale, NJ: Erlbaum.

Bauer, J.J. (2008). How the ego quiets as it grows: Ego development, growth stories, and eudaimonic personality development. In H.A. Wayment & J.J. Bauer (Eds.), *Transcending self-interest: Psychological explorations of the quiet ego* (pp. 199–210). Washington, DC: American Psychological Association.

Bauer, J.J., & McAdams, D.P. (2004). Personal growth in adults′ stories of life transitions. *Journal of Personality,* 72, 573-602.

Bauer, J. J., Park, S. W., Montoya, R. M., & Wayment, H. A. (2015). Growth motivation toward two facets of eudaimonic self-development. *Journal of Happiness Studies*, 16, 185-210.doi: 10.1007/s10902-014-9504-9

Bauer, J.J., Schwab, J.R. & McAdams, D.P. (2011). Self-actualizing: Where ego development finally feels good? *The Humanistic Psychologist,* 39, 121-136. doi: 10.1080/08873267.2011.564978

Baumeister, R.F., & Vohs, K.D. (2016). Introduction to the special issue: The science of prospection. *Review of General Psychology*, 20, 1-2. doi: 10.1037/gpr0000072

Baumeister, R.F., Vohs, K.D., Aaker, J.L., & Garbinsky, E.N. (2013). Some key differences between a happy life and a meaningful life. *The Journal of Positive Psychology*, 8, 505-516. doi.org/10.1080/17439760.2013.830764

Bekkers, R., & Ottoni-Wilhelm (2016). Principle of care and giving to help people in need. *European Journal of Personality*, 30, 240-257. doi: 10.1002/per.2057

Bierhoff, H.W. (2002). *Prosocial behaviour*. New York: Psychology Press.

Bilsky, W., & Hermann, D. (2016). Individual values and delinquency: On considering universals in the content and structure of values. *Psychology, Crime & Law,* 22, 921-944. doi: 10.1080/1068316X.2016.1202250

Boniwell, I., Osin, E., Linley, P.A, & Ivanchenko, G.V. (2010). A question of balance: Time perspective and well-being in British and Russian samples. *The Journal of Positive Psychology*, 5, 24-40. doi: 10.1080/17439760903271181

Borgonovi, F. (2008). Doing well by doing good. The relationship between formal volunteering and self-reported health and happiness. *Social Science & Medicine*, 66, 2321–2334. http://dx.doi.org/10.1016/j.socscimed

Bradburn, N. M., & Sudman, S. (1979). *Improving Interview Method and Questionnaire Design*, San Francisco: Jossey-Bass.

Brassai, L., Piko, B.F., & Steger, M.F. (2011). Meaning in Life: Is it a protective factor for adolescents' psychological health? *International Journal of Behavioural Medicine*, 18, 44-51. doi: 10.1007/s12529-010-9089-6

Brdar, I., Rijavec, M., & Miljković, D. (2009). Approaches to happiness, life goals and well-being. In T. Freire (Ed.), *Understanding positive life. Research and practice on positive psychology* (pp. 45-64). Lisboa: Climepsi Editores.

Brummelman, E., Thomaes, S., & Sedikides, C. (2016). Separating narcissism from self-esteem. *Current Directions in Psychological Science*, 25 (1), 8-13. doi: 10.1177/0963721415619737

Bruni, L. (2010). The happiness of sociality. Economics and eudaimonia: A necessary encounter. *Rationality and Society*, 22, 383-406. doi: 10.1177/1043463110374500

Çalışkan, H., Sapmaz, F., & Uzonkol, E. (2015). Value preferences of university students as predictors of life goals. *Social Indicators Research*, 124, 111-125. doi: 10.1007/s11205-014-0778-4

Carlo, G., Hausmann, A., Christiansen, S., & Randall, B. A., (2003). Sociocognitive and behavioural correlates of a measure of prosocial tendencies for adolescents. *Journal of Early Adolescence*, 23, 107-134. doi: 10.1177/0272431602239132

Carlo, G., & Randall, B. A., (2002). The development of a measure of prosocial behaviours for late adolescents. *Journal of Youth and Adolescence*, 31, 31-44. doi: 10.1023/A:1014033032440

Cialdini, R.B, Schaller, M., Houlihan, D., Arps, K., Fultz, J., & Beaman, A.L. (1987). Empathy-based helping: Is it selflessly or selfishly motivated? *Journal of Personality and Social Psychology*, 52, 749-758. doi:10.1037/0022-3514.52.4.749

Clary, E.G., & Snyder, M. (1999). The motivations to volunteer: Theoretical and practical considerations. *Current Directions in Psychological Science*, 8, 156. doi:10.1111/1467-8721.00037

Clary, E. G., Snyder, M., Ridge, R. D., Copeland, J., Stukas, A. A., Haugen, J. A., & Miene, P. K. (1998). Understanding and assessing the motivations of volunteers: A functional approach. *Journal of Personality and Social Psychology*, 74, 1516-1530.

Coyne, S.M., Archer, J., & Eslea, M. (2006). We're not friends anymore! unless…": The frequency and harmfulness of indirect, relational, and social aggression. *Aggressive Behaviour,* 32, 294-307. doi: 10.1002/ab.20126

Crocker, J., & Canevello, A. (2008). Creating and undermining social support in communal relationships: The role of compassionate and self-image goals. *Journal of Personality and Social Psychology*, 95, 555-575. doi: 10.1037/0022-3514.95.3.555

Crothers, L.M., Schreiber, J.B., Field, J.E., & Kolbert, J.B. (2009). Development and measurement through confirmatory factor analysis of the Young Adult Social Behaviour Scale (YASB): An assessment of relational aggression in adolescence and young adulthood. *Journal of Psychoeducational Assessment*, 27, 17-28. doi: 10.1177/0734282908319664

Daugherty, J.R., & Brase, G.L. (2010). Taking time to be healthy: Predicting health behaviours with delay discounting and time perspective. *Personality and Individual Differences,* 48, 202–207. doi:10.1016/j.paid.2009.10.007

De Caroli, M.E., & Sagone, E. (2014). Belief in a just world, prosocial behaviour, and moral disengagement in adolescence. *Procedia Social and Behavioural Sciences*, 116, 596-600. doi: 10.1016/j.sbspro.2014.01.263

Deci, E. L., & Ryan, R. M. (2000). The 'what' and 'why' of goal pursuits: Human needs and the self-determination of behaviour. *Psychological Inquiry*, 11, 227-268.

De Cremer, D., & Van Lange, P. (2010). Why prosocials exhibit greater cooperation than proselfs: The roles of social responsibility and reciprocity. *European Journal of Personality*, 15, 5-18. doi: 10.1002/per.418

Delle Fave, A., Massimini, F., & Bassi, M. (2011). Psychological selection and optimal experience across cultures: Social empowerment through personal growth. New York, NY: Springer.

Donohew, L., Zimmerman, R., Cupp, P. S., Novak, S., Colon, S., & Abell, R. (2000). Sensation seeking, impulsive decision-making, and risky sex: Implications for risk-taking and design of interventions. *Personality and Individual Differences,* 28, 1079-1091.

Duangpatra, K.N.K., Bradley, G.L., & Glendon, A.I. (2009). Variables affecting emerging adults' self-reported risk and reckless behaviours. *Journal of Applied Developmental Psychology*, 30, 298–309. doi: 10.1016/j.appdev.2008.12.011

Dunn, E.W., Aknin, L. B., & Norton, M. I. (2008). Spending money on others promotes happiness. *Science*, 319, 1687–1688. doi: 10.1126/science.1150952

Eagly, A.H. & Crowley, M. (1986). Gender and helping behaviour: A meta-analytic review of the social psychological literature. *Psychological Bulletin*, 100, 283-308. doi: 10.1037/0033-2909.100.3.283

Eisenberg, N., Eggum, N.D., & Spinrad, T.L. (2015). Oxford handbook of prosocial behaviour, In A. Schroeder, & W. G. Graziano (Eds.), *The development of prosocial behaviour* (pp.114-136). Oxford, UK: Oxford University Press.

Eisenberg, N., & Fabes, R.A. (1990). Empathy: Conceptualization, measurement and relation to prosocial behaviour. *Motivation and Emotion*, 14, 131-149. doi:10.1007/BF00991640.

Eisenberg, N., & Fabes, R. (1998). Prosocial development. In W. Damon (Editor-in-Chief) & N. Eisenberg (Vol. Ed.), *Handbook of child psychology: Volume 3. Social, emotional, and personality development* (5th ed., pp. 701-778). New York: Wiley.

Eisenberg, N., Fabes, R. A, Murphy, B., Karbon, M., Maszk, P., Smith, M., Boyle, C., & Suh, K. (1994). The relations of emotionality and regulation to dispositional and situational empathy-related responding. *Journal of Personality and Social Psychology*, 66, 776–97.

Eisenberg N., Fabes R. A., & Spinrad T. (2006). Prosocial development. In N. Eisenberg (Ed.), *Handbook of Child Psychology: Social Emotional, and Personality Development* 6th Ed. Vol. 3 (pp. 646-718). Hoboken, NJ: John Wiley and Sons.

Eisenberg, N.**,** & Spinrad, T.L. (2014). Multidimensionality of prosocial behaviour: rethinking the conceptualization and development of prosocial behaviour. In L.M. Padilla-Walker & G. Carlo (Eds.), *Prosocial development: A multidimensional approach*, (pp. 17-42). New York, NY: Oxford University Press.

Elliot, A.J., McGregor, H.A., & Gable, S. (1999). Achievement goals, study strategies, and exam performance: A mediational analysis. *Journal of Educational Psychology*, 91, 549–563.

Eyal, T., & Liberman, N. (2012). Morality and psychological distance: A construal level theory perspective. In M. Mikulincer, & P.R. Shaver (Eds.), *The social psychology of morality: Exploring the causes of good and evil* (pp. 185-202). Washington, DC, US: American Psychological Association.

Eyal, T., Liberman, N., & Trope, Y. (2008). Judging near and distant virtue and vice. *Journal of Experimental Social Psychology,* 44, 1204-1209. doi:10.1016/j.jesp.2008.03.012

Fieulaine, N., & Martinez, F. (2010). Time under control: Time perspective and desire for control in substance abuse. *Addictive Behaviours*, 35,799–802. doi: 10.1016/j.addbeh.2010.03.022

Fletcher, K.L., & Neumeister, K.L.S. (2012). Research on perfectionism and achievement motivation: implications for gifted students. *Psychology in the Schools*, 49, 668-677. doi: 10.1002/pits.21623

Foot, P. (1967). The problem of abortion and the doctrine of the double effect. *Oxford Review,* 5, 5–15.

Förster, J., Friedman, R.S., & Liberman, N. (2004). Temporal construal effects on abstract and concrete thinking: Consequences for insight and creative cognition. *Journal of Personality and Social Psychology*, 87, 177-189. doi: 10.1037/0022-3514.87.2.177

Fowers, B. J. (2012). Placing virtue and the human good in psychology. *Journal of Theoretical and Philosophical Psychology*, 32, 1-9. doi:10.1037/a0025819

Fujita, K., Trope, Y., Liberman, N., & Levin-Sagi, M. (2011). Construal levels and self-control. *Journal of Personality and Social Psychology,* 90, 351-367. doi: 10.1037/0022-3514.90.3.351

Gagne´, M. (2003). The role of autonomy support and autonomy orientation in prosocial behaviour engagement. *Motivation and Emotion*, 27, 199–223.

Gailliott, M.T. (2010). The effortful and energy-demanding nature of prosocial behaviour. In M. Mikulincer & P.R. Shaver (Eds.), *Prosocial motives, emotions, and behavior: The better angels of our nature,* (pp. 169-180). Washington, DC: American Psychological Association. doi.org/10.1037/12061-009

Gehlbach, H. (2006). How changes in students' goal orientations relate to outcomes in social studies. *Journal of Educational Research*, 99, 358-370.

Gneezy, A., Imas, A., Nelson, L.D., Brown, A., & Norton, M.I. (2012). Paying to be nice: Consistency and costly prosocial behaviour. *Management Science*, 58, 179-187. Retrieved from http://dx.doi.org/10.1287/mnsc.1110.1437

Henderson, L.W., Knight, T., & Richardson, B. (2013). An exploration of the well-being benefits of hedonic and eudaimonic behaviour. *The Journal of Positive Psychology*, 8, 322-336. doi: 10.1080/17439760.2013.803596

Horvarth, P., & Zuckerman, M. (1993). Sensation seeking, risk appraisal, and risky behaviour, *Personality and Individual Differences*, 14, 41–52.

Huta, V. (2012). Linking peoples' pursuit of eudaimonia and hedonia with characteristics of their parents: Parenting styles, verbally endorsed values, and role modeling. *Journal of Happiness Studies,* 13, 47–61. doi:10.1007/s10902-011-9249-7

Huta, V. (2013a). Pursuing eudaimonia versus hedonia: Distinctions, similarities, and relationships. In A. Waterman (Ed.), *The best within us: Positive psychology perspectives on eudaimonic functioning* (pp. 139–158). Washington, DC: APA Books.

Huta, V. (2013b). Eudaimonia. In S. David, I. Boniwell, & A. C. Ayers (Eds.), *Oxford Handbook of Happiness* (pp. 201–213). Oxford, UK: Oxford University Press.

Huta, V. (2015). The complementary roles of eudaimonia and hedonia and how they can be pursued in practice. In S. Joseph (Ed.), *Positive Psychology in Practice: Promoting Human Flourishing in Work, Health, Education, and Everyday Life, Second Edition* (pp. 159-184). doi: 10.1002/9781118996874.ch10

Huta, V., Pearce, K., Voloaca, M., & Myskiw, K. (July, 2014). *Research findings to date on hedonic and eudaimonic motivation*. Symposium given at the Second Canadian Conference on Positive Psychology, Ottawa, Ontario.

Huta, V., Pelletier, L, G., Baxter, D., & Thompson, A. (2012). Does an individual's eudaimonia benefit other people? *The Journal of Positive Psychology,* 7, 399-404. doi.org/10.1080/17439760.2012.705318

Huta, V., & Ryan, R. M. (2010). Pursuing pleasure or virtue: The differential and overlapping well-being benefits of hedonic and eudaimonic motives. *Journal of Happiness Studies*, 11, 735-762. doi: 10.1007/s10902-009-9171-4

Huta, V., & Waterman A. S. (2014). Eudaimonia and its distinction from hedonia: Developing a classification and terminology for understanding conceptual and operational definitions. *Journal of Happiness Studies*, 15, 1425-1456. doi:10.1007/s10902-013-9485-0

Izuma, K., Saito, D.N., & Sadato, N. (2009). Processing of the incentive for social approval in the ventral striatum during charitable donation. *Journal of Cognitive Neuroscience,* 22, 621–631. doi: 10.1162/jocn.2009.21228

Kahneman, D., Diener, E., & Schwarz, N. (Eds.). (1999). *Well-being: The foundations of hedonic psychology*. New York: Russell Sage Foundation.

Kashdan, T. B., Biswas-Diener, R., & King, L. A. (2008). Reconsidering happiness: The costs of distinguishing between hedonics and eudaimonia. *Journal of Positive Psychology,* 3, 219-233. doi: 10.1080/17439760802303044

Kashdan, T. B., DeWall, C. N., Pond, R. S., Silvia, P. J., Lambert, N. M., Fincham, F. D.,… Keller, P. S. (2013). Curiosity protects against interpersonal aggression: Cross-sectional,

daily process, and behavioural evidence. *Journal of Personality*, 81, 87-102. doi:10.1111/j.1467-6494.2012.00783.x

Kasser, T., & R. M. Ryan (1996). Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin,* 22, 280–287.

Kennett, J., Matthews, S., & Snoek, A. (2013). Pleasure and addiction. *Frontiers in Psychiatry*, 4, 117. doi: 10.3389/fpsyt.2013.00117

Keough, K.A., Zimbardo, P.G., & Boyd, J.N. (1999).Who's smoking, drinking, and using drugs? Time perspective as a predictor of substance use. *Basic and Applied Psychology,* 21, 149–164.

Kernberg, O.F. (1989). The narcissistic personality disorder and the differential diagnosis of antisocial behaviour. *Psychiatrics Clinics of North America*, 12, 553-570.

Keyes, C.L.M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behaviour*, 43, 207-222.

Keyes, L.M., Shmotkin, D., & Ryff, C.D. (2002). Optimizing well-being: The empirical encounter of two traditions. *Journal of Personality and Social Psychology*, 8, 1007- 1022. doi: 10.1037//0022-3514.82.6.1007

Kim, J., Kang, P., & Choi, I. (2014). Pleasure now, meaning later: Temporal dynamics between pleasure and meaning. *Journal of Experimental Social Psychology*, 55, 262-270. Retrieved from http://dx.doi.org/10.1016/j.jesp.2014.07.018 0022-1031

Kinnunen, S.P., & Windmann, S. (2013). Dual processing altruism. *Frontiers in Psychology*, 18, 193. doi: 10.3389/fpsyg.2013.00193

Klimecki, O.M., Mayer, S.V., Jusyte, A., Scheeff, J., & Schönenberg, M. (2016).

Empathy promotes altruistic behaviour in economic interactions. *Scientific Reports*, 6. doi: 10.1038/srep31961

Kunda, Z., & Schwartz, S.H. (1983). Undermining intrinsic moral motivation: External reward and self presentation. *Journal of Personality and Social Psychology,* 45, 763-771.

LaBuda, J., Rivardo, M., Fidazzo, A.M., & Smith, M. (2015). Individual differences in everyday helping situations: Attractiveness, cost, and gender. *North American Journal of Psychology*, 17, 591-606.

Ledyard, J.O. (1995). Public Goods: A Survey of Experimental Research. In J.H. Kagel and A.E Roth (Eds.), *The handbook of experimental economics,* (pp. 111-195). Princeton: Princeton University Press.

Levine, R., Martinez, T., Brase, G., & Sorenson, K. (1994). Helping in 36 U.S. Cities. *Journal of Personality and Social Psychology*, 67, 69-81.

Levy, S.R., Freitas, A.L., & Salovey, P. (2002). Construing action abstractly and blurring social distinctions: Implications for perceiving homogeneity among, but also empathizing with and helping, others. *Journal of Personality and Social Psychology,* 83, 1224-1238. doi: 10.1037//0022-3514.83.5.1224

Liberman, N., Sagristano, M.D., & Trope, Y. (2002). The effect of temporal distance on level of mental construal. *Journal of Experimental Social Psychology*, 38, 523–534. doi: 10.1016/S0022-1031(02)00535-8

Liberman, N., & Trope, Y. (1998). The role of feasibility and desirability considerations in near and distant future decisions: A test of temporal construal theory. *Journal of Personality and Social Psychology, 75,* 5–18. doi:10.1037/0022-3514.75.1.5

Lockwood, P. L., Seara-Cardoso, A., & Viding, E. (2014). Emotion regulation moderates the association between empathy and prosocial behaviour. *PloS One*, 9, e96555. doi:10.1371/journal.pone.0096555

Lönnqvist, J., Verkasalo, M., Wichardt, P.C., & Walkowitz, G. (2013). Personal values and prosocial behaviour in strategic interactions: Distinguishing value-expressive from value-ambivalent behaviours. *European Journal of Social Psychology*, 43, 554-569. doi: 10.1002/ejsp.1976

Lyubomirsky, S., Sheldon, K. M., & Schkade, D. (2005). Pursuing happiness: The architecture of sustainable change. *Review of General Psychology*, 9, 111–131. doi: 10.1037/1089-2680.9.2.111

Machell, K.A., Disabato, D.J., & Kashdan, T.B. (2016). Buffering the negative impact of poverty on youth: The power of purpose in life. *Social Indicators Research*, 126, 845-861. doi: 10.1007/s11205-015-0917-6

Maio, G.R., Hahn, U., Frost, J.M., & Cheung, W.Y. (2009). Applying the value of equality unequally: effects of value instantiations that vary in typicality. *Journal of Personality and Social Psychology*, 97, 598-614. doi: 10.1037/a0016683

Maples, J. L., Berke, D. S., Few, L. R., & Miller, J. D. (2016). A review of sensation seeking and its empirical correlates: Dark, bright, and neutral hues. In D. K. Marcus & V. Zeigler-Hill (Eds.), *The dark side of personality* (pp. 137-156). Washington, DC: APA.

McAdams, D.P., & de St. Aubin, E. (1992). A theory of generativity and its assessment through self-report, behavioural acts and narrative themes in autobiography. *Journal of Personality and Social Psychology,* 62, 1003-1015. doi: 10.1037/0022-3514.62.6.1003

McCrae, R. R., & Costa, P. T. (1983). Social desirability scales: More substance than style. *Journal of Consulting and Clinical Psychology*, 51, 882-888. doi: 10.1037/0022-006X.51.6.882

McCrae, R.R., & Costa, P.T. (2010). *NEO inventories for the NEO Personality Inventory-3 (NEO-PI-3), NEO Five-Factor Inventory-3 (NEO-FFI-3), NEO Personality Inventory-Revised (NEO PI-R):professional manual.* Lutz, FL : PAR.

McGregor, I., & Little, B.R. (1998). Personal projects, happiness and meaning: On doing well and being yourself. *Journal of Personality and Social Psychology*, 74, 494-512.

McGregor, I., Prentice, M., & Nash, K. (2013). Anxious uncertainty and reactive approach motivation (RAM) for religious, idealistic, and lifestyle extremes. *Journal of Social Issues*, 69, 537-563. doi: 10.1037/a0019701

Mischel, W., Shoda, Y., & Rodriguez, M. (1989). Delay of gratification in children. *Science,* 244, 933-938.

Nordhall, O., & Agerström, J. (2013). Future-oriented people show stronger moral concerns. *Current Research in Social Psychology*, 21, 52-63.

Nussbaum, S., Trope, Y., & Liberman, N. (2003). Creeping dispositionism: The temporal dynamics of behaviour prediction. *Journal of Personality and Social Psychology, 84,* 485–497. doi:10.1037/0022-3514.84.3.485

Padilla-Walker, L.M., & Fraser, A. (2014). How much is it going to cost me? Bidirectional relations between adolescents' moral personality and prosocial behaviour. *Journal of Adolescence*, 37, 993-1001. doi: 10.1016/j.adolescence.2014.07.00

Park, N., Peterson, C., & Ruch, W. (2009). Orientations to happiness and life satisfaction in twenty-seven nations. *The Journal of Positive Psychology*, 4, 273–279.

doi: 10.1080/17439760902933690

Paulhus, D.L. (1991). Measurement and control of response bias. In J.P. Robinson, P.R. Shaver, & L.S. Wrightsman (Eds.), *Measures of personality and social psychological attitudes* (pp.17-59). New York: Academic Press.

Pearce, P. L., & Amato, P. R. (1980). A taxonomy of helping: A multidimensional scaling analysis. *Social Psychology Quarterly*, 43, 363-371.

Pearce, K., Huta, V., & Voloaca, M. (2017). *Seeing beyond the self, the present, and the concrete: A comparison of eudaimonic and hedonic orientations to life*. Manuscript submitted for publication.

Penner, L.A., Dovidio, J.F., Piliavin, J.A., & Schroeder, D.A. (2005). Prosocial behaviour: Multilevel perspectives. *Annual Review of Psychology*. 56, 365-392. doi: 10.1146/annurev.psych.56.091103.070141

Pérez, J., & Torrubia, R. (1985). Sensation seeking and antisocial behaviour in a student sample. *Personality and Individual Differences,* 6, 401-403. doi: 10.1016/0191-8869(85)90068-6

Peterson, C., Park, N., & Seligman, M. E. P. (2005). Orientations to happiness and life satisfaction: The full life versus the empty life. *Journal of Happiness Studies*, *6*, 25-41. doi:10.1007/s10902-004-1278-z

Peterson, C., Ruch, W., Beermann, U., Park, N., & Seligman, M. E. P. (2007). Strengths of character, orientations to happiness, and life satisfaction. *Journal of Positive Psychology*, 2, 1-8. doi: 10.1080/17439760701228938

Plagnol, A.C., & Huppert, F.A. (2010). Happy to help? Exploring the factors associated with variations in rates of volunteering across Europe. *Social Indicators Research*, 97, 157-176. doi: 10.1007/s11205-009-9494-x

Poortvliet, M. (2009). Examining the effects of mastery and performance goals on information exchange processes. *Netherlands Journal of Psychology,* 2, 53-61. doi: 10.1007/BF03080127

Poortvliet, M., & Darnon, C. (2010). Toward a more social understanding of achievement goals: The interpersonal effects of mastery and achievement goals. *Current Directions in Psychological Science*, 19, 324-328. doi: 10.1177/0963721410383246

Poortvliet, P. M., Janssen, O., Van Yperen, N. W., & Van de Vliert, E. (2007). Achievement goals and interpersonal behaviour: How mastery and performance goals shape information exchange. Personality and *Social Psychology Bulletin*, 33, 1435-1447. doi: 10.1177/0146167207305536

Porter, C. O. L. H. (2005). Goal orientation: Effects on backing up behaviour, performance, efficacy, and commitment in teams. *Journal of Applied Psychology*, 90, 811-818. doi:10.1037/0021-9010.90.4.811

Rechter, E., & Sverdlik (2016). Adolescents' and teachers' outlook on leisure activities: Personal values as a unifying framework. *Personality and Individual Differences*, 99, 358-367. doi: 10.1016/j.paid.2016.04.095

Richter, D., & Kunzmann, U. (2012). Age differences in three facets of empathy: performance-based evidence. *Psychology and Aging*, 26, 60-70. doi: 10.1037/a0021138

Robbins, R.N., & Bryan, A. (2004). Relationships between future orientation, impulsive sensation seeking, and risk behaviour among adjudicated adolescents. *Journal of Adolescent Research*, 19, 428–445. doi: 10.1177/0743558403258860

Rothspan, S., & Read, S.J. (1996). Present verses future time perspective and HIV risk among heterosexual college students. *Health Psychology,* 15, 131-134.

Ryan, R. M., Huta, V., & Deci, E. L. (2008). Living well: A self-determination theory perspective on eudaimonia. *Journal of Happiness Studies*, *9*, 139-170. doi: 10.1007/s10902-006-9023-4

Ryff, C. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology,* 57*,* 1069–1081.

Sagiv, L., Sverdlik, N., & Schwarz, N. (2010). To compete or to cooperate? Values' impact on perception and action in social dilemma games. *European Journal of Social Psychology*, 41, 64-77. doi: 10.1002/ejsp.729

Schueller, S.M., & Seligman, M.E.P. (2010). Differential pursuit of pleasure, engagement, and meaning: Relationships to subjective and objective well-being. *Journal of Positive Psychology*, 5, 253-263. doi: 10.1080/17439761003794130

Schwartz, S. H. (2012). An Overview of the Schwartz theory of basic values. *Online Readings in Psychology and Culture,* 2. doi: 10.9707/2307-0919.1116

Seligman, M. E. P. (2002). *Authentic happiness*. New York: Free Press.

Seligman, M. E. P., Railton, P., Baumeister, R. F., & Sripada, C. (2013). Navigating into the future or driven by the past. *Perspectives on Psychological Science*, 8, 119-141. doi: 10.1177/1745691612474317

Shek, D. T. L., Ma, H. K., & Cheung, P. C. (1994). Meaning in life and adolescent antisocial and prosocial behaviour in a Chinese context. *Psychologia*, 37, 211–218.

Sheldon, K. M., Ryan, R. M., Deci, E. L., & Kasser, T. (2004). The independent effects of goal contents and motives on well-being: It's both what you pursue and why you pursue it. *Personality and Social Psychology Bulletin*, 30, 475–486. doi: 10.1177/0146167203261883

Singh, S., & Teoh, V.Y. (2014). *Enhancing prosocial behaviour among college students: Exploring the role of abstract mindset.* GSTF International Journal of Law and Social Sciences, 3, 28-32. doi: 10.5176/2251-2853_3.2.154

Slote, M. (2001). *Morals from motives*. Oxford: Oxford University Press.

Snyder, M., & Cantor, N. (1998). Understanding personality and social behaviour: A functionalist strategy. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology*: Vol. 1 (4th ed., pp. 635–679). Boston: McGraw-Hill.

Staub, E. (1979). *Positive social behaviour and morality: Socialization and development (Vol. 2).* New York: Academic Press.

Steger, M.F. (2012). Making meaning in life. *Psychological Inquiry*, 23, 381-385. doi: 10.1080/1047840X.2012.720832

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The Meaning in Life Questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology*, 53, 80-93. doi: 10.1037/0022-0167.53.1.80

Steger, M.F., Kashdan, T.B., & Oishi, S. (2008). Being good by doing good: Daily eudaimonic activity and well-being. *Journal of Research in Personality*, 42, 22-42. doi:10.1016/j.jrp.2007.03.004

Steger, M. F., & Shin, J Y. (2012). Happiness and meaning in a technological age: A psychological approach. In P. Brey, A. Briggle, & E. Spence (Eds.), *The good life in a technological age* (pp. 92-108). New York: Routledge.

Steger, M.F., Shin, J.Y, Shim, Y., & Fitch-Martin, A. (2013). Is meaning in life a flagship indicator of well-being? In A.S. Waterman (Ed.), *The best within us: Positive psychology*

perspectives on eudaimonia (159-182). Washington, DC, US: American Psychological Association. doi: 10.1037/14092-009

Stukas, A.A., Snyder, M., & Clary, E.G. (2015). Volunteerism and community involvement: Antecedents, experiences and consequences for the person and the situation. In D.A. Schroeder & W. Graziano (Eds.), *The Oxford handbook of prosocial behaviour* (pp. 459-493). New York : Oxford University Press.

Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review,* 110, 403–421. doi: 10.1037/0033-295X.110.3.403

Trope, Y., & Liberman, N. (2010). Construal level theory of psychological distance. *Psychological Review,* 117, 440–463. doi: 10.1037/a0018963

Twenge, J.M., Baumeister, R.F., De Wall, C.N., Ciarocco, N.J., & Bartels, J.M. (2007). Social exclusion decreases prosocial behaviour. *Journal of Personality and Social Psychology*, 92, 56-66. doi: 10.1037/0022-3514.92.1.56

Van de Mortel, T.F. (2008). Faking it: Social desirability response bias in self-report research. *Australian Journal of Advanced Nursing*, 25, 40-48.

Vansteenkiste, M., Lens, W., & Deci, E.L. (2006). Intrinsic Versus Extrinsic Goal Contents in Self-Determination Theory: Another Look at the Quality of Academic Motivation. *Educational Psychologist*, 41, 19-31. doi: 10.1207/s15326985ep4101_4

Vittersø, J., Oelmann, H.I., & Wang, A.L. (2009). Life satisfaction is not a balanced estimator of the good life: evidence from reaction-time measures and self-reported emotions. *Journal of Happiness Studies*, *10*, 1-17. doi:10.1007/s10902-007-9058-1

Vittersø, J., Søholt, Y., Hetland , A., Thoresen , I. A., & Røysamb , E. (2010). Was Hercules happy? Some answers from a functional model of human well-being. *Social Indicators Research, 95*, 1–18. doi:10.1007/s11205-009-9447-4

Wagner, M.K. (2001). Behavioural characteristics related to substance abuse and risk-taking, sensation-seeking, anxiety sensitivity, and self-reinforcement. *Addictive Behaviors*, 26, 115–120. http://dx.doi.org/10.1016/S0306-4603(00)00071-X

Walker, C.O., Winn, T.D., & Lutjens, R.M. (2012). Examining relationships between academic and social achievement goals and routes to happiness. *Education Research International*, 1, 1-7. doi: 10.1155/2012/643438

Waterman, A. S. (1993). Two conceptions of happiness: Contrasts of perspective expressiveness (eudaimonia) and hedonic enjoyment. *Journal of Personality and Social Psychology,* 64, 678–691.

Waterman, A.S., Schwartz, S.J., & Conti, R. (2008). The implications of two conceptions of happiness (hedonic enjoyment and eudaimonia) for the understanding of intrinsic motivation. *Journal of Happiness Studies*, 9, 41–79. doi:10.1007/s10902-006-9020-7

Waterman, A.S., Schwartz, S.J., Zamboanga, B.L., Ravert, R.D., Williams, M.K., Bede Agocha, V., Yeong Kim, S.,…Donnellan, B. (2010). The questionnaire for eudaimonic well-being: Psychometric properties, demographic comparisons and evidence of validity. *The Journal of Positive Psychology,* 5, 41-61. doi: 10.1080/17439760903435208.

Wayment, H.A., Bauer, J.J., & Sylaska, K. (2014). The quiet ego scale: Measuring the compassionate self-identity. *Journal of Happiness Studies*. doi:10.1007/s10902-014-9546-z

Wieck, C., & Kunzmann, U. (2005). Age differences in empathy: Multidirectional and context-dependent. *Psychology and Aging*, 30, 407-419. doi: 10.1037/a0039001

Wong, P.T.P. (2012). Toward a dual-systems model of what makes a life worth living. In P.T.P, Wong (Ed.), *The Human Quest for Meaning* (3-23). New York, NY: Taylor & Francis Group.

Yu, K., Yan M., & Chen T. (2004). Chinese college students' prosocial tendencies, prosocial moral reasoning and their correlation patterns. *Psychological Science*, 27, 329–332

Zajenkowska, A., Zajenkowski, M., & Stolarski, M. (2014). Why certain time perspectives makes people aggressive? Mediating effect of situational triggers of aggressive behaviours. *Personality and Individual Differences*, 60, S11.

Zaleski, Z., Cycon, A., & Kurc, A. (2001). Future time perspective and subjective well-being in adolescent samples. In P. Schmuck, & K.M. Sheldon (Eds.), *Life goals and well-being: Towards a positive psychology of human striving* (pp. 58–67). Goettingen, Germany: Hogrefe & Huber Publishers.

Zimbardo, P. G., Keough, K. A., & Boyd, J. N. (1997). Present time perspective as a predictor of risky driving. *Personality and Individual Differences,* 23, 1007-1023.

Table 1

Descriptives (Mean and Standard Deviations) for Variables

	Study 1		Study 2	
	Mean	SD	Mean	SD
Well-being orientation				
Eudaimonic orientation	5.66	.92	5.70	.87
Hedonic orientation	5.33	1.01	5.32	.94
Do you tend to help and/or hinder others?				
Helpful social behaviours	5.55	.75	5.43	.86
Hindering social behaviours	2.89	.94	3.01	.93
General behaviours to benefit others	5.78	.84	5.67	.90
General behaviours to avoid harming others	5.73	1.00	5.60	1.01
When are you willing to help others?				
Willingness to help even when recipient cannot be seen	4.94	1.13	4.74	1.05
Preference to help when recipient can be seen	4.90	1.29	4.93	1.16
Willingness to help even when results are in the future	5.05	1.05	4.97	1.05
Preference to help when results are immediate	4.63	1.32	4.60	1.22
Willingness to help even when it is personally costly	4.60	1.11	4.52	1.09
Reluctance to help when it is personally costly	3.85	1.22	3.88	1.16
Control variables				
Balanced Inventory of Desirable Responding	4.12	.55	4.06	.55

Table 2

Study 1 Correlations of Eudaimonic and Hedonic Orientations with Tendency to HELP or HINDER Others and Circumstances WHEN People are Willing to Help

N=243	Eudaimonic Orientation r	95% CI	Hedonic Orientation r	95% CI	Paired *t*-test Comparing Correlations
Do You Tend to HELP and/or HINDER Others?					
Helpful social behaviours	.36** (.31**)	[.22, .44]	-.09 (-.02)	[-.19, .03]	5.66**
Hindering social behaviours	-.12† (.00)	[-.24, .00]	.13* (.01)	[.01, .25]	2.96**
General behaviours to benefit others	.40** (.38**)	[.27, .48]	.03 (.07)	[-.09, .14]	4.69**
General behaviours to avoid harming others	.27** (.24**)	[.13, .35]	-.04 (.00)	[-.10, .13]	3.75**
WHEN Are You Willing to Help Others?					
Willingness to help even when recipient cannot be seen	.27** (.25**)	[.15, .39]	-.01 (-.06)	[-.22, .03]	3.39**
Preference to help when recipient can be seen	.03 (.07)	[-.10, .16]	.24** (.22**)	[.12, .37]	2.51*
Willingness to help even when results are in the future	.33** (.31**)	[.20, .43]	-.12† (-.09)	[-.24, .01]	5.61**
Preference to help when results are immediate	.06 (.11)	[-.06, .19]	.27** (.24**)	[.15, .39]	2.53*
Willingness to help even when it is personally costly	.30** (.28**)	[.18, .42]	-.15* (-.12†)	[-.27, -.03]	5.58**
Reluctance to help when it is personally costly	-.17** (-.12†)	[-.30, -.05]	.23** (.17**)	[.10, .34]	4.87**
Control Variable					
Balanced Inventory of Desirable Responding (Paulhus, 1991)	.23**	[.10, .34]	-.20**	[-.32, -.08]	5.28**
Correlation Between Eudaimonic and Hedonic Orientations					
Hedonic orientation (Huta & Ryan, 2010)	.11† (.16*)	[-.01, .24]			

Note. The correlations in this table are semi-partial; correlations outside parentheses control for gender; correlations in parentheses control for gender and social desirable responding. CI's and paired t-tests are not provided for correlations that controlled for social desirability. Scales without a reference were created specifically for this research.

** p<.01, *p<.05, † p<.10

Table 3

Intercorrelations between Dependent Variables

		1	2	3	4	5	6	7	8	9	10
1.	Helpful social behaviours	1	-.35**	.64**	.36**	.59**	.01	.63**	-.07	.59**	-.34**
2.	Hindering social behaviours	-.18**	1	-.20**	-.21**	-.23**	.14*	-.27**	.20**	-.21**	.38**
3.	General behaviours to benefit others	.68**	-.16*	1	.48**	.58**	.12	.62**	.07	.61**	-.30**
4.	General behaviours to avoid harming others	.34**	-.26**	.37**	1	.39**	.00	.40**	.00	.28**	-.07
5.	Willingness to help even when recipient cannot be seen	.51**	-.08	.54*	.26**	1	-.20**	.77**	-.27**	.72**	-.44**
6.	Preference to help when recipient can be seen	.02	.24**	.16*	.04	-.14*	1	-.13*	.74**	-.10	.40**
7.	Willingness to help even when results are in the future	.59**	-.24**	.59**	.35**	.72**	-.14**	1	-.25**	.71**	-.37**
8.	Preference to help when results are immediate	.04	.28**	.09	.02	-.08	.79**	-.18**	1	-.19**	.48**
9.	Willingness to help even when it is personally costly	.59**	-.15*	.68**	.24**	.54**	.07	.63**	.00	1	-.53**
10.	Reluctance to help when it is personally costly	-.28**	.33**	-.32**	.01	-.27**	.26**	-.31**	.38**	-.52**	1

Note. Correlations above the diagonal are for Study 1 and correlations below the diagonal are for Study 2.
** p<.01, *p<.05, ŧ p<.10

Table 4

Study 2 Correlations of Eudaimonic and Hedonic Orientations with Tendency to HELP or HINDER Others and Circumstances WHEN People are Willing to Help

N=244	Eudaimonic Orientation r	95% CI	Hedonic Orientation r	95% CI	Paired *t*-test Comparing Correlations	α
Do You Tend to HELP and/or HINDER Others?						
Helpful social behaviours	.36** (.28**)	[.25, .48]	.13* (.18**)	[.01, .25]	2.82*	.83
Hindering social behaviours	-.26** (-.09)	[-.38, -.14]	.18** (.08)	[.05, .30]	5.30**	.78
General behaviours to benefit others	.28** (.24**)	[.16, .40]	.09 (.11ŧ)	[-.04, .21]	2.26*	.85
General behaviours to avoid harming others	.13* (.05)	[.04, .29]	-.07 (-.02)	[-.17, .08]	2.30*	.77
WHEN Are You Willing to Help Others?						
Willingness to help even when recipient cannot be seen	.22** (.19**)	[.10, .34]	.08 (.10)	[-.04, .20]	1.64	.78
Preference to help when recipient can be seen	-.04 (.05)	[-.17, .09]	.04 (-.01)	[-.08, .17]	.91	.86
Willingness to help even when results are in the future	.33** (.26**)	[.21, .45]	.01 (.05)	[-.12, .13]	3.86**	.85
Preference to help when results are immediate	.00 (.09)	[-.13, .13]	.12ŧ (.07)	[.00, .25]	1.38	.87
Willingness to help even when it is personally costly	.32** (.30**)	[.21, .45]	.03 (.05)	[-.10, .16]	3.48**	.84
Reluctance to help when it is personally costly	-.16* (-.08)	[-.28, -.03]	.02 (-.02)	[-.10, .15]	2.08*	.83
Control Variable						
Balanced Inventory of Desirable Responding (Paulhus, 1991)	.34**	[.23, .46]	-.20**	[-.32, -.07]	6.73**	.78
Correlation Between Eudaimonic and Hedonic Orientations						
Hedonic orientation (Huta & Ryan, 2010)	.07 (.15*)	[-.05, .20]				.78
Eudaimonic orientation (Huta & Ryan, 2010)						.72

Note. The correlations in this table are semi-partial; correlations outside parentheses control for gender; correlations in parentheses control for gender and social desirable responding. CI's and paired t-tests are not provided for correlations that controlled for social desirability. Scales without a reference were created specifically for this research. ** p<.01, *p<.05, ŧ p<.10

Table 5

Correlations of Self-rated and Other-rated (Close Friends and Relatives) Eudaimonic and Hedonic Orientations with Other-rated Outcomes

N=16	Self-rating Eudaimonic Orientation	Other-rating Eudaimonic Orientation	Self-rating Hedonic Orientation	Other-rating Hedonic Orientation
Ratings of Participant by Relatives or Friends				
Eudaimonic orientation	.47†	1.00	-.27	.35
Hedonic orientation	.12	.35	.30	1.00
Helpful social behaviours	.32	.71**	-.16	.12
Hindering social behaviours	.22	-.16	.04	.03
General behaviours to benefit others	.34	.64**	-.02	.18
General behaviours to avoid harming others	.25	.27	.03	-.20
Willingness to help even when recipient cannot be seen	.39	.80**	-.16	.37
Preference to help when recipient can be seen	.38	.38	-.14	.33
Willingness to help even when results are in the future	.28	.77**	.18	.34
Preference to help when results are immediate	.55*	.40	-.04	.22
Willingness to help even when it is personally costly	.26	.72**	-.22	.20
Reluctance to help when it is personally costly	-.06	-.30	.29	-.02

Note. We were only interested in comparing other ratings of dependent variables with self and other eudaimonic and hedonic ratings. Results are based on Spearman correlations due to the small sample size.
**p<.01, *p<.05, † p<.10

Appendix A

Principal Components Analysis with Varimax Rotation of Items Assessing: Helpful Social Behaviours, and Hindering Social Behaviours

Scale	Helpful Social Behaviours	Hindering Social Behaviours
Doing a favour for someone or doing something to make them happy even when they did not ask it of you	**.75**	-.09
Taking care of others when they are feeling low	**.71**	-.18
Doing a favour for someone without expecting anything in return	**.69**	-.07
Giving someone advice or input you hope will benefit them	**.65**	-.01
Respecting others' opinions, even when they are quite different from your own	**.59**	-.17
Going out of your way to help someone when you could be doing something else for yourself	**.58**	-.03
Really listening to what others have to say	**.55**	-.24
Honouring your friends' needs for secrets and confidentiality	**.50**	-.15
Dealing with interpersonal conflict in an honest, straightforward manner	**.49**	.03
Being patient with others	**.43**	-.49
Knowingly (or semi-knowingly) being manipulative	-.09	**.74**
Knowing (or suspecting) you're being unfair to someone but doing it anyway	-.09	**.72**
Taking advantage of others when you want things your way	-.12	**.67**
Not paying attention to someone's needs	-.17	**.67**
Lying to someone (even white lies) for personal gain or to avoid personal stress	-.17	**.56**
Participating in the rumour mill just because the story is interesting	-.07	**.56**
Letting yourself be moody with others when you know you could control your behaviour	-.06	**.55**
Interfering with someone else's relationships when angry with him/her	-.08	**.52**

Note. Factor loadings > .40 are in boldface.

Appendix B

Principal Components Analysis with Varimax Rotation of Items Assessing: General Behaviours to Benefit Others, and General Behaviours to Avoid Harming Others

Scale	General Behaviours to Benefit Others	General Behaviours to Avoid Harming Others
I do good things for other people	**.82**	.12
I take care of those who are in need	**.79**	.07
I do favours for other people	**.73**	.23
I help someone when they need it	**.72**	.30
I do things to make other people happy	**.63**	.28
I refrain from doing things that might be hurtful to other people	.19	**.77**
I avoid doing things that might be unpleasant for others	.11	**.72**
I refrain from doing things that could have negative effects on my community	.20	**.71**
I avoid participating in activities that could be harmful to society	.14	**.70**
I am careful not to burden other people	.29	**.64**

Note. Factor loadings > .40 are in boldface.

Appendix C

Principal Components Analysis with Varimax Rotation of Items Assessing: Willingness to Help Even When Recipient Cannot Be Seen and Preference to Help When Recipient Can Be Seen

Scale	Willingness to Help Even When Recipient Cannot Be Seen	Preference to Help When Recipient Can Be Seen
I am likely to engage in helping activities even when I don't really get to see the recipient	**.79**	-.13
I am likely to help even if I don't get to see the effect I'm having	**.77**	-.10
I engage in helping activities even when my influence is indirect	**.76**	.06
I tend to help even if it's not face-to-face	**.75**	-.10
I am likely to help others even when I can't directly see them or interact with them	**.71**	-.06
I would rather help someone if I'm directly interacting with them	-.05	**.86**
I would rather help someone in a situation where I personally get to see the benefits of my helping	-.09	**.80**
I prefer to help someone I can see face-to-face, rather than someone I don't get to meet	.03	**.78**
I would rather do the kind of helping where I personally get to see the effect I'm having	-.10	**.77**
I prefer the kinds of helping where I get to see the recipient, see the smile on their face	-.16	**.77**

Note. Factor loadings > .40 are in boldface.

Appendix D

Principal Components Analysis of Items Assessing: Willingness to Helping Even when Results are in the Future, and Preference to Help when Results are Immediate

Scale	Willingness to Help Even when Results are in the Future	Preference to Help when Results are Immediate
I am inclined to help others even when they might not benefit until far into the future	**.80**	-.18
I am likely to help even in situations where I can't have an effect right away	**.78**	.03
I contribute to causes even when the benefits to others will develop slowly or gradually	**.76**	-.16
I like helping even when I might not find out the consequences in my lifetime	**.74**	-.11
I like to help someone even if it will only bear fruit for the person in the long run	**.67**	-.09
I prefer the kinds of helping where I get to have a positive effect right away	-.07	**.86**
I prefer to help in situations where I'll have an instant impact	-.12	**.85**
I get the most out of helping others when the benefits to them are immediate	.01	**.83**
I am more likely to help when I can have an effect right in that moment	-.17	**.82**
I prefer to help in situations where I don't have to wait very long to see the effect on the recipient	-.24	**.79**

Note. Factor loadings > .40 are in boldface.

Appendix E

Principal Components Analysis with Varimax Rotation of Items Assessing: Willingness to Help Even when it is Personally Costly and Reluctance to Help when it is Personally Costly

Scale	Willingness to Help Even when it is Personally Costly	Reluctance to Help when it is Personally Costly
I help even if it means I have to make a big personal sacrifice	**.82**	-.18
I help others even if it's very stressful for me	**.78**	-.15
I help someone even when it involves a lot of time or effort	**.77**	-.24
I help others even when it is challenging and difficult	**.70**	-.31
I am willing to help someone even if it costs me a lot of money or resources	**.68**	-.18
I'm sometimes reluctant to help if it's going to take a lot of effort	-.12	**.85**
I am hesitant to help someone if it's going to take a lot of my time or energy	-.14	**.79**
I am hesitant to do helping that requires a lot of sacrifice from me	-.29	**.77**
I'm reluctant to help someone if it's going to cost me money or resources	-.22	**.65**
I'm not a big fan of helping someone if it's going to make me feel stressed	-.30	**.63**

Note. Factor loadings > .40 are in boldface.

Running head: PERSONAL WELL-BEING AND HELPING MOTIVES

Chapter 4: Manuscript 3

Why do People Help?

The Relationship of Eudaimonic and Hedonic Orientations with Other-focused and Self-focused Motives for Helping

Keith Pearce

Veronika Huta

University of Ottawa

Abstract

Previous research has found that eudaimonic orientation (pursuit of growth, excellence, authenticity) relates to a larger variety of prosocial behaviours than hedonic orientation (pursuit of pleasure, comfort). In this study (N=443) we evaluated the relationship of eudaimonic and hedonic orientations with peoples' reasons for engaging in prosocial behaviours, including an array of other-focused/autonomous motives, self-focused/extrinsic motives and mixed other-focused/autonomous and self-focused/extrinsic motives. We assessed the prediction that eudaimonic orientation relates to helping for other-focused reasons by directly asking about helping motives and more indirectly by assessing whether dispositional empathic concern and perspective taking served as mediators in the link between eudaimonic orientation and prosocial behaviour. Findings showed that eudaimonic orientation related strongly to motives that were primarily other-focused/autonomous while hedonic orientation had little to no relation with these motives. Also, dispositional empathic concern and perspective taking partially mediated the link between eudaimonic orientation and prosocial behaviour. Both eudaimonic and hedonic orientation related to motives that were primarily self-focused/extrinsic (though only hedonic orientation related to helping to get a benefit in return), and those that were mixed other-focused/autonomous and self-focused/extrinsic. These results suggest that hedonic orientation tends to relate to prosocial behaviour if there are some personal benefits, while eudaimonic orientation is not simply other-focused, but also associated with a wide variety of motives that range from self-focused to other-focused.

Keywords*:* eudaimonia, hedonia, prosocial behaviour, altruistic motives, egoistic motives, empathy, perspective taking

Why do People Help?

The Relationship of Eudaimonic and Hedonic Orientations with Other-focused and Self-focused Motives for Helping

In the well-being literature, the two dominant routes to well-being are eudaimonic orientation (pursuit of growth, excellence and authenticity) and hedonic orientation (pursuit of pleasure and comfort; Deci & Ryan, 2006; Huta, 2013; Waterman, 1993). Previous studies have reported an association between eudaimonic orientation and benefitting close others (Huta, Pelletier, Baxter & Thomson, 2012), and prosocial behaviours towards others and the broader society (Pearce, Huta & Voloaca, 2017). Hedonic orientation has been linked to only some prosocial behaviours. We hoped to resolve the puzzling finding by Pearce and colleagues (2017) that hedonic orientation related to some prosocial behaviour. This is seemingly at odds with the conception of hedonic orientation as mostly self-focused and eudaimonic orientation as predominantly other-focused. Therefore, we investigated how eudaimonic and hedonic orientations relate to underlying motives for engaging in prosocial behaviours. Furthermore, we could explore whether eudaimonic orientation is entirely self-sacrificial or a combination of both other-focus and self-focus.

People engage in prosocial behaviours – voluntary acts intended to benefit another such as comforting, helping, giving and/or sharing (Eisenberg, Fabes, & Spinrad, 2006; Kidron & Fleischman, 2006), for various reasons, ranging from other-focused to self-focused (Batson, 1991; Cialdini, Schaller, Houlihan, Arps, Fultz, & Beaman, 1987; Clary et al., 1998; Eisenberg, Eggum, & Spinrad, 2015; see Stukas, Snyder, & Clary, 2015). According to the functional approach, individuals engage in prosocial behaviours to the extent that they have motives for these behaviours and to satisfy personal goals (Clary & Snyder, 1999; Clary, Snyder, Ridge,

Copeland, Haugen, & Miene, 1998). In the present study, we assessed an array of motives drawn from various researchers (Chacon et al., 2011; Clary & Snyder, 1999; Esmond & Dunlop, 2004). We looked at these motives in the context of general helping behaviours (e.g., helping an individual, or community).

A large amount of research on motives for helping is inferential and based on one's behaviours. For instance, research has examined whether someone is more likely to help if they reported a pre-existing positive or negative mood (e.g., Cialdini, Baumann, & Kenrick, 1981), or if there were observers present (e.g., Alpizar, Carlsson, & Johansson-Stenman, 2007; Van Vugt & Hardy, 2009). In the current study, we explicitly asked participants *why* they engage in prosocial behaviours in an effort to uncover their motives more directly. We also indirectly tested the notion that eudaimonic orientation related to other-focused motives for helping by looking at dispositional empathic concern and perspective taking as mediators in the link between eudaimonic orientation and prosocial behaviour.

We theoretically classified the above list of helping motives into three broad categories: other-focused/autonomous motives, self-focused/extrinsic motives (Batson, 1991; Deci & Ryan, 2000; Eisenberg & Fabes, 1998; Kasser & Ryan, 1996), and mixed other-focused/autonomous and self-focused/extrinsic motives. We formulated our hypotheses with respect to these three categories.

In general, we expected eudaimonic orientation to have greater links with other-focused helping motives, hedonic orientation to relate to more self-focused/extrinsic helping motives and both eudaimonic and hedonic orientations to show links with mixed other-focused/autonomous and self-focused/extrinsic helping motives.

Other-focused/Autonomous Motives

Other-focused motives were assessed with three variables: helping to express humanitarian values (i.e., concern for the needs and welfare of another), helping to have a positive impact, and helping for autonomous reasons (i.e., acting of your own volition, genuine concern about the needs and welfare of others; Weinstein, DeHaan, & Ryan, 2010).

Humanitarian values (i.e., self-transcendence values) have been linked to volunteering (Chacón, Pérez, Flores, & Vecina, 2011; Clary et al., 1998; Finkelstein & Brannick, 2007; Hustinx et al., 2010; McCabe, White, & Obst, 2007; Plagnol & Huppert, 2009), charitable donations (Bekkers & Ottoni-Wilhelm, 2016), civic engagement (Omoto, Snyder, & Hackett, 2010), and helping behaviours such as sharing and taking care of others' needs (Batson, 1991; Caprara, Alessandri, & Eisenberg, 2012; Daniel, Bilgin, Brezina, Strohmeier, & Vainre, 2015).

Indices of helping to have a positive impact, including communal motives (having concern for others and influencing one's community) and a world orientation (concern for making the world a better place), have also been linked to prosocial behaviours (Nelms, 2011; Oceja & Salgado, 2013).

Autonomous motivation for helping has been related to greater engagement in prosocial behaviours (e.g., giving in food drives, actively supporting causes; Gagné, 2003), later generosity (Weinstein & Ryan, 2010), prosocial work engagement and productivity (Grant, 2008), prosocial behaviour towards teammates and opponents in athletes (Sheehy & Hodge, 2015), and general willingness to help (e.g., offering time and money to a person in need; Pavey, Greitemeyer, & Sparks, 2012).

Hypothesis 1. Eudaimonic orientation, but not hedonic orientation will relate to motives for helping that are predominantly other-focused/autonomous.

In accord with previous theoretical accounts (e.g. Aristotle, 2001; Bauer, 2008; Fowers, 2012; Huta, 2015; Seligman, 2002; Wong, 2011, 2012), we believe eudaimonic orientation encompasses virtuous behaviour, a holistic concern for the broader world, and a desire to make a positive difference. Those who are striving for the best in themselves may be more sensitive to the well-being and needs of all individuals, and perceptive of the notion that self-development is intimately connected with societal development. Personal excellence is expected to incorporate moral excellence and striving to attain a level of virtue which fosters not only personal flourishing but also societal flourishing. Eudaimonic orientation was also expected to relate to autonomous motives for helping as this captures the authentic component of eudaimonic orientation which typically involves volitional engagement in accordance with one's values and interests (Kenyon, 2000; Oshana, 2007; Ryan, Huta, & Deci, 2008).

Dispositional Empathic Concern and Dispositional Perspective Taking

We indirectly tested the notion that eudaimonic orientation relates to other-focused reasons for helping by examining if empathic concern and perspective taking mediate the link between eudaimonic orientation and prosocial behaviour.

Although empathy is defined in various ways, researchers typically concur that empathy is an affective state stemming from the comprehension of another's emotional state or condition and feeling what another individual is feeling or expected to feel (Eisenberg, Eggum & Di Giunta, 2010; Eisenberg et al., 2006). Many scholars agree that empathy is a multifaceted construct consisting of two chief components (1) Emotional empathy (i.e., empathic concern) and (2) Cognitive empathy (i.e., perspective taking; Batson & Ahmad, 2009; Davis, 1980; Preston & Hofelich, 2012; Zaki & Ochsner, 2012). Empathy can include knowing a person's

internal state, feeling what another is feeling, projecting oneself into another's situation, or cognitively imagining how one would feel in the other's place (see Batson, 2009).

Empathic concern is typically characterized by feelings of sorrow or warmth toward another (Eisenberg et al., 2006). Researchers agree that empathic concern is essential for prosocial behaviour (Eisenberg et al., 1994), and numerous studies have supported this claim (e.g., Batson, 1991; Beadle, Sheehan, Dahlben, & Gutchess, 2015; see Dovidio, Piliavin, Schroeder, & Penner, 2006 for a review; Eisenberg et al., 2002; Lockwood, Seara-Cardoso, & Viding, 2014; Nils-Torge & Hans-Ruediger, 2012; Pavey et al., 2012; Stocks, Lishner, & Decker, 2008; Sze, Gyurak, Goodkind, & Levenson, 2012; Welp & Brown, 2013).

Perspective taking is the tendency to take the point of view of another or put oneself in another's position (Davis, 1980; Davis, 1983). This can occur in the absence of overt emotional cues and is based on imagining what the other is feeling (see Blair, 2005; Decety & Jackson, 2006). According to the Empathy-Altruism Model (Batson, 1991), an individual who is more inclined to take the perspective of another person and/or have empathic concern towards another is more likely to engage in subsequent helping. Indeed, many studies have linked perspective taking to prosocial behaviour (e.g., Batson et al., 2003; Carlo, Hausmann, Christiansen, & Randall, 2003; Carlo, Mestre, Samper, Tur, & Armenta, 2010; Lockwood et al., 2014; Myers, Laurent & Hodges, 2014; Oswald, 2002), and less perspective taking ability to reduced helping (Batson & Ahmed, 2009; Davis & Maitner, 2010).

Hypothesis 2. Dispositional empathic concern and dispositional perspective taking will relate to eudaimonic orientation but not hedonic orientation. Furthermore, these dispositions will mediate the link between eudaimonic orientation and prosocial behaviour.

Eudaimonic orientation is purported to be a more cognitive framework, based on a structure of abstract values, principles and ideologies which permits the person to step outside the boundaries of the self and take another's perspective (Huta, 2015). A eudaimonic mindset may foster the notion that self-flourishing is intimately linked with the thriving of an entire system because we are all interconnected. Empathic concern may intensify feelings of compassion and sympathy for others, while perspective taking increases self-other overalp, similarity and shared identity (Decety & Jackson, 2006). This proclivity to consider the needs of others and understand one's situation may subsequently facilitate engagement in prosocial behaviours. Hedonic orientation is expected to involve a narrower focus on self-indulgence and fulfilling concrete desires, and thus less tendency to imagine or project oneself into another's point of view. Additionally, hedonic orientation focuses primarily on seeking positive experiences and perhaps avoiding discomforting situations (i.e., other's suffering) that can evoke unpleasant emotions. Consequentially, this could lead to less proficiency to empathize with individuals undergoing a wide spectrum of emotional experiences.

Self-focused/Extrinsic Motives

Much of the work on self-focused helping motives (i.e., helping to benefit the self) has been conducted from the perspective of evolutionary psychology (Axelrod, 1984; Trivers, 1981). This research is typically concerned with the adaptive benefits of prosociality rather than individual differences in prosocial behaviours. Nonetheless, this research provides insight on people's ulterior motives for engaging in other-regarding behaviours.

In Self Determination Theory (SDT; Deci & Ryan, 2000) extrinsic motivation involves an attempt to attain specific desired consequences such as external rewards or to avoid threat or punishment (Deci & Ryan, 2000). Extrinsic motivation includes external regulation (e.g. control,

rewards), introjection (focus on approval), identification, and integration of goals into the self-concept. Extrinsic goals are based on the work of Kasser & Ryan (1993, 1996) and include power, money, fame, status and image/reputation. The present study focused on status and image/reputation motives. We grouped self-focused motives with extrinsic motives as these motives are conceptually linked and we expected the same predictions for both.

Researchers report that people engage in multitudinous self-focused motives including but not limited to: Obtaining benefits or rewards (e.g., monetary incentives; Bénabou, & Tirole, 2006; Lacetera, Macis, & Slonim, 2012); to advance one's career prospects (Black & Kovacs, 1999; Clary & Snyder, 1999; Dávila & Díaz-Morales, 2009); to garner social approval or avoid guilt (e.g., Croson, Handy, & Shang, 2009; Hibbert, Smith, Davies, & Ireland, 2007; Martin & Randal, 2008; Piazza & Bering, 2008; Renner, Lindenmeier, Tscheulin, & Drevs, & 2013; Wiepking & Heijnen, 2011); and to secure social recognition or reputation in both economic games and real-world settings (e.g., Alpizar & Martinsson, 2013; Barclay, 2004, 2012; Bateson, Nettle, & Roberts, 2006; Bereczkei, Birkas, & Kerekes, 2007; Ekström, 2012; Iredale, Van Vugt, & Dunbar, 2008; Powell, Roberts, & Nettle, 2012; Rege & Telle, 2004; Semmann, Krambeck, & Milinski, 2004; Wedekind & Braithwaite, 2002). We assessed each of the self-focused/extrinsic concepts reviewed above.

Hypothesis 3. Hedonic orientation, but not eudaimonic orientation, will relate to self-focused and extrinsic motives for helping

Our hypothesis is based on the premise that hedonic orientation will predominantly relate to achieving concrete rewards such as returned benefits, and boosting one's reputation, which may be concretely or immediately pleasant and/or gratifying. Hedonic orientation has been theoretically and empirically argued to be about "me, here and now" and thus presumably relates

to prosocial behaviour if this translates into some personal benefit (Baumeister et al., 2014; Huta, 2015, Pearce et al., 2017). Empirical findings have also shown that hedonic orientation is associated with extrinsic life goals (Anić & Tončić, 2013; Brdar & Anić, 2010; Huta, 2013), and hedonism has been linked to the tendency to help in public situations (Carlo & Randall, 2002), perhaps due to social pressure or enhancing social status.

Though we did not expect eudaimonic orientation to relate to self-focused/extrinsic motives, we suspected eudaimonic orientation may relate to helping to improve one's career prospects. Eudaimonic orientation emphasizes achievement and excellence (Huta & Ryan, 2010; Ryff & Singer, 2016; Vittersø, 2016; Waterman et al., 2010; Waterman, 1990) which may be particularly linked to one's career aspirations, especially if the career is considered a calling and perceived as meaningful (Dik & Duffy, 2009; Hall & Chandler, 2005; Hirschi, 2011).

Mixed Other-focused/Autonomous and Self-focused/Extrinsic Motives

We created a category of helping motives which we felt were theoretically a blend of other-focused/autonomous motives and self-focused/extrinsic motives. Our reasoning was further justified by Eisenberg and colleagues (2016) who delineated that motives for helping fall on a continuum from less selfish to more selfish. In particular, Eisenberg and colleagues (2016) theorized that helping to obtain rewards fall on the highest end of the altruistic-egoistic motivation continuum, with helping to build social relations, to reduce one's own arousal, to build self-esteem and for social approval falling in between, and helping to increase another's welfare (i.e., empathic concern) being the most other-oriented motive.

Prior research has investigated a host of motives which we believe are a mix of other-focused and self-focused motives for helping: Opportunities to develop social connections or to make new friends (e.g., Clary et al., 1998; Esmond & Dunlop, 2004; Greenslade & White, 2005;

Okun & Schultz, 2003; Pavey, Greitemeyer, & Sparks, 2011); to gain knowledge about oneself or others, exercise skills and abilities, and personally grow (e.g., Clary et al., 1998; Finkelstein, 2011; Gillath et al., 2005; Low, Butt, Ellis, & Davis Smith, 2007); to forget about one's own problems (Clary et al., 1998); to boost self-esteem or to feel important (Clary & Synder, 1999; Piliavin & Siegl, 2007); to alleviate one's own personal distress upon witnessing someone else's suffering (e.g. Negative State Relief Model; see Batson, Fultz, & Schoenrade, 1987; Batson, O'Quin, Fultz, Varnderplas, & Isen, 1983; Cialdini, Darby, & Vincent, 1973; Erlandsson, Jungstrand, & Västfjäll, 2016); and to feel good/joy or for the anticipation of enhanced mood (e.g., Warm-Glow theory; Andreoni, 1990; Baumann, Cialdini, & Kenrick, 1981; Guéguen & De Gail, 2003; Schaller & Cialdini, 1988).

Hypothesis 4. Both eudaimonic and hedonic orientations will relate to motives for helping that represent a mixture of other-focused/autonomous motives and self-focused/extrinsic motives.

Hedonic orientation was expected to relate to all the mixed motives mentioned above (except helping to gain understanding). These motives (e.g., connect and bond socially) can be fun and pleasant such as working as part of a team and expanding one's social network. Indeed, hedonic orientation has been previously associated with the gregariousness component of extraversion (Peterson, Ruch, Beermann, Park, & Seligman, 2007), and playfulness (Proyer, 2014), and also has stronger relations to socializing (Anić, 2014). Hedonic orientation was expected to be linked with helping to have the pleasurable feeling of caring and to boost self-esteem as these can provide warm feelings of affection or companionship which can be pleasurable. Hedonic orientation was also expected to relate to helping to forget one's own personal problems or alleviate discomfort upon witnessing distress since hedonic orientation

entails avoidance of pain and discomfort (Huta & Ryan, 2010; Kahneman, Diener, & Schwartz, 1999).

Eudaimonic orientation was predicted to relate to mixed motives which confer internal rewards (introjected regulation; Covington & Mueller, 2001), including to enhance understanding and skills, to build one's self-esteem, to connect and bond socially, and to have the pleasurable feeling of caring. Presumably, eudaimonically oriented individuals would aspire for some form of reward after helping and we'd predict this to be predominantly internal rewards. The aforementioned motives could particularly contribute to growth in various facets of life (e.g., overcoming new challenges, harnessing social skills, strengthening communal relations, generating feelings of meaning and accomplishment, widening one's perspectives about certain groups or events and causes). We made no specific hypotheses about eudaimonic orientation and helping to forget about one's personal problems or to alleviate one's personal discomfort upon witnessing suffering.

Gender Differences

Finally, previous studies have found gender differences in empathy and prosocial behaviour (e.g. de Caroli & Sagone, 2014; Eagly & Crowley, 1986; Einolf, 2010; Swickert, Robertson, & Baird, 2016). We therefore planned to control for gender in all analyses.

Method

Participants

A total of 624 undergraduate students from a Canadian university completed the study. However, participants were omitted if they incorrectly answered two validity check questions, if they had any missing data on the HEMA items, and greater than 10% missing data on all other variables. Participants were excluded prior to performing analyses to include more reliable data.

The final sample size was 443 participants (79% female, M_{age} =19.34, SD_{age}=3.04), who came from a variety of ethnic backgrounds: 64% Caucasian, 15% Asian, 6% African/Black, 5% Arabic, and 10% Other ethnicity, and academic backgrounds: 20% Psychology, 19% Other Social Sciences, 24% Health Sciences, 27% Sciences/Engineering, and 11% Arts/Humanities.

Procedures

Participants completed the study on a research website through Limesurvey and answered a number of self-report questionnaires. Participants received course credit for completing the study.

Measures

In addition to the details provided below, the means and standard deviations of all measures are provided in Appendix A.

Hedonic and Eudaimonic Motives for Activities (HEMA, Huta & Ryan, 2010). This instrument assesses two orientations to well-being: *Hedonic Orientation*, i.e., pursuing pleasure and comfort (five items, α=.77, "Seeking relaxation," "seeking pleasure," "seeking enjoyment," "seeking to take it easy," and "seeking fun"), and/or *Eudaimonic Orientation*, i.e., pursuing excellence, personal growth, and authenticity (four items, α=.78, "seeking to develop a skill, learn, or gain insight into something," "seeking to do what you believe in," "seeking to pursue excellence or a personal ideal," and "seeking to use the best in yourself"). The instructions read: "To what degree do you typically approach your activities with each of the following intentions, whether or not you actually achieve your aim?" The items are rated on a Likert scale from 1 (not at all) to 7 (very much).

Volunteering Functions Inventory (VFI, Clary et al., 1998). This 30-item questionnaire assesses motives for doing volunteer work, and is divided into six subscales of five

items each. We used the same items, but reworded most of them to inquire about motives for helping in general, rather than motives for volunteering in particular. The subscales were originally called Values, Understanding, Protective, Enhancement, Career, and Social. To make the content of each subscales more apparent in its label, we reworded some of the labels as follows: (1) *Express humanitarian values* (α=.85, e.g., "I am concerned about those less fortunate than myself", "I feel compassion toward people in need"), (2) *Enhance understanding and skills* (α=.86, e.g., "I can explore my own strengths by helping others", "Helping others allows me to gain a new perspective on things"), (3) *Forget own problems* (α=.82, e.g., "Helping others helps me work through my own personal problems", "Helping others is a good escape from my own troubles"), (4) *Build self-esteem* (α=.82, e.g., "Helping others increases my self-esteem", "Helping others makes me feel better about myself"), (5) *Improve career prospects* (α=.84, e.g., "Volunteering experience will look good on my resume", " I can make new contacts that might help my business or career"), and (6) *Conform socially* (α=.88, e.g., "People I know share an interest in community service", "Volunteering is an important activity to the people whom I know"). Instructions read: "Indicate how important or accurate each of the possible reasons for helping are for you when helping others or society/community". Respondents answer each item on a scale from 1 (not at all important/accurate) to 7 (extremely important/accurate). Previous research has reported good psychometrics (e.g., mean α=.81; Esmond & Dunlop, 2004).

Motivation to Help Scale (Weinstein & Ryan, 2010). This scale assesses one's motivational regulation for helping behaviour – whether one has *autonomous motives* for helping (five items, α=.88, e.g., "because I appreciated that my help could be useful", "because I think it is important to act in this way"), and/or *controlled motives* for helping (five items, α=.77, e.g.,

"because I feel I have to," "because others will get mad at me if I don't"). Participants are asked to rate the degree to which they agree with items on a scale from 1 (not at all) to 7 (very much).

Additional measures of motives for helping. We developed our own scale to measure other-focused and self-focused helping motives based on prior research by Chacón and colleagues (2011), who derived categories of helping motives through open-ended questions, and items from the Volunteer Motivation Inventory (Esmond & Dunlop, 2004). We did not use the full Volunteer Motivation Inventory (VMI) as many items were conceptually redundant with the omnipresent Volunteer Functions Inventory, and this measure also had lower past reliability (mean α=.72). Instructions read: "Indicate how important or accurate each of the possible reasons for helping are for you when helping others or society/community." Items are rated on a Likert scale from 1 (strongly disagree) to 7 (completely agree).

Principal component analysis (PCA) was run revealing eight factors with eigenvalues above 1. The scree plot suggested at most six factors[1]. We ran a 6-factor solution with Varimax-rotation, explaining 65% of the variance. The factors were fairly clean and loaded as we expected. Below are the categories we created (see Appendix B for factor loadings):

Have a positive impact. Motives focus on helping to make a positive difference for an individual, community, society, or the world (seven items, α=.94). This scale also separates relatively clear from express humanitarian values in PCA (fixed-2 factor) with two items cross-loading ("to make a positive difference in someone's life" and "I can do something for a cause that is important to me"). Additionally, previous scholars have conceptually differentiated helping to make a positive difference from Clary and Synder's (1999) express humanitarian values (Chacón et al, 2011; Esmond & Dunlop, 2004).

Alleviate personal discomfort at witnessing distress. Motives focus on helping to relieve one's own stress or anxiety from witnessing another suffer (five items, α=.86).

***Connect and bond socially*.** Motives focus on helping for social reasons such as to expand one's social network or work with a team (seven items, α=.90).

Have pleasurable feeling of caring. Motives focus on helping to experience warm feelings such as affection and fondness (four items, α=.79). These items clustered with alleviate personal discomfort at witnessing distress and did not form a separate factor. However, we felt these items were conceptually distinct and had an adequate alpha value.

Gain recognition and reputation. Motives focus on helping to receive recognition/appreciation or to boost one's reputation/image (five items, α=.87).

Get benefit in return. Motives focus on helping for external rewards or returned benefits (five items, α=.88).

Altruism scale (Johnson et al., 1989). This was our measure of *prosocial behaviour*. On this scale, participants report how often they have engaged in a wide range of prosocial behaviours (56 items, α=.92, e.g. "I have donated goods or clothes to a charity", "I have helped carry a stranger's belongings (books, parcels, etc.)", "I have donated blood"). Items are rated from 1 (never) to 5 (very often).

Interpersonal Reactivity Index (Davis, 1980). In this study, we used two of Davis' subscales, to capture the two main subtypes of empathy: *Empathic concern (emotional empathy)* (seven items, α=.78, e.g. "I often have tender, concerned feelings for people less fortunate than me", "Sometimes I don't feel very sorry for other people when they are having problems" reverse scored), and *perspective taking (cognitive empathy;* seven items, α=.76, e.g. "When I'm upset at someone, I usually try to 'put myself in his/her shoes' for a while", "I sometimes find it

difficult to see things from the other guy's point of view" reverse scored). Items are rated on a Likert scale from 1 (does not describe me well) to 7 (describes me very well).

Davis' scale also includes a subscale assessing personal distress as a motive for helping behaviour, but we felt that the subscale was too specific to emergency situations. We therefore developed our own measure of personal distress, as detailed above, to more generally assess a desire to alleviate feelings of discomfort which are aroused when witnessing someone suffer.

The fourth of Davis' subscales measures a tendency to fantasize, i.e., immerse oneself into the feelings of fictional characters in a movie, play, or book. This scale did not directly address our hypotheses, and thus was not included.

The Social Desirability Scale (Stöber, 2001). This scale measures the degree to which one desires to have a favourable self-presentation and was used as our control for *social desirability* (17 items, α=.74, e.g., "I always admit my mistakes openly and face the potential negative consequences", "I always eat a healthy diet"). Items are rated from 1 (never) to 7 (all the time).

Results

Preliminary Demographic Analyses

Gender was the demographic variable most often related to the variables in this study. We therefore proceeded to control for gender in all subsequent analyses. Specifically, females scored higher than males on autonomous motives ($t=3.06$, $p<.05$), express humanitarian values ($t=5.03$, $p<.01$), enhance understanding and skills ($t=4.10$, $p<.05$), forget own problems ($t=1.97$, $p<.05$), build self-esteem ($t=2.10$, $p<.05$), dispositional empathic concern ($t=5.73$, $p<.05$), have a positive impact ($t=3.96$, $p<.01$), and hedonic orientation ($t=2.98$, $p<.05$). Males scored higher than females on get benefit in return ($t=3.01$, $p<.05$).

Age correlated negatively with hedonic orientation ($r=.10$, $p<.05$) and positively with social desirability ($r=.11$, $p<.05$). One-way ANOVAs (Caucasian, Asian, African/Black, Arabic and Other) with Scheffé post-hocs showed that ethnicity related to conform socially ($F=5.78$, $p<.05$, Asian > Caucasian and Arabic).

Ruling out Potential Confounds

We examined the roles of two potential confounding variables: social desirability, and frequency of prosocial behaviour.

Eudaimonic orientation was significantly correlated with social desirability ($r=.28$, $p<.01$), while hedonic orientation was not ($r=-.06$, $p>.10$). Given that social desirability may be a confound when studying topics related to prosocial behaviour, all analyses in Table 1 were first performed while controlling for gender, and then again when controlling for both gender and social desirability. When comparing the two sets of analyses, all significant results remained significant and all nonsignificant results remained nonsignificant, except that hedonic orientation gained a positive relationship with perspective-taking when controlling for social desirability ($r=.11$, $p<.05$).

Eudaimonic orientation was significantly correlated with degree of prosocial behaviour ($r=.27$, $p<.01$), while hedonic orientation was not ($r=.07$, $p>.10$). We were concerned that highly eudaimonic individuals may give high scores on the various motives for helping simply because they engaged in a greater *degree* of helping, and we wanted to focus only on *motives* for helping in these analyses. Therefore, the analyses predicting motives for helping in Table 1 were first performed while controlling for gender, and then again when controlling for both gender and prosocial behaviour. When comparing the two sets of analyses, all significant results remained significant and all nonsignificant results remained nonsignificant.

Given that social desirability and degree of prosocial behaviour played little role in the analyses in Table 1, the table gives semi-partial correlations when controlling for gender only.

Tests of Hypotheses

Analyses were run in SPSS version 22. All tests of hypotheses appear in Table 1 and in Figure 1. Intercorrelations between all constructs are presented in Table 2.

Verifying Categories of Helping Motives

We wanted to check the validity of our categorizations of helping motives. We obtained ratings of the degree of selflessness and selfishness of each helping motive from three Doctoral Psychology students with knowledge of the prosocial literature (see Table 3). Ratings were from -7 (extremely selfish), 0 (neither selfish nor selfless/other-focused) to 7 (extremely selfless/other-focused). Our theoretical considerations were mostly supported; other-focused/autonomous motives were rated as most selfless, and self-focused/extrinsic motives were rated as relatively selfish. Ratings for mixed other-focused/autonomous and self-focused/extrinsic motives were partially in line with our theoretical designations. Although build self-esteem and to forget one's own problems were rated as relatively selfish, we present these findings as part of the mixed motives given Eisenberg and colleagues' (2016) rationale that these are mixed helping motives, and the notion that these motives typically confer internal benefits.

Hypothesis 1. Our hypothesis was largely supported. As predicted, eudaimonic orientation related to other-focused/autonomous motives for helping, while hedonic orientation had little or no relation with these motives. Specifically, hedonic orientation had a small link with autonomous motives. Even when removing the item from the autonomous motives scale which refers to personal enjoyment ("Because I think I will enjoy it"), hedonic orientation still had a significant relationship ($r=.10$ $p<.05$).

Hypothesis 2. The mediation analysis was performed using the SPSS Process macro by Hayes (2012). As shown in Figure 1, both empathic concern and perspective taking, entered simultaneously into the mediation analysis (controlling for gender at each stage) had significant positive regression coefficients with prosocial behaviour (β=.34, SE=.04, p=.000, β=.37, SE=.04, p=.000, respectively). Empathic concern (indirect effect β=.08, SE=.02, 95% CI =.03, .13) and perspective taking (indirect effect β=.06, SE=.02, 95% CI= .01, .13), were significant mediators.

The total effect of eudaimonic orientation on prosocial behaviour was significant (β=.28, SE=.05, p=.000). After controlling for the mediators, the direct effect of eudaimonic orientation on prosocial behaviour was β=.14 (SE=.05, p=.001), indicating that the mediators accounted for approximately 50% of the relationship between eudaimonic orientation and prosocial behaviour, but that the mediation was partial.

Hypothesis 3. Our hypothesis was partially supported. Hedonic orientation related to all self-focused/extrinsic motives; notably, only hedonic orientation related to helping to get benefit in return. However, eudaimonic orientation related to two of these motives: gain recognition and reputation and improve career prospects.

Hypothesis 4. Our hypothesis was mostly supported. Eudaimonic orientation related to some motives which we had predicted: Enhance understanding and skills, to connect and bond socially, build self-esteem, and have pleasurable feeling of caring. Unexpectedly, eudaimonic orientation related to motives which we had not predicted: Forget own problems, alleviate personal discomfort at witnessing distress, and conform socially.

Hedonic orientation related to most mixed motives for helping except for enhance understanding and skills and forget own problems. The forget own problems subscale had one item that related to social reasons for helping; “helping others is a way to make new friends”. We

ran correlations on this scale without this item and eudaimonic orientation remained significantly correlated ($r=.32$, $p<.01$), and hedonic orientation was now significantly correlated ($r=.15$, $p<.01$) with this measure.

Eudaimonic and Hedonic Orientation Controlling for Each Other

We ran additional analyses whereby eudaimonic and hedonic orientation controlled for each other (and gender). Hedonic orientation now had nonsignificant correlations with most motives for helping except it remained significantly correlated with: Get benefit in return ($r=.12$, $p<.05$), have the pleasurable feeling of caring ($r=.10$, $p<.05$), and gain recognition and reputation ($r=.10$, $p<.05$). Hedonic orientation no longer related to autonomous motives ($r=.02$, $p>.10$). There were no changes for eudaimonic orientation.

Discussion

The present study was the first to look at eudaimonic and hedonic orientations and their links with motives for engagement in prosocial behaviours. Overall, eudaimonic orientation related to a wider variety of motives for helping, including both other-focused/autonomous and self-focused/extrinsic motives, while hedonic orientation related little to other-focused/autonomous motives. Furthermore, this study demonstrated that only eudaimonic orientation related to dispositional empathic concern and perspective-taking, and that both these dispositions acted as mechanisms in the relationship between eudaimonic orientation and prosocial behaviour.

Eudaimonic Orientation as a Balance of Other-focus and Self-focus

The current data suggest that eudaimonic orientation is a balance of other-focus and self-focus, rather than being purely altruistic. While eudaimonic orientation related quite strongly to prosocial motives for helping, it also related to most self-focused and extrinsic motives except

for helping to get a benefit in return. Eudaimonic orientation related especially strongly to motives that provided an opportunity for personal growth, such as enhancing understanding and skills, improving career prospects, and building self-esteem. This makes sense considering eudaimonic orientation is about personal growth and excellence (Huta & Ryan, 2010; Vitterso et al., 2009; Waterman, 1993) and relates to a balance of challenges and skills (Waterman, Schwartz, & Conti, 2008). These motives also imply a level of investment or striving with delayed or future results (e.g. honing skills takes perseverance, improving career prospects is typically based on a future outcome).

Both eudaimonic and hedonic orientation related to social motives for helping, including conform socially and connect and bond socially. Social connections are fundamental in helpful situations (Aknin, Dunn, Sandstrom, & Norton, 2013); strengthening social ties and interpersonal relationships are imperative for personal psychological functioning (e.g. Canevello & Crocker, 2017; Kawachi & Berkman, 2001; Keyes, 2002; Ryff, 1989; Thoits, 2011). Thus, it is not entirely surprising that both orientations related to helping to socially bond. Eudaimonic orientation also related to helping to have the pleasurable feeling of caring – this may confer internal rewards and/or solidify relationships. Additionally, a recent study showed that people felt that helping for the anticipation of feeling good was actually indicative of genuine concern for others rather than an underlying selfish motive (Barasch, Levine, Berman, & Small, 2014).

One surprise was that eudaimonic orientation related to helping to gain recognition and reputation, to forget one's own problems as well as to alleviate personal discomfort at witnessing distress. This suggests that eudaimonically oriented individuals may help to have their prosocial efforts known, or to escape from personal problems perhaps by doing something meaningful. A prior study found that eudaimonic orientation was related to leaving a legacy or having an impact

(Huta & Zuroff, 2007), which typically requires some degree of recognition. Eudaimonic goals highlight aspects of the self which can entail concern for one's self-image. Also, personal distress may be used as a marker that a personally held value needs fulfilling. Having some compassion towards the self, including concern for one's image or mitigating one's own problems, may be conducive to aiding others. For instance, focus on one's personal values has been found to increase self-compassion which in turn mobilizes prosocial behaviour (Lindsay & Creswell, 2014).

If we consider all the constituents of eudaimonic orientation – personal growth, excellence, and authenticity it makes sense to view eudaimonic orientation in a realistic framework rather than solely selfless, virtuous behaviour. Possession of virtue is not an all or nothing phenomenon; a life of virtue can entail overcoming personal struggles and setbacks as well as concern for others (Aristotle, 2001). Virtuous behaviour, according to Aristotle (2001), also incorporates reasoning, wisdom, and flourishing for the self. Our findings reflect scholars' theories about harmony and well-roundedness: Wong's (2012) idea of well-being deriving from both individual and collective concern, Maslow's (1969) explication of self-transcendence whereby one focuses on the interconnectedness of all things, and the "quiet ego" which balances personal needs with the needs of others (Bauer, 2008; Bauer & McAdams, 2004; Wayment, Bauer, & Sylaska, 2014). Research shows that being high on both other-focused and impression management motives are strong predictors of affiliative citizen behaviours (Grant & Mayer, 2009), and De Dreu and Nauta (2009) found that people can be high on both other-concern and self-concern. Moreover, researchers have discussed pathological altruism – an unhealthy form of extreme guilt and concern for others, which can lead to unhealthy well-being (Oakely, Knafo, & McGrath, 2012; O'Connor, Berry, Lewis, & Stiver, 2012), excessive self-sacrifice, burnout at

work, stress, or feeling obligated to help (see Bolino & Grant, 2016). Excessive altruism likely gets reined in precisely by a healthy concern for the self.

Eudaimonic orientation tended to involve greater emotional empathy for others and a deeper cognitive appreciation of other peoples' points of view. This suggests that eudaimonic orientation is important for stepping outside the self and imagining another's position, or merging oneself with another to some degree (Bauer, 2008). Being both affectively and cognitively attuned to one's circumstances tends to play a role in promoting engagement in actual prosocial behaviours, in line with theoretical accounts (Batson, 2009; Eisenberg et al., 2006). However, empathic concern and perspective taking were only partial mediators; other mechanisms may be involved in this link including one's feelings of competence in a given helping situation, one's moral identity, or emotion regulation abilities (Eisenberg & Okun, 1996).

Our findings also suggest that not only hedonic orientation is a double-edged sword, but eudaimonic orientation can have a dark side too – an area for future investigation.

Hedonic Orientation and Narrow Focus

Hedonic orientation tended to be about helping when there was some form of personal advantage such as for returned benefits, which is arguably one of the more selfish and concrete motives.

As with eudaimonic orientation, hedonic orientation was associated with social motives for helping, confirming previous research linking hedonic orientation with the gregarious component of extraversion (Peterson et al., 2007) and companionship with friends (Holman & Zimbardo, 2009). Indeed, extraversion is linked to prosocial behaviours such as volunteering (Bekkers, 2005; Okun, Pugliese, & Rook, 2007). Future research would benefit by disentangling

hedonia's links with prosocial behaviour (i.e., helping others) and general social behaviour (e.g., partying, charismatic behaviour, small talk with friends/acquaintances, networking).

Hedonic orientation related to helping to alleviate personal discomfort at witnessing distress, confirming our hypothesis that hedonic orientation may involve a need to alleviate a self-focused aversive reaction due to the desire for pleasant affect. Hedonic orientation also related to gain recognition and reputation suggesting the desire to enhance one's status (which can be pleasant).

Regarding other-focused motives, hedonic orientation only related to autonomous motives, perhaps because hedonic goals are intrinsically motivated to a certain extent (Gebauer, Riketta, Broemer & Maio, 2008; Ryan & Deci, 2000). However, this link disappeared when controlling for eudaimonic orientation, suggesting that eudaimonic goals were driving this effect (or perhaps an interplay between eudaimonic and hedonic pursuits).

Limitations and Future Directions

Despite the advantages of the present study, there were some limitations and areas for future research. The study provided the link between pursuits of well-being and helping motives, however we recognize that helping motives can change over the life time (Omoto, Snyder & Martino, 2000) and in different situations (Houle, Sagarin, & Kaplan, 2005). Therefore, longitudinal designs would be beneficial for assessing the dynamics between eudaimonic and hedonic orientations and the trajectory of helping motives. Moreover, future research could directly address whether eudaimonically oriented individuals are more likely to engage in real-time prosocial behaviour in the lab and if this is mediated by a certain motive (e.g., express humanitarian values). Additionally, it would be worthwhile to look at motives in economic game

paradigms which tap into cooperative behaviours in real time (e.g., Brodbeck, Kugler, Reif, & Maier, 2013; Espin, Exadaktylos, & Neyse, 2016).

Prosocial behaviours encompass a wide range of behaviours including cooperation, donations, volunteering, spontaneous face-to-face helping and more (Staub, 1978). Future studies could pinpoint motives for engaging in specific behaviours to ascertain the links between eudaimonic and hedonic orientations and helping motives. For instance, career motives may be particularly relevant in the volunteering domain.

Another limitation is the generalizability of our findings given that our sample was university students who may be more focused on certain motives such as career motives (e.g. Eley, 2003; Clary & Snyder, 1999; Hall, Lasby, Gumulka, & Tryon, 2006; Hustinx et al., 2010). Assessing a wider age range and cultural groups may produce more distinct findings.

This study addressed mediators in the link between eudaimonic orientation and prosocial behaviours. A next step would be to explore common moderators of prosocial behaviours in relation to well-being orientations such as social competence/ability (see Eisenberg et al., 2013), and empathic self-efficacy (belief that one can regulate their emotions; Alessandri, Caprara, Steca, & Eisenberg, 2009; Anme et al., 2014).

Future research would also benefit from unpacking the dark side of eudaimonic orientation. As we found, eudaimonic orientation is not entirely about virtuous behaviour, but rather a blend of self and other concern. Research could look at the optimal balance of self and other concern needed to benefit the world at large.

Conclusion

Overall, the current data provide a richer understanding of personal pursuits of well-being and motives for helping others. The findings give us a more nuanced picture of the juxtaposition

among eudaimonic orientation and hedonic orientation. Particularly, eudaimonic orientation tended to be characterized by a blend of other-focused and self-focused motives, while hedonic orientation had relatively little relationship with other-focused motives. Furthermore, both affective and cognitive empathy were mechanisms in the association between eudaimonic orientation and engaging in prosocial behaviours. These findings have practical implications for a wide variety of domains including, but not limited to, accentuating eudaimonic goals in academic and occupational settings, encouraging community contributions through message framing or advertising which appeals to one's well-being orientation, as well as encouraging or maintaining healthy interpersonal relations.

Endnotes

1. We decided to remove the following items which had ambiguous loadings and in retrospect didn't conceptually fit with the categories we were measuring: "To get involved in the problems of my people", "Only if fun is involved" and "Only if it makes me feel good." Initially we had developed items to reflect helping for reciprocity, but this scale had a low alpha (.66) and thus this scale was dropped ("Because I believe that you receive what you put out in the world", "Others help me I should help others", "Because it is fair" and "To share what I have been given").

References

Aknin L. B., Dunn E. W., Sandstrom G. M., & Norton M. I. (2013). Does social connection turn good deeds into good feelings? On the value of putting the "social" into prosocial spending. *International Journal of Happiness and Development*, 1, 155–171. doi: 10.1504/IJHD.2013.055643

Alessandri,G., Caprara, G.V., Steca, P., & Eisenberg, N. (2009). Reciprocal relations among self-efficacy beliefs and prosociality across time. *Journal of Personality*, 77, 1229-1259. doi: 10.1111/j.1467-6494.2009.00580.x

Allison, L. D., Okun, M. A., & Dutridge, K. S. (2002). Assessing volunteer motives: A comparison of an open-ended probe and Likert-rating scales. *Journal of Community and Applied Social Psychology*, 12, 243-255. doi: 10.1002/casp.677

Alpizar, F., Carlsson, F., & Johansson-Stenman, O. (2007). Anonymity, reciprocity, and conformity: Evidence from voluntary contributions to a national park in Costa Rica. *Journal of Public Economics*, 92, 1047-1060. doi: 10.1016/j.jpubeco.2007.11.004

Alpizar, F., & Martinsson, P (2013). Does it matter if you observed by others? Evidence from donations in the field. *The Scandinavian Journal of Economics*, 115, 74-83. doi: 10.1111/j.1467-9442.2012.01744.x

Andreoni J. (1990). Impure altruism and donations to public goods: A theory of warm-glow giving. *The Economic Journal*, 100, 464–477.

Andreoni, J., & Petrie, R. (2008). Public goods experiments without confidentiality: a glimpse into fund-raising. *Journal of Public Economics,* 88, 1605-1623. doi:10.1016/S0047-2727(03)00040-9

Anić, P. (2014). Hedonic and eudaimonic motives for favourite leisure activities. *Primenjena Psihologija* 7, 5–21.

Anić, P., & Tončić, M. (2013). Orientations to happiness, subjective well-being and life goals. *Psihologijske teme,* 22, 135-153.

Anme, T., Tokutake, K., Tanaka, E., Watanabe, T., Tomisaki, E., Mochizuki, Y., Wu, B.,...Sadato, N. (2014). Validity and Reliability of the Interaction Rating Scale Advanced (IRSA) as an Index of Social Competence Development. *Public Health Research*, 4, 25-30. doi: 10.5923/j.phr.20140401.05.

Aristotle (2001). *The Nicomachean ethics (R. Crisp, Trans.).* Cambridge: Cambridge University Press.

Axelrod R. (1984). *The evolution of cooperation.* New York: Basic Books.

Barasch, A., Levine, E.E., Berman, J.Z., & Small, D.A. (2014). Selfish or selfless? On the signal value of emotion in altruistic behavior. *Journal of Personality and Social Psychology*, 107, 393-413. doi: 10.1037/a0037207

Barclay P. (2004). Trustworthiness and competitive altruism can also solve the "tragedy of the commons." *Evolution and Human Behaviour*, 25, 209–220. Retrieved from http://dx.doi.org/10.1016/j.evolhumbehav.2004.04.002

Barclay, P. (2012). Harnessing the power of reputation: strengths and limits for promoting cooperative behaviours. *Evolutionary Psychology*, 10, 868-883.

Bateson M., Nettle D., & Roberts G. (2006). Cues of being watched enhance cooperation in a real-world setting. *Biology Letters*, 2, 412–414. doi: 10.1098/rsbl.2006.0509

Batson, C. D. (1991). *The altruism question: Toward a social-psychological answer*. Hillsdale, NJ: Erlbaum.

Batson, C.D. (2009). These things called empathy: Eight related but distinct phenomena. In J. Decety & W. Ickes (Eds.), *The social neuroscience of empathy* (pp. 3-15). Cambridge, MA: MIT Press.

Batson, C. D., & Ahmad, N. Y. (2009). Empathy-induced altruism: A threat to the common good. In S. R. Thye & E. J. Lawler (Eds.), *Altruism and prosocial behaviour in groups*, a special volume of *Advances in Group Processes*. New York: Elsevier.

Batson, C. D., Fultz, J., & Schoenrade, P.A. (1987). Distress and empathy: Two qualitatively distinct vicarious emotions with different motivational consequences. *Journal of Personality*, 55, 19-39. doi: 10.1111/j.1467-6494.1987.tb00426.x

Batson, C. D., Lishner, D. A., Carpenter, A., Dulin, L., Harjusola-Webb, S., Stocks, E. L., Gale, S., . . .Sampat, B. (2003). ‘‘... As you would have them do unto you’’: Does imagining yourself in the other’s place stimulate moral action? *Personality & Social Psychology Bulletin,* 29, 1190–1201. doi:10.1177/0146167203254600

Batson, C. D., O’Quin, K., Fultz, J., Varnderplas, M., & Isen, A. M. (1983). Influence of self-reported distress and empathy on egoistic versus altruistic motivation to help. *Journal of Personality and Social Psychology,* 45, 706–718.

Bauer, J.J. (2008). How the ego quiets as it grows: Ego development, growth stories, and eudaimonic personality development. In H.A. Wayment & J.J. Bauer (Eds.), *Transcending self-interest: Psychological explorations of the quiet ego* (pp. 199–210). Washington, DC: American Psychological Association.

Baumann, D. J., Cialdini, R. B., & Kenrick, D. T. (1981). Altruism as hedonism: Helping and self-gratification as equivalent responses. *Journal of Personality and Social Psychology*, 40, 1039-1046. http://dx.doi.org/10.1037/0022-3514.40.6.1039

Beadle, J.N., Sheehan, A.H., Dahlben, B., & Gutchess, A.H., (2013). Aging, empathy, and prosociality. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences*, 70, 215-224. doi:10.1093/geronb/gbt091

Bekkers R. (2005). Participation in voluntary associations: Relations with resources, Personality, and political values. *International Society of Political Psychology*, 26, 439–454.

Bekkers, R., & Ottoni-Wilhelm (2016). Principle of care and giving to help people in need. *European Journal of Personality*, 30, 240-257. doi: 10.1002/per.2057

Bénabou, R., & Tirole, J. (2006). Incentives and prosocial behaviour. *American Economic Review*, 96, 1652–1678.

Bereczkei T., Birkas B., & Kerekes Z. (2007). Public charity offer as a proximate factor of evolved reputation-building strategy: An experimental analysis of a real-life situation. *Evolution and Human Behavior,* 28, 277–284. http://dx.doi.org/10.1016/j.evolhumbehav.2007.04.002

Black, B., & Kovacs, P.J. (1999). Age-related variation in roles performed by hospice volunteers. *The Journal of Applied Gerontology*, 18, 479-497.

Blair, R. J. R. (2005). Responding to the emotions of others: Dissociating forms of empathy through the study of typical and psychiatric populations. *Consciousness and Cognition,* 14, 698–718. doi:10.1016/j.concog.2005.06.004

Bolino, M.C., & Grant, A.M. (2016). The bright side of being prosocial at work, and the dark side, too: A review and agenda for research on other-oriented motives, behaviour and impact in organizations. *The Academy of Management Annals*, 10, 1-94. http://dx.doi.org/10.1080/19416520.2016.1153260

Bradburn, N. M. & Sudman, S. (1979). *Improving Interview Method and Questionnaire Design*, San Francisco: Jossey-Bass.

Brdar, I., & Anić, P. (2010). Adolescents' life goals, orientations to happiness and psychological needs: Which is the best path to happiness?. *Psihologijske teme,* 19, 169-187.

Brodbeck, F.C., Kugler, K.G., Reif, J.A.M. & Maier, M.A. (2013). Morals matter in economic games. *PLoS One*, 8, doi:10.1371/journal.pone.0081558.

Canevello, A., & Crocker, J. (2017). Compassionate goals and affect in social situations. *Motivation and Emotion*, 41, 158-179. doi:10.1007/s11031-016-9599-x

Caprara, G.V., Alessandri, G., & Eisenberg, N. (2012). Prosociality: the contribution of traits, values, and self-efficacy beliefs. *Journal of Personality and Social Psychology, 102*, 1289-1303. doi: 10.12691/rpbs-2-2-3

Caprara, G.V., & Steca, P. (2005). Self-efficacy beliefs as determinants of prosocial behavior conducive to life satisfaction across ages. *Journal of Social and Clinical Psychology*, 24, 191–217. doi: 10.1521/jscp.24.2.191.62271.

Carlo, G., Hausmann, A., Christiansen, S., & Randall, B. A. (2003). Sociocognitive and behavioural correlates of a measure of prosocial tendencies for adolescents. *Journal of Early Adolescence*, 23, 107–134. doi: 10.1177/0272431602239132

Carlo, G., Mestre, M. V., Samper, P., Tur, A., & Armenta, B. E. (2010). Feelings or cognitions? Moral cognitions and emotions as longitudinal predictors of prosocial and aggressive behaviours. *Personality and Individual Differences*, 48, 872–877. doi: 10.1016/j.paid.2010.02.010

Carlo, G., & Randall, B. A., (2002). The Development of a Measure of Prosocial Behaviors for Late Adolescents. *Journal of Youth and Adolescence*, 31, 31-44. doi: 10.1023/A:1014033032440

Chacón, F., Pérez, T., Flores, J., & Vecina, M.L. (2011). Motives for volunteering: Categorization of volunteers' motivations using open-ended questions. *Psychology in Spain*, 15, 48-56.

Cialdini, R. B., Baumann, D. J., & Kenrick, D. T. (1981). Insights from sadness: A three-step model of the development of altruism as hedonism. *Developmental Review*, 1, 207-223.

Cialdini, R. B., Darby, B. L., & Vincent, J. E. (1973). Transgression and altruism: A case for hedonism. *Journal of Experimental Social Psychology*, 9, 502-516.

Cialdini, R.B, Schaller, M., Houlihan, D., Arps, K., Fultz, J., & Beaman, A.L (1987). Empathy-based helping: Is it selflessly or selfishly motivated? *Journal of Personality and Social Psychology*, 52, 749-758. doi: 10.1037/0022-3514.52.4.749

Clary, E.G., & Snyder, M. (1991). A functional analysis of altruism and prosocial behavior: The case of volunteerism. In M. Clark (Ed.), *Review of personality and social psychology: Vol. 12* (pp. 119–148). Newbury Park, CA: Sage.

Clary, E.G., & Snyder, M. (1999). The motivations to volunteer: Theoretical and practical considerations. *Current Directions in Psychological Science*, 8, 156-159. doi:10.1111/1467-8721.00037

Clary, E. G., Snyder, M., Ridge, R. D., Copeland, J., Stukas, A. A., Haugen, J. A., & Miene, P. K. (1998). Understanding and assessing the motivations of volunteers: A functional approach. *Journal of Personality and Social Psychology*, 74, 1516-1530.

Covington, M.V., & Mueller, K.J. (2001). Intrinsic vs. extrinsic motivation: An approach/avoidance reformulation. *Educational Psychology Review*, 13, 157-176.

Croson, R., Handy, F., & Shang, J. (2009). Keeping up with the Joneses: The relationship of perceived descriptive social norms, social information, and charitable giving. *Nonprofit Management and Leadership*, 19, 467-489. doi: 10.1002/nml.232

Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology*, 24, 349-354. doi: 10.1037/h0047358

Daniel, E., Bilgin, A.S., Brezina, I., Strohmeier, C.E., & Vainre, M. (2015). Values and helping behaviour: A study in four cultures. *International Journal of Psychology*, 50, 186-191. doi: 10.1002/ijop.12086

Dávila de León, M.C., & Díaz-Morales, J.F. (2009). Age and motives for volunteering: Further evidence. *Europe's Journal of Psychology*, 5, 82-95. doi: 10.5964/ejop.v5i2.268

Davis, M.H. (1980). A multidimensional approach to individual differences in empathy. *Journal of Personality and Social Psychology*, 44, 113-126. doi: 10.1037/0022-3514.44.1.113

Davis, M.H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44, 113-126.

Davis, M.H., & Maitner, A.T. (2010). Perspective taking and intergroup helping. In Stürmer, S. & Snyder, M. (Eds.), *The psychology of prosocial behaviour: Group processes, intergroup relations, and helping* (pp. 175-190). Oxford, UK: Blackwell.

De Caroli, M.E., & Sagone, E. (2014). Belief in a just world, prosocial behaviour, and moral disengagement in adolescence. *Procedia Social and Behavioral Sciences*, 116, 596-600. doi: 10.1016/j.sbspro.2014.01.263

Decety, J., & Jackson, P. L. (2006). A social-neuroscience perspective on empathy. *Current Directions in Psychological Science,* 15*,* 54–58. doi: 10.1111/j.0963-7214.2006.00406.x

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behaviour*. New York: Plenum.

Deci, E. L., & Ryan, R. M. (2000). The 'what' and 'why' of goal pursuits: Human needs and the self-determination of behaviour. *Psychological Inquiry*, 11, 227-268.

Deci, E. L., & Ryan, R. M. (2006). Hedonia, eudaimonia, and well-being: An introduction. *Journal of Happiness Studies*, 9, 1–11.

De Dreu, C.K., & Nauta, A. (2009). Self-interest and other-orientation in organizational behaviour: implications for job performance, prosocial behaviour, and personal initiative. *Journal of Applied Psychology*, 94, 913-926. doi: 10.1037/a0014494

Dik, B. J., & Duffy, R. D. (2009). Calling and vocation at work: Definitions and prospects for research and practice. *The Counseling Psychologist*, 37, 424–450. doi:10.1177/0011000008316430

Dovidio, J.F., Piliavin, J.A., Schroeder, D.A., & Penner, L.A. (2006). *The Social Psychology of Prosocial Behaviour*. Mahwah, N.J.: Lawrence Erlbaum.

Eagly, A.H., & Crowley, M. (1986). Gender and helping behaviour: A meta-analytic review of the social psychological literature. *Psychological Bulletin*, 100, 283-308. doi: 10.1037/0033-2909.100.3.283

Einolf, C.J. (2001). Gender differences in the correlates of volunteering and charitable giving. *Nonprofit and Volunteering Quarterly, 40,* 1092-1114.

Eisenberg, N., Eggum, N. D., & Giunta, L.D. (2010). Empathy-related responding: Associations with prosocial behavior, aggression, and intergroup relations. *Social Issues Policy Review*, 4, 143–180. doi:10.1111/j.1751-2409.2010.01020.x

Eisenberg, N., Eggum, N.D., & Spinrad, T.L. (2015). Oxford handbook of prosocial behavior. In D. A. Schroeder & W. G. Graziano (Eds.), *The development of prosocial behaviour* (pp.114-136). Oxford University Press. doi: 10.1093/oxfordhb/9780195399813.013.008

Eisenberg, N., & Fabes, R.A. (1998). Handbook of child psychology. Social, emotional, and personality development. In W. Damon & N. Eisenberg (Eds.), *Prosocial development* (pp. 701–778. New York: Wiley & Sons.

Eisenberg, N., Fabes, R. A, Murphy, B., Karbon, M., Maszk, P., Smith, M., Boyle, C., & Suh, K. (1994). The relations of emotionality and regulation to dispositional and situational empathy-related responding. *Journal of Personality and Social Psychology*, 66, 776–97.

Eisenberg, N., Fabes, R., & Spinrad, T. (2006). Prosocial development. In N. Eisenberg & W. Damon (Eds.), *Handbook of child psychology* (6th ed., pp. 646– 718). New York: Wiley.

Eisenberg, N., Guthrie, I., Cumberland, A., Murphy, B.C., Shepard, S.A., Zhou, Q., & Carlo, G. (2002). Prosocial development in early adulthood: A longitudinal study. J*ournal of Personality and Social Psychology*, 82, 993–1006.

Eisenberg, N., Vanschyndel, S.K., & Spinrad, T.L. (2016). Prosocial motivation: Inferences from an opaque body of work. *Child Development*, 87, 1668-1678. doi: 10.1111/cdev.12638

Ekström, M. (2012). Do watching eyes affect charitable giving? Evidence from a field experiment. *Experimental Economics,* 15, 530-546. doi: 10.1007/s10683-011-9312-6.

Eley, D. (2003). Perceptions of and reflections on volunteering: The impact of community service on citizenships in students. *Voluntary Action*, 5, 27-46.

Erlandsson, A., Jungstrand, A.A., & Vastfjall, D. (2016). Anticipated guilt for not helping and anticipated warm glow for helping are differently impacted by personal responsibility to help. *Frontiers in Psychology*, 7, 1475. doi: 10.3389/fpsyg.2016.01475

Esmond, J., & Dunlop, P. (2004). Developing the Volunteer Motivation Inventory to assess the underlying motivational drives of volunteers in Western Australia. CLAN WA Inc.

Espin, A.M., Exadaktylos, F., & Neyse, L. (2016). Heterogeneous motives in the trust game: A tale of two roles. *Frontiers in Psychology,* 7, 728. doi: 10.3389/fpsyg.2016.00728

Finkelstein, M.A. (2011). Intrinsic/extrinsic motivation and organizational citizenship behaviour: A functional approach to OCB. *Journal of Psychological Issues in Organizational Culture*, 2, 19-34. doi: 10.1002/jpoc.20054

Finkelstein, M.A. & Brannick, M.T. (2007). Applying theories of institutional helping to informal volunteering: Motives, role identity, and prosocial personality. *Social Behaviour and Personality: An International Journal*, 35, 101-114. doi: 10.2224/sbp.2007.35.1.101

Fowers, B.J. (2012). An Aristotelian framework for the human good. *Journal of Theoretical and Philosophical Psychology*, 32, 10-23.

Gagne´, M. (2003). The role of autonomy support and autonomy orientation in prosocial behaviour engagement. *Motivation and Emotion*, 27, 199–223.

Gebauer, J. E., Riketta, M., Broemer, P., & Maio, G. R. (2008). Pleasure and pressure based prosocial motivation: Divergent relationships to subjective well-being. *Journal of Research in Personality,* 42, 399-420. doi:10.1016/j.jrp.2007.07.002

Gillath, O., Shaver, P. R., Mikulincer, M., Nitzberg, R. A., Erez, A., & van IJzendoorn, M. H. (2005). Attachment, caregiving, and volunteering: Placing volunteerism in an attachment-

theoretical framework. *Personal Relationships*, 12, 425– 446. doi: 10.1111/j.1475-6811.2005.00124.x

Grant, A. M. (2008). Does intrinsic motivation fuel the prosocial fire? Motivational synergy in predicting persistence, performance, and productivity. *Journal of Applied Psychology*, 93, 48-58. doi: 10.1037/0021-9010.93.1.48

Grant, A.M., & Mayer, D.M. (2009). Good Soldiers and Good Actors: Prosocial and Impression Management Motives as Interactive Predictors of Affiliative Citizenship Behaviours. *Journal of Applied Psychology*, 94, 900-912. doi: 10.1037/a0013770

Graziano, W.G., Habashi, M. Sheese, B.E., & Tobin (2007). Agreeableness, empathy, and helping: A person -situation perspective. *Journal of Personality and Social Psychology*, 93, 583-599. doi: 10.1037/0022-3514.93.4.583

Greenslade, J.H., & White, K.M. (2005). The prediction of above-average participation in volunteerism: a test of the theory of planned behaviour and the volunteers functions inventory in older Australian adults. *The Journal of Social Psychology*, 145, 155-172.

Griskevicius, V., Tybur, J.M., Sundie, J.M., Cialdini, R.B., Miller, G.F., & Kenrick, D.T. (2007) Blatant benevolence and conspicuous consumption: When romantic motives elicit strategic costly signals. *Journal of Personality and social Psychology*, 93, 85-102. doi: 10.1037/0022-3514.93.1.85

Guéguen, N., & De Gail, M-A. (2003). The Effect of Smiling on Helping Behavior: Smiling and Good Samaritan Behaviour. *Communication Reports*, 16, 133-140. doi: 10.1080/08934210309384496

Hall, D.T., & Chandler, D.E. (2005). Psychological success: when the career is a calling. *Journal of Organizational Behaviour*, 26, 155-76. doi: 10.1002/job.301

Hall, M., Lasby, D., Gumulka, G., & Tryon, C. (2006). Caring Canadians, involved Canadians: Highlights from the 2004 Canada Survey of Giving, Volunteering and Participating. Ottawa, ON: Statistics Canada.

Hayes, A. F. (2012). PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling [White paper]. Retrieved from http://www.afhayes.com/public/process2012.pdf

Hibbert, S., Smith, A., Davies, A., & Ireland, F. (2007). Guilt appeals: Persuasion, knowledge and charitable giving. *Psychology and Marketing*, 24, 723-774. doi: 10.1002/mar.20181

Hirschi, A. (2011). Effects of orientations to happiness on vocational identity achievement. *Career Development Quarterly*, 59, 367–378. doi:10.1002/j.2161-0045.2011.tb00075.x

Hoffman, M. L. (2008). Empathy & prosocial behavior. In M. Lewis, J. Haviland-Jones, & L. Feldman Barrett (Eds.), *Handbook of emotions* (3rd ed., Vol. 24, p. 298). The Guilford Press. doi:10.2307/2076468

Holman, A., & Zimbardo, P.G. (2009). The social language of time: The time-perspective-social network connection. *Basic and Applied Social Psychology*, 31, 136-147. doi: 10.1080/01973530902880415

Houle, B.J., Sagarin, B.J., & Kaplan, M.F. (2005). A functional approach to volunteerism: Do volunteer motives predict task preference? *Basic and Applied Social Psychology* 27, 337-44.

Hustinx, L., Handy, F., Cnaan, R. A., Brudney, J. L., Pessi, A. B., & Yamauchi, N. (2010). Social and cultural origins of motivation to volunteer: A comparison of university students in six countries. *International Sociology*, 25, 349-382. doi: 10.1177/0268580909360297

Huta, V. (2013). Pursuing eudaimonia versus hedonia: Distinctions, similarities, and relationships. In A. Waterman (Ed.), *The best within us: Positive psychology perspectives on eudaimonic functioning* (pp. 139–158). Washington, DC: APA Books.

Huta, V. (2015). The complementary roles of eudaimonia and hedonia and how they can be pursued in practice. In S. Joseph (Ed.), *Positive psychology in practice: promoting human flourishing in work, health, education, and everyday life* (2nd ed., pp. 159-182). Wiley & Sons, Inc. doi: 10.1002/9781118996874.ch10

Huta, V., Pearce, K., Voloaca, M., & Myskiw, K. (July, 2014). *Research findings to date on hedonic and eudaimonic motivation*. Symposium given at the Second Canadian Conference on Positive Psychology, Ottawa, Ontario.

Huta, V., Pelletier, L, G., Baxter, D., & Thompson, A. (2012). Does an individual's eudaimonia benefit other people? *The Journal of Positive Psychology,* 7, 399-404. doi.org/10.1080/17439760.2012.705318

Huta, V., & Ryan, R. M. (2010). Pursuing pleasure or virtue: The differential and overlapping well-being benefits of hedonic and eudaimonic motives. *Journal of Happiness Studies*, 11, 735-762. doi: 10.1007/s10902-009-9171-4.

Huta, V., & Zuroff, D. C. (2007). Examining mediators of the link between generativity and well-being. *Journal of Adult Development*, 14, 47–52. doi:10.1007/s10804-007-9030-7

Iredale, W., Van Vugt, M., & Dunbar, R. (2008). Showing off in humans: Male generosity of a mating signal. *Evolutionary Psychology*, 6, 386– 392. doi: 10.1177/147470490800600302

Johnson, R. C., Danko, G.P., Darvill, T.J., Bochner, S., Bower, J.K., Huang, Y-H., Park, J.Y.,… Pennington, D. (1989). Cross cultural assessment of altruism and its correlates. *Personality and Individual Differences,* 10, 855-868.

Kahneman, D., Diener, E., & Schwarz, N. (1999). *Well-being: The foundations of hedonic psychology*. New York: Russell Sage Foundation.

Kasser, T., & Ryan, R.M. (1996). Further examining the American dream: Differential correlates of intrinsic and extrinsic goals. *Personality and Social Psychology Bulletin,* 22, 280–287.

Kawachi, I., & Berkman, L.F. (2001). Social ties and mental health. Journal of Urban Health, 78, 458-467. doi: 10.1093/jurban/78.3.458

Kenyon, G. M. (2000). Philosophical foundations of existential meaning. In G. T. Reker & K. Chamberlain (Eds.), *Exploring existential meaning: Optimizing human development across the life span* (pp. 7–22). Thousand Oaks, CA: Sage.

Keyes, C.L.M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behaviour*, 43, 207-222.

Kidron,Y., & Fleischman, S.(2006). Promoting adolescents' prosocial behaviour. *Educational leadership*, 63, 90-91.

Kovacs, P. J., & Black, B. (1999). Volunteerism and older adults: Implications for social work practice. *Journal of Gerontological Social Work*, *32*(4), 25-39.

Kunda, Z., & Schwartz, S.H. (1983). Undermining intrinstic moral motivation: External reward and self presentation. *Journal of Personality and Social Psychology,* 45, 763-771.

Lacetera, N., Macis, M., & Slonim, R. (2012). Will there be blood? Incentives and displacement effects in pro-social behaviour. *American Economic Journal: Economic Policy*, 4, 186–223. doi: 10.1257/pol.4.1.186

Lindsay, E.K., & Creswell, J.D. (2014). Helping the self help others: self-affirmation increases self-compassion and pro-social behaviours. *Frontiers in Psychology*, 12, 421. doi: 10.3389/fpsyg.2014.00421

Lockwood, P. L., Seara-Cardoso, A., & Viding, E. (2014). Emotion regulation moderates the association between empathy and prosocial behaviour. *PloS One*, 9, e96555. doi:10.1371/journal.pone.0096555

Low, N., Butt, S., Ellis, P., & Davis Smith, J. (2007). *Helping out: a national survey of volunteering and charitable giving*. London: Cabinet Office.

Martin, R., & Randall, B. (2008). How is donation behaviour affected by the donations of others? *Journal of Economic Behaviour and Organization*, 67. 228-238. doi: 10.1016/j.jebo.2007.08.001

Maslow, A. H. (1969). The farther reaches of human nature. *Journal of Transpersonal Psychology*, 1, 1–9.

McCabe, T., White, K., & Obst, P. (2007). The importance of volunteer functions to university students. *Australian Journal on Volunteering*, 12, 50-58.

McCrae, R. R., & Costa, P. T. (1983). Social desirability scales: More substance than style. *Journal of Consulting and Clinical Psychology*, 51, 882-888. http://dx.doi.org/10.1037/0022-006X.51.6.882

McGinley M., Opal, D., Richaud, M. C., & Mesurado B. (2014). Cross-cultural evidence of multidimensional prosocial behaviors: An examination of the Prosocial Tendencies Measure (PTM). In L. Padilla-Waker & G. Carlo (Eds.), *Prosocial development: A multidimensional approach* (pp. 258-278). New York, NY: Oxford University Press.

Milinski M., Semmann D., & Krambeck H. J. (2002). Reputation helps solve the "tragedy of the commons". *Nature*, 415, 424–426. doi:10.1038/415424a

Myers M. W., Laurent S. M., & Hodges S. D. (2014). Perspective taking instructions and self-other overlap: Different motives for helping. *Motivation and Emotion*, 38, 224–234. doi:10.1007/s11031-013-9377-y

Nils-Torge, T., & Hans-Ruediger, P. (2012). Not only the miserable receive help: Empathy promotes prosocial behaviour toward the happy. *Current Psychology,* 31, 393-413. doi:10.1007/s12144-012-9157-y

Oakley, B.A., Knafo, A., & McGrath, M.G. (2011). Pathological altruism - an introduction. In B. Oakley, A. Knafo, G. Madhavan, & D. S. Wilson (Eds.), *Pathological Altruism*. Oxford: Oxford University Press. retrieved from http://barbaraoakley.com/wp-content/uploads/2016/12/000Chapter-1-Pathological-Altruism-Oakley-Knafo-McGrath.pdf

Oceja, L., & Salgado, S. (2016). Why do we help? World change orientation as an antecedent of prosocial action. *European Journal of Social Psychology*, 43, 127-136. doi: 10.1002/ejsp.1925

O'Connor, L. E., Berry, J. W., Lewis, T., & Stiver, D. J. (2011). Empathy-based pathogenic guilt, pathological altruism, and psychopathol- ogy. In B. Oakley, A. Knafo, G. Madhavan, & D. S. Wilson (Eds.), *Pathological altruism*. Oxford: Oxford University Press. doi:10.1093/acprof:oso/9780199738571.003.0024

Okun, M.A., Pugliese, J., & Rook, K.S. (2007). Unpacking the relation between extraversion and volunteering in later life: The role of social capital. *Personality and Individual Differences*, 32, 1467-1477. doi: 10.1016/j.paid.2006.10.020

Okun, M.A., & Schultz, A. (2003). Age and motives for volunteering: Testing hypotheses derived from socioemotional selectivity theory. *Psychology and Aging*, 18, 231-239.

Omoto, A., & Snyder, M. (1995). Sustained helping without obligation: Motivation, longevity of service, and perceived attitude change among AIDS volunteers. *Journal of Personality and Social Psychology*, 68, 671-687.

Omoto, A.M., Snyder, M., & Martino, S.C. (2000). Volunteerism and the life course: Investigating age-related agendas for action. *Basic and applied social psychology*, 22, 181-197.

Oshana, M. (2007). Autonomy and the question of authenticity. *Social Theory and Practice*, 33, 411-429. doi: 10.5840/soctheorpract200733315

Oswald, J.A. (2002). The interactive effects of affective demeanor, cognitive processes, and perspective-taking focus on helping behaviour. *Journal of Social Psychology*, 142, 120-132. doi: 10.1080/00224540209603890

Paulhus, D. L., Shaffer, D. R., & Downing, L. L. (1977). Effects of making blood donor motives salient upon donor retention: A field experiment. *Personality and Social Psychology Bulletin*, 3, 99–102.

Pavey L. J., Greitemeyer T., & Sparks P. (2011). Highlighting relatedness promotes prosocial motivation and behaviour. *Personality and Social Psychology Bulletin*, 37, 905-917. doi: 10.1177/0146167211405994

Pavey, L., Greitemeyer, T. & Sparks, P. (2012). I help because I want to, not because you tell me to: Empathy increases autonomously motivated helping. *Personality and Social Psychology Bulletin*, 38(5), pp. 681-689. doi: 10.1177/0146167211435940

Peterson, C., Ruch, W., Beermann, U., Park, N., & Seligman, M. E. P. (2007). Strengths of character, orientations to happiness, and life satisfaction. *Journal of Positive Psychology*, *2*, 1-8. doi: 10.1080/17439760701228938.

Piazza J., & Bering J. M. (2008). Concerns about reputation via gossip promote generous allocations in an economic game. *Evolution and Human Behaviour,* 29, 172–178. Retrieved from http://dx.doi.org/10.1016/j.evolhumbehav.2007.12.002

Piliavin, J. A., & Siegl, E. (2007). Health benefits of volunteering in the Wisconsin longitudinal study. *Journal of Health and Social Behaviour*, 48, 450-464. doi:10.1177/002214650704800408

Plagnol, A.C., & Huppert, F.A. (2009). Happy to help? Exploring the factors associated with variations in rates of volunteering across Europe. *Social Indicators Research*, 97, 157-176. doi: 10.1007/s11205-009-9494-x

Planalp, S., & Trost, M. (2009). Motivations of hospice volunteers. *American Journal of Hospice and Palliative Medicine*, 26, 188-192. doi: 10.1177/1049909108330030

Powell, K.L., Roberts, G., & Nettle, D. (2012). Eye images increase charitable donations: Evidence from an opportunistic field experiment in a supermarket. *International Journal of Behavioural Biology*, 118, 1096-1101. doi: 10.1111/eth.12011

Preston, S., & Hofelich, A. J. (2012). The many faces of empathy: Parsing empathic phenomena through a proximate, dynamic-systems view of representing the other in the self. *Emotion Review*, 4, 24-33. doi: 10.1177/1754073911421378

Proyer, R. T. (2014). Playfulness over the life-course and its relation to happiness: Results from an online survey. *Journal of Gerontology and Geriatric Research,* 47, 508-12. doi:10.1007/s00391-013-0539-z

Rege, M., & Telle, K. (2004). The impact of social approval and framing on cooperation in public good situations. *Journal of Public Economics*, 88, 1625–1644. doi: 10.1016/S0047-2727(03)00021-5

Renner, S., Lindenmeier, J. Tscheulin, D.K., & Drevs, F. (2013). Guilt appeals and prosocial behaviour: An experimental analysis of the effects of anticipatory versus reactive guilt appeals on the effectiveness of blood donor appeals. *Journal of Nonprofit & Public Sector Marketing*, 25, 237–255. doi: 10.1080/10495142.2013.816595

Ryan, R.M., & Deci, E.L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55, 68-78.

Ryan, R. M., Huta, V., & Deci, E. L. (2008). Living well: A self-determination theory perspective on eudaimonia. *Journal of Happiness Studies*, *9*, 139-170. doi: 10.1007/s10902-006-9023-4

Ryff, C. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology,* 57*,* 1069–1081.

Ryff, C., & Singer, B. (2008). Know thy self and become what you are: A eudaimonic approach to psychological well-being. *Journal of Happiness Studies*, 9, 13-39. doi: 10.1007/s10902-006-9019-0.

Schaller, M., & Cialdini, R. B. (1988). The economics of empathic helping: Support for a mood management motive. *Journal of Experimental Social Psychology*, 24, 163-181. doi: 10.1016/0022-1031(88)90019-4

Schwartz, H. (1983). A theory of deontic work motivation. *The Journal of Applied Behavioural Science*, 19, 204-214

Seligman, M. E. P. (2002). *Authentic happiness*. New York: Free Press.

Semmann, D., Krambeck, H. J., & Milinski, M. (2004). Strategic investment in reputation. *Behavioural Ecology and Sociobiology*, 56, 248–252. doi:10.1007/s00265-004-0782-9

Sheehy, T., & Hodge, K. (2015). Motivation and morality in Masters athletes: A self-determination theory perspective. *International Journal of Sport and Exercise Psychology,* 13, Number 3, 3 273-285. doi: 10.1080/1612197X.2014.956326

Slote, M., (1993). Virtue ethics and democratic values. *Journal of Social Philosophy*, 14, 5–37.

Snyder, M., & Cantor, N. (1998). Understanding personality and social behavior: A functionalist strategy. In D. Gilbert, S. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology*: *Vol. 1* (4th ed., pp. 635–679). Massachusetts, Boston: McGraw-Hill.

Staub, E. (1979). *Positive social behavior and morality: Socialization and development (Vol. 2).* New York: Academic Press.

Stöber, J. (2006). The Social Desirability Scale-17 (SDS-17). *European Journal of Psychological Assessment*, 17, 222-232. doi: 10.1027//1015-5759.17.3.222

Stocks, E., Lishner, D.A., & Decker, S.K. (2008). Altruism or psychological escape: Why does empathy promote prosocial behaviour? *European Journal of Social Psychology*. 39, 649 – 665. doi: 10.1002/ejsp.561

Stukas, A. A., Daly, M., & Cowling, M. J. (2005). Volunteerism and social capital: A functional approach. *Australian Journal on Volunteering*, 10, 35-44.

Stukas, A.A., Snyder, M., & Clary, E.G. (2015). Volunteerism and community involvement: Antecedents, experiences and consequences for the person and the situation. In D.A. Schroeder & W. Graziano (Eds.), *The Oxford handbook of prosocial behaviour* (pp. 459-493). New York: Oxford University Press.

Stukas, A. A., Worth, K. A., Clary, E. G., & Snyder, M. (2009). The matching of motivations to affordances in the volunteer environment: An index for assessing the impact of multiple matches on volunteer outcomes. Nonprofit and Voluntary Sector Quarterly, 38, 5-28.

Swickert, R., Robertson, S.M.C., & Baird, D. (2016). Age moderates the mediational role of empathy in the association between gender and forgiveness. *Current Psychology*, 35, 354-360. doi: 10.1007/s12144-014-9300-z

Sze J.A., Gyurak, A., Goodkind, M.S. & Levenson, R.W. (2012). Greater emotional empathy and prosocial behavior in late life. *Emotion*, 12, 1129-1140. doi: 10.1037/a0025011

Thoits, P.A. (2011). Mechanisms linking social ties and support to physical and mental health. *Journal of Health and Social Behaviour,* 52, 145-161. doi:10.1177/0022146510395592

Trivers, R.L. (1971). The Evolution of Reciprocal Altruism. *The Quarterly Review of Biology*, 46, 35-57.

Van Vugt, M., & Hardy, C.L. (2009). Cooperation for reputation: wasteful contributions as costly signals in public goods. *Group Processes and Intergroup Relations*, 13, 101-111.

Vittersø, J. (2016). The feeling of excellent functioning: Hedonic and eudaimonic emotions. In J. Vittersø (Ed.), *Handbook of eudaimonic well-being, international handbooks of quality of life*, (pp. 253-276). Switzerland: Springer International Publishing. doi: 10.1007/978-3-319-42445-3_3

Vittersø, J., Oelmann, H.I., & Wang, A.L. (2009). Life satisfaction is not a balanced estimator of the good life: evidence from reaction-time measures and self-reported emotions. *Journal of Happiness Studies*, *10*, 1-17. doi:10.1007/s10902-007-9058-1

Waterman, A. S. (1990). Personal expressiveness: Philosophical and psychological foundations. *Journal of Mind and Behaviour*, 11, 47-73.

Waterman, A. S. (1993). Two conceptions of happiness: Contrasts of perspective expressiveness (eudaimonia) and hedonic enjoyment. *Journal of Personality and Social Psychology,* 64, 678–691.

Waterman, A.S., Schwartz, S.J., & Conti, R. (2008). The implications of two conceptions of happiness (hedonic enjoyment and eudaimonia) for the understanding of intrinsic motivation. *Journal of Happiness Studies*, 9, 41–79. doi:10.1007/s10902-006-9020-7.

Waterman, A.S., Schwartz, S.J., Zamboanga, B.L., Ravert, R.D., Williams, M.K., Bede Agocha, V., Yeong Kim, S., & Donnellan, B. (2010). The questionnaire for eudaimonic well-being: Psychometric properties, demographic comparisons and evidence of validity. *The Journal of Positive Psychology,* 5, 41-61. doi: 10.1080/17439760903435208.

Wayment, H.A., Bauer, J.J., & Sylaska, K. (2014). The quiet ego scale: Measuring the compassionate self-identity. *Journal of Happiness Studies*. doi:10.1007/s10902-014-9546-z.

Wedekind, C., & Braithwaite, V.A. (2002). The long-term benefits of human generosity in indirect reciprocity. *Current Biology*, 12, 1012-1015. doi: 10.1016/S0960-9822(02)00890-4

Weinstein, N., & Ryan, R.M. (2010). When helping helps: Autonomous motivation for prosocial behaviour and its influence on well-being for the helper and recipient. *Journal of Personality and Social Psychology*, 2, 222-244. doi: 10.1037/a0016984

Welp, L.R., & Brown, C.M. (2013). Self-compassion, empathy, and helping intentions, *The Journal of Positive Psychology*, 9, 54-65. doi: 10.1080/17439760.2013.831465

Wiepking, O., & Heijnen, M. (2011). The giving standard: conditional cooperation in the case of charitable giving. *International Journal of Nonprofit and Voluntary Sector Marketing*, 16, 13-22. doi: 10.1002/nvsm.391

Wong, P.T.P. (2012). Toward a dual-systems model of what makes a life worth living. In P.T.P, Wong (Ed.), *The Human Quest for Meaning* (3-23). New York, NY: Taylor & Francis Group.

Zaki, J., & Ochsner, K. N. (2012). The neuroscience of empathy: progress, pitfalls and promise. *Nature Neuroscience,* 15*,* 675–680. doi:10.1038/nn.3085

Table 1

Correlations of Eudaimonic and Hedonic Orientations with Motives for Helping, Degree of Helping, and Proposed Mediators

	Eudaimonic Orientation		Hedonic Orientation		*t*-tests comparing correlations
	r	95% CI	r	95% CI	
MOTIVES for Helping					
Other-focused and Autonomous Motives					
Have a positive impact	.40**	[.32, .48]	.06	[-.04, .15]	6.57**
Express humanitarian values (Clary et al., 1998)	.39**	[.30, .47]	.03	[-.06, .12]	6.67**
Autonomous motives (Weinstein & Ryan, 2010)	.35**	[.26, .43]	.10*	[.01, .19]	4.54**
Primarily Self-focused and Extrinsic Motives					
Improve career prospects (Clary et al., 1998)	.29**	[.20, .38]	.14**	[.05, .24]	2.67*
Gain recognition and reputation	.20**	[.11, .30]	.15**	[.06, .25]	.87
Controlled motives (Weinstein & Ryan, 2010)	.04	[-.05, .14]	.05	[-.04, .15]	-.17
Get benefit in return	-.03	[-.12, .07]	.11*	[.02, .20]	2.40*
Mixed Other-focused/Autonomous & Self-focused/Extrinsic Motives					
Enhance understanding and skills (Clary et al., 1998)	.42**	[.33, .50]	.04	[-.04, .13]	7.14**
Have the pleasurable feeling of caring	.33**	[.24, .42]	.18**	[.08, .27]	2.88**
Build self-esteem (Clary et al., 1998)	.32**	[.23, .41]	.15**	[.04, .24]	3.06**
Connect and bond socially	.25**	[.16, .35]	.15**	[.06, .24]	1.76
Forget own problems (Clary et al., 1998)	.24**	[.15, .33]	.08	[-.01, .17]	2.80**
Alleviate personal discomfort at witnessing distress	.20**	[.11, .29]	.12*	[.03, .21]	1.39
Conform socially (Clary et al., 1998)	.19**	[.10, .28]	.13**	[.03, .22]	1.04
DEGREE of Helping					
Prosocial behaviour (Johnson et al., 1989)	.27**	[.18, .36]	.07	[-.02, .17]	3.53**
MEDIATORS Which May Explain Degree of Helping					
Empathic concern (emotional empathy) (Davis, 1980)	.33**	[.25, .42]	.06	[-.03, .15]	4.87**
Perspective taking (cognitive empathy) (Davis, 1980)	.36**	[.27, .45]	.08	[-.02, .17]	5.11**
Social Desirability					
The Social Desirability Scale (Stöber, 2001)	.28**	[.19, .37]	-.06	[-.16, .03]	6.08**
Eudaimonic and Hedonic Orientations					
Hedonic orientation (Huta & Ryan, 2010)	.24**	[.15, .33]			

Note. The correlations in this table are semi-partial, controlling for gender. Each t-test compares the correlation for eudaimonic orientation with the correlation for hedonic orientation using a t-test for paired correlations. Scales without a reference were created specifically for this research.
** p<.01, *p<.05

Table 2

Intercorrelations among Dependent Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Have a positive impact	1	.75**	.57**	.35**	.23**	.08	-.20**	.66**	.52**	.51**	.44**	.44**	.36**	.28**	.57**	.36**
2. Express humanitarian values		1	.63**	.40**	.13**	.04	-.26**	.74**	.50**	.57**	.36**	.55**	.36**	.33**	69**	.41**
3. Autonomous motives			1	.28**	.24**	.10*	-.16**	.55**	.53**	.54**	.37**	.43**	.41**	.22**	.55**	.36**
4. Improve career prospects				1	.40**	.20**	.14**	.60**	.38**	.51**	.45**	.37**	.20**	.39**	.20**	.13**
5. Gain recognition and reputation					1	.47**	.51**	.29**	.55**	.58**	.58**	.39**	.43**	.33**	-.02	-.02
6. Controlled motives						1	.30**	.13**	.26**	.34**	.25**	.22**	.32**	.20**	.00	-.14**
7. Get benefit in return							1	-.15**	.15**	.10*	.29**	.04	.22**	.20**	-.32**	-.19**
8. Enhance understanding and skills								1	.50**	.62**	.51**	.56**	.30**	.41**	.51**	.34**
9. Have the pleasurable feeling of caring									1	.65**	.61**	.58**	.61**	.34**	.40**	.23**
10. Build self-esteem										1	.57**	.69**	.49**	.45**	.39**	.26**
11. Connect and bond socially											1	.46**	.39**	.42**	.17**	.17**
12. Forget own problems												1	.54**	.41**	.37**	.26**
13. Alleviate personal discomfort at witnessing distress													1	.29**	.29**	.14**
14. Conform socially														1	.13**	15**
15. Empathic concern															1	.47**
16. Perspective taking																1

**p<.01, *p<.05

Table 3

Mean Ratings of Degree of Selflessness and Selfishness for Each Helping Motive by Three Judges

	Mean
Other-focused/Autonomous Motives	
Have a positive impact	3.83
Express humanitarian values (Clary et al., 1998)	3.60
Autonomous motives (Weinstein & Ryan, 2010)	2.56
Primarily Self-focused/Extrinsic Motives	
Improve career prospects (Clary et al., 1998)	-4.00
Gain recognition and reputation	-2.70
Controlled motives (Weinstein & Ryan, 2010)	-2.27
Get benefit in return	-4.10
Mixed Other-focused/Autonomous and Self-focused/Extrinsic Motives	
Enhance understanding and skills (Clary et al., 1998)	-.47
Have the pleasurable feeling of caring	-.42
Build self-esteem (Clary et al., 1998)	-2.93
Connect and bond socially	-.95
Forget own problems (Clary et al., 1998)	-3.13
Alleviate personal discomfort at witnessing distress	-2.40
Conform socially (Clary et al., 1998)	-.07

Note. Positive values mean more selfless and negative values mean more selfish.

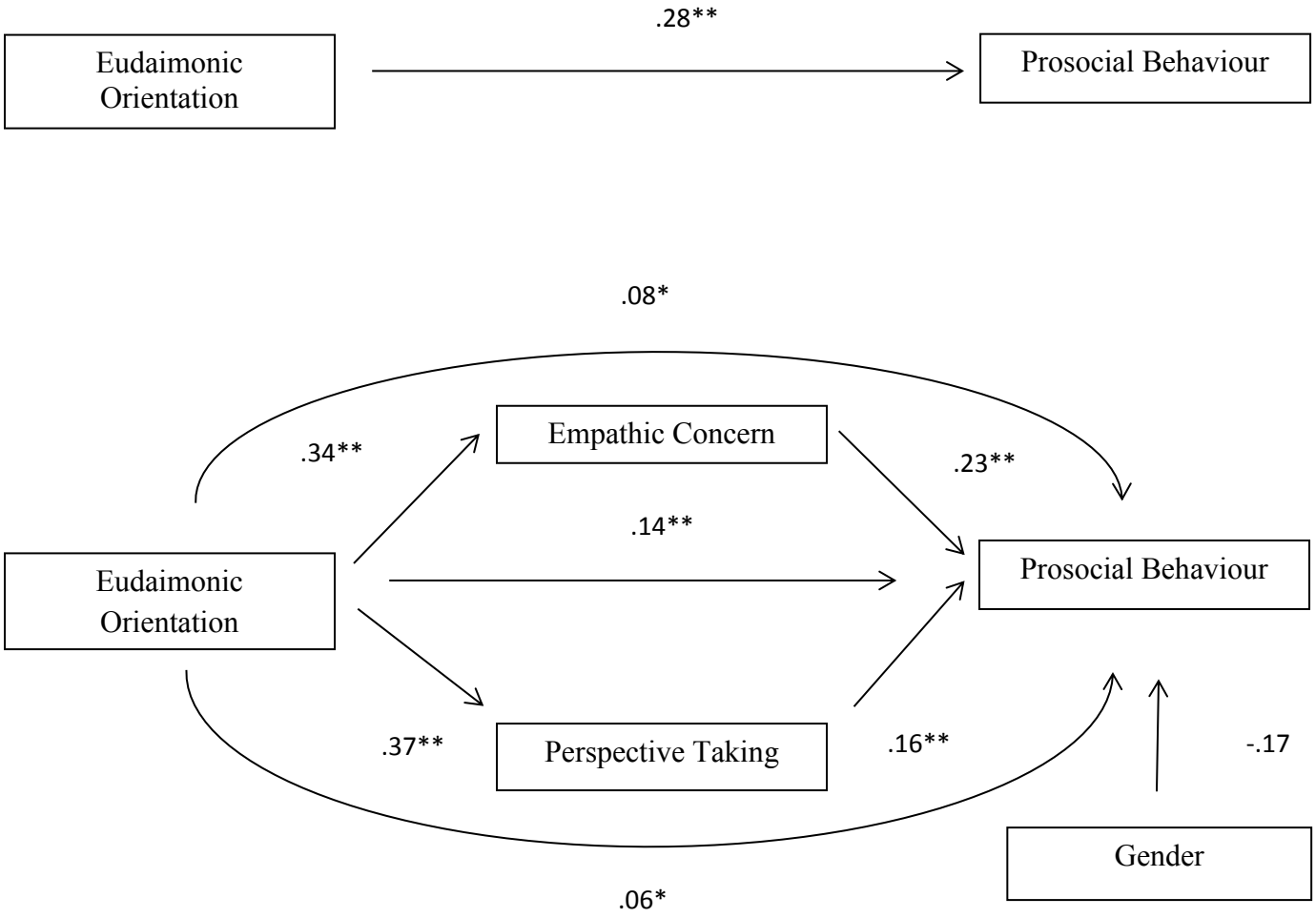

Figure 1. Dispositional empathic concern and perspective taking as partial mediators between eudaimonic orientation and prosocial behaviour

Appendix A

Descriptive Statistics (Means and Standard Deviations) for Variables

	Mean	SD
MOTIVES for Helping		
Other-focused/Autonomous Motives		
Have a positive impact	5.35	1.25
Express humanitarian values (Clary et al., 1998)	5.44	1.11
Autonomous motives (Weinstein & Ryan, 2010)	5.76	.95
Primarily Self-focused/Extrinsic Motives		
Improve career prospects (Clary et al., 1998)	5.28	1.27
Gain recognition and reputation	4.15	1.22
Controlled motives (Weinstein & Ryan, 2010)	4.12	1.28
Get benefit in return	2.45	1.31
Mixed Other-focused/Autonomous and Self-focused/Extrinsic Motives		
Enhance understanding and skills (Clary et al., 1998)	5.55	1.09
Have the pleasurable feeling of caring	4.75	1.27
Build self-esteem (Clary et al., 1998)	4.93	1.24
Connect and bond socially	4.34	1.32
Forget own problems (Clary et al., 1998)	4.29	1.02
Alleviate personal discomfort at witnessing distress	3.89	1.44
Conform socially (Clary et al., 1998)	3.69	1.55
DEGREE of Helping		
Prosocial behaviour (Johnson et al., 1989)	2.35	.46
MEDIATORS which May Explain Degree of Helping		
Empathic concern (emotional empathy) (Davis, 1980)	5.35	.95
Perspective taking (cognitive empathy) (Davis, 1980)	4.94	.96
Social Desirability		
The Social Desirability Scale (Stöber, 2001)	5.02	.62
Eudaimonic and Hedonic Orientations		
Eudaimonic orientation (Huta & Ryan, 2010)	5.58	.92
Hedonic orientation (Huta & Ryan, 2010)	5.37	.95

SD= standard deviation.

Appendix B

Principal Components Analysis with Varimax Rotation of the New Scales Assessing Motives for Helping

	Factor				
Scale	Have a Positive Impact	Connect and Bond Socially	Alleviate Personal Discomfort	Get Benefit in Return	Gain Recognition and Reputation
To do my bit to improve the conditions of the world	**.87**	.21	.13	-.05	.01
To build a better world	**.85**	.12	.16	-.10	-.01
To make the world better than it is now	**.83**	.17	.20	-.07	.02
To make a positive difference in society or my community	**.83**	.18	.16	-.06	-.06
To have a positive impact on future generations	**.81**	.21	.15	-.04	.03
To have a positive effect on my community	**.79**	.25	.11	-.07	.05
I wish to make a positive difference in someone's life	**.69**	.15	.20	-.30	.02
It provides a way for me to make new friends	.14	**.80**	.17	.20	.13
To bring new people into my life	.26	**.79**	.14	.10	.08
It gives me the opportunity to bond with people	.27	**.75**	.15	-.02	.07
To get to socialize	.16	**.75**	.10	.23	.16
To get to be part of a team	.27	**.71**	.14	-.02	.15
For the feeling of belonging and companionship	.15	**.65**	.33	.07	.22
It is a way to build my social networks	.12	**.58**	-.03	.26	.35
To get rid of the sickly feeling I get when I see others suffer	.20	.04	**.81**	.07	-.01
To make myself feel better, because I get anxious watching someone suffer	.17	.04	**.80**	.13	.02
To relieve the stress I get from seeing someone suffering	.24	.14	**.79**	.05	.02
I get upset when I see someone in trouble and I want to make myself feel better	.06	.18	**.69**	.13	.09
To relieve my own feeling of disgust or aversion when I see someone in trouble	.06	.13	**.66**	.25	.11

To be able to enjoy the feeling of love or fondness	.19	.44	***.52***	-.08	.25
To get that warm feeling while you're doing something nice for a person	.34	.24	***.51***	-.15	.22
To get to enjoy the feeling of caring	.29	.40	***.47***	-.21	.21
Because I like to indulge in feelings of affection	.11	.41	***.46***	.11	.28
I hope to get something back in return	-.12	.14	.09	**.82**	.26
I hope they'll return the favour	-.11	.09	.13	**.76**	.21
So the other person will owe me	-.12	.04	.14	**.75**	.14
I want a benefit in return	-.17	.10	.05	**.73**	.28
To get rewarded at a later time	-.09	.15	.05	**.64**	.39
To have a good reputation	-.04	.18	.06	.28	**.76**
To have a favourable public image	.01	.19	.02	.33	**.74**
So that I will be appreciated	-.02	.13	.21	.19	**.72**
To gain respect from others	.13	.29	.15	.19	**.70**
To receive recognition	-.04	.16	.09	.45	**.65**

Values in bold face had loading greater than .40. Values in italics were those for which we created the separate category "Have pleasurable feeling of caring".

Running head: MULTI-METHOD APPROACH OF PERSONAL WELL-BEING AND EMPATHIC RESPONSES

Chapter 5: Manuscript 4

Comparing Eudaimonic and Hedonic Orientations on Personal Well-Being and Caring Beyond the Self: Self-Reported Affect, Facial Valence, and Psychophysiological Measures

Keith Pearce

Veronika Huta

Arthur Braaten

Misha Voloaca

University of Ottawa

Abstract

The present study looked at the distinction between two ways people pursue a "good life" – eudaimonic (seeking growth, excellence, authenticity) and hedonic (seeking pleasure, comfort) orientations – on self-reported, observational and psychophysiological measures of personal well-being and care beyond the self. In Study 1 (N=397) and Study 2 (N=143), we assessed personal well-being using self-reported trait affect, and care beyond the self using self-reported trait empathic concern, state positive affect to images of happy/healthy humans/animals/nature, and state negative affect and empathic concern to images of suffering/degraded humans/animals/nature. In Study 2, we also assessed personal well-being using baseline skin conductance level (SCL), and heart rate (HR), and care beyond the self using facial expression valence, and psychophysiological measures (skin conductance and HR) to happiness/health and suffering/degradation images. For indices of personal well-being, we found that eudaimonic and hedonic orientations related positively to trait positive affect in both studies, and negatively to baseline SCL. For indices of care beyond the self, eudaimonic orientation, but not hedonic orientation, related positively to state positive affect to happiness/health images, and to state negative affect and empathic concern to suffering/degradation images across both studies. Eudaimonic orientation related to rapid onset of SCR to happiness/health images, while hedonic orientation related to delayed SCR onset to these images. Results for facial expressions and psychophysiological variables were insignficiant and inconclusive. Thus, while both eudaimonic and hedonic orientations related to personal well-being, eudaimonic orientation tended to be more associated with care beyond the self at the level of self-report. More research is needed to clarify the distinction between eudaimonic and hedonic orientations at the level of physiological responding and facial expressions.

Keywords**:** eudaimonia, hedonia, compassion, empathy, skin conductance, heart rate, facial expressions

Comparing Eudaimonic and Hedonic Orientations on Personal Well-being and Caring beyond the Self: Self-reported Affect, Facial Valence, and Psychophysiological Measures

The diverse ways people pursue well-being has been a topic of discussion for many years among philosophers and psychologists. The dominant approaches to pursuing well-being include the traditions of eudaimonia (pursuit of growth, excellence, authenticity) and hedonia (pursuit of pleasure, comfort; Huta & Ryan, 2010; Ryan & Deci, 2001).

Prior studies have linked both eudaimonic and hedonic orientations with personal well-being, including positive affect (Anić & Tončić, 2013; Gander, Proyer, Ruch, 2016; Grimm, Kemp, & Jose, 2014; Henderson, Knight, & Richardson, 2013; Huta & Ryan, 2010; Ito & Kodama, 2007; Tončić, & Anić, 2015); hedonic orientation with reduced negative affect (Henderson et al., 2013; Huta & Ryan, 2010; Schuller & Seligman, 2009); and eudaimonic orientation with elevating experiences (e.g., feeling uplifted; Henderson et al., 2013).

There are a small number of studies investigating how eudaimonic and hedonic orientations relate to concern beyond the self. The evidence thus far suggests that eudaimonic orientation has more well-being benefits for close others (e.g., Huta, 2012; Huta, Pelletier, Baxter, & Thomson, 2012), and the larger society and environment (Pearce, Huta, & Voloaca, 2017). Moreover, eudaimonic orientation has been associated with empathic concern and compassionate goals (Pearce & Huta, manuscript in preparation). However, these studies focused predominantly on self-reported measures of prosocial and pro-environmental behaviours and prosocial values, and empathy.

To our knowledge, no studies have examined eudaimonic and hedonic orientations and their associations with experiential (i.e., self-report), observational (i.e., facial expression valence) and psychophysiological responses (i.e., skin conductance and heart rate) to witnessing

happiness/health or suffering/degradation in other people, in animals, or in nature. Thus, the aim of the current study was to contrast eudaimonic and hedonic orientations and their links with personal well-being and concern beyond the self. Pictures have been used frequently in emotional research (e.g., Bradley, Codispoti, Cuthbert, & Lang, 2001; Bradley & Lang, 2000; Hendricks & Vingerhoets, 2006), and can overcome selective retrospective recall of emotions through self-report instruments. Additionally, emotional states may be more clearly inferred from presentations of pictures given that physiological components of emotions are short-lived (Kreibig, 2010).

Overview of Hypotheses

Overall, we expected both eudaimonic orientation and hedonic orientation to relate to personal well-being, but only eudaimonic orientation to relate to caring beyond the self. Many researchers believe that eudaimonia is linked to compassion and empathy for others (e.g., Ryff, 1989; Seligman, 2002; Wong, 2012), and this has been confirmed empirically as well (e.g., Huta et al., 2012; Pearce et al., 2017). Eudaimonic pursuits tend to be broad goals which would permit one to reflect on bigger picture concerns, and facilitate greater capacity to put oneself in another's situation.

Unlike eudaimonic orientation, hedonic orientation tends to focus predominantly on acquiring positive emotions in the immediate moment, which may entail less proficiency in perspective taking abilities and less likelihood of resonating with another's circumstance. This is particularly expected in negative situations which may hinder one's pleasant state. Specific hypotheses are expounded in the sections below.

Indices of Personal Well-being

Trait affect. Both eudaimonic and hedonic orientations have been previously linked with personal well-being (e.g., positive affect, happiness) and have little relationship or a negative relationship with trait negative affect, as cited above. Both eudaimonia and hedonia likely provide resources (e.g., positive emotions, feelings of purpose) for one to take care of themselves (Fredrickson, 2001; see Kimiecik, 2016).

Trait physiological measures. Evidence shows that both eudaimonia and hedonia are linked to physical well-being. For instance, hedonic experience (i.e., feelings of happiness) has been associated with cardiovascular health (Boehm & Kubzansky, 2012) and decreases in cortisol levels (see Pressman & Cohen, 2005); and engagement in leisure (i.e., comfort) has been associated with lower HR (Zawadzki, Smyth, & Costigan, 2015). Higher scores on eudaimonic functioning, such as purpose in life and personal growth, have shown linkages with lower cortisol levels (Lindfors & Lundberg, 2002; Ryff et al., 2006; Ryff, Singer, & Love, 2004), lower levels of the soluble IL-6 receptor (e.g., lower plasma levels of inflammatory factors; Friedman, Hayney, Love, Singer, & Ryff, 2007), reduced stroke risk (Kim, Sun, Park, & Peterson, 2013), reduced risk for metabolic syndrome (Boylan & Ryff, 2015), stronger cytokine production (Hayney, Love, Buck, Ryff, Singer, & Muller, 2003), high density lipoprotein (HDL) "good" cholesterol levels (Ryff et al., 2004), and increased survival (Steptoe, Deaton, & Stone, 2015).

Regarding HR, higher resting HR may suggest greater reactivity or stress, which can lead to damage of tissues and overall dysregulation (Gerin et al., 2000). Indeed, elevated resting HR has been found to be a risk factor for mortality from many diseases such as cardiovascular diseases and cancer (Greenland et al., 1999; Kannel, Kannel, Paffenbarger, & Cupples, 1987; Shaper, Wannamethee, Mcfarlane, & Walker, 1993; Wannamethee & Shaper, 1994).

Additionally, poor indices of psychological well-being (e.g., stress, worry, negative prolonged moods) have been associated with elevated HR (Knepp & Friedman, 2008; Shapiro, Jamner, Goldstein, & Delfino, 2001; Thayer, Friedman, & Borkovec, 1996).

Studies on baseline skin conductance level (SCL – electrical activity of the skin produced by sweat glands; Boucsein, 2012) have been mixed. For instance, resting SCL is higher in individuals with persistent anxiety or panic symptoms (Doberenz, Roth, Wollburg, Breuninger, & Kim, 2010; Mathersul, McDonald, & Rushby, 2013; Roth et al., 2008), but also lower in those with depression (Dawson, Schell, Braaten, & Catania, 1985; Dawson, Schell, & Catania, 1977; Ward, Doerr, & Storrie, 1983).

Hypothesis 1 – Indices of personal well-being. Both eudaimonic and hedonic orientations will relate positively to trait positive affect, have no relation (or an inverse relationship) to negative affect, and relate negatively to baseline HR as these are indices of personal well-being and health. Analyses for baseline skin conductance level (SCL) were exploratory, given the mixed findings in the literature.

Indices of Caring Beyond the Self

State affect and empathic concern. Emotions are short-lived experiences which produce changes in people's thoughts, behaviours and physiological responses (Fredrickson & Branigan, 2005). Emotions such as compassion (e.g., Goetz, Keltner, & Simon-Thomas, 2010; Sprecher & Fehr, 2005) and empathy play a pivotal role in motivating concern for humanity and prosocial behaviour – voluntary behaviours undertaken to benefit others (e.g., Batson, 1991; Condon & DeSteno, 2011; Eisenberg, Fabes, Miller, Fultz, Shell, Mathy, & Reno, 1989), as well as pro-environmental tendencies and behaviours (e.g., Berenguer, 2010; Gosling & Williams, 2010; Milfront & Sibley, 2012; Pfattheicher, Sassenrath, & Schindler, 2016; Tam, 2013).

Various terms have been used interchangeably in the literature on other-oriented emotional responses. Compassion is the emotion that arises from witnessing another's suffering (see Goetz et al., 2010; Lazarus, 1991). Empathy incorporates a more general construct, typically conceptualized as an affective state stemming from the comprehension of another's emotional state or condition and feeling what another individual is feeling or expected to feel (Decety & Cowell, 2014; Decety & Jackson, 2006; Eisenberg, Fabes, & Spinrad, 2006; Reniers, Corcoran, Drake, Shryane, & Vollm, 2011). Most studies on empathy have been in the context of feeling sorry for another in need (e.g., Colden, Bruder, & Manstead, 2008; Löw, Bradley, & Lang, 2014; Prguda & Neumann, 2014; Stocks, Lishner, & Decker, 2009; Stürmer, Snyder, Kropp, & Siem, 2006).

In the present study, we considered negative affect to suffering/degradation images to be an index of care beyond the self, and positive affect to happiness/health images to be suggestive of joy arising from witnessing happiness/health in another person, animal or nature (Sallquist et al., 2009). We also assessed empathy with a single item (i.e., empathic) to suffering/degradation images because we felt that these images would more clearly induce empathic responses. We use the term *empathic concern* – the feeling or perceiving of sorrow or concern for a person in need (Decety & Michalska, 2010; Eisenberg, 2000), since we assessed participant's empathic *feelings* to pictures.

Hypothesis 2– Self-reported indices of empathic reactions. Eudaimonic orientation, but not hedonic orientation will relate to measures reflecting concern beyond the self, i.e., trait empathic concern, state negative affect and state empathic concern to suffering/degradation images. Eudaimonic orientation will have stronger links with state positive affect to happiness/health images, relative to hedonic orientation (which may have a weak correlation due

to these images evoking pleasant feelings for the self). Eudaimonic pursuits emphasize growth and excellence which we expect to translate to care for others and the surrounding world (Aristotle, 2001; Seligman, 2002; Wong, 2011). A focus on eudaimonic pursuits may sculpt a mindset which sensitizes one to a holistic concern for the welfare of all life. Emphasis on hedonic pursuits is conjectured to foster a mindset primarily concerned with immediate need satisfaction, and less proficiency in stepping outside the self and resonating with another's situation.

State Facial Expressions

We assessed the perception of facial valence (i.e., positive or negative facial expressions), which could provide an index of emotional reactivity (Green & Reid, 1996; Sestito et al., 2013). Facial expressions, whether they are intentionally generated for communication with others, or spontaneously expressed, reflect internal feelings and underlying intentions (Marsh, 2016; Tiedens, 2001). Therefore, we employed this measure as a more objective assessment of emotional responses beyond self-report. Additionally, facial expressions may be more indicative of unconscious automatic responses to emotional stimuli (Green & Reid, 1996).

Most of the work on facial expressions and empathy has used facial expressions as stimuli and assessed how individuals react to these stimuli (Dimberg, Andréasson, & Thunberg, 2011; see Regenbogen & Habel, 2015 for a review). Facial expressions of enjoyment have been found to provide signals of cooperative intent in prosocial economic games (Reed, Zeglen, & Schmidt, 2012), and facial electromyographic activity during viewing of sad video clips and happy video clips have been found to predict increased goodwill behaviour (i.e., donations; Light et al., 2014). High-empathy individuals show stronger mimicry reactions (electromyographic activity) to angry and happy faces at shorter exposure times relative to low-empathy individuals

(Dimberg & Thunberg, 2012; Sonnby-Borgström, Jonsson, & Svensson, 2003). Additionally, low empathizers show less pronounced facial activity to facial displays of sadness and happiness (Sonnby-Borgström, 2002) and to those in victimizing situations (Fanti, Kyranides, & Panayiotou, 2015). In contrast, high-empathizers display greater corrugator muscle activity to images of human and non-human suffering (Westbury & Neumann, 2008). Therefore, research suggests that the degree of one's facial expression relates to empathy or prosocial tendencies.

Hypothesis 3 – Facial indices of empathic reactions. Eudaimonic orientation, but not hedonic orientation will relate to negative facial expressions to suffering/degradation images. As delineated above, eudaimonic orientation is expected to entail a broader perspective and thus greater concern when witnessing something other than themselves suffer. This is predicted to manifest in one's facial expressions. Hedonic orientation, which emphasizes pleasure for the self, is conjectured to have no relation to degree of negative facial expressions to suffering beyond the self, due to less capacity to put oneself in another's position and empathize with their suffering. Facial expressions to happiness/health images were exploratory (eudaimonic orientation may entail joy to these images due to genuine happiness for the other, and hedonic orientation may also relate to joy to these images because they generate pleasant feelings for the self).

State Psychophysiological Responses

Physiological responding in emotion has been studied extensively in the literature (see Cacioppo et al., 2000, and Kreibig, 2010 for comprehensive reviews), and may offer more objective assessments of emotional reactions than self-report measures which can be influenced by social desirability bias or lack of self-awareness (Kämpfe, Penzhorn, Schikora, Dünzl, & Schneidenbach, 2009). Considerable evidence has shown that emotions are accompanied by patterns of physiological arousal (e.g., Lang, Bradley, & Cuthbert, 1998; Neumann & Waldstein,

2001; see Norman, Berntson, & Cacioppo, 2014 for a review; Prkachin, Williams-Avery, Zwaal, & Mills, 1999; Sze, Gyurak, Goodkind, & Levenson, 2011). Thus, psychophysiological measures are complementary to other psychological approaches to the study of emotions. Furthermore, a multi-method approach to the study of emotions can facilitate a more comprehensive evaluation of emotional responses and provide some validity to self-report emotional reactions.

The most commonly studied psychophysiological measures of emotional processing are part of the autonomic nervous system: skin conductance activity and cardiovascular activity (Eisenberg & Fabes, 1990; Mauss & Robinson, 2009). The autonomic nervous system acts as a control system functioning largely below the level of consciousness, controlling visceral functions such as glands and organs of the body (Andreassi, 2007; Cacioppo, Tassinary, & Berntson, 2007; Dawson, Schell, & Filion, 2007). These measures were assessed in real-time during picture viewing. Thus, skin conductance and HR activity measures can provide information about proximal and immediate affective components of emotional responding (Preston & de Waal, 2002).

There are two classes of systems that are part of the autonomic nervous system: (1) The sympathetic nervous system, which mobilizes the body's response under fight-or-flight situations and (2) The parasympathetic nervous system, which is involved in the rest and repair phase of the body (Andreassi, 2000). Substantial research on emotions and physiology shows that these two systems are involved in affective responses (e.g., Harrison, Kreibig, & Critchley, 2015; see Norman et al., 2014).

However, studies have shown that cardiovascular processes and electrodermal activity are not entirely related (e.g., Kettunen, Ravaja, Näätänen, & Keltikangas-Järvinen, 2000;

Kettunen, Ravaja, Näätänen, Keskivaara, & Keltikangas-Järvinen, 1998). We included both measures to assess their degree of synchronicity with each other, as well as with our other measures of emotional responding. Furthermore, while these measures are expected to be somewhat interrelated, they may capture different activations of the autonomic nervous system. In particular, skin conductance is controlled by the sympathetic nervous system (e.g., fight-or-flight responses), and is thus a more sensitive measure of emotional responsiveness; it may reveal information about general arousal or reactivity regardless of positive or negative content (Bradley et al., 1990; Bradley & Lang, 2000). HR activity is more complex as it is controlled by both the sympathetic and parasympathetic branches (Berntson et al., 2007). HR tends to discriminate valence (reactions to pleasant vs. unpleasant stimuli), and may provide information about orienting responses, particularly attending to unpleasant stimuli (e.g., decelerated HR; Andreassi, 2007; Hoffman, 1982). Our focus was on skin conductance activity to suffering/degradation images, while our analyses for HR activity were exploratory.

Skin conductance. Skin conductance (also called electrodermal activity or galvanic skin response) is a measure of the electrical activity of the skin (the release of sweat from the eccrine sweat glands; Boucsein, 2012; Dawson et al., 2007). The eccrine sweat glands have been found to be activated during psychological or physiological arousal (Boucsein, 2012), and thus the degree of skin conductance activity can provide an index of emotional reactivity.

Skin conductance is one of the most widely used indices of physiological arousal (Mardaga & Hansenne, 2010; Oliveira-Silva & Goncalves, 2011), and is ideal for assessing physiological reactions to individual presentations of stimuli, as responses are quite discriminable (Dawson et al., 2007). There are two types of electrodermal activity: tonic measures (i.e., skin conductance level, SCL), which reflect longer-term changes in sympathetic

nervous system activity, and phasic measures (i.e., skin conductance response, SCR), which reflects short term peaks in SCL in response to specific stimuli (Andreassi, 2007; Dawson et al., 2007). The current study looked at *skin conductance response magnitude* since we were interested in short-term changes in SCL towards specific picture stimuli. We also assessed *skin conductance response (SCR) latency*, which is a temporal measure of skin conductance – the time taken to initiate a SCR (Boucsein, 2012; Hess, 2011). Though little work has been conducted with this latter component of skin conductance, researchers have suggested that it can shed light on one's reaction time to emotional stimuli (Braithwaite, Watson, Jones, & Rowe, 2015; Dawson et al., 2007; Venables & Christie, 1980).

Typically, in studies on psychophysiology and emotions, participants are exposed to pictures or video clips evoking a range of emotions while psychophysiological measures are assessed (see Kreibig, 2010). For instance, research has shown that self-reported empathy while viewing emotional content (e.g., films or pictures) was associated with increased skin conductance (SCL or SCR; e.g., viewing other's facial happiness or distress, exposure to other's suffering; Balconi & Bortolotti, 2012; Lanzetta & Englis, 1989; Mehrabian, Young, & Sato, 1988); skin conductance increases in response to pictures eliciting pleasant and unpleasant feelings (e.g., erotic images, Olympic-moment highlights, physical handicap, bereavement, irrevocable loss; Bernat, Patrick, Benning, & Tellegen, 2006; Bradley & Lang, 2000; Codispoti, Bradley & Lang, 2001; Frazier, Strauss, & Steinhauer, 2004; Kreibig, Wilhelm, Roth, & Gross, 2007; Louwerse, Tulen, van der Geest, van der Ende, Verhulst, & Greaves-Lord, 2014; Seider, Shiota, Whalen, & Levenson, 2010); stress and fear (e.g., pictures of physical brutality, aggression; Bernat et al., 2006; Bradley et al., 2001), such as towards masked fear relevant stimuli (snakes and spiders; Ohman & Soares, 1993) and fearful facial expressions (Williams et

al., 2005); and sadness (e.g., loss; Kunzmann & Grühn, 2005; Seider et al., 2010; Shirai & Suzuki, 2017; though some research has shown that sadness is associated with decreased skin conductance, e.g., Gross, Fredrickson, & Levenson, 1994). Therefore, skin conductance measures are typically used as indices of reactiveness to another's suffering or general aversive/unpleasant stimuli (as well as general positivity).

Research suggests that skin conductance measures can discriminate among different personality types or specific populations who are considered to be less empathic or have deficits in social responding. SCRs to emotional stimuli (e.g., pleasant and unpleasant stimuli) are typically attenuated in mentally disordered offenders (Wahlund, Sorman, Gavazzeni, Fischer, & Kristiansson, 2009), those with elevated scores on impulsive antisocial behaviour and fearless dominance (Benning, Patrick & Iacono, 2005; Lopez, Poy, Patrick, & Molto, 2013), psychopathic personality (Dindo, & Fowles, 2011), and individuals with Autistic Spectrum Disorders (Hubert, Wicker, Monfardini, & Deruelle, 2009; Mathersul et al., 2013).

There is little research on empathy and psychophysiological responses to nature and animals. Of the limited research, results show that SCRs are typically stronger during picture viewing of phylogenetically similar species (e.g., mammals relative to birds) in victimizing and oppressing situations (Prguda & Neumann, 2014; Westbury & Neumann, 2008; Westbury, Neumann & Waters, 2011). Nevertheless, we felt it was valuable to broaden scope of concern beyond people, to animals and nature.

Hypothesis 4 – Skin conductance indices of empathic reactions. Eudaimonic orientation, but not hedonic orientation will relate to SCR magnitude, and rapid SCRs to suffering/degradation images. SCR magnitude reflects emotional arousal or attention, and we expect eudaimonic orientation fosters a mindset which facilitates resonating with suffering

beyond the self. SCR latency was expected to be indicative of quicker reactions to another's plight – eudaimonic orientation is conjectured to entail greater proficiency to project into the feelings of another human, animal or nature, relative to hedonic orientation. Hedonic orientation is predicted to be associated with less arousal to suffering beyond the self, and thus a blunted SCR and slower (or no) SCRs to another's distress. SCR magnitude and SCR latency to happiness/health images were exploratory.

Heart rate. The cardiovascular system is highly sensitive to neurobehavioural processes, making it advantageous for use as a biomarker of complex processes such as empathic responses (Berntson, Quigley, & Lozano, 2007; Oliveira-Silva & Gonclaves, 2011). Cardiac activity is closely linked to emotional responses, and many studies have investigated the nexus between cardiovascular activity during emotional experience (e.g., Codispoti et al., 2001; Herbert, Pollatos, Flor, Enck, Rainer, & Schandry, 2009; Rainville, Bachara, Nagvi & Damasio, 2003; Wiens, Mezzacappa, & Katkin, 2000).

The association between empathic concern and cardiac activity, however, is less clear than it is for skin conductance (Oliveira-Silva & Goncalves, 2011). For example, empathic individuals have been found to have accelerated HR in response to emotional videos inducing sadness or concern for others (Anastassiou-Hadjicharalambous & Warden, 2008; Kunzmann & Grühn, 2005; Liew, Eisenberg, Losoya, Fabes, Guthrie, & Murphy, 2003; see Mehrabian et al., 1988; Wiesenfeld, Whitman, & Malatesta, 1984); and to stimuli inducing fear or anxiety (e.g., Collet et al., 1997; Levenson & Ekman, 2002; Palomba, Sarlo, Angrilli, Mini, & Stegagno, 2000). Heart rate has also been found to increase during exposure to elevation (i.e., witnessing acts of kindness; Piper, Saslow, & Saturn, 2015); to images of puppies and kittens (cuteness;

Sherman, Haidt, & Coan, 2009); and while experiencing positive emotions (Koelsch, Enge, & Jentschke, 2012).

Other studies have shown a negative association between empathic concern and cardiac activation (see Eisenberg & Fabes, 1990; Eisenberg, Fabes, Shepard, Murphy, Jones, & Guthrie, 1998). For instance, HR deceleration has been linked to self-reported unpleasantness ratings to a series of images (e.g., human loss or injury, animal suffering, environmental contamination, war victims, dead bodies, painful accidents; Bradley & Lang, 2000; Burriss, Powell, & White, 2007; Eisenberg, Fabes, Bustamante, Mathy, Miller, & Lindholm, 1988; Gomez & Danuser, 2009; Gomez, Gunten, & Danuser, 2016; Kreibig, Samson, & Gross, 2015; Louwerse et al., 2013; Prguda & Neumann, 2014; Sánchez-Navarro, Martínez-Selva, & Román, 2006; Stellar, Cohen, Oveis, & Keltner, 2015), as well as exposure to film clips eliciting sadness, anger, happiness, or awe (e.g., comedy skits, nature, unjust suffering, grief; Kreibig et al., 2007; Shiota, Neufeld, Yeung, Moser, & Perea, 2011; Sinha, Lovallo, & Parsons, 1992; Tsai, Levenson, & Carstensen, 2000; Waldstein, Kop, Schmidt, Haufler, Krantz, & Fox, 2000).

Research has shown that normal controls have a greater reduction in HR to sad video clips relative to boys with disruptive behaviours (di Wied, Boxtel, Posthumus, Goudena, & Matthys, 2009), that compassion towards a past interpersonal offender relates to slowed heart beats (Witvliet, Knoll, Hinman, & DeYoung, 2010), and that adults with greater HR deceleration in response to a needy other were more willing to help in a subsequent task (Eisenberg et al., 1989).

These seemingly contradicting and ambiguous findings may be explained by the passivity of stimuli (e.g., images, film clips). Unpleasant picture stimuli depicting suffering do not require immediate action, but instead may activate an orienting response towards the needy other. This

may manifest in a decelerated HR due to a more relaxed lower arousal state whereby the parasympathetic system dominates (see Kreibig, 2010).

In the present study, HR analyses were exploratory. Though, eudaimonic orientation was speculated to relate to greater HR deceleration (i.e., attention beyond the self) to suffering/degradation images compared to hedonic orientation, given that the photos in our study were predicted to capture sadness and sorrow rather than intense distress[1].

With regards to positive images, prior studies have revealed that positive emotions produce little change in autonomic nervous system activity (see Cacioppo, Berntson, Larsen & Ito, 2000), unless the stimuli are highly arousing such as amusement (e.g., Giuliani, McRae, & Gross, 2008), and erotica (Carvalho, Leite, Galdo-Álvarez, & Gonçalves, 2011; Cuthbert, Schupp, Bradley, Birbaumer, & Lang, 2000). Thus, these analyses were exploratory.

A Note about Psychophysiological Measures

The extent to which psychophysiological responses reflect specific psychological states related to empathy are inferred from the types of stimuli utilized and their intensity (Hoffman, 1982; Neumann & Westbury, 2011). Since skin conductance typically captures arousal, suffering/degradation images are predicted to activate the sympathetic nervous system leading to a measurable SCR. Heart rate is controlled by both the sympathetic and parasympathetic systems; if the intensity is low and the valence is unpleasant there may be a co-activation of both the sympathetic and parasympathetic systems. In this case, there may be an overall HR deceleration because the cognitive dimension of empathy may predominate, leading to greater parasympathetic activity relative to sympathetic activity (Cacioppo & Sandman, 1978; Eisenberg & Fabes, 1990; Eisenberg, Fabes, Schaller, Carlo, & Miller, 1991; Kreibig et al., 2007). Because skin conductance is only influenced by the sympathetic system, our focus was on these analyses.

Study 1

The main focus of Study 1 was to investigate the relation between eudaimonic and hedonic orientations with self-report positive affect, negative affect, and empathic concern to a variety of still pictures portraying happy/healthy humans/animals/nature and suffering/degraded humans/animals/nature. A secondary objective was to assess the associations of eudaimonic and hedonic orientations with trait levels of positive affect, negative affect and empathic concern. Thus, in Study 1 we were able to test hypotheses one and two.

Method

Participants

A total of 419 participants completed the study, however participants were dropped if they did not complete all nine items of the HEMA, had greater than 10% missing data on all other variables, or failed to answer a validity check item. The final sample size was 397 undergraduate students from a Canadian university (83% female, M_{age}=19.32 years, SD_{age}=3.41). The ethnic distribution was 61% Caucasian, 12% Asian, 10% African/Black, 8% Middle Eastern, and 9% Other ethnicity. Approximately 22% were enrolled in Psychology, 14% other Social Sciences/Business, 30% Health Sciences, 23% Sciences/Engineering and 11% Arts/Humanities.

Procedure

This was an online study conducted on Limesurvey. A variety of images were selected from the internet which we felt would elicit empathic responses (see Appendix A for a description of how images were selected and retained for Study 2). The total picture set comprised 40 images as we wanted variability in responses. Each participant viewed 13 images (to reduce fatigue effects) selected randomly out of a pool of 40 for 15 s one at a time. Participants did not see all the same images as we sought to test a variety of pictures. Participants

viewed six negative images (three humans and three animals/nature) and seven positive images (four humans and three animals/nature) so that participants were not overwhelmed with viewing negative images. Images were pseudo-randomized, with alternating positive and negative images and human and animal/nature content. After each picture, participants had 90 s to rate their emotional reactions to the pictures and then the screen would automatically move to the next image (emotions are provided below in the measures section). In between each image was a grey screen for 8-10 s which served as a washout period to avoid sustained mood states.

At the end of the study, participants were provided with a question pertaining to the length of picture viewing time – whether it was too short, too long or just right, and if they had seen the images before[2]. Finally, participants completed a list of self-report questionnaires that measured trait levels of variables of interest including eudaimonic and hedonic orientations, and emotional reactivity (included as a potential confound).

Participants received course credit for completing the study.

Measures

Hedonic and Eudaimonic Motives for Activities (HEMA, Huta & Ryan, 2010). This instrument assesses two orientations to well-being at the trait level: *Hedonic Orientation*, i.e., pursuing pleasure and comfort (five items, α=.81, "Seeking relaxation," "seeking pleasure," "seeking enjoyment," "seeking to take it easy," and "seeking fun"), and/or *Eudaimonic Orientation*, i.e., pursuing excellence, personal growth, and authenticity (four items, α=.82, "seeking to develop a skill, learn, or gain insight into something," "seeking to do what you believe in," "seeking to pursue excellence or a personal ideal," and "seeking to use the best in yourself"). The instructions read: To what degree do you typically approach your activities with

each of the following intentions, whether or not you actually achieve your aim? The items are rated on a Likert scale from 1 (not at all) to 7 (very much).

Trait and state affect ratings. We assessed a variety of discrete emotions at both the trait level ("How often do you typically feel the following emotions?" positive affect α=.79, negative α=.84), and state level following a given image ("Please rate how the picture made you feel"). Positive emotions were "happy", "excited", "heart-warmed", "uplifted" and "soothed". Negative emotions were "upset", "angry", "hurt", and "sad". Participants were asked to rate how they felt on a scale from 0 (not at all) to 6 (extremely).

Positive and negative affect scores. PCA was performed on trait level emotions, revealing two eigenvalues greater than 1. A 2-factor solution was performed using Varimax rotation, with 56% of the variance explained. Results showed that positive and negative emotions clearly separated (see Appendix B). Therefore, we aggregated all positive items together to create *a trait positive affect* score and we aggregated all negative items together to create a *trait negative affect* score. Similarly, we assessed positive affect and negative affect at the state level; we felt it was more parsimonious to look at global positive and negative affect to images given the high Cronbach alphas for these variables.

Since responses to images can be highly variable and we could not afford to have large numbers of images in each category (human, animal, nature) due to participant fatigue, we looked at all happiness/health images together, and all suffering/degradation images together. Furthermore, most research on psychophysiological reactions to pictures has focused on valence (i.e., positive or negative content) categories as opposed to picture content (Bradley & Lang, 1999; see Bradley et al., 2001). We felt that the human, animal and nature categories were theoretically linked and would show the same trends (but perhaps to different degrees, e.g.,

animal/nature images may show weaker reactions than humans, but not opposing reactions). We labeled these variables *state positive affect to happiness/health* and *state negative affect to suffering/degradation*, respectively (see Appendix C for descriptives of individual pictures). Intercorrelations for picture categories showed that overall these categories had moderate to high coherency (see Appendix D).

Trait and state empathic concern. We looked at trait and state empathic concern (with the word "empathetic"), and called these variables *trait empathic concern* and *state empathic concern to suffering/degradation*. These variables were rated on a scale from 0 (not at all) to 6 (extremely).

Emotional Reactivity Index (Nock, Wedig, Holmberg & Hooley, 2008). This instrument was used to rule out the possibility that individuals may be generally emotionally reactive (21 items, α=.94, e.g., "I tend to get emotional very easily," "When I am angry/upset it takes me longer than most people to calm down"). The items are rated on a Likert scale from 1 (not at all) to 7 (very much).

Control Variables

We controlled for gender and ethnicity (dichotomized into White n=244, non-White n=153) in all analyses given that previous studies have found that empathy and emotional responses to others' welfare and suffering are related to gender (e.g., O'Brien, Konrath, Grühn, & Hagen, 2013; Rueckert, 2011; Rueckert, Branch, & Doan, 2011) and to culture (e.g., Huang et al., 2015; Lohani, Gupta, & Srinivasan, 2013; Sirin, Valentino, & Villalobos, 2016; Stürmer, Snyder, Kropp, & Siem, 2006).

Results

Preliminary Demographic Analyses

There were some gender differences; females scored higher on trait empathic concern ($t=2.72$, $p<.05$), emotional reactivity ($t=3.83$, $p<.01$), state negative affect to suffering/degradation ($t=3.31$, $p<.01$), and state empathic concern to suffering/degradation ($t=2.36$, $p<.05$).

Age correlated positively with eudaimonic orientation ($r=.10$, $p<.05$), and negatively with emotional reactivity ($r=-.10$, $p<.05$). White scored higher on state positive affect to happiness/health ($t=2.33$, $p<.05$).

Statistical Analyses

Hierarchical linear modeling. Hierarchical linear modeling (HLM) was run using maximum likelihood to statistically analyze a data structure where pictures (level-1) were nested within participants (level-2). All independent variables (IVs) were grand mean centered (meaning that each individual's score was adjusted by subtracting it from the grand mean).

We ran separate models with eudaimonic orientation as the predictor and hedonic orientation as the predictor (controlling for gender and ethnicity) for each dependent variable (DV) separately. We also controlled for trait levels of affect when looking at state affect to images (i.e., we controlled for trait positive affect when assessing state positive affect, trait negative affect when assessing state negative affect, and trait empathic concern when assessing state empathic concern). The following formula represents the general models that were performed for eudaimonic and hedonic orientations and each of the DVs:

Level-1 Model

$$Y_{ij} = \beta_{0j} + r_{ij}$$

Level-2 Model

$\beta_{0j} = \gamma_{00} + \gamma_{01}$ (eudaimonic/hedonic orientation) + γ_{02} (gender) + γ_{03} (ethnicity) + u_{0j}

Where Y represents the DV at level-1, β_{0j} is the mean DV across pictures, γ_{00} represents the mean DV across pictures and participants, and γ_{01}, γ_{02} and γ_{03} represent each of the IVs at level-2 (e.g., eudaimonic/hedonic orientation, gender, ethnicity) and their relation to the participant's mean score on the DV, and r_{ij} and u_{0j} represent random error.

Regression coefficients were converted into correlations to obtain effect sizes using the following formula:

$$\frac{\text{Coefficient} \times \text{between-person standard deviation of the IV}}{\text{Between-person standard deviation of the DV}}$$

Tests of Hypotheses

Table 1 displays descriptive statistics for trait and state levels of variables. Tests of our hypotheses (correlations and coefficients) are presented in Table 2. Both eudaimonic and hedonic orientations did not relate to emotional reactivity, ruling out the confound that responses to pictures were simply due to a tendency to be more emotional.

Results for length of picture viewing showed that five percent of participants felt that 90 seconds to rate their emotions was too quick, 34% answered just right and 62% said it was too long.

Hypothesis 1 – Indices of personal well-being. Our hypothesis was supported. Both eudaimonic and hedonic orientations related to trait positive affect. Consistent with previous findings, eudaimonic and hedonic orientations showed little relationship with trait negative affect.

Hypothesis 2 – Self-reported indices of empathic reactions. Our hypothesis was partially supported. As predicted, only eudaimonic orientation related to trait empathic concern and to state empathic concern to suffering/degradation. As predicted, eudaimonic orientation related to state positive affect to happiness/health and to state negative affect to suffering/degradation. Unexpectedly, hedonic orientation also related to state negative affect to suffering/degradation (though significantly less strongly than did eudaimonic orientation). Hedonic orientation also related to state positive affect to happiness/health.

The implications of these findings will be discussed further in the General Discussion section following Study 2.

Study 2

Study 2 was a replication of Study 1; we investigated the distinction between eudaimonic and hedonic orientations among trait and state self-reported affect and empathic concern. Study 2 extended Study 1 by assessing psychophysiological responses (skin conductance and HR), and facial expressions to a subset of images from Study 1 (excluding those with weaker psychometric properties, but not based on those which were congruent with our hypotheses in Study 1). Our focus for facial valence and psychophysiological measures was on suffering/degradation images. Therefore, we were able to test all hypotheses in Study 2.

Given that we unexpectedly found links between hedonic orientation and state negative affect to suffering/degradation images in Study 1, and given the literature showing a distinction between genuine empathy and self-focused discomfort (e.g., Batson, 1991, 2011; Oceja, López-Pérez, Ambrona, & Fernández, 2009), we also asked for ratings of revulsion. This would allow us to assess a more self-focused reason for reactions to images. We differentiated revulsion (which may be a more self-focused visceral reaction) from disapproval (which may be a more

cognitive disgust response). We also assessed attractiveness ratings to happiness/health images since we conjectured that this was a positive counterpart of revulsion (i.e., a relatively superficial, self-focused reaction to positivity, perhaps suggesting pleasure).

Hypothesis 5a – Indices of self-focused reactions. Hedonic orientation will relate to stronger revulsion ratings to suffering/degradation images compared to eudaimonic orientation, which is expected to indicate a more self-aversive reaction of discomfort (Batson, 1991, 2011). Only eudaimonic orientation will relate to disgust as disapproval to suffering/degradation, which tends to be a cognitive reflection of suffering, rather than a visceral distressing response.

Both hedonic and eudaimonic orientation will relate to attractiveness evaluations to happiness/health images, but the correlation is expected to be stronger for hedonic orientation. Positive images may engender pleasant and tranquil feelings for hedonically oriented individuals (e.g., being cheered up by the bright colours), while eudaimonic orientation may relate somewhat to attractiveness evaluations due to an appreciation of beauty (Huta & Ryan, 2010).

Hypothesis 5b – Self-focused reactions explaining the link between hedonic orientation and empathic reactions. Controlling for attractiveness evaluations will diminish the link between hedonic orientation and state positive affect to happiness/health. Controlling for revulsion evaluations will reduce the link between hedonic orientation and state negative affect to suffering/degradation.

Method

Participants

A total of 145 participants from a Canadian university completed the study. However, two participants were omitted because they reported consuming alcohol 12 hours prior to the study, leaving a final sample size of 143 undergraduate students (M_{age}=19.42, SD=2.09, 79%

female). The ethnic distribution was 38% Caucasian, 26% Asian, 15% African/Black, 13% Arab and 9% Other ethnicity. Participants came from a range of academic backgrounds: 16% Psychology, 18% other Social Sciences/Business, 23% Health Sciences, 30% Science/Engineering, and 13% Humanities/Arts.

Data Reduction

Seventeen participants had unusable and/or messy skin conductance data, 12 had unusable and/or messy HR readings, and 17 had unusable facial valence data due to either sources of noise (e.g., constant yawning or coughing, fidgeting), inaccurate electrode placement, faulty electrodes, failure to synchronize properly with E-Prime, or choosing to have their video deleted. The final sample sizes were n=126 for skin conductance measures, n=131 for HR, n=126 for facial valence and n=143 for self-report affect data.

Procedures

Participants completed the experiment individually in a room kept at a comfortable temperature. The study was run between certain times of the day (11:30 a.m. and 3:30 p.m.) to minimize the influence of daily cycles on physiological responding, such as cortisol cycles (Venables & Mitchell, 1996). Before participants arrived, they were told to wear loose fitting clothing to facilitate electrode placement, and to avoid using recreational drugs or consuming alcohol 12 hours prior to the study. Verbal instructions were given by experimenters who followed a strict script (see Appendix E), and participants were screened for health status and medication use in the consent form (see Appendix F).

Participants were told that they would be viewing pictures on a computer monitor and would have to rate how each picture made them feel. Afterwards, participants were set up with electrodes either by an experimenter or themselves, with the aid of a diagram in a fitting room

(explained in the apparatus section). Skin areas for electrode placement were cleaned with rubbing alcohol and dried with gauze before placement (for HR electrodes only). Leads were secured with hypoallergenic surgical tape to minimize movement. Next, participants were seated at a cubicle in front of a computer (Viewsonic 24 inch, 1920 x 1080 resolution) and connected to a 16-channel electrode box. Participants were instructed to make as little movement as possible, but to also be comfortable. Lighting was dimmed by 75% to facilitate engagement with the photos. Experimenters went through a trial run with one relatively neutral image (the moon) to ensure that the participants understood the procedures of the study (Figure 1 diagramatically depicts the experiment). Participants were then left alone in the room during the remainder of the study.

Baseline physiological measures were taken for three minutes while participants viewed a grey screen (Prguda & Neumann, 2014). Next, participants viewed 12 images sequentially via E-Prime version 2.0.10.353. Images were pseudo-randomized between positive and negative images and picture content (human, animal and nature). In between each picture was a relaxing blue wave screen (15 s) which served as a *pre-stimulus baseline* measure (Ribeiro et al., 2006; Tassinary & Cacioppo, 2000), as well as a washout period to minimize any lingering effects of one picture onto another (Piferi, Kline, Younger, & Lawler, 2000; Prguda & Neumann, 2014). Participants were told to view each image for the entire time it was on the screen (15 s) and then had 60 s to complete the self-report ratings for each of the pictures (we decided to reduce the time taken to rate the pictures given that we wanted an immediate emotional response). A small version of the image was present in the top right corner of the screen while participants completed the self-report emotional ratings to be reminded of that image. The picture viewing lasted approximately 35 minutes in total. Afterwards, participants completed a self-report study

on Limesurvey. A pilot study was run on four participants (not included in Study 2) to familiarize experimenters with the protocol and finalize the lighting and timing to complete emotional responses.

Females were asked to provide the number of days since their last menstrual cycle, which could have an influence on emotional responding. There were no significant correlations between time since last menstrual cycle and any variables, thus no further analyses were conducted with this variable.

Measures

Self-report. The following were the same as the measures used in Study 1: the trait level HEMA to assess eudaimonic and hedonic orientations (Huta & Ryan, 2010, eudaimonic orientation α=.80, hedonic orientation α=.79), trait positive affect (α=.81), trait negative affect (α=.78), trait empathic concern (revised to the word "empathic" rather than "empathetic"), state affect ratings (the empathic concern item was revised to "Empathy: My heart went out to the scene"), and the Emotional Reactivity Scale to assess trait emotional reactivity (Nock et al., 2008, α=.93).

Evaluation ratings of attractiveness and revulsion. This measure was included to serve as an index of reactions that were largely self-focused (i.e., aesthetic or revolting aspects of images), rather than genuinely empathic. The instructions for attractiveness evaluations read: "To what degree are people likely to find this picture visually pleasing in the moment when they first see it?" Ratings were from 1 (not at all) to 7 (extremely). Disgust evaluations were assessed with two items (1) *Disgust as revulsion* (square root transformed due to a non-normal distribution) and (2) *Disgust as disapproval*. Participants were asked to rate from 0 (not at all) to

6 (extremely) how disgusted/grossed-out or disgusted/disapproving of implications they were to each image.[3]

NEO Five Factor Inventory-short version (NEO-FFI, McCrae & Costa, 2010). This was included as a second way of assessing the confounding role of emotional reactivity. This instrument consists of 60 items which assesses the big five personality traits: extraversion, openness to experience, agreeableness, conscientiousness and neuroticism. Only trait neuroticism was of interest in the current study given that previous studies have linked neuroticism to greater emotionality (e.g., Norris, Larsen, & Cacioppo, 2007; Tok, Koyuncu, Dural, & Catikkas, 2010; 12 items, α=.82, e.g., "I often feel tense and jittery," "I am seldom sad or depressed" reverse scored). Participants rated each statement on a Likert scale from 1=strongly disagree to 5=strongly agree.

We correlated measures of neuroticism and emotional reactivity with eudaimonic and hedonic orientations to test our prediction that they would be unrelated to orientations; this would allow us to rule out the possibility that elevated levels of these vulnerabilities may be accounting for individual's affective, psychophysiological and facial responses to the images.

Apparatus

Skin conductance. Two disposable 3.81 x 2.54 cm Galvanic Skin Response (GSR) electrodes (0% chloride wet gel) were placed on the thenar and hypothenar eminences of the palms on the non-dominant hand. There was a constant voltage of 10 μS (microsimiens) between the two electrodes, a gain of 5 μS/volts, and a sampling frequency of 1000 Hz. Data acquisition software included a Galvanic Skin Conductance amplifier (Mindware Technologies Ltd., BioLab 3.1.2, Gahanna, OH) which utilizes a 16 bit A/D converter. A muscle and noise filter was activated during data acquisition.

Heart rate. Heart rate (HR) was assessed using beats per minute (bpm) which is measured via electrocardiogram (ECG) activity. Participants were set up with six electrodes as part of measuring impedance cardiography (which covers a variety of functions of the heart such as blood volume and systolic time intervals). Only mean HR was of interest in the current study whereby two electrodes (3.81 cm disposable foam with 7% chloride wet gel) were positioned in a two-lead configuration (on the bottom left rib and the right collar bone/clavicle). The four remaining electrodes were placed on the jugular notch above where the collar bones meet, below the sternum (xiphoid process), the back of the neck, and the lower spine. Though we were only interested in HR in the present study, respiration rate was visually inspected in conjunction with HR to check for artefacts in the HR waveform.

Measurements were synchronized online using BioLab 3.1.2 Acquisition Software (Mindware Technologies Ltd., Gahanna, OH) which detected the presence of R spikes (upward deflections in HR signal) to calculate the interbeat interval (IBI) between successive-R-waves and derive a mean HR. Heart rate was sampled at a rate of 1000 Hz, and the minimum to maximum HR was set to 40 to 200 Hz (in accord with Mindware Technologies guidelines).

Facial valence. A concealed video camera recorded participant's facial response during picture viewing to obtain an observational measure of emotional reactions (participants were unaware that they were being recorded). Facial expressions were based on ratings by a clinical psychology doctoral student (a second rater rated a subset of the data, N=79, r=.92, but results were only included for the clinical rater who we felt had more experience in judgements of facial expressions). The rater viewed the participants during baseline for approximately one minute to become familiar with the participant's natural resting facial expressions. The expressions were too subtle to break down into discrete emotions, and thus only valence was measured – the

degree of negative or positive facial expressions on a rating scale as has previously been used (Falkenberg, Kohn, Schoepker, & Habel, 2012). The scale ranged from -4 to 4 (strong negative/positive reaction), -3 to 3 (moderate negative/positive reaction), -2 to 2 (somewhat negative/positive reaction), -1 to 1 (slight negative/positive reaction) and 0 (no reaction).

Data Scoring for Psychophysiological Measures

Skin conductance. Skin conductance was analyzed with Electrodermal Activity Analysis 3.1.2 software (Mindware Technologies Ltd., Gahanna, OH). We examined baseline SCL, SCR magnitude and SCR latency.

Baseline SCL was based on the average SCL during the three minutes' baseline period for each participant. SCR magnitude was derived from the difference between the trough and apex of the skin conductance curve (Dawson et al., 2007), occurring within 1-13 s of picture viewing. SCRs typically occur within 1-4 s of stimulus viewing (Boucsein, 2012; Braithwaite et al., 2015), however we felt that some pictures would take time to process and thus we extended this interval to include non-specific SCRs (i.e., those outside the 1-4 s range; Psychlab, n.d.). The minimum SCR was set to .05 μS (Dawson et al., 2007), and those with amplitudes less than .05 μS were scored as 0 (nonresponse). If there were multiple SCRs to an image, raw data was visually analyzed to ensure that responses were not overlapping. If there was overlap, peak and trough detection of the SCR curve were manually adjusted, using the graphic edit peaks and troughs tool in Electrodermal Analysis 3.1.2 (there were few overlapping responses). Only the first SCR was included in the analyses as this was the initial reaction to the images. SCR magnitude was log transformed because of a non-normal distribution. SCR latency was calculated via trough time of the SCR minus stimulus onset time (the time each image appeared).

One issue with physiological studies is that participants may habituate to stimuli (e.g., Boucsein, 2012; Codispoti, Ferrari, & Bradley, 2006). We attempted to overcome this by having the pre-stimulus wave screen rather than a static grey screen to keep participants somewhat engaged. Nonetheless, we visually inspected each participant's SCL over the entire experiment (using a scatter graph) and categorized participants into those that had a visible decline in SCL overtime (n=43) and those that did not (n=83). We did not find any differences for eudaimonic orientation (t=.76, p=.448) and hedonic orientation (t=1.03, p=.307) and a decline in SCL.

Heart rate. We assessed *baseline heart rate (HR)* and *heart rate (HR) change*. The means in beats per minute (bpm) for three epochs of interest were calculated using Impedance Cardiography Analysis 3.1.2 software (Mindware Technologies Ltd., Gahanna, OH): (i) Baseline – the three minutes preceding the experiment (ii) 15 s pre-stimulus baseline prior to each image and (iii) 15 s of picture viewing for each image. HR analyses were based on change scores – subtracting the pre-stimulus baseline values from the 15 s of picture viewing values for each participant (Ribeiro et al., 2007; Sze et al., 2011). R-peaks were visually inspected and artefacts or arrhythmic waveform segments (i.e., abnormal heart rhythms) were edited by either deletion or insertion of R-peaks manually (Mindware Technologies Ltd., Gahanna, OH).

Behaviours which could potentially influence psychophysiological recordings (e.g., coughing, sneezing, yawning or other drastic movements) were flagged by the experimenters during the experiment and artefacts were visually inspected and edited out.

Results

Preliminary Demographic Analyses

Males scored higher than females on eudaimonic orientation (t=2.16, p<.05). Age negatively correlated with baseline HR (r= -.32, p<.01).

Ethnicity was dichotomized into White (n=54) and non-White (n=89), as group sizes were insufficient for more fine-grained analyses. White scored higher than non-White on baseline SCL ($t=2.22$, $p<.05$), baseline HR ($t=2.22$, $p<.05$), SCR magnitude to happiness/health ($t=2.46$, $p<.05$), and HR change to happiness/health ($t=2.02$, $p<.05$). Non-White scored higher on facial valence to happiness/health ($t=2.64$, $p<.01$).

Tests of Hypotheses

Table 1 shows descriptive statistics for all the variables. As in Study 1, hierarchical linear modeling (HLM) analyses were performed (controlling for gender and ethnicity), and coefficients were converted into correlations. Table 2 shows correlations and coefficients of eudaimonic and hedonic orientations with self-report variables, and Table 3 shows correlations and coefficients of eudaimonic and hedonic orientations with facial valence and psychophysiological variables.

Hypothesis 1 – Indices of personal well-being. Our hypothesis was mostly supported. Both eudaimonic and hedonic orientations related to trait positive affect and had no relation to trait negative affect. However, neither orientation related to lower baseline HR. Both eudaimonic and hedonic orientations related negatively to baseline SCL.

Hypothesis 2 – Self-reported indices of empathic reactions. Our hypothesis was partially supported. As predicted, eudaimonic orientation related to trait empathic concern, state positive affect to happiness/health, state negative affect to suffering/degradation, and state empathic concern to suffering/degradation images. Unexpectedly, hedonic orientation also related to state empathic concern to suffering/degradation images.

Hypothesis 3 – Facial valence indices of empathic reactions. Our hypothesis was not supported. Neither eudaimonic orientation nor hedonic orientation related to facial valence to happiness/health images and suffering/degradation images.

Hypothesis 4 – Skin conductance indices of empathic reactions. Our hypothesis was not supported. There were no statistically significant findings for both eudaimonic and hedonic orientations and SCR magnitude to suffering/degradation images and happiness/health images. There were no significant findings for eudaimonic and hedonic orientations and SCR latency to suffering/degradation images. Eudaimonic orientation related to quicker SCRs to happiness/health, while hedonic orientation related to delayed SCRs to these images.

We ran additional HLM analyses looking at the frequency of SCRs to images (while controlling for number of SCRs during the three minutes' baseline period), since some participants may have had more spontaneous SCRs throughout the entire experiment. There were no significant findings for eudaimonic orientation and number of SCRs to happiness/health ($r=.00$, $p<.10$), and suffering/degradation images ($r=.00$, $p<.10$); and no significant findings for hedonic orientation and number of SCRs to happiness/health ($r= -.11$, $p<.10$), and suffering/degradation images ($r= -.10$, $p<.10$).

HR change exploratory analyses. Both eudaimonic and hedonic orientations had no significant links with HR change to happiness/health images and HR change to suffering/degradation images. Though, hedonic orientation had a significantly lower HR to suffering/degradation images relative to eudaimonic orientation and HR to these images.

Hypothesis 5a – Indices of self-focused reactions. Our hypothesis was mostly supported. Only hedonic orientation was positively linked to disgust as revulsion to suffering/degradation. Only hedonic orientation was correlated with attractiveness evaluations to

happiness/healh. However, both eudaimonic and hedonic orientations related positively to disgust as disapproval to suffering/degradation.

Hypothesis 5b – Self-focused reactions explaining the link between hedonic orientation and empathic reactions. Hedonic orientation was not correlated with state positive affect to happiness/health and state negative affect to suffering/degradation, and remained unrelated to these variables when controlling for attractiveness evaluations to happiness/health ($r= -.01$, $p>.10$), and when controlling for revulsion evaluations to suffering/degradation ($r=.06$, $p>.10$). Eudaimonic orientation was marginally related to state positive affect to happiness/health ($r=.16$, $p<.10$) when controlling for attractiveness evaluations, and remained significantly related to state negative affect to suffering/degradation when controlling for revulsion evaluations ($r=.20$, $p<.05$).

Correlations between the Variables

Table 4 presents correlations between trait variables and Table 5 reports correlations between state variables.

Trait variables. There was concordance between empathic concern and positive affect, and between baseline SCL and baseline HR. However, there were no significant correlations between baseline psychophysiological measures and trait self-report affect.

State variables. For happiness/health images there was synchronicity between state positive affect and SCR magnitude, and between state positive affect and facial valence. There was more concordance between suffering/degradation images: state negative affect and state empathic concern were correlated; SCR magnitude correlated with state negative affect, state empathic concern, quicker SCRs, and higher HR.

Overall, our findings are in line with previous research which has found mixed results for coherence among experiential and psychophysiological emotional responses (Balconi, Vanutelli, & Finocchiaro, 2014; Evers et al., 2014).

Additional Analyses of Humans, Animals and Nature Separately

These analyses were exploratory given that there were insufficient sample sizes for each category (human, animal and nature) and thus less variability. Nonetheless, we ran these analyses to test if there were nuanced differences between each of the categories. Mean values were taken for self-report affect and empathic concern, facial valence, and psychophysiological measures for each category, and semi-partial correlations were performed on each of these variables (with eudaimonic and hedonic orientations). Table 6 presents descriptives for each of the measures and Table 7 presents the semi-partial correlation results. Though there were differences in the degree of responses to each category (e.g., nature tended to have the weakest self-report responses), there were no opposing physiological responses.

Eudaimonic orientation was associated with state positive affect to human happiness/health in Study 2 and nature happiness/health in both studies. Hedonic orientation was only linked to state positive affect to nature happiness/health in Study 1. Eudaimonic orientation related to state negative affect to human, animal and nature suffering/degradation across both studies (except animals in Study 2). Hedonic orientation only related to state negative affect to nature suffering/degradation in Study 1. Both eudaimonic and hedonic orientations related to attractiveness evaluations to nature; eudaimonic orientation related to disgust as disapproval to suffering/degraded humans; only hedonic orientation related to disgust as revulsion to all categories. Hedonic orientation related to decelerated HR to human happiness/health.

General Discussion

Eudaimonic and Hedonic Orientations and Personal Well-being

Both eudaimonic and hedonic orientations related positively to trait positive affect and lower baseline SCL, suggesting lower stress. This is in accord with previous studies linking eudaimonic and hedonic orientations with positive affect (Anić & Tončić, 2013; Peterson, Park, & Seligman, 2005; Tamir, 2009; Tov & Lee, 2016); eudaimonic functioning to greater health profiles (see Ryff, 2012, 2013), and down-regulation of stress-related genes (Cole, Levine, Arevalo, Ma, Weir, & Crimmins, 2015; Fredrickson et al., 2013); and positive emotions (i.e., hedonic experience) with mitigated stress, enhanced health benefits, and increased longevity (e.g., see Louro, Blasco, & Fernandez-Castro, 2015; McCraty & Tomasino, 2006; see Pressman & Cohen, 2005). Eudaimonic and hedonic orientations showed no significant links with reduced HR; one prior study reported that eudaimonic well-being had no relation to cardiovascular measures (e.g., blood pressure; Lindfors & Lundberg, 2002). Other research has shown that positive affect (a component of hedonic well-being) was associated with increased cardiovascular responses (see Pressman & Cohen, 2005; Steptoe et al., 2015). Although lower resting HR is typically an index of better health, given that baseline measures were conducted in a laboratory setting, participants may have experienced general test anxiety to a certain degree. Our findings need to be replicated as there were different results for baseline HR and SCL.

Eudaimonic Orientation and Self-reported Caring Beyond the Self

Eudaimonic orientation was associated with trait empathic concern, state positive affect to happiness/health, and state negative affect and state empathic concern to suffering/degradation images across both studies. Specifically, eudaimonic orientation was consistently linked with positive affect towards healthy nature images (perhaps suggesting greater connection with

nature), and positive affect to happy humans in Study 2 (Study 1 had images of pride/accomplishment which may have diminished feelings of positive affect relative to Study 2 which included only an image of a jovial baby and content elderly couple). Eudaimonic orientation showed overall consistent links with concern for humans, animals and nature in negative circumstances. This figures heavily with theoretical claims that eudaimonia encompasses a broader concern beyond the self (Huta, 2015; Seligman, 2002; Wong, 2012), and corroborates previous studies linking eudaimonic orientation with perspective taking, prosocial behaviour (Pearce et al., 2017; Pearce & Huta, manuscript in preparation), and pro-environmental behaviours (Pearce et al., 2017).

Prior work has linked both empathy for positive circumstances (Andreychik & Migliaccio, 2015; see Morelli, Lieberman, & Zaki, 2015; see Nils-Torge & Hans-Rudiger, 2015) and negative circumstances (e.g., Batson, 1991; see Dovidio et al., 2006 for a review; Sze et al., 2011) to random acts of kindness and helping others in need. Eudaimonic pursuits tend to entail a broader focus, which may sensitize one to take the perspective or connect with something beyond the self. Subsequently, this may augment emotional reactions to that individual, animal or natural scene. In accord with our hypotheses, excellence, growth and authenticity goals tend to go hand in hand with care beyond the self. Eudaimonic goals may foster deep contemplation, respect, and concern for excellence or thriving which extends towards the greater society and all living entities. Eudaimonically oriented individuals may also be more proficient at considering the long-term ramifications of events (e.g., environmental destruction) due to a broader time perspective (Bauer, 2008; Pearce et al., 2017).

Another angle of interpretation is that eudaimonic orientation is related to greater emotion regulation. Eudaimonic pursuits can entail struggling and striving, which can generate a

broader spectrum of emotions, ranging from positive to negative. Individuals who can regulate their emotions may be more likely to engage in empathic concern, whereas those who are less able to regulate their emotions may feel overly distressed (or apathetic) when witnessing a distraught individual or degraded environment, and less likely to experience empathic concern (Decety & Jackson, 2004; Eisenberg & Eggum, 2009).

Hedonic Orientation and Weaker Self-reported Caring Beyond the Self

Hedonic orientation was less consistently linked to concern beyond the self. In Study 1 we did not assess attractiveness and revulsion evaluations which may have contributed to the links between hedonic orientation and self-report concern beyond the self. Furthermore, some of the inconsistencies in results may also be attributed to the different images used across both studies. Analyses of human, animal and nature categories separately showed that hedonic orientation was particularly related to state positive affect to nature images in Study 1; nature can have hedonic benefits including relaxation, enjoyment and sensory engagement (Martyn & Brymer, 2016). Indeed, Study 2 showed that hedonic orientation related to attractiveness ratings to nature happiness/health images, perhaps because they elicited pleasure. Hedonic orientation was also linked to state negative affect to nature images in Study 1, perhaps because these images elicited greater disgust (e.g., pollution in a lake which may interfere with one's own pleasure).

Hedonic orientation may involve less regard for the welfare of another or resonating with another's joy due to a preoccupation with pleasure for the self. Furthemore, these images may have been abstract for a hedonically oriented person to relate to such as poverty, natural disaster victims, or environmental destruction (which may be removed from one's every day life). Empathizing with suffering in particular, may engender unpleasant feelings or discomfort, which

a hedonically oriented individual may attempt to avoid. Indeed, hedonic orientation was associated with feelings of disgust as revulsion to suffering/degradation (also for humans, animals and nature when analyzed separately) which tends to be a visceral response that prompts self-protection (Winterich, Mittal & Morales, 2014). Disgust responses may be indicative of self-focused feelings of personal distress (Batson, Fultz, & Schoenrade, 1987; Cialdini Schaller, Houlihan, Arps, Fultz, & Beaman, 1987), as opposed to genuine empathic concern.

Both eudaimonic and hedonic orientations related to disapproval to suffering/degradation. This measure may have tapped simply into an acknowledgement of what is right or wrong, and not necessarily a deeper resonance with the scene.

Facial Valence and Empathic Reactions

There were no significant findings for eudaimonic orientation and positive and negative facial expressions to happiness/health and suffering/degradation, respectively. The pictures in this study may not have been arousing or distressing enough to elicit pronounced facial expressions. For instance, positive images did not display overt smiling or excitement, but rather content. Furthermore, cognitive empathy rather than outward facial expressions may play a larger role in adult's empathic responses (e.g., Davis, 1983). Eudaimonic orientation may be associated with supressing facial expressions to a certain extent and instead reflecting internally on the implications of suffering. Indeed, emotional suppression has been interpreted as a salubrious form of emotion regulation in some cultures (English & John, 2013; Gross & John, 2003). Negative facial expressions may particularly be more subtle than positive facial expressions (e.g., smiling), especially in situations where individuals are looking at static images as opposed to directly interacting with an individual, animal or natural scene.

Caring Beyond the Self as Measured with Psychophysiological Responses

There were fewer differences between eudaimonic and hedonic orientations and caring beyond the self at the psychophysiological level. This suggests that the distinction between these orientations at this level may be elusive or that the stimuli used in the current study were too subtle to elicit responses.

Our hypotheses were not met for eudaimonic orientation and SCR magnitude and quicker SCRs to suffering/degradation. One interpretation of this finding is that these images may have elicited predominantly low arousal emotions, which were too subtle to elicit a response (Kunzmann & Grühn, 2005). Another interpretation is that eudaimonically oriented individuals may cognitively reflect on suffering (as evidenced in self-report ratings), but display less pronounced empathic responses at the immediate physiological level. Previous researchers have posited eudaimonia to be characterized by a cold brain system which is more cognitive and based on thoughtful, abstract evaluations (Steger & Shin, 2012). The present images may have taken longer to process and reflect on (e.g., implications of poverty, environmental destruction). Also, there is the possibility that those who emphasize eudaimonic pursuits are somewhat habituated to suffering at the physiological level, perhaps because they are involved in activities dedicated to helping others or exposed to situations where they witness suffering (e.g., charities for poverty, animal rights, environmental protection etc.).

Studies have found that SCR may depend on the passivity of content. For instance, in some studies skin conductance has been found to remain unchanged or decelerate in response to unpleasant images if the content is passive (e.g., non-crying sadness, pollution, standardized imagery as opposed to personal recollections; Codispoti & De Cesarei, 2007; Gross et al., 1994; Gross & Levenson, 1993; see Kreibig, 2010; Rottenberg, Gross, Wilhelm, Najmi, & Gotlib,

2003). In the present study, participants viewed static images which may have contributed to a withdrawal (i.e., deactivating response) of both the sympathetic and parasympathetic systems (Bradley et al., 2001; Lang, 2010). Additionally, our images tended to capture the aftermath of loss or degradation, which may produce weaker reactions relative to anticipatory loss (e.g., videos of someone being informed about the death of a loved one, or that they are diagnosed with a terminal illness; Barr-Zisowitz, 2000; Kreibig, 2010).

Hedonic orientation also showed no links with SCR magnitude to suffering/degradation images. Given that hedonic orientation also did not relate to state negative affect to these images, this suggests that hedonic orientation may be associated with a blunted response to other's undergoing sorrow or dilapidation.

Hedonic orientation showed trends of attenuated SCR magnitude to happiness/health, perhaps capturing the soothing or comforting component of hedonia. Previous research has linked exposure to nature, in particular, with both lower SCL and HR (Christie & Friedman, 2004; Laumann, Garling, & Stormark, 2003; Ulrich, Simons, Losito, Fiorito, Miles, & Zelson, 1991; Valtchanov & Ellard, 2010). Alternatively, because hedonic orientation did not relate to self-reported positive affect or positive facial expressions to happiness/health images in Study 2, this may suggest that hedonia is associated with a disinterested response (or less reactivity) to positivity beyond the self (Bradley & Lang, 2000).

We suspect eudaimonic orientation had no relation to SCR magnitude to happiness/health because these images were not highly arousing to evoke a measurable response. Furthermore, these analyses were exploratory as psychophysiological responses to positive images tend to be less clear than psychophysiological responses to aversive/negative images. Some of the images in our study may have evoked a combination of both low arousal (e.g., serenity) and high arousal

emotions (e.g., excitement; Kreibig, 2010). Moreover, greater SCRs are typically found for pleasant images with high survival significance (e.g., erotica; Bradley et al., 2001). Therefore, self-report measures may be more ideal for directly assessing reactions to other beings/entities experiencing positivity (or in a healthy state).

Findings showed that eudaimonic orientation was related to rapid SCRs to happiness/health, while hedonic orientation was related to delayed SCRs to these images. These findings can be informed by motivational theory, whereby pleasant experiences may activate approach behaviour (Bradley et al., 2001; Lang, 2010). Perhaps eudaimonic orientation facilitates the ability to relate to another's joy due to a greater proficiency to step outside oneself or a greater appreciation or connection with these images. These findings can also be interpreted within the general context of attention to positivity. It is interesting that those who emphasize pleasure in life were not more sensitive to pleasant states beyond the self. Perhaps hedonic orientation was associated with a delayed SCR to these images because too much emphasis on hedonia, to a certain extent, can lead to habituation to positivity (e.g., hedonic treadmill; Diener, Lucas, & Scollon, 2006). Alternatively, these images may not have had immediate affective benefits for the self. Nonetheless, future studies are needed to replicate these findings.

Heart rate analyses were exploratory, and there were few significant findings. Nevertheless we highlight some trends and offer some interpretations. Hedonic orientation was linked to decelerated HR to human happiness/health, perhaps suggesting a dampened response to these images (since hedonic orientation was not linked to positive affect to these images). Trends showed that hedonic orientation was also associated with a decelerated HR to suffering/degradation images. The literature on HR and emotions, as cited in the introduction, is equivocal; some studies suggest that HR acceleration is associated with empathy, while others

suggest that HR deceleration is associated with empathy. Our findings were not conclusive given that hedonic orientation did not relate to state negative affect to suffering/degradation, but did relate to empathic concern to these images in Study 2. Based on these mixed findings, it is unlikely that hedonic orientation was associated with a meaningful reduction in HR indicative of other-concern. Instead, when looking at the null findings for self-report affect, unchanged SCR, and HR deceleration together, our findings suggest that hedonic orientation is associated with a numbing response or disinterest to suffering/degradation beyond the self.

Eudaimonic orientation had no significant correlations with HR change to happiness/health or suffering/degradation images. Eudaimonically oriented individuals may understand and feel for another's positive or negative circumstances, but this may not have a significant impact on them at the physiological level. Additionally, HR provides information only about an end organ response (e.g., an increase in HR could be due to sympathetic activity, a decrease in parasympathetic activity, or a combination of both; Berntson et al., 2007). In the present study, there may have been an activation of both the sympathetic and parasympathetic systems, contributing to the null findings. Heart rate variability (HRV) analyses could be employed in future studies to assess fluctuations in HR over specific time intervals. Eudaimonic orientation may be linked to greater HRV, which is indicative of self-regulation abilities and adapting to different circumstances (Holzman & Bridgett, 2017).

In general, our findings were consistent with previous studies reporting a decelerated HR to unpleasant images (e.g., Bradley & Lang, 2000; Burriss et al., 2007; Gomez & Danuser, 2009; Prguda & Neumann, 2014; Sánchez-Navarro et al., 2006). Thus, the suffering/degradation images did seem to be associated with an orienting response, but these differences did not manifest between eudaimonic and hedonic orientations. Much of the work on

psychophysiological responses has focused on differences among emotional experiences (e.g., comparing fear to happiness or sadness), rather than among individual traits or goals, which may be more subtle. For instance most work at the individual level has focused on distinct populations such as psychopathic individuals or autistic individuals (Dindo, & Fowles, 2011; Mathersul et al., 2013).

Our findings may also suggest the role of social desirable responding in eudaimonic orientation. Participants may have exaggerated their self-reported reactions to the images or based their feelings on what they felt the images should be evoking rather than what they actually felt (Etzel, Johnsen, Dickerson, Tranel, & Adolphs, 2006). Lastly, psychophysiological measures are less specific than self-report and are sensitive to a wide range of phenomena such as orienting responses, sustained attention (e.g., Barry, 1990; Rushby & Barry, 2009), and stimulus significance (Andreassi, 2007; Barry, 1990; Hempel, Tulen, Van Beveren, Mulder, & Hengeveld, 2006; Neiss, Leigland, Carlson, & Janowsky, 2006; Rushby et al., 2005). In the present study there was only congruency between self-report and some psychophysiological measures (mainly between SCR magnitude and self-reported affective responses for suffering/degradation images). The little links between HR and SCR magnitude to images may be because SCRs were based on transient reactions to pictures (e.g., phasic increases in SCL), whereas HR was an average over the 15 s of picture viewing time. Because of the interpretational challenges of psychophysiological measures, self-report questionnaires may provide more specific measures of empathy.

Limitations and Future Directions

Although we found some evidence that eudaimonic orientation related to care beyond the self using a picture paradigm, these findings were predominantly based on self-report. We chose

pictures as our stimuli to cover a variety of situations. Future studies could employ videos which may be more vivid and sufficiently evocative than static images (e.g., Aguado, Fernandez-Cahill, Roman, Blanco, & de Echegaray, 2016; Eisenberg & Fabes, 1990).

Future studies could compare vivid gory scenes (high arousal) with sad scenes (low arousal) to test for the distinction between empathic concern and personal distress. High physiological arousal in response to gory scenes may indicate empathic over-arousal or self-focused personal distress (Liew et al., 2003). Studies have also suggested that there may be two types of sadness reactions; active sadness which evokes crying and is associated with increased autonomic activity (e.g., HR, Gross, Fredrickson, & Levenson, 1994; Rottenberg et al., 2003), and a deactivated sadness which is less intense or personal (e.g., war victims, duck in oil) which has been linked to decelerated HR (Britton, Taylor, Berridge, Mikels, & Liberzon, 2006; Kreibig et al., 2007; Ritz, Thöns, Fahrenkrug, & Dahme, 2005). This distinction could be assessed further in future research. Subsequent research may benefit from using the International Affective Picture System (IAPS) which has been extensively tested and may facilitate the development of a more apposite stimulus set (Bradley & Lang, 1994; Cuthbert et al., 2000; Dindo & Fowles, 2011). Furthermore, most of the pictures in the present study involved content that participants could have been exposed to on sponsor ads. Using a larger picture set with a wider variety of suffering (e.g., child abuse, domestic abuse, disturbing accidents etc.) could produce different findings.

Positive pictures could have also more clearly displayed happiness for another's success/well-being (e.g., someone else winning money, a family reunited), and a greater variety of happiness/health animals (e.g., wild animals, insects etc.). Future studies could distinguish between emotions directed at the self versus others. For instance, asking participants to rate how

happy or sad they felt for the other human/animal/nature in the scene, or directly asking about feelings of personal distress, discomfort, anxiety, guilt, sorrow, envy, helplessness and so on. Pictures could also be selected that capitalize on the distinction between self-focus and other concern (e.g., self-focused images could include a bag of money, luxurious goods, delectable desserts, and so on). Studies could also compare experiential and psychophysiological reactions to participants reflecting on personal experiences of happiness or sadness versus exposure to another's happiness or sadness.

Another limitation of the study was that facial expressions were very subtle. In the future, more sophisticated methods for detecting facial expressions could be utilized such as Ekman and Friesen's Facial Action Coding System (FACS) or the Emotional Behaviour Coding System (EBCS; Gross, 1996). This could allow for assessing discrete emotions such as disgust which may be more pronounced in hedonically oriented individuals. Additionally, facial electromyography (EMG) could be measured to capture subtle facial expressions.

Lastly, future research could look at additional biological measures such as horomones, which may be implicated in empathy or personal distress, for instance cortisol (Zilioli, Ponzi, Henry, & Maestripieri, 2014) or oxytocin (Barraza & Zak, 2009). More sophisticated measures of cardiac activity could also be explored. Heart rate variability (HRV; Grossman, Sahdra, & Ciarrochi, 2016; Holzman & Bridgett, 2017; Sloan et al., 2016),), and vagal reactivity (Oveis et al., 2009; Stellar, 2013) have been used often as indices of emotional regulation, which can provide information about temporal activations of different branches of the autonomic nervous system.

Conclusion

While there were limitations in the current study, this study was the first to investigate the distinction between eudaimonic and hedonic orientations using a multi-method approach looking at self-report, facial valence and psychophysiological measures on personal well-being and caring beyond the self. The results lead to some tentative inferences, which require replication, and provide an avenue for future enlightening research. Overall, the findings suggest that both eudaimonic orientation and hedonic orientation are important for personal well-being, while eudaimonic orientation tends to relate to care beyond the self, particularly at the level of self-reported affect and empathic concern.

Endnotes

1. In Study 2 we added an emotional item assessing "horrified" feelings, but this had unclear factor loadings at the trait level, thus we excluded it as part of negative affect. However, we did approximate an arousal score by subtracting sad ratings (which tends to be lower arousal) from horrified ratings (which tends to be higher arousal). The mean arousal score for all suffering/degradation images was negative (range= -.1.87 to -.15, $M_{difference}$ = -1.04). Similarly, an arousal score for happiness/health images was calculated by subtracting soothed ratings from excited ratings (range= -2.41 to -.95, $M_{difference}$ = -1.34). Thus all our images tended to be low arousal relative to high arousal.
2. There were few significant correlations between familiarity with pictures (coded as 0=no, 1=yes) and state positive affect to happiness/health images: man helping older lady ($r=.19$, $p<.05$), and purple flower ($r=.20$, $p<.05$). There were some correlations between familiarity with pictures and state negative affect to suffering/degradation images: mourning over bodies ($r=.25$, $p<.01$), tsunami victim ($r=.14$, $p<.05$), blackbird in oil ($r=.22$, $p<.05$), and many tree stumps ($r=.22$, $p<.05$).
3. We had assessed revulsion in two ways. In one way, we assessed revulsion to images at the end of the study in the same way that we assessed attractiveness ratings (e.g., To what degree are people likely to find this picture visually revolting in the moment when they first see it). We also assessed revulsion by asking participants to rate how disgusted/grossed-out they felt right after viewing the images. We decided to keep the latter measure of disgust as it reflects a more immediate response to the images, and it was also based on the participant's response rather than the "average person's" response. We only had one measure for attractiveness evaluations.

References

Aguado, L., Fernandez-Cahill, M., Roman, F.J., Blanco, I., & de Echegaray, J. (2016). Evaluative and psychophysiological responses to short film clips of different emotional content. *Journal of Psychophysiology,* 1-19. doi: 10.1027/0269-8803/a000180

Anastassiou-Hadjicharalambous, X., & Warden, D. (2008). Cognitive and affective perspective-taking in conduct-disordered children high and low on callous-unemotional traits. *Child and Adolescent Psychiatry Mental Health*, 2, 1-11. doi:10.1186/1753-2000-2-16

Andreassi, J.L. (2000). *Psychophysiology: Human behaviour and physiological response* (4th Ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Andreassi, J. L. (2007). *Psychophysiology: Human behaviour and physiological response* (5th ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Andreychik, M.R., & Migliaccio, N. (2015). Empathizing with others' pain versus empathizing with others' joy: Examining the separability of positive and negative empathy and their relation to different types of social behaviours and social emotions. *Basic and Applied Psychology*, 37, 1-18. doi: 10.1080/01973533.2015.1071256

Anić, P., & Tončić, M. (2013). Orientations to happiness, subjective well-being and life goals. *Psihologijske teme,* 22, 135-153.

Augustine, A. A., Hemenover, S. H., Larsen, R. J., & Shulman, T. E. (2010). Composition and consistency of the desired affective state: The role of personality and motivation. *Motivation and Emotion*, 34, 133-143. doi: 10.1007/s11031-010-9162-0

Balconi, M., & Bortolotti, A. (2012). Self-Report, personality and autonomic system modulation in response to empathic conflictual versus non conflictual situation. *Cognition and Emotion,* 28, 153-162. doi: 10.1080/02699931.2013.805685

Balconi, M., Vanutelli, M.E., & Finocchiaro, R. (2014). Multilevel analysis of facial expressions of emotion and script: self-report (arousal and valence) and psychophysiological correlates. *Behavioural and Brain Functions*, 10, 32. doi: 10.1186/1744-9081-10-32

Barraza, J.A., & Zak, P.J. (2009). Empathy toward strangers triggers oxytocin release and subsequent generosity. Values, empathy, and fairness across social barriers: *Annals of the New York Academy of Science*, 1167, 182–189. doi: 10.1111/j.1749-6632.2009.04504.x

Barry, R.J. (1990). Scoring criteria for response latency and habituation in electrodermal research: A study in the context of the orienting response. *Psychophysiology*, 27, 94–100.

Barr-Zisowitz, C. (2000). "Sadness" - Is there such a thing? In M. Lewis & J.M. Haviland-Jones (Eds.), *Handbook of Emotion.* (pp. 607-622). New York: Guilford Press.

Batson, C. D. (1991). *The altruism question: Toward a social-psychological answer.* Hillsdale, NJ: Erlbaum.

Batson, C. D. (2011). *Altruism in humans*. Oxford: Oxford University Press.

Batson, C. D., Fultz, J., & Schoenrade, P.A. (1987). Distress and empathy: Two qualitatively distinct vicarious emotions with different motivational consequences. *Journal of Personality*, 55, 19-39. doi: 10.1111/j.1467-6494.1987.tb00426.x

Bauer, J. J.**,** & Wayment, H. A. (2008). The psychology of the quiet ego. In H. A. Wayment & J. J. Bauer (Eds.), *Transcending self-interest: Psychological explorations of the quiet ego* (pp. 3-19). Washington, DC: American Psychological Association Books.

Benning, S.D., Patrick, C.J., & Iacono, W.G. (2005). Psychopathy, startle blink modulation, and electrodermal reactivity in twin men. *Psychophysiology,* 42, 753-762. doi: 10.1111/j.1469-8986.2005.00353.x

Berenguer, J. (2007). The effect of empathy in proenvironmental attitudes and behaviours.

Environment and Behaviour, 39, 269-283. doi: 10.1177/0013916506292937

Bernat, E., Patrick, C.J., Benning, S.D., & Tellegen, A. (2006). Effects of picture content and intensity on affective physiological response. *Psychophysiology*, 43, 93-103. doi: 10.1111/j.1469-8986.2006.00380.x

Berntson, G.G., Quigley, K.S., & Lozano, D. (2007). Cardiovascular psychophysiology. In J.T., Cacioppo, L.G., Tassinary & G.G., Berntson (Eds.), *Handbook of psychophysiology, 3rd Ed*. (pp. 182-210). Cambridge, UK: Cambridge University Press.

Berridge, K.C., & Kringelbach, M.L. (2011). Building a neuroscience of pleasure and well-being. *Psychology of Well-Being: Theory, Research and Practice,* 1, 1-3. doi:10.1186/2211-1522-1-3

Boehm, J.K., & Kubzansky, L.D. (2012). The heart's content: The association between positive psychological well-being and cardiovascular health. *Psychological Bulletin,* 138, 655–691. doi: 10.1037/a0027448

Boucsein, W. (2012). *Electrodermal activity* (2nd ed.). New York: Springer Science & Business Media.

Boucsein, W., Fowles, D.C., Grimnes, S., Ben-Shakhar, G., Roth, W.T., Dawson, M.E., & Filion, D.L (2012). Publication recommendations for electrodermal measurements. *Psychophysiology*, 49, 1017-1034. doi:10.1111/j.1469-8986.2012.01384.x

Boylan, J.M., & Ryff, C.D. (2015). Psychological well-being and metabolic syndrome: Findings from the MIDUS national sample. *Psychosomatic Medicine*, 77, 548-558. doi: 10.1097/PSY.0000000000000192

Bradley, M. M., Codispoti, M., Cuthbert, B. N., & Lang, P. J. (2001). Emotion and motivation I: Defensive and appetitive reactions in picture processing. *Emotion*, 1, 276-298.

doi: 10.1037//1528-3542.1.3.276.

Bradley, M. M., & Lang, P. J. (1994). Measuring emotion: The self-assessment manikin and the semantic differential. *Journal of Behavioural Therapy and Experimental Psychiatry,* 25, 49-59.

Bradley, M. M., & Lang, P. J. (2000). Measuring emotion: Behaviour, feeling, and physiology. In R. D. Lane & L. Nadel (Eds.), *Cognitive neuroscience of emotion* (pp. 242-276). New York: Oxford University Press.

Braithwaite, J.J., Watson, D.G., Jones, R., & Rowe, M. (2015). *A guide for analyzing electrodermal activity (EDA) and skin conductance responses (SCRs) for psychological experiments. Technical Report, 2nd version: Selective Attention & Awareness Laboratory (SAAL).* University of Birmingham, UK: Behavioural Brain Sciences Centre.

Britton, J.C., Taylor, S.F., Berridge, K.C., Mikels, J.A., & Liberzon, I. (2006). Differential subjective and psychophysiological responses to socially and nonsocially generated emotional stimuli. *Emotion*, 6, 150–155. doi: 10.1037/1528-3542.6.1.150

Burriss, L., Powell, D.A., & White, J. (2007). Psychophysiological and subjective indices of emotion as a function of age and gender. *Cognition and Emotion*, 21, 182-210. doi: 10.1080/02699930600562235

Cacioppo J. T., Berntson, G.G., Larsen, J., Poehlmann, K.M., & Ito, T.A. (2000). The psychophysiology of emotion. In R. Lewis & J.M. Haviland-Jones (Eds.), *The handbook of emotion* (2nd ed., pp. 173-191). New York: Guilford Press.

Cacioppo, J. T., & Sandman, C. A. (1978). Physiological differentiation of sensory and cognitive tasks as a function of warning, processing demands, and reported unpleasantness. *Biological Psychology*, 6, 181–192.

Cacioppo J. T., Tassinary L.G., & Berntson G. G. (2007). *Handbook of psychophysiology* (3rd ed.). New York, NY: Cambridge University Press.

Carvalho, S., Leite, J., Galdo-Álvarez, S., & Gonçalves, O. (2011). Psychophysiological correlates of sexually and non-sexually motivated attention to film clips and workload task. *Applied Psychophysiology and Biofeedback*, 37, 279-294. doi:10.1371/journal.pone.0029530

Christie, I., & Friedman, B. (2004). Autonomic specificity of discrete emotion and dimensions of affective space: A multivariate approach. *International Journal of Psychophysiology*, 51, 143–153. doi: 10.1016/j.ijpsycho.2003.08.002

Cialdini, R.B, Schaller, M., Houlihan, D., Arps, K., Fultz, J., & Beaman, A.L (1987). Empathy-based helping: Is it selflessly or selfishly motivated? *Journal of Personality and Social Psychology*, 52, 749-758. doi: 10.1037/0022-3514.52.4.749

Codispoti, M., Bradley, M.M., & Lang, P.J. (2001). Affective reactions to briefly presented pictures. *Psychophysiology*, 38, 474–478.

Codispoti, M., & De Cesarei, A. (2007). Arousal and attention: picture size and emotional reactions. *Psychophysiology*, 44, 680–686. doi: 10.1111/j.1469-8986.2007.00545.x

Codispoti, M., Ferrari, V., & Bradley, M. M. (2006). Repetitive picture processing: Autonomic and cortical correlates. *Brain Research*, 1068, 213–220. doi: 10.1016/j.brainres.2005.11.009

Colden, A., Bruder, M., & Manstead, A.S.R. (2008). Human content in affect-inducing stimuli: A secondary analysis of the international affective picture system. *Motivation and Emotion*, 32, 260-269. doi: 10.1007/s11031-008-9107-z

Cole, S.W., Levine, M.E., Arevalo, J.M., Ma, J., Weir, D.R., & Crimmins, E.M. (2015). Loneliness, eudaimonia, and the human conserved transcriptional response to adversity. *Psychoneuroendocrinology*, 62, 11-17. doi: 10.1016/j.psyneuen.2015.07.001

Collet, C., Vernet-Maury, E., Delhomme, G., Dittmar, A., 1997. Autonomic nervous system response patterns specificity to basic emotions. *Journal of Autonomic Nervous System*, 62, 45 – 57.

Compton, W. C., Smith, M. L., Cornish, K. A., & Qualls, D. L. (1996). Factor structure of mental health measures. *Journal of Personality and Social Psychology*, 71, 406-413.

Condon, P., & DeSteno, D. (2011). Compassion for one reduces punishment for another. *Journal of Experimental Social Psychology*, 47, 698-701. doi: 10.1016/j.jesp.2010.11.016

Cuthbert, B., Schupp, H.T., Bradley, M.M., Birbaumer, N., & Lang, P.J. (2000). Brain potentials in affective picture processing: covariation with autonomic arousal and affective report. *Biological Psychology*, 52, 95-111. doi: 10.1016/S0301-0511(99)00044-7

Davis, M.H. (1983). Measuring individual differences in empathy: Evidence for a multidimensional approach. *Journal of Personality and Social Psychology*, 44, 113-126.

Dawson, M. E., Schell, A. M., Braaten, J. R., & Catania, J. J. (1985). Diagnostic utility of autonomic measures for major depressive disorders. *Psychiatry Research*, 15, 261–270. 10.1016/0165-1781(85)90063-0

Dawson, M. E., Schell, A. M., & Catania, J. J. (1977). Autonomic correlates of depression and clinical improvement following electroconvulsive shock therapy. *Psychophysiology*, 14, 569–578. doi: 10.1111/j.1469-8986.1977.tb01201.x

Dawson, M. E., Schell, A. M., & Filion, D. L**.** (2007). The electrodermal system. In J. T. Cacioppo, L. G. Tassinary & G. G. Berntson (Eds.), *Handbook of Psychophysiology* (3rd ed., pp. 159-181). New York: Cambridge University Press.

De Caroli, M.E., & Sagone, E. (2014). Belief in a just world, prosocial behaviour, and moral disengagement in adolescence. *Procedia Social and Behavioral Sciences*, 116, 596-600. doi: 10.1016/j.sbspro.2014.01.263.

Decety, J., & Cowell, J.M. (2014). The complex relation between morality and empathy. *Trends in Cognitive Science,* 18, 337-339. doi:10.1016/j.tics.2014.04.008

Decety, J., & Jackson, P. L. (2004). The functional architecture of human empathy. *Behavioural and Cognitive Neuroscience Reviews*, 3, 71–100. doi:10.1177/1534582304267187

Decety, J., & Jackson, P. L. (2006). A social-neuroscience perspective on empathy. *Current Directions in Psychological Science,* 15, 54–58.

Decety, J., & Michalska, K.J. (2010). Neurodevelopmental changes in the circuits underlying empathy and sympathy from childhood to adulthood. *Developmental Science*, 13, 886-899. doi: 10.1111/j.1467-7687.2009.00940.x

De Groot, J.I.M., & Steg, L. (2008). Value orientations to explain environmental attitudes and beliefs: how to measure egoistic, altruistic, and bisopheric value orientations. *Environment and Behaviour*, 40, 330-354. doi: 10.1177/0013916506297831

De Wied, M., van Boxtel, V., Posthumus, J.A., Goudena, P.P., & Matthys, W. (2009). Facial EMG and heart rate responses to emotion-inducing film clips in boys with disruptive behaviour disorders. *Psychophysiology,* 46, 996-1004. doi: 10.1111/j.1469-8986.2009.00851.x

Diener, E. (1994). Assessing subjective well-being: progress and opportunities. *Social Indicators Research*, 31, 103-157.

Dimberg, U., Andréasson, P., & Thunberg, M. (2011). Emotional empathy and facial reactions to facial expressions. *Journal of Psychophysiology*, 25, 26-31. doi: 10.1027/0269-8803/a000029

Dimberg, U., & Thunberg, M. (2012). Empathy, emotional contagion, and rapid facial reactions to angry and happy facial expressions. *PsyCh Journal*, 2, 118-127. doi: 10.1002/pchj.4

Dindo, L., & Fowles, D. (2011). Dual temperamental risk factors for psychopathic personality: Evidence from self-report and skin conductance. *Journal of Personality and Social Psychology*, 100, 557–566. doi: 10.1037/a0021848

Doberenz, S., Roth, W.T., Wollburg, E., Breuninger, C., & Kim, S. (2010). Twenty-four hour skin conductance in panic disorder. *Journal of Psychiatric Research*. 44, 1137–1147. doi: 10.1016/j.jpsychires.2010.04.012

Dovidio, J.F., Piliavin, J.A., Schroeder, D.A., & Penner, L.A. (2006). *The Social Psychology of Prosocial Behaviour*. Mahwah, NJ: Lawrence Erlbaum.

Duan, C. (2000). Being empathic: The role of motivation to empathize and the nature of target emotions. *Motivation and Emotion*, 24, 29-49. doi: 10.1023/A:1005587525609

Eisenberg, N. (2000). Emotion, regulation, and moral development. *Annual Review Of Psychology*, 51, 665-697.

Eisenberg, N., & Eggum, N. D. (2009). Empathic responding: Sympathy and personal distress. In J. Decety & W. Ickes (Eds.), *The social neuroscience of empathy* (pp. 71-83). Cambridge, MA: The MIT Press.

Eisenberg, N., Eggum, N. D., & Giunta, L.D. (2010). Empathy-related responding: Associations with prosocial behaviour, aggression, and intergroup relations. *Social Issues Policy Review*, 4, 143–180. doi:10.1111/j.1751-2409.2010.01020.x

Eisenberg, N., & Fabes, R.A. (1990). Empathy: Conceptualization, measurement and relation to prosocial behaviour. *Motivation and Emotion*, 14, 131-149. doi:10.1007/BF00991640

Eisenberg, N., Fabes, R.A., Bustamante, D., Mathy, R.M., Miller, P.A., & Lindholm, E. (1988). Differentiation of vicariously induced emotional reactions in children. *Developmental Psychology*, 24, 237-246. doi: 10.1037/0012-1649.24.2.237

Eisenberg, N., Fabes, R.A., Miller, P.A., Fultz, J., Shell, R., Mathy, R.M., & Reno, R.R. (1989). Relation of sympathy and personal distress to prosocial behaviour: A multimethod study. *Journal of Personality and Social Psychology*, 57, 55-66.

Eisenberg, N., Fabes, R.A., Schaller, M., Miller, P., Carlo, G., Poulin, R., Shea, C., & Shell, R. (1991). Personality and socialization correlates of vicarious emotional responding. *Journal of Personality and Social Psychology,* 61, 459-470.

Eisenberg, N., Fabes, R.A., Shepard, S.A., Murphy, B.C., Jones, J., & Guthrie, I.K. (1998). Contemporaneous and longitudinal prediction of children's sympathy from dispositional regulation and emotionality. *Developmental Psychology*, 34, 910–24.

Eisenberg, N., Fabes, R., & Spinrad, T. (2006). Prosocial development. In N. Eisenberg & W. Damon (Eds.), *Handbook of child psychology* (6th ed., pp. 646– 718). New York: Wiley.

Ekman, P., & Friesen, W. (1978). *Manual of the Facial Action Coding System (FACS).* Palo Alto: Consulting Psychologists Press.

English, T., & John, O.P. (2013). Understanding the social effects of emotion regulation: the mediating role of authenticity for individual differences in suppression. *Emotion*, 13, 314–329. doi: 10.1037/a0029847

Etzel, J.A., Johnsen, E.L., Dickerson, J., Tranel, D., & Adolphs, R. (2006). Cardiovascular and respiratory responses during musical mood induction. *International Journal of Psychophysiology*, 61, 57-69. doi: 10.1016/j.ijpsycho.2005.10.025

Evers, C., Hopp, H., Gross, J.J., Fischer, A.H., Manstead, A.S.R., & Mauss, I.B. (2014). Emotion response coherence: a dual-process perspective. *Biological Psychology*, 98, 43–49. doi: 10.1016/j.biopsycho.2013.11.003

Falkenberg, I., Kohn, N., Schoepker, R., & Habel, U. (2012). Mood Induction in Depressive Patients: A Comparative Multidimensional Approach. *PLoS One*, 7, e30016. doi: 10.1371/journal.pone.0030016

Fanti, K.A., Kyranides, M.N., & Panayiotou, G. (2015). Facial reactions to violent and comedy films: Association with callous–unemotional traits and impulsive aggression. *Cognition and Emotion*, 31, 209-224. doi: 10.1080/02699931.2015.1090958

Fowers, B. J., Mollica, C. O., & Procacci, E. N. (2010). Constitutive and instrumental goal orientations and their relations with eudaimonic and hedonic well-being. *Journal of Positive Psychology*, 5, 139–153. doi:10.1080/17439761003630045

Frazier, T. W., Strauss, M. E., & Steinhauer, S. (2004). Respiratory sinus arrhythmia as an index of emotional response. *Psychophysiology*, 41, 75–83. doi: 10.1046/j.1469-8986.2003.00131.x

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: the broaden and-build theory of positive emotions. *American Psychologist*, 56, 218–226.

Fredrickson, B.L., Grewen, K.M., Coffeya, K.A., Algoe, S.B., Firestine, A.M., Arevalo, J.M., Ma, J.,…Cole, S.W. (2013). A functional genomic perspective on human well-being. *Proceedings of the National Academy of Sciences*, 110, 13684–13689. doi: 10.1073/pnas.1305419110

Fredrickson, B. L., Tugade, M. M., Waugh, C. E., & Larkin, G. R. (2003). What good are positive emotions in crises? A prospective study of resilience and emotions following the terrorist attacks on the United States on September 11th, 2001. *Journal of Personality and Social Psychology*, 84, 365–376. doi: 10.1037//0022-3514.84.2.365

Friedman, E.M., Hayney, M., Love, G.D., Singer, B.H., & Ryff, C.D. (2007). Plasma interleukin-6 and soluble IL-6 receptors are associated with psychological well-being in aging women. *Health Psychology*, 26, 305–313. doi: 10.1037/0278-6133.26.3.305

Gaertner, S.L., & Dovidio, J.F. (1977). The subtlety of White racism, arousal, and helping behaviour. *Journal of Personality and Social Psychology*, 35, 691-707. Retrieved from doi: 10.1037/0022-3514.35.10.691

Gander, F., Proyer, R.T., & Ruch, W. (2016). Positive psychology interventions addressing pleasure, engagement, meaning, positive relationships, and accomplishment increase well-being and ameliorate depressive symptoms: A randomized, placebo-controlled online study. *Frontiers of Psychology,* 20, 686 doi: 10.3389/fpsyg.2016.00686

Gerin, W., Pickering, T.G., Glynn, L., Christenfeld, N.,Schwartz, A., Carrol, D., & Davidson, K. (2000). An historical context for behavioural models of hypertension. *Journal of Psychosomatic Research*, 48, 369–377.

Giuliani, N., McRae, K., & Gross, J.J. (2008). The up- and down-regulation of amusement: Experiential, behavioural, and autonomic consequences. *Emotion*, 8, 714-719.

doi: 10.1037/a0013236

Goetz, J. L., Keltner, D., & Simon-Thomas, E. (2010). Compassion: An evolutionary analysis and empirical review. *Psychological Bulletin*, 136, 351-374. doi: 10.1037/a0018807

Gomez, P., & Danuser, B. (2009). Cardiovascular patterns associated with appetitive and defensive activation during affective picture viewing. *Psychophysiology*, 47, 540-549. doi: 10.1111/j.1469-8986.2009.00953.x

Gomez, P., von Gunten, A., & Danuser, B. (2016). Autonomic nervous system reactivity within the valence-arousal affective space: Modulation by sex and age. *International Journal of Psychophysiology,* 109, 51-62. doi:10.1016/j.ijpsycho.2016.10.002

Gosling, E., & Williams, K. J. (2010). Connectedness to nature, place attachment and conservation behaviour: Testing connectedness theory among farmers. *Journal of Environmental Psychology*, 30, 298-304. Retrieved from http://doi.org/10.1016/j.jenvp.2010.01.005

Green, C., & Reid, D. (1996). Defining, validating, and increasing indices of happiness among people with profound multiple disabilities. *Journal of Applied Behaviour Analysis*, 29, 67–78.

Greenland, P., Daviglus, M.L., Dyer, A.R., Liu, K., Huang, C.F., Goldberger, J.J., & Stamler, J. (1999). Resting heart rate is a risk factor for cardiovascular and noncardiovascular mortality: the Chicago Heart Association Detection Project in Industry. *American Journal of Epidemiology*, 149, 9, 853-862.

Grimm, C., Kemp, S., & Jose, P.E. (2015). Orientations to happiness and the experience of everyday activities. *The Journal of Positive Psychology*, 10, 207-218. doi: 10.1080/17439760.2014.941382

Gross J.J. (1996). *Emotion Expressive Behaviour Coding System*. Stanford, CA: Stanford University.

Gross, J.J., Fredrickson, B.L., & Levenson, R.W. (1994). The psychophysiology of crying. *Psychophysiology*, 31, 460–468.

Gross, J.J., & John, O.P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85, 348–362. doi: 10.1037/0022-3514.85.2.348

Gross, J. J., & Levenson, R. W. (1997). Hiding feelings: The acute effects of inhibiting negative and positive emotion. *Journal of Abnormal Psychology*, 106, 95–103.

Grossmann, I., Sahdra, B.K., & Ciarrochi, J. (2016). Heart and a mind: Self-distancing facilities the association between heart rate variability, and wise reasoning. *Frontiers in Behavioural Neuroscience*, 10, 68. doi: 10.3389/fnbeh.2016.00068

Grouzet, F.M.E., Kasser, T., Ahuvia, A., Fernandez-Dols, J.M., Kim, Y., Lau, S., Ryan, R.M.,…Sheldon, K. (2005). The structure of goal contents across 15 cultures. *Journal of Personality and Social Psychology*, 89, 800-816. doi: 10.1037/0022-3514.89.5.800

Harrison, N.A., Kreibig, S.D., & Critchley, H.G. (2015). A two way road: Efferent and afferent pathways of autonomic activity in emotion. In J. Armony & P. Vuilleumier (Eds.), *The Cambridge handbook of human affective neuroscience* (pp. 82-106). doi: 10.1017/CBO9780511843716.006

Hayney, M.S., Love, G.D., Buck, J.M., Ryff, C.D., Singer, B.H., & Muller, D. (2003). The association between psychosocial factors and vaccine-induced cytokine production. *Vaccine*, 21, 2428–2432. doi:10.1016/S0264-410X(03)00057-4

Hempel, R.J., Tulen, J.H., van Beveren, N.J., Mulder, P.G., & Hengeveld, M.W. (2007). Subjective and physiological responses to emotion-eliciting pictures in male schizophrenic patients. *International Journal of Psychophysiology*, 64, 174–183. Retrieved from http://dx.doi.org/10.1016/j.ijpsycho.2007.01.008

Henderson, L.W., Knight, T., & Richardson, B. (2013). An exploration of the well-being benefits of hedonic and eudaimonic behaviour. *The Journal of Positive Psychology*, 8, 322-336. Retrieved from http://dx.doi.org/10.1080/17439760.2013.803596

Herbert, B.M., Pollatos, O., Flor, H., Enck, P., & Schandry, R. (2009). Cardiac awareness and autonomic cardiac reactivity during emotional picture viewing and mental stress. *Psychophysiology*, 47, 342-354. doi: 10.1111/j.1469-8986.2009.00931.x

Hess, U. (2011). Peripheral psychophysiological methods. In K.C. Klauer, C. Stahl, & A. Voss (Eds.). *Cognitive methods in social psychology* (pp. 265-303). New York, NY: Guilford Press.

Hoffman, M.L. (1982). Development of prosocial motivation: Empathy and guilt. In N. Eisenberg-Berg, (Ed.). *Development of Prosocial Behaviour* (pp. 281-313). New York: Academic Press.

Hoffman, M. L. (2008). Empathy & prosocial behavior. In M. Lewis, J. Haviland-Jones, & L. Feldman Barrett (Eds.), *Handbook of emotions* (3rd ed., Vol. 24, p. 298). The Guilford Press. doi:10.2307/2076468

Howell, A. J., & Passmore, H.-A. (2013). The nature of happiness: Nature affiliation and mental well-being. In C. L. M. Keyes (Ed.), *Mental well-being: International contributions to the study of positive mental health* (pp. 231-257). Springer. doi: 10.1007/978-94-007-5195-8_11

Huang, J., Xu, D., Peterson, B.S., Hu, J., Cao, L., Wei, N., Zhang, Y.,…& Hu, S. (2015). Affective reactions differ between Chinese and American healthy young adults: a cross-cultural study using the international affective picture system. *BioMed Central Psychiatry*, 15, 60. doi: 10.1186/s12888-015-0442-9

Hubert, B.E., Wicker, B., Monfardini, E., & Deruelle, C. (2009). Electrodermal reactivity to emotion processing in adults with autistic spectrum disorders. *Autism*, 13, 9-19. doi: 10.1177/1362361308091649

Huta, V. (2012). Linking peoples' pursuit of eudaimonia and hedonia with characteristics of their parents: Parenting styles, verbally endorsed values, and role modeling. *Journal of Happiness Studies*, 13, 47–61. doi:10.1007/s10902-011-9249-7

Huta, V. (2013). Pursuing eudaimonia versus hedonia: Distinctions, similarities, and relationships. In A. Waterman (Ed.), *The best within us: Positive psychology perspectives on eudaimonic functioning* (pp. 139–158). Washington, DC: APA Books.

Huta, V. (2015). The complementary roles of eudaimonia and hedonia and how they can be pursued in practice. In S. Joseph (Ed.), *Positive psychology in practice: promoting human flourishing in work, health, education, and everyday life* (2nd ed., pp. 159-182). Wiley & Sons, Inc. doi: 10.1002/9781118996874.ch10

Huta, V., Pelletier, L, G., Baxter, D., & Thompson, A. (2012). Does an individual's eudaimonia benefit other people? *The Journal of Positive Psychology,* 7, 399-404. doi: 10.1080/17439760.2012.705318

Huta, V., & Ryan, R. M. (2010). Pursuing pleasure or virtue: The differential and overlapping well-being benefits of hedonic and eudaimonic motives. *Journal of Happiness Studies*, 11, 735-762. doi: 10.1007/s10902-009-9171-4

Ito, M., & Kodama, M. (2007). Sense of authenticity, affectivity, and cultural construal of the self among Japanese university students. *Psychological Reports*, 100, 83-86. doi:10.2466/pr0.100.1.83-86

Jones, N.A., & Gagnon, C.M. (2007). The neurophysiology of empathy. In T.F.D. Farrow & P.W.R., Woodruff (Eds.), *Empathy in mental illness* (pp. 217-238). New York: Cambridge University Press.

Kämpfe, N., Penzhorn, J., Schikora, J., Dünzl, J., & Schneidenbach, J. (2009). Empathy and social desirability: A comparison of delinquent and non-delinquent participants using direct and indirect measures. *Psychology, Crime & Law*, 15, 1–17. doi:10.1080/10683160802010640

Kannel, W.B., Kannel, C., Paffenbarger, R.S., Cupples, L.A. (1987). Heart rate and cardiovascular mortality: The Framingham Study. *American Heart Journal*, 1489–1494.

Kettunen, J., Ravaja, N., Näätänen, P., & Keltikangas-Järvinen, L. (2000). The relationship of respiratory sinus arrhythmia to the co-activation of autonomic and facial responses during the Rorschach test. *Psychophysiology*, 37, 242-250.

Kettunen, J., Ravaja, N., Näätänen, P., Keskivaara, P., & Keltikangas-Järvinen, L. (1998). The synchronization of electrodermal activity and heart rate and its relationship to energetic arousal: a time series approach. *Biological Psychology*, 48, 209-225.

Keyes, C.L.M. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Social Behavior*, 43, 207-222.

Kim, E.S., Sun, J.K., Park, N., & Peterson, C. (2013). Purpose in life and reduced stroke in older adults: The health and retirement study. *Journal of Psychosomatic Research*, 74, 427–432. doi: 10.1016/j.jpsychores.2013.01.013

Kimiecik, J. (2016). The eudaimonics of health: Exploring the promise of positive well-being and healthier living. In J**.** Vittersø **(**Ed.), *Handbook of eudaimonic well-being* (pp. 349-370). Springer International Publishing.

Knepp, M. M., & Friedman, B. H. (2008). Cardiovascular activity during laboratory tasks in women with high and low worry. Biological Psychology, 79, 287–293. doi:10.1016/j.biopsycho.2008.07.002

Koelsch, S., Enge, J., & Jentschke, S. (2012). Cardiac signatures of personality. *PLoS One*, 7: e31441. doi: 10.1371/journal.pone.0031441

Kreibig, S.D. (2010). Autonomic nervous system activity in emotion: A review. *Biological Psychology*, 84, 394–421. doi: 10.1016/j.biopsycho.2010.03.010

Kreibig, S.D., Samson, A.C., & Gross, J.J. (2015). The psychophysiology of mixed emotional states: Internal and external replicability analysis of a direct replication study. *Psychophysiology*, 52, 873-886. doi: 10.1111/psyp.12425

Kreibig S.D., Wilhelm F.H., Roth W.T., & Gross J.J. (2007). Cardiovascular, electrodermal, and respiratory response patterns to fear- and sadness-inducing films. *Psychophysiology*, 44, 787–806. doi: 10.1111/j.1469-8986.2007.00550.x

Kunzmann, U., & Grühn, D. (2005). Age differences in emotional reactivity: The sample case of sadness. *Psychology and Aging*, 20, 47–59. doi: 10.1037/0882-7974.20.1.47

Lang, P.J. (2010). Emotion and motivation: Toward consensus definitions and a common research purpose. *Emotion Review,* 2, 229-233. doi: 10.1177/1754073910361984

Lang, P.J., Bradley, M.M., & Cuthbert, B.N. (1998). Emotion and motivation: Measuring affective perception. *Journal of Clinical Neurophysiology*, 15, 397-408.

Lanzetta, J.T., & Englis, B.G. (1989). Expectations of cooperation and competition and their effects on observers' vicarious emotional responses. *Journal of Personality and Social Psychology*, 56, 543-554. doi:10.1037/0022-3514.56.4.543

Laumann, K., Garling, T., & Stormark, K.M. (2003). Selective attention and heart rate responses to natural and urban environments. *Journal of Environmental Psychology*, 23, 125–134. doi: 10.1016/S0272-4944(02)00110-X

Lazarus, R. S. (1991). *Emotion and Adaptation*. New York: Oxford University Press.

Levenson, R.W., & Ekman, P. (2002). Difficulty does not account for emotionspecific heart rate changes in the directed facial action task. *Psychophysiology*, 39, 397 – 405. doi: 10.1017.S0048577201393150

Lewis, G.J., Kanai, R., Rees, G., & Bates, T.C. (2013). Neural correlates of the 'good life': eudaimonic well-being is associated with insular cortex volume. *Social Cognitive and Affective Neuroscience*, 9, 615-618. doi:10.1093/scan/nst032.

Liew, J., Eisenberg, N., Losoya, S.H., Fabes, R.A., Guthrie, I.K., & Murphy, B.C. (2003). Children's physiological indices of empathy and their socioemotional adjustment: Does caregiver's expressivity matter? *Journal of Family Psychology*, 17, 584-597. doi: 10.1037/0893-3200.17.4.584

Light, S.N., Moran, Z.D., Swander, L., Le, V., Cage, B., Burghy, C., Westbrook, C.,… Davidson, R.J. (2014). Electromyographically assessed empathic concern and empathic happiness predict increased prosocial behaviour in adults. *Biological Psychology*, 104, 116-129. doi: 10.1016/j.biopsycho.2014.11.015

Lindfors, P., & Lundberg, U. (2002). Is low cortisol release an indicator of positive health? *Stress and Health*, 18, 153-160. doi: 10.1002/smi.942

Loewenstein, G., & Small, D.A. (2011). The Scarecrow and the Tin Man: The vicissitudes of human sympathy and caring. *Review of General Psychology*, 11, 112-126. doi: 10.1037/1089-2680.11.2.112

Lohani, M., Gupta, R., & Srinivasan, N. (2013). Cross-cultural evaluation of the International Affective Picture System on an Indian sample. *Psychological Studies*, 58, 233-241. doi: 10.1007/s12646-013-0196-8

Lopez, R., Poy, R., Patrick, C.J., & Molto, J. (2013). Deficient fear conditioning and self-reported psychopathy: The role of fearless dominance. *Psychophysiology*, 50, 210–218. doi: 10.1111/j.1469-8986.2012.01493.x

Louro, A.C., Blasco, T., & Fernandez-Castro, J. (2015). Is there a relationship between positive affect and other dimensions of quality of life in colorectal cancer patients? *Anales de Psicologia.* 31, 404-413. doi: 10.6018/analesps.31.2.160331

Louwerse, A., Tulen, J.H.M, van der Geest, J.N., van der Ende, J. Verhults, F.C., & Greaves-Lord, K. (2013). Autonomic responses to social and nonsocial pictures in adolescents with autism spectrum disorder. *Autism Research*, 7, 17-27. doi: 10.1002/aur.1327

Löw, A., Bradley, M.M., & Lang, P.J. (2013). Perceptual processing of natural scenes at rapid rates: Effects of complexity, content, and emotional arousal. *Cognitive, Affective and Behavioural Neuroscience*, 13, 860-868. doi: 10.3758/s13415-013-0179-1

Mardaga, S., & Hansenne, M. (2010). Does personality modulate skin conductance responses to emotional stimuli. *Journal of Individual Differences*, 31, 124-129. doi: 10.1027/1614-0001/a000009

Marsh, A.A. (2016). Understanding amygdala responsiveness to fearful expressions through the lens of psychopathy and altruism. *Journal of Neuroscience Research,* 94, 513-525. doi: 10.1002/jnr.23668

Martyn, P., & Brymer, E. (2016). The relationship between nature relatedness and anxiety. *Journal of Health Psychology*, 21, 1436-1445. doi: 10.1177/1359105314555169

Mathersul, D., McDonald, S., & Rushby, J.A. (2013). Autonomic arousal explains social cognitive abilities in high-functioning adults with autism spectrum disorder. *International Journal of Psychophysiology*, 89, 475-482. doi: 10.1016/j.ijpsycho.2013.04.014

Mauss, I.B., Levenson, R.W., McCarter, L., Wilhelm, F.H., & Gross, J.J. (2005). The tie that binds? Coherence among emotion experience, behaviour, and physiology. *Emotion,* 5, 175-190. doi: 10.1037/1528-3542.5.2.175

Mauss, I.B., & Robinson, M.D. (2009). Measures of emotion: A review. *Cognition and Emotion*, 23, 209-237. doi: 10.1080/02699930802204677

Mayer, F.S., & Frantz, C.M. (2004). The connectedness to nature scale: A measure of individuals' feeling in community with nature. *Journal of Environmental Psychology, 24*, 503-515. doi: 10.1016/j.jenvp.2004.10.001

McCrae, R.R., & Costa, P.T. (2010). *NEO inventories for the NEO Personality Inventory-3 (NEO-PI-3), NEO Five-Factor Inventory-3 (NEO-FFI-3), NEO Personality Inventory-Revised (NEO PI-R): Professional manual.* Lutz, FL: PAR.

McCraty, R.M., & Tomasino, D. (2006). Emotional stress, positive emotions, and psychophysiological coherence. In B.B. Arnetz & R. Ekman (Eds.), *Stress in health and disease* (pp. 342-365). Weinheim, Germany: Wiley-VCH.

Mehrabian, A., Young, A. L., & Sato, S. (1988). Emotional empathy and associated individual differences. *Current Psychology: Research & Reviews*, 7, 221-240. doi:10.1007/BF02686670

Milfont, T. L., & Sibley, C. G. (2012). The big five personality traits and environmental engagement: Associations at the individual and societal level. *Journal of Environmental Psychology*, *32*, 187-195. doi: 10.1016/j.jenvp.2011.12.006

Mindware Technologies Ltd (n.d.). *Biolab acquisition software* (version 3.2.1). Gahanna, OH, USA.

Morelli, S.A., Lieberman, M.D., & Zaki, J. (2015). The emerging study of positive empathy. *Social and Personality Psychology Compass,* 9, 57-68. doi: 10.1111/spc3.12157

Neiss, M.B., Leigland, L.A., Carlson, N.E., & Janowsky, J.S. (2009). Age differences in perception and awareness of emotion. *Neurobiology of Aging*, 30, 1305-1313. doi: 10.1016/j.neurobiolaging.2007.11.007

Neumann, S.A., & Waldstein, S.R. (2001). Similar patterns of cardiovascular response during emotional activation as a function of affective valence and arousal and gender. *Journal of Psychosomatic Research*, 50, 245-253. doi: 10.1016/S0022-3999(01)00198-2

Neumann, D.L., & Westbury, R.H. (2011). The physiological measurement of empathy in D.J., Scapaletti (Ed). *Psychology of Empathy.* Nova Science Publishers Inc. Retrieved from http://hdl.handle.net/10072/44076

Nils-Torge, T., & Hans-Ruediger, P. (2012). Not only the miserable receive help: Empathy promotes prosocial behaviour toward the happy. *Current Psychology,* 31, 393-413. doi:10.1007/s12144-012-9157-y

Nock, M. K., Wedig, M. M., Holmberg, E. B., & Hooley, J. M. (2008). The emotion reactivity scale: development, evaluation, and relation to self-injurious thoughts and behaviours. *Behaviour Therapy,* 39, 107-116. doi: 10.1016/j.beth.2007.05.005

Norman, G., Berntson, G., & Cacioppo, J.T. (2014). Emotion, somatovisceral afference and affect regulation. *Emotion Review*, 6, 113-123. doi: 10.1177/1754073913512006

Norris, C.J., Larsen, J.T., & Cacioppo, J.T. (2007). Neuroticism is associated with larger and more prolonged electrodermal responses to emotionally evocative pictures. *Psychophysiology*, 44, 823-826. doi: 10.1111/j.1469-8986.2007.00551.x

O'Brien, E. H., Konrath, S. H., Grühn, D., & Hagen, A. L. (2013). Empathic concern and perspective taking: Linear and quadratic effects of age across the adult life span. *Journal of Gerontology: Psychological Sciences*, 68, 168-175. doi: 10.1093/geronb/gbs055

Oceja, L., Lo´pez-Pe´rez, B., Ambrona, T., & Ferna´ndez, I. (2009). Measuring general dispositions to feel empathy and distress. *Psicothema*, 21, 171–176.

Ohman, A., & Soares, J.J.F. (1993). On the automatic nature of phobic fear: Conditioned electrodermal responses to masked fear-relevant stimuli. *Journal of Abnormal Psychology*, 102, 121-132. doi: 10.1037/0021-843X.102.1.121

Oishi S., Diener, E., Suh, E., & Lucas, R.E. (1999). Value as a moderator in subjective well-being. *Journal of Personal and Social Psychology,* 67, 157–84. doi: 10.1111/1467-6494.00051

Oliveira-Silva, P., & Goncalves, O.F. (2011). Responding empathically: A question of heart, not a question of skin. *Applied Psychophysiology and Biofeedback*, 36, 201-207. doi: 10.1007/s10484-011-9161-2

Oliver, M. B., & Raney, A. A. (2011). Entertainment as pleasurable and meaningful: Differentiating hedonic and eudaimonic motivations for entertainment consumption. *Journal of Communication*, 61, 984-1004. doi: 10.1111/j.1460-2466.2011.01585.x

Oveis, C., Cohen, A.B., Gruber, J., Shiota, M.N., Haidt, J., & Keltner, D. (2009). Resting respiratory sinus arrhythmia is associated with tonic positive emotionality. *Emotion*, 9, 265-270. doi: 10.1037/a0015383

Palomba, D., Sarlo, M. Angrilli, A., Mini, A., & Stegagno, L. (2000). Cardiac responses associated with affective processing of unpleasant film stimuli. *International Journal of Psychophysiology*, 27, 55–67. doi: 10.1016/S0167-8760(99)00099-9

Pearce, K., & Huta, V. (2017). *Why do people help? How eudaimonic and hedonic orientations relate to prosocial and egoistic motives.* Manuscript in preparation.

Pearce, K., & Huta, V. (2017). *How eudaimonic and hedonic orientations relate to helping and hindering others and preferences to help under various circumstances.* Manuscript in preparation.

Pearce, K., Huta, V., & Voloaca, M. (2017). *Seeing beyond the self, the present, and the concrete: A comparison of eudaimonic and hedonic orientations to life*. Manuscript submitted for publication.

Peterson, C., Park, N., & Seligman, M. E. P. (2005). Orientations to happiness and life satisfaction: The full life versus the empty life. *Journal of Happiness Studies*, 6, 25-41. doi:10.1007/s10902-004-1278-z

Pfattheicher, S., Sassenrath, C., & Schindler, S. (2016). Feelings for the suffering of others and the environment: Compassion fosters pro-environmental tendencies. *Environment and Behaviour, 48*, 929-945. doi: 10.1177/0013916515574549

Piferi, R.L., Kline, K.A., Younger, J., & Lawler, K.A. (2000). An alternative approach for achieving cardiovascular baseline: Viewing an aquatic video. *International Journal of Psychophysiology*, 37, 207–217. doi: 10.1016/S0167-8760(00)00102-1

Piper, W.T., Saslow, L.R., & Saturn, S.R. (2015). Autonomic and prefrontal events during moral elevation. *Biological Psychology*, 108, 51-55. doi: 10.1016/j.biopsycho.2015.03.004.

Pressman, S.D., & Cohen, S. (2005). Does positive affect influence health? *Psychological Bulletin,* 131, 925-971. doi: 10.1037/0033-2909.131.6.925

Preston, S.D., & de Waal, F.B. (2002). Empathy: Its ultimate and proximate bases. *The Behavioural and Brain Sciences*, 25, 1-20.

Prguda, E., & Neumann, D.L. (2014). Inter-human and animal-directed empathy: a test for evolutionary biases in empathetic responding. *Behavioural Processes*, 108, 80-86. doi: 10.1016/j.beproc.2014.09.012

Prkachin, K.M., Williams-Avery, R.M., Zwaal, C., & Mills, D.E. (1999). Cardiovascular changes during induced emotion: an application of lang's theory of emotional imagery. *Journal of Psychosomatic Research*, 47, 255-267.

Psychlab (n.d.). *Skin conductance explained.* Retrieved from http://www.psychlab.com/SC_explained.html

Rainville, P., Bechara, A., Naqvi, N., & Damasio, A. R. (2006). Basic emotions are associated with distinct patterns of cardiorespiratory activity. *International Journal of Psychophysiology,* 61, 5–18. doi: 10.1016/j.ijpsycho.2005.10.024

Reed, L.I., Zeglen, K.N., & Schmidt, K.L. (2012). Facial expressions as honest signals of cooperative intent in a one-shot anonymous Prisoner's Dilemma game. *Evolution and Human Behaviour*, 33, 200-209. doi:10.1016/j.evolhumbehav.2011.09.003

Regenbogen, C., & Habel, U. (2015). Facial expressions in empathy research. In M.K. Mandal & A. Awasthi (Eds.), *Understanding facial expressions in communication* (pp. 101-117). doi: 10.1007/978-81-322-1934-7_6

Reniers, R., Corcoran, R., Drake, R., Shryane, N. M., & Völlm, B. A. (2011). The QCAE: A questionnaire of cognitive and affective empathy. *Journal of Personality Assessment*, 93, 84-95. doi:10.1080/00223891.2010.528484

Ribeiro, R., Teixeira-Silva, F., Pompéia, S., & Bueno, O.F. (2007). IAPS includes photographs that elicit low-arousal physiological responses in healthy volunteers. *Physiology and Behaviour,* 91, 671–675. doi:10.1016/j.physbeh.2007.03.031

Riediger, M., Schmiedek, F., Wagner, G. G., & Lindenberger, U. (2009). Seeking pleasure and seeking pain: Differences in prohedonic and contra-hedonic motivation from adolescence to old age. *Psychological Science*, 20, 1529-1535. doi:10.1111/j.1467-9280.2009.02473.x

Ritz, T., Thöns, M., Fahrenkrug, S., & Dahme, B. (2005). Airways, respiration, and respiratory sinus arrhythmia during picture viewing. *Psychophysiology*, 42, 568–578. doi: 10.1111/j.1469-8986.2005.00312.x

Roth, W.T., Doberenz, S., Dietel, A., Conrad, A., Müller, A., Wollburg, E., & Kim, S. (2008). Sympathetic activation in broadly defined generalized anxiety disorder. *Journal of Psychiatric Research*, 42, 205–212. doi: 10.1016/j.jpsychires.2006.12.003

Rottenberg, J., Gross, J.J., Wilhelm, F.H., Najmi, S., & Gotlib, I.H. (2002). Crying threshold and intensity in major depressive disorder. *Journal of Abnormal Psychology*, 111, 302–312. doi: 10.1037//0021-843X.111.2.302

Rueckert, L. (2011). Gender differences in empathy. In D.J. Scapaletti (Ed.), *Psychology of Empathy* (pp. 221-234). Chicago, IL: Nova Science Publishers.

Rueckert, L., Branch, B., & Doan, T. (2011). Are gender differences in empathy due to differences in emotional reactivity? *Psychology, 2,* 574-578. doi: 10.4236/psych.2011.26088

Rushby, J. A., Barry, R. J. & Doherty, R. (2005). Separation of the components of the late positive complex in an ERP dishabituation paradigm. *Clinical Neurophysiology*, 116, 2363-2380. doi:10.1016/j.clinph.2005.06.008

Ryan R.M., & E.L. Deci (2001). On happiness and human potentials: A review of research on hedonic and eudaimonic well-being. *Annual Review of Psychology,* 52,141–166.

Ryff, C.D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology, 57,* 1069–1081.

Ryff, C. D. (2012). Varieties of resilience and their biological underpinnings. *European Health Psychologist*, 14, 70-75.

Ryff, C.D. (2013). Eudaimonic well-being and health: Mapping consequences of self-realization In A. S. Waterman (Ed.), *The best within us: Positive psychology perspectives on eudaimonia* (pp. 77-98). Washington, DC: American Psychological Association.

Ryff, C.D., Love, G.D., Urry, H.L., Muller, D., Rosenkranz, M.A., Friedman, E.M., Davidson, R.J.,…Singer, B. (2006). Psychological well-being and ill-being: Do they have distinct or mirrored biological correlates? *Psychotherapy and Psychosomatics*, 75, 85-95. doi: 10.1159/000090892

Ryff, C.D., Singer, B.H., & Love, G.D. (2004). Positive health: Connecting well-being with biology. *Philosophical Transactions of the Royal Society B: Biological Sciences,* 359, 1383–1394. doi: 10.1098/rstb.2004.1521

Sallquist, J., Eisenberg, N., Spinrad, T. L., Eggum, N. D., & Gaertner, B. M. (2009). Assessment of preschoolers' positive empathy: Concurrent and longitudinal relations with positive emotion, social competence, and sympathy. *The Journal of Positive Psychology,* 4, 223–233. doi: 10.1080/17439760902819444

Sanchez-Navarro, J.P., Martinez-Selva, J.M., & Román, F. (2006). Uncovering the relationship between defence and orienting in emotion: Cardiac reactivity to unpleasant pictures. *International Journal of Psychophysiology*, 61, 34–46. doi: 10.1016/j.ijpsycho.2005.10.023

Schueller, S.M., & Seligman, M.E.P. (2009). Differential pursuit of pleasure, engagement, and meaning: Relationships to subjective and objective well-being. *Journal of Positive Psychology*, 5, 253-263. doi: 10.1080/17439761003794130

Schwartz, S. H. (2005). Basic human values: Their content and structure across countries. In A. Tamayo & J. B. Porto (Eds.), *Valores e comportamento nas organizações [Values and behaviour in organizations]* (pp. 21-55). Petrópolis, Brazil: Vozes.

Seider, B.H., Shiota, M.N., Whalen,P., & Levenson R.W. (2010). Greater sadness reactivity in late life. *Social Cognitive and Affective Neuroscience*, 6, 186-194. doi: 10.1093/scan/nsq069

Seligman, M. E. P. (2002). *Authentic happiness*. New York: Free Press.

Sestito, M., Umiltà, M.A., De Paola, G. Fortunati, R., Raballo, A., Leuci, E., Maffei, S.,…& Gallese, V. (2013). Facial reactions in response to dynamic emotional stimuli in different modalities in patients suffering from schizophrenia: a behavioural and EMG study. *Frontiers in Human Neuroscience,* 7, 368. doi: 10.3389/fnhum.2013.00368.

Shaper, A.G., Wannamethee, G., Mcfarlane, P.W., & Walker, M. (1993). Heart rate and ischaemic heart disease and sudden cardiac death. *British Heart Journal*, 70, 49–55.

Shapiro, D., Jamner, L.D., Goldstein, I.B., & Delfino, R.J. (2001). Striking a chord: Moods, blood pressure, and heart rate in everyday life. *Psychophysiology*, 38, 197–204.

Sherman, G.D., Haidt, J., & Coan, J.A. (2009). Viewing cute images increases behavioural carefulness. *Emotion*, 9, 282–286. doi: 10.1037/a0014904.

Shirai, M., & Suzuki, N. (2017). Is sadness only one emotion? Psychological and physiological responses to sadness induced by two different situations: "Loss of someone" and "Failure to achieve a goal". *Frontiers in Psychology***.** doi: 10.3389/fpsyg.2017.00288

Sinha, R., Lovallo, W.R., Parsons, O.A., 1992. Cardiovascular differentiation of emotions. *Psychosomatische Medizin*, 54, 422 – 435.

Sirin, C.V., Valentino, N., & Villalobos, J.D. (2016). Group empathy in response to nonverbal racial/ethnic cues: A national experiment on immigration policy attitudes. *American Behavioural Scientist*, 60, 1676–1697. doi: 10.1177/0002764216676246

Sloan, R.P., Schwarz, E., McKinley, P.S., Weinstein, M., Love, G., Ryff, C., Mroczek, D…& Seeman, T. (2017). Vagally-mediated heart rate variability and indices of well-being: Results of a nationally representative study. *Health Psychology*, 36, 73-81. doi: 10.1037/hea0000397.

Sonnby-Borgström, M. (2002). Automatic mimicry reactions as related to differences in emotional empathy. *Scandinavian Journal of Psychology*, 43, 433-443. doi: 10.1111/1467-9450.00312

Sonnby-Borgström, M., Jonsson, P., & Svensson, O. (2003). Emotional empathy as related to mimicry reactions at different levels of information processing. *Journal of Nonverbal Behaviour*, 27, 3-23. doi: 10.1023/A:1023608506243

Sprecher, S., & Fehr, B. (2005). Compassionate love for close others and humanity. *Journal of Social and Personal Relationships*, 22, 629-651.

Steger, M.F., Kashdan, T.B., & Oishi, S. (2008). Being good by doing good: Daily eudaimonic activity and well-being. *Journal of Research in Personality*, 42, 22-42. doi:10.1016/j.jrp.2007.03.004

Stellar, J.E. (2013). *Vagal reactivity and compassionate responses to the suffering of others* (Unpublished doctoral dissertation). University of California, Berkeley.

Stellar, J.E., Cohen, A., Oveis, C., & Keltner, D. (2015). Affective and physiological responses to the suffering of others: Compassion and vagal activity. *Journal of Personality and Social Psychology*, 108, 572-585. doi: 10.1037/pspi0000010

Steptoe, A., Deaton, A., & Stone, A.A. (2015). Subjective wellbeing, health, and ageing. *Lancet*, 385, 640-648. doi:10.1016/S0140-6736(13)61489-0

Stocks E.L., Lishner, D.A., & Decker, S.K. (2009). Altruism or psychological escape: Why does empathy promote prosocial behaviour? *European Journal of Social Psychology*, 39, 649–665. doi: 10.1002/ejsp.561

Stürmer, S., Snyder M., Kropp A., & Siem, B. (2006). Empathy-motivated helping: the moderating role of group membership. *Personality and Social Psychology Bulletin*, 32, 943-956. doi: 10.1177/0146167206287363

Sze, J. A., Gyurak, A., Goodkind, M. S., & Levenson, R. W. (2011). Greater emotional empathy and prosocial behaviour in late life. *Emotion,* 4, 1-12. doi: 10.1037/a0025011

Tam, K. P. (2013). Dispositional empathy with nature. *Journal of Environmental Psychology*, 35, 92-104. doi: 10.1016/j.jenvp.2013.05.004

Tamir, M. (2009). What do people want to feel and why? Pleasure and utility in emotion regulation. *Current Directions in Psychological Science*, *18*, 101-105.

Tassinary, L.G., & Cacioppo, J.T. (2000). The skeletomotor system: Surface electromyography. In J.T. Cacioppo, L.G. Tassinary, & G.G. Berntson (Eds.), *Handbook of psychophysiology*, (2nd ed., pp. 163-199). Cambridge, UK: Cambridge University Press.

Telzer, E.H., Fuligni, A.J., Lieberman, M.D, & Gálvan, A. (2014). Neural sensitivity to eudaimonic and hedonic rewards differentially predict adolescent depressive symptoms over time. *Proceedings of the National Academy of Sciences*, 1-6. doi: 10.1073/pnas.1323014111

Thayer, J. F., Friedman, B. H., & Borkovec, T. D. (1996). Autonomic characteristics of generalized anxiety disorder and worry. *Biological Psychiatry*, 39, 255–266. doi: 10.1016/0006-3223(95)00136-0

Tiedens, L. Z. (2001). Anger and advancement versus sadness and subjugation: The effects of negative emotion expressions on social status conferral. *Journal of Personality and Social Psychology*, 80, 86-94. doi: 10.1037//0022-3514.80.1.86

Tok, S., Koyuncu, M., Dural, S., & Catikkas, F. (2010). Evaluation of International Affective Picture System (IAPS) ratings in an athlete population and its relations to personality. *Personality and Individual Differences*, 49, 461-466. doi: 10.1016/j.paid.2010.04.020

Tončić, M., & Anić, P. (2015). Everyday activities: Beneficial effects of eudaimonic and hedonic motivation on subjective well-being. *Current Psychology*, 34, 644-653. doi: 10.1007/s12144-014-9277-7

Tov, W., & Lee, H.W. (2016). A closer look at the hedonics of everyday meaning and satisfaction. *Journal of Personality and Social Psychology*, 111, 585-609. doi: 10.1037/pspp0000081

Tsai, J.L., Levenson, R.W., & Carstensen, L.L. (2000). Autonomic, subjective, and expressive responses to emotional films in older and younger Chinese Americans and European Americans. *Psychology of Aging*, 15, 684–693. doi: 10.1037//0882-7974.15.4.684

Ulrich, R., Simons, R.F., Losito, B.D., Fiorito, E., Miles, M.A., & Zelson, M. (1991). Stress recovery during exposure to natural and urban environments. *Journal of Environmental Psychology*, 11, 201–230. doi.org/10.1016/S0272-4944(05)80184-7

Urry, H.L., Nitschke, J.B., Dolski, I., Jackson, D.C., Dalton, J.M., Mueller, C.J., Rosenkranz, M.A…& Davidson, R.J. (2004). Making a life worth living: Neural correlates of well-being. *Psychological Science*, 15, 362-372. doi: 10.1111/j.0956-7976.2004.00686.x

Valtchanov, D. & Ellard, C.G. (2010). Physiological and affective responses to immersion in virtual reality: Effects of nature in urban settings. *Cybertherapy & Rehabilitation*. 3, 359-373.

Venables, P.H., & Mitchell, D.A. (1996). The effects of age, sex and time of testing onskin conductance activity. *Biological Psychology*, 43, 87-101.

Vittersø, J., Oelmann, H.I., & Wang, A.L. (2009a). Life satisfaction is not a balanced estimator of the good life: evidence from reaction-time measures and self-reported emotions. *Journal of Happiness Studies*, *10*, 1-17. doi:10.1007/s10902-007-9058-1

Vittersø, J., Overwein, P., & Martinsen, E. (2009b). Pleasure and interest are differentially affected by replaying versus analyzing a happy life moment. *Journal of Positive Psychology*, *10*, 1-17. http://dx.doi.org/10.1080/17439760802060602

Wahlund, K., Sorman, K., Gavazzeni, J., Fischer, H., & Kristiansson, M. (2010). Attenuated subjective ratings and skin conductance responses to neutral and negative pictures in non-psychopathic mentally disordered offenders with various diagnoses. *Psychiatry Research*, 180, 30-34. doi: 10.1016/j.psychres.2009.09.009

Waldstein, S.R., Kop, W.J., Schmidt, L.A., Haufler, A.J., Krantz, D.S., & Fox, N.A. (2000). Frontal electrocortical and cardiovascular reactivity during happiness and anger. *Biological Psychology*, 55, 3-23. doi: 10.1016/S0301-0511(00)00065-X

Wannamethee, G., & Shaper, A.G. (1994). The association between heart rate and blood pressure, blood lipids and other cardiovascular risk factors. *Journal of Preventive Cardiology*, 1, 223-230.

Ward, N. G., Doerr, H. O., & Storrie, M. C. (1983). Skin conductance: a potentially sensitive test for depression. *Psychiatry Research*, 10, 295–302. doi :10.1016/0165-1781(83)90076-8

Waterman, A. S. (1993). Two conceptions of happiness: Contrasts of perspective expressiveness (eudaimonia) and hedonic enjoyment. *Journal of Personality and Social Psychology,* 64, 678–691.

Wayment, H. A., & Bauer, J. J. (Ed.) (2008). *Transcending self-interest: Psychological explorations of the quiet ego* (1st ed.). Washington, DC: American Psychological Association.

Westbury, R.H., & Neumann, D.L. (2008). Empathy-related responses to moving film stimuli depicting human and non-human animal targets in negative circumstances. *Biological Psychology*, 78, 66-74. doi: 10.1016/j.biopsycho.2007.12.009

Westbury, H.R., Neumann, D.L., & Waters, A.M. (2011). Extending empathy research towards animals. In D.J. Scapaletti (Ed.), *Psychology of empathy* (pp. 93-118). Hauppauge, NY: Nova Science Publishers Inc.

Wiens, S., Mezzacappa, E. S., & Katkin, E. S. (2000). Heartbeat detection and the experience of emotions. *Cognition and Emotion*, 14, 417–427.

Wiesenfeld, A.R., Whitman, P.B., & Malatesta, C.Z. (1984). Individual differences among adult women in sensitivity to infants: Evidence in support of an empathy concept. *Journal of Personality and Social Psychology*, 46, 118-124.

Williams, L.A., Das, P., Liddell, B., Olivieri, G., Peduto, A., Brammer, M., & Gordon, E. (2005). BOLD, sweat and fears: fMRI and skin conductance distinguish facial fear signals. *NeuroReport*, 16, 49–52.

Winterich, K.P., Mittal, V., & Morales, A.C. (2014). Protect thyself: How affective self-protection increases self-interested, unethical behaviour. *Organizational Behaviour and Human Decision Processes*, 125, 151-161. Retrieved from http://dx.doi.org/10.1016/j.obhdp.2014.07.004

Witvliet, C.V.O., Knoll, R.W., Hinman, N.G., & DeYoung, P.A. (2010). Compassion-focused reappraisal, benefit-focused reappraisal, and rumination after an interpersonal offense: Emotion regulation implications for subjective emotion, linguistic responses, and physiology. *The Journal of Positive Psychology*, 5, 226-242. doi: 10.1080/17439761003790997

Wong, P.T.P. (2012). Toward a dual-systems model of what makes a life worth living. In P.T.P, Wong (Ed.), *The human quest for meaning* (pp. 3-23). New York, NY: Taylor & Francis Group.

Yoshino, A., Kimura, Y., Yoshida, T., Takahashi, Y., & Nomura, S. (2005). Relationships between temperament dimensions in personality and unconscious emotional responses. *Biological Psychiatry*, 57, 1-6. doi :10.1016/j.biopsych.2004.09.027

Zhou, Q., Valiente, C., & Eisenberg, N. (2003). Empathy and its measurement. In S.Lopez & C.R. Snyder (Eds.), *Positive psychological assessment: A handbook of models and measures* (pp. 269-284). Washington DC: American Psychological Association.

Zilioli, S., Ponzi, D., Henry, A., & Maestripieri, D. (2014). Testosterone, cortisol and empathy: Evidence for the dual-hormone hypothesis. *Adaptive Human Behavior and Physiology*, 4, 421-433. doi 10.1007/s40750-014-0017-x

Table 1

Descriptive Characteristics for Trait and State Self-Reported Affect, Empathic Concern, Attractiveness and Revulsion Evaluations, Potential Confounds, Facial Valence, and Psychophysiological Measures

	Study 1			Study 2		
	N	Mean	SD	N	Mean	SD
Well-being Orientation						
Eudaimonic orientation	397	5.40	1.09	143	5.47	1.09
Hedonic orientation	397	5.24	1.04	143	5.13	1.00
Trait Levels						
Trait positive affect	396	4.28	1.18	143	4.29	1.16
Trait negative affect	396	3.20	1.30	143	2.99	1.13
Trait empathic concern	389	4.53	1.89	143	4.97	1.64
Baseline skin conductance level (SCL, μS)				126	8.89	4.73
Baseline heart rate (bpm)				131	79.13	10.98
Responses to Happiness/Health Images						
State positive affect	396	2.76	1.09	143	2.80	1.05
Attractiveness evaluation				143	5.28	1.46
Skin conductance response magnitude (μS)				110	.40	.55
Skin conductance response latency if response present (seconds)				110	3.26	2.18
Heart rate change (difference from pre-stimulus baseline, bpm)				131	-1.62	2.39
Facial valence (hidden video camera)				126	1.25	.91
Responses to Suffering/Degradation Images						
State negative affect	396	3.25	1.20	143	2.79	1.16
State empathic concern	389	2.31	1.57	143	3.81	1.87
Disgust as revulsion evaluation				143	.85	1.03
Disgust as disapproval evaluation				143	2.66	1.44
Skin conductance response magnitude (μS)				108	.35	.45
Skin conductance response latency if response present (seconds)				108	3.30	2.19
Heart rate change (difference from pre-stimulus baseline, bpm)				131	-2.09	2.06
Facial valence (hidden video camera)				126	-1.23	.71
Potential Confounds						
Trait emotional reactivity	392	1.89	.90	143	1.76	.82
Neurotic personality				143	3.08	.70

Values are based on means across participants. bpm=beats per minute.

Table 2

Correlations of Eudaimonic and Hedonic Orientations with Self-reported Affect, Empathic Concern, Attractiveness and Revulsion Evaluations, and Potential Confounds

	N		Eudaimonic Orientation				Hedonic Orientation				t-test Comparing Correlations	
			Coefficient (SE)		Correlation		Coefficient (SE)		Correlation			
Study	1	2	1	2	1	2	1	2	1	2	1	2
Trait Level Affect												
Trait positive affect	396	143			.28**	.27**			.24**	.20*	.79	.72
Trait negative affect	396	143			-.02	.00			.00	.08	.38	.78
Trait empathic concern	389	143			.20**	.17*			.10	.13	1.93	.40
State Level Affect Responses to Images												
Happiness/Health Images												
State positive affect	396	143	.13* (.05)	.20** (.07)	.14**	.22**	.13* (.05)	.09 (.09)	.13*	.09	.19	1.30
Attractiveness evaluation		143		.15 (.11)		.12		.26*(.13)		.19*		.70
Suffering/Degradation Images												
State negative affect	396	143	.31** (.06)	.19* (.09)	.31**	.20*	.17*(.07)	.10 (.10)	.16**	.10	2.98**	1.00
State empathic concern	389	143	.06* (.03)	.14* (.08)	.11**	.17*	.00 (.04)	.16* (.09)	.00	.19*	2.10*	.20
Disgust as revulsion evaluation		143		.05 (.04)		.11		.15**(.04)		.33**		2.27*
Disgust as disapproval evaluation		143		.22* (.11)		.19*		.25* (.12)		.22*		.30
Potential Confounds												
Trait emotional reactivity	392	143			.00	.02			.07	-.03	1.33	.49
Neurotic personality		143				-.21**				.01		2.20*
Eudaimonia												
Eudaimonic orientation	397	143							.45**	.27**		

Note. Correlations in this table were derived from HLM analyses. We controlled for gender (male, female) and ethnicity (White, non-White) in all analyses. We controlled for trait affect when examining state affect responses to images. Coefficients are provided only for variables that were run with HLM analyses. SE=standard error.

*p<.05, **p<.01

Table 3

Correlations of Eudaimonic and Hedonic Orientations with Facial Valence and Psychophysiological Measures

	N	Eudaimonic Orientation Coefficient (SD)	Eudaimonic Orientation Correlation	Hedonic Orientation Coefficient (SD)	Hedonic Orientation Correlation	t-test comparing correlations
Baseline/Trait Level Variables						
Baseline skin conductance level (SCL)	126		-.23**		-.24**	.09
Baseline heart rate	131		.02		-.01	.27
State Level Responses to Images						
Happiness/Health Images						
Skin conductance response magnitude (μS, log transformed)	110	.03 (.06)	.05	-.06 (.04)	-.09	1.18
Skin conductance response latency if response present	110	-.34* (.16)	-.29*	.41* (.18)	.31*	5.71**
Heart rate change (difference from pre-stimulus baseline)	131	.11 (.17)	.03	.05 (.18)	.01	.18
Facial valence (hidden video camera)	126	.07 (.07)	.07	-.01 (.08)	-.01	.70
Suffering/Degradation Images						
Skin conductance response magnitude (μS, log transformed)	108	-.01 (.05)	-.02	-.04 (.03)	-.07	.42
Skin conductance response latency if response present	108	-.08 (.16)	-.14	-.17 (.17)	-.33	1.69
Heart rate change (difference from pre-stimulus baseline)	131	.16 (.17)	.15	-.24 (.18)	-.23	3.67**
Facial valence (hidden video camera)	126	.00 (.06)	.00	.02 (.07)	.04	.35

Note. Correlations in this table were based on HLM analyses (coefficients are also provided). We controlled for gender (male, female) and ethnicity (White, non-White).

**p < .01, *p < .05

Table 4

Intercorrelations of Trait Self-report and Trait Psychophysiological Measures

	1	2	3	4	5
1. Trait positive affect	_	.02	.48**	.13	.10
2. Trait negative affect	-.06	_	.00	-.02	.09
3. Trait empathic concern	.42**	.10*	_	.04	-.07
4. Baseline SCL				_	.19*
5. Baseline HR					_

SCL=skin conductance level, HR =heart rate. Correlations above the diagonal are for Study 2, correlations below the diagonal are for Study 1.
**p<.01, *p<.05, ŧ p<.10

Table 5

Intercorrelations of State Self-report, Facial Valence and Psychophysiological Measures

	Happiness/Health Images					Suffering/Degradation Images					
	1	2	3	4	5	6	7	8	9	10	11
Happiness/Health Images											
1. Positive affect	_	.08*	-.04	.00	.32**	.65**	.55**	.00	.05	.03	-.27**
2. SCR magnitude		_	-.24**	.03	.17**	-.12	-.22*	.67**	.15	.08	-.05
3. SCR latency			_	.01	.06	.00	.02	.18†	-.02	-.09	.08
4. HR change				_	-.03	-.03	.01	.22*	.15	.28**	-.14
5. Facial valence					_	.17†	.27**	.14	-.13	.00	-.52**
Suffering/Degradation Images											
6. Negative affect						_	.54**	.23**	.10	-.07	-.04
7. Empathic concern							_	.19**	-.12†	-.08†	.02
8. SCR magnitude								_	-.13†	.11*	.12*
9. SCR latency									_	.05	-.01
10. HR change										_	-.04
11. Facial valence											_

Note. SCR=skin conductance response. HR= heart rate. For facial valence higher scores represent stronger positive facial expressions, while negative scores represent stronger negative facial expressions. Thus the -.52 correlation between positive facial valence to happiness/health and negative facial valence to suffering/degradation means that those who had stronger positive facial expressions to happiness/health also tended to have stronger negative facial expressions to suffering/degradation images. Correlations *among* happiness/health images and correlations *among* suffering/degradation images are based on HLM results. Correlations *between* happiness/health images and suffering/degradation images are based on semi-partial correlations as HLM could not be performed when comparing positive images with negative images (as these were based on comparisons between images).
**p<.01, *p<.05, † p<.10

Table 6

Descriptives for Picture Categories (Humans, Animals and Nature) of Self-reported Affect, Facial Valence, and Psychophysiological Measures

	Study 1				Study 2			
	N	Mean	SD	F Statistic	N	Mean	SD	F Statistic
HAPPINESS/HEALTH IMAGES								
State Positive Affect				3.23*animals>humans				2.50
Humans	376	2.66	1.35		143	3.02	1.26	
Animals	270	2.91	1.51		143	2.79	1.26	
Nature	396	2.73	1.22		143	2.68	1.18	
Attractiveness Evaluation								5.69** humans and animals> nature
Humans					143	5.62	1.61	
Animals					143	5.52	1.64	
Nature					143	5.04	1.54	
Facial Valence (hidden video camera)								25.93** humans and animals >nature
Humans					126	1.44	1.26	
Animals					126	1.64	1.31	
Nature					126	.66	.71	
Skin Conductance Response Magnitude (μS)								2.51
Humans					126	.41	.69	
Animals					126	.54	.95	
Nature					126	.32	.61	
Skin Conductance Response Latency if Response Present (seconds)								.81
Humans					66	3.25	3.01	
Animals					79	3.19	2.82	
Nature					85	3.71	2.73	
Heart Rate Change (difference from pre-stimulus baseline)								8.34** animals<humans and nature
Humans					131	-.90	4.26	
Animals					131	-2.75	4.55	
Nature					131	-1.21	2.79	
SUFFERING/DEGRADATION IMAGES								
State Negative Affect				17.02**humans and animals>nature				13.90** humans>nature
Humans	396	3.73	1.37		143	3.24	1.25	

Animals	382	3.67	1.78		76	2.98	1.38	
Nature	392	2.31	1.52		143	2.41	1.40	
State Empathic Concern				157.95**humans>animals>nature				124.15**humans>animals>nature
Humans	389	3.40	1.94		143	4.23	1.57	
Animals	367	2.36	2.28		76	3.03	1.85	
Nature	374	.96	1.45		143	1.28	1.46	
Disgust as Revulsion Evaluation								9.87** animals and nature>humans
Humans					143	.58	.93	
Animals					76	1.38	1.63	
Nature					143	1.12	1.53	
Disgust as Disapproval Evaluation								12.54** animals and nature>humans
Humans					143	2.25	1.68	
Animals					76	3.43	1.80	
Nature					143	2.98	1.71	
Facial Valence (hidden video camera)								6.98** animals<humans and nature
Humans					126	-1.08	.80	
Animals					71	-1.57	1.02	
Nature					126	-1.21	.94	
Skin Conductance Response Magnitude (μS)								3.72
Humans					126	.43	.68	
Animals					68	.25	.40	
Nature					126	.28	.45	
Skin Conductance Response Latency if Response Present (seconds)								3.69* nature>humans
Humans					94	2.87	1.92	
Animals					36	3.04	2.92	
Nature					77	3.94	3.17	
Heart Rate Change (difference from pre-stimulus baseline)								5.09* animals<nature
Humans					131	-2.21	2.92	
Animals					69	-3.02	3.57	
Nature					131	-1.53	3.30	

Note. Scheffé post hoc tests were used to test for differences between each of the categories. N is unequal since animals were included as part of the nature category during picture selection, and data collection was stopped on some pictures half-way through the study due to high psychometric properties and sufficient sample sizes. Lastly, some images were dropped from the Study based on low psychometric properties.
**p<.01, *p<.05, ŧ p<.10

Table 7

Correlations of Eudaimonic Orientation and Hedonic Orientations and State Affect Responses, Facial Valence and Psychophysiological Measures to Humans, Animals and Nature Images

	N		Eudaimonic Orientation		Hedonic Orientation		t-test comparing correlations	
Study	1	2	1	2	1	2	1	2
HAPPINESS/HEALTH IMAGES								
State Positive Affect								
Humans	376	143	.06	.18*	.08	-.05	.36	2.20*
Animals	270	143	-.04	.10	.07	.07	1.66	.28
Nature	396	143	.12**	.17*	.09*	.09	.55	.76
Attractiveness Evaluation								
Humans		143		.05		.09		.38
Animals		143		.08		.12		.38
Nature		143		.17*		.21*		.39
Facial Valence (hidden video camera)								
Humans		126		.12		-.01		1.14
Animals		126		.08		-.07		1.31
Nature		126		.03		.06		.26
Skin Conductance Response Magnitude								
Humans		126		.10		-.16		2.31*
Animals		126		.11		-.03		1.23
Nature		126		-.13		-.09		.35
Skin Conductance Response Latency if Response Present								
Humans		66		-.23†		.17		2.55*
Animals		79		-.11		.21†		2.09*
Nature		85		-.07		.11		1.17
HR Change (difference from pre-stimulus baseline)								
Humans		131		.06		-.21*		2.42*
Animals		131		-.06		.07		1.14
Nature		131		.10		-.10		1.78
SUFFERING/DEGRADATION IMAGES								
State Negative Affect								

Humans	396	143	.25**	.17†	.07	.10	3.39**	.67
Animals	382	76	.16**	-.03	.08	.17	1.45	1.32
Nature	392	143	.22**	.16†	.15**	-.03	1.30	1.81
State Empathic Concern								
Humans	389	143	.07	.13	-.03	.09	2.22*	.38
Animals	367	76	.07	.00	.00	.09	1.85	.49
Nature	374	143	.04	.09	-.02	.05	1.44	.38
Disgust as Revulsion Evaluation								
Humans		143		.02		.31**		2.87**
Animals		76		.15		.38**		1.63
Nature		143		.17†		.20*		.29
Disgust as Disapproval Evaluation								
Humans		143		.19*		.17†		.19
Animals		76		.03		.22†		1.27
Nature		143		.13		.15		.19
Facial Valence (hidden video camera)								
Humans		126		-.05		.05		.87
Animals		71		-.07		-.07		.00
Nature		126		.09		.03		.52
Skin Conductance Response Magnitude								
Humans		126		-.09		-.10		.09
Animals		68		-.19		.24†		2.80*
Nature		126		-.06		-.11		.44
Skin Conductance Response Latency if Response Present								
Humans		94		-.02		-.01		.08
Animals		36		-.11		.22		1.45
Nature		77		.04		-.15		1.28
HR Change (difference from pre-stimulus baseline)								
Humans		131		.07		-.06		1.15
Animals		69		.05		-.10		.94
Nature		131		.11		-.03		1.23

Correlations are based on semi-partial correlations controlling for gender (male, female) and ethnicity (White, non-White). **p<.01,*p<.05, † p<.10

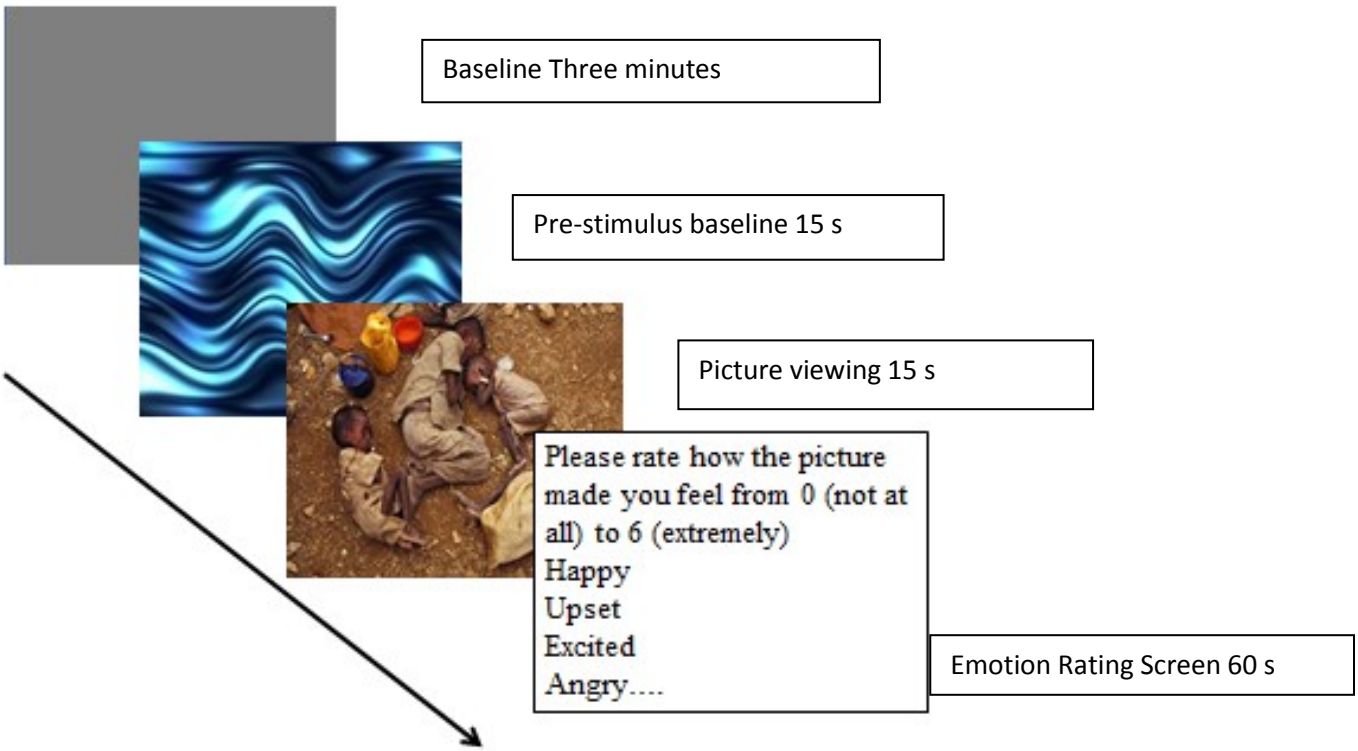

Figure 1. Procedure for presentation of stimuli in Study 2 (using an example from the human suffering/degradation image category).

Appendix A

Initially, a variety of pictures were selected from the internet (from the authors) depicting human, animal and nature suffering/degradation. Happiness/health images were initially included to counterbalance negative images and included images displaying humans, animals or nature in happy or healthy states. These positive and negative images were then used in Study 1 to gain more information about their psychometric properties. In selecting images from Study 1 to be used in Study 2, we took several considerations into account. First, we removed several images on face valid grounds (e.g., images that did not clearly fit into human, animal, or nature categories; images whose ratings we thought might be excessively affected by cross-cultural differences). We then removed images that elicited elevated scores on both positive affect and negative affect and thus did not clearly fit with the positive image or negative image category. We then selected images for the positive category if they elicited high scores on positive affect and had high correlations with positive affect ratings for the other positive images; we selected images for the negative category if they elicited high scores on negative affect and had high correlations with negative affect ratings for the other negative images. We then dropped images that were thematically redundant with other images (e.g., scene of coral reef, scene of felled trees). Throughout this process, we aimed to retain similar numbers of visually attractive and visually plain images in the positive category (which also meant that we added a new attractive image to the positive human category), and similar numbers of visually revolting and visually plain images in the negative category, to arrive at sufficient variability in the positive and negative affect ratings. Importantly, in selecting images for Study 2, we did not take into consideration how each image correlated with eudaimonic orientation and hedonic orientation in Study 1 (and thus ended up removing several images whose correlations supported our hypotheses).

Appendix B

Principal Component Analysis with Varimax Rotation for Trait Emotions

	Study 1 Factors		Study 2 Factors	
	Positive Emotions	Negative Emotions	Positive Emotions	Negative Emotions
Uplifted	**.77**	.08	**.76**	.19
Heart-warmed	**.75**	.13	**.78**	.03
Soothed	**.74**	-.05	**.71**	.00
Excited	**.73**	.02	**.72**	-.08
Happy	**.70**	-.31	**.74**	-.15
Sad	-.07	**.84**	-.01	**.81**
Hurt	-.02	**.83**	-.08	**.79**
Upset	-.14	**.82**	-.04	**.76**
Angry	.04	**.74**	-.09	**.58**

Items in bold had loadings of .40 or greater.

Appendix C

Descriptives for Individual Pictures

	N		Mean Positive Affect (SD)		Mean Negative Affect (SD)		α		Seen before?
Study	1	2	1	2	1	2	1	2	
Happiness/Health Humans									
*Happy elderly couple	130	92	3.30 (1.41)	2.83 (1.25)	.22 (.43)	.35 (.67)	.85	.81	19%
Man giving shoes to homeless woman	157		2.78 (1.42)		1.21 (1.15)		.81		24%
Athlete winning gold medal	117		2.59 (1.56)		.11 (.36)		.87		13%
Man helping elderly lady	133		2.56 (1.43)		.51 (.72)		.84		8%
Swimmer winning race	149		2.11 (1.49)		.08 (.45)		.90		17%
Man reunited with dog	138		3.20 (1.65)		.30 (.55)		.90		11%
*Baby		77		3.26 (1.43)	.09 (.27)	.08 (.27)		.85	
Happiness/Health Animals									
*Cat	137	77	3.19 (1.59)	2.99 (1.38)	.09 (.36)	.09 (.26)	.87	.80	36%
Dolphins	123		2.96 (1.56)		.04 (.21)		.88		18%
*Sleeping Dog	133	109	2.59 (1.55)	2.78 (1.24)	.73 (.98)	.39 (.69)	.84	.83	31%
Happiness/Health Nature									
*Forest	108	102	3.03 (1.63)	2.99 (1.36)	.11 (.35)	.09 (.30)	.88	.82	25%

Pristine lake	126		2.98 (1.48)		.13 (.42)		.82		25%
*Canoe on a lake	135	110	2.97 (1.47)	2.78 (1.39)	.06 (.24)	.15 (.41)	.84	.81	18%
*Vibrant coral reef	131	99	2.93 (1.46)	2.56 (1.22)	.09 (.35)	.06 (.24)	.86	.77	32%
Winter scene	121		2.91 (1.58)		.15 (.40)		.88		21%
Meadow	124		2.82 (1.52)		.15 (.38)		.87		12%
*River	131	107	2.67 (1.48)	2.15 (1.21)	.14 (.33)	.09 (.22)	.84	.75	18%
Brook	110		2.63 (1.47)		.16 (.41)		.85		19%
Plain coral reef	122		2.61 (1.66)		.12 (.55)		.89		19%
Mountain path	134		2.55 (1.46)		.09 (.31)		.87		9%
Autumn leaves	132		2.44 (1.50)		.18 (.54)		.84		24%
Purple flower	131		2.28 (1.55)		.11 (.40)		.88		21%
Suffering/Degradation Humans									
*Sleeping starving children	103		.18 (.56)	.12 (.33)	4.30 (1.42)	3.97 (1.30)	.82	.77	19%
Hungry children	113		.09 (.29)		4.27 (1.44)		.86		43%
*Street child	279		.21 (.65)	.12 (.42)	4.12 (1.50)	3.14 (1.38)	.85	.83	10%
Mother holding dead child	96		.21 (.55)		4.06 (1.56)		.81		6%
*Mourning over bodies	101		.10 (.41)	.07 (.29)	3.61 (1.55)	2.85 (1.33)	.85	.80	18%
Tsunami victim	278		.16 (.55)		3.25 (1.52)		.85		15%
*Woman crying	263		.26 (.66)	.13 (.37)	3.23 (1.51)	2.83 (1.24)	.84	.76	19%
Suffering/Degradation Animals									

*Deformed turtle in plastic	90	76	.13 (.44)	.12 (.33)	4.22 (1.52)	3.28 (1.60)	.85	.88	38%
Duck in oil	97		.12 (.41)		4.19 (1.52)		.92		35%
Pelican in oil	103		.16 (.50)		3.55 (1.87)		.95		15%
*Blackbird in oil	116	77	.30 (.82)	.13 (.32)	2.87 (1.84)	2.66 (1.56)	.90	.88	15%
Suffering/Degradation Nature									
*Trash in lake	102	45	.06 (.22)	.10 (.22)	3.73 (1.39)	3.03 (1.29)	.83	.76	23%
*Deforestation	122	92	.16 (.54)	.15 (.40)	2.64 (1.64)	2.26 (1.57)	.91	.91	16%
*Smokestacks	116	98	.17 (.48)	.16 (.52)	2.56 (1.63)	2.09 (1.46)	.88	.88	29%
Tree stumps	116		.20 (.62)		2.52 (1.65)		.91		12%
Many tree stumps	125		.14 (.46)		2.50 (1.84)		.92		13%
Felled tree	116		.17 (.43)		2.02 (1.61)		.93		8%
*Dead coral reef	113	91	1.48 (1.35)	.33 (.66)	.25 (.57)	1.92 (1.45)	.76	.87	11%

Note. All images in the table were included in analyses except for dead coral reef in Study 1 (due to low correlations with all other suffering/degradation images) and man reunited with dog as this picture included both human and animal content. We included the image of dead coral reef in Study 2 and added the description "dead coral". Images with an * are those that were included in Study 2. α values were based on positive items for happiness/health images and negative items for suffering/degradation images.

Appendix D

Intercorrelations of Affect Valence for All Picture Categories

	1	2	3	4	5	6	7	8
1. Human Happiness/Health	_	.31*	.42**	-.37**	-.17**	-.15**	.78**	-.40**
2. Animal Happiness/Health	.52**	_	.40**	-.34**	-.20**	-.22**	.72**	-.42**
3. Nature Happiness/Health	.56**	.46**	_	-.38**	-.28**	-.37**	.90**	-.57**
4. Human Suffering/Degradation	-.41**	-.35**	-.52**	_	.43**	.37**	-.53**	.86**
5. Animal Suffering/Degradation	-.13	-.36**	-.47**	.56**	_	.36**	-.41**	.85**
6. Nature Suffering/Degradation	-.37**	-.33**	-.52**	.58**	.54**	_	-.51**	.86**
7. Overall happiness/health	.78**	.80**	.79**	-.47**	-.29**	-.31**	_	-.37**
8. Overall suffering/degradation	-.28**	-.32**	-.43**	.73**	.82**	.76**	-.41**	_

Note. Correlations were at the trait/whole person level. These correlations were based on affect valence since positive images were being correlated with negative images. Affect valence scores were derived by reverse scoring negative emotion ratings and averaging them with positive emotion ratings to create an affect valence score. Correlations for Study 1 are above the diagonal, and correlations for Study 2 are below the diagonal. **p<.01, *p<.05

Appendix E

Consent Form

You are invited to participate in a study titled "How different pictures make you feel," directed by Dr. Veronika Huta, assistant professor at the University of Ottawa, and doctoral student, Keith Pearce. The purpose of the study is to examine peoples' feelings in response to a variety of pictures, ranging from positive to negative, and how these feelings relate to individual differences.

You will view a number of pictures while you are connected to physiological recording equipment. Specifically, you will first be helped to place eight electrodes on your body (6 on the torso, 2 on one hand), which can take up to 10 minutes. We will be measuring subtle changes in heart rate and sweating of the skin. A baseline recording will be taken while you relax for 3 minutes. You will then watch a set of pictures. After each picture, you will be asked to rate how it made you feel. Once you have rated all the pictures (about 30 minutes), you will be asked to fill out a number of questionnaires (about 35 minutes). The study takes about 1.5 hours in total.

You will receive 2 points in credit for completing the study. You will receive these points even if you decide to withdraw from the study.

Several conditions can affect peoples' physiological readings Please circle YES or NO to indicate whether any of the following applies to you:

YES NO Heart transplant
YES NO Artificial cardiac pacemaker
YES NO Cardiac arrhythmia
YES NO Uncontrolled hypertension
YES NO Uncontrolled hypotension
YES NO Myocardial infarction
YES NO Other serious heart conditions – specify: _____
YES NO Current or chronic use of drugs that may affect heart function, such as antiarrhythmic agents and beta blockers
YES NO 20% above or below ideal body mass index
YES NO Neurologic disorder (e.g. stroke)
YES NO Significant mental illness (e.g., major depression)

By signing below, you confirm that none of the above conditions apply to you. If any of the above exclusion criteria apply to you, you cannot participate in this study.

Appendix F

Hello, welcome to our study, my name is _____. This study takes about 1.5 hours and there are 2 parts: In the first part, you'll look at a mix of positive and negative pictures on the computer, and you'll be hooked up to equipment that measures your physical reactions. In the second part, you'll fill out some questionnaires on the computer. Before going on, let's make sure your cell phone is turned off so that you don't have any distractions (give consent form).

This next part is crucial for the study so we ask that you take extra care with this part.

a) A total of six electrodes will be attached to your upper body. They do not hurt. This poster is colour coded to show you which electrode goes where, and is in the change room as well. You can ignore the positive and negative signs on the electrodes.

b) You'll first need to clean the area thoroughly with this alcohol pad, then dry it with this gauze pad (show how using demonstration alcohol pad and gauze).

c) The electrodes have a gel in the middle (peel back to show it) so try not to smear the gel

d) Show where the electrodes go:

- white electrodes go on the front of your body, the top one goes where your collar bones meet, the bottom one goes on the soft area just below the bone
- one brown electrode goes on your right collar bone, the other on your left lower rib
- red electrodes go on your back: the top red one goes about 1.5 inches higher than the top white one, and the bottom red one goes about 1.5 inches lower than the bottom white one

-It is best to do two electrodes (of the same colour) at a time

e) Once electrodes are attached: It is a good idea to tape the wires to your body so there is less movement (shown on poster)

f) The last two electrodes go on the palm of your non-dominant hand (experimenter attaches these once the participant is comfortably seated). During the experiment, please keep your hand face up, either on your lap or the desk, with as little movement as possible.

Experimenter plugs in electrodes

Now I'd like you to just sit and relax for 3 minutes while we make sure all the equipment is working properly in the room next door. During the experiment, try to keep as still as possible, because movements will give messy readings.

Experimenter steps out during the 3 minutes for baseline physiological collection. Experimenter comes back in and stays while participants complete ratings of trial moon picture. Experimenter gives a brief verbal description of how the picture ratings will work: for about 15 seconds you will see a blue wave screen – just relax and look at the screen; next the picture will appear on the screen for 15 s, then you'll have 1 minute to report how the picture made you feel. The screen will then automatically change to the next blue wave screen and picture.

Inform participants that they can contact you through the intercom if they have questions, (push the white button and put on the headset, the experimenter will get a notification in the control room).

Once I leave the room, the experiment will start once you press the space bar.

Once the picture part of the study is finished the computer will direct you to a website where you'll fill out some questionnaires.

Chapter 6: General Discussion

Previous work has looked at the effect of prosocial behaviours on well-being outcomes or experiences finding that prosociality increases psychological well-being (Bauer et al., 2005; Choi & Kim, 2011; see Konrath, 2013), social well-being (Son & Wilson, 2012), meaning in life (e.g. Klein, 2016; Van Tongeren, Green, Davis, Hook, & Hulsey, 2015), and happiness (e.g. Dunn, Aknin, & Norton, 2008; Lyubomirsky, Tkach, & Sheldon, 2004; Nelson, Layous, Cole, & Lyubomirsky, 2016). This research was the first to directly investigate how one's eudaimonic and/or hedonic orientation relate to positive influences beyond the self and concern for the bigger picture. Scope of concern was tested in a variety of ways including self-report engagement in prosocial behaviours, observational prosocial behaviours, prosocial values, other-focused/autonomous helping motives and self-report affect, facial expressions, and psychophysiological reactions to photos depicting happiness/health and suffering/degradation in humans/animals/nature. This thesis also assessed narrow concern in a variety of ways including mild hindering social behaviours, egoistic values, and self-focused/extrinsic helping motives. Additionally, this dissertation examined broad and narrow mindset by looking at time perspectives (i.e., present or future focus), and construing behaviours at high-levels (abstract) or low-levels (concrete).

The present data suggests that eudaimonic orientation is characterized by a broader breadth of concern, a balanced time perspective and an abstract mindset. Hedonic orientation tended to be narrower in focus, including emphasis on the present moment and the self. This thesis expands our understanding of eudaimonic and hedonic orientations and their correlates and features. Below we adduce our interpretations of the findings and avenues for future research.

Eudaimonic Orientaton as a Blend of Self and Other Concern

We had predicted that eudaimonic orientation would relate to broader scope of concern. Our findings were in accord with previous theories positing that eudaimonia is about virtuous behaviour and compassion (Aristotle, 2001; Franklin, 2010; Huta, 2015; Seligman, 2002; Steger, Kashdan, & Oishi, 2008; Wong, 2012), and equal care for all sentient beings (Flanagans, 2009). In particular, eudaimonic orientation, relative to hedonic orientation, related to participation in a wider variety of prosocial behaviours and helpful social behaviours, prosocial values, other-focused/autonomous helping motives, dispositional empathic concern, and self-report emotional reactions to other's joy and suffering. Therefore, eudaimonic orientation may provide the scaffold for a moral framework which considers the larger implications for the surrounding world. Eudaimonic pursuits capitalize on virtues such as excellence, which inform globally all our encounters with others (i.e., moral excellence), rather than hedonia which may have more local functions for the self (Kristjánsson, 2013). The appetites, desires and emotions of a virtuous person (eudaimonically oriented individual) are believed to be intimately infused with reason as to allow the virtuous person to desire in the right way (Kristjánsson, 2007, p. 21). Individuals who capitalize on growth, excellence and authenticity may be more adept at stepping outside the self and taking the perspective of others and relating to their condition.

However, Manuscript 1 and Manuscript 3 also showed that eudaimonic orientation was not entirely about other concern but rather a synthesis of both self-focused (e.g., ambition) and other-focused values, and self-focused/extrinsic helping motives and mixed other-focused/autonomous and self-focused/extrinsic helping motives (noticeably those that enhanced one's self-image or reputation). This finding was paralleled in the significant links between eudaimonic orientation and social desirability which may measure genuine virtue, or also a

desire to appear favourably. Self-presentation does not necessarily suggest vanity or shallowness, but can also be essential for successful social interactions (Leary, 1994). Conceivably, eudaimonic orientation involves feeling good about oneself (Heppner, Kernis, Nezlek, Foster, Lakey, & Goldman, 2008; Piliavin, 2010), and perhaps upholding some level of enhanced status, which does not necessarily stipulate a detraction from collective concern. Those that emphasize eudaimonic pursuits may be concerned about leaving a legacy (e.g., Huta & Zuroff, 2007), or appearing favourable to others, perhaps to display their intelligence, hard work, or that they matter to society. Indeed, people are happier when they are aware of how their helping behaviours make a positive difference for a recipient (Aknin, Dunn, Whillans, Grant, & Norton, 2013). Moreover, eudaimonic concepts such as purpose in life have been linked to a positive self-image (Hill, Edmonds, Peterson, Luyckx, & Andrews, 2016) and to pride (Barrett-Cheetham, Williams, & Bednall, 2016). It is realistic to presume that self-enhancement and self-presentation motives are important for maintaining psychological well-being (see Alicke & Sedikides, 2009). Enhancing reputation and recognition in the context of eudaimonia may be reflective of conveying meaning and purpose, as opposed to strictly self-enhancement. The link between eudaimonic orientation and social desirability may also be suggestive of reaching a level of maturity to communicate effectively with others and display one's worth.

The literature is replete with studies reporting a dual role of happiness (i.e., both hedonia and eudaimonia) for personal well-being (Anić & Tončić, 2013; Huta & Ryan, 2010; Kashdan, Biswas-Diener, & King 2008; Pollock, Noser, Holden, & Zeigler-Hill, 2015; Sirgy & Wu, 2009; Tončić & Anić, 2015). Eudaimonic orientation, in particular, seems to be about equilibrium between individual and collective well-being. This dovetails with many relational and connectivity models of well-being: achieving well-being through inner harmony and the

integration of independent and interdependent concerns (Kjell, 2011; Soosai & Delle Fave, 2014); a harmonious link with others (Hitokoto & Uchida, 2014); a quiet ego which balances the needs of self and others (Bauer & Wayment, 2008); a balance of agentic growth (self-development and mastery) and communal growth (intimacy and sharing; Bauer & McAdams, 2004); developing concern and respect for others without being exclusively givers or receivers (Besser-Jones, 2014); and an identity processing style whereby individuals define themselves by their goals and values (authenticity) and self-transcending interests (Beaumont, 2009; Berzonsky, Cieciuch, Duriez, & Soenens, 2011). In line with these theories, empirical findings show that individuals high on compassion goals do not care for others at the expense of the self (Crocker & Canevello, 2008), but also have compassion for themselves (Neff, 2003).

In sum, eudaimonic orientation appears not to be wholly magnanimous; well-being requires self-respect and self-respect requires respect for others (Bloomfield, 2014; Kristjánsson, 2013). Presumably one must have some degree of self-concern (e.g., self dignity, being authentic with oneself) to engage in behaviours that help others; one must take care of oneself to be prepared to take care of others. Mature empathy is not about a complete blending of the self and other, but also differentiating the self from the other (Eisenberg, 2000) or being concerned with fairness/equality.

Lastly, unmitigated self-sacrifice or empathy may be unhealthy for the self. For instance, it could lead to burnout/exhaustion and chronic stress (e.g., in nurses, paramedics, caregivers, therapists, etc.; Jennings, 2008; Pinquart & Sörensen, 2003; Schulz & Sherwood, 2008), exploitation, exposing oneself to risks (e.g., helping in dangerous circumstances), inordinate feelings of guilt or responsibility, feeling burdened, hindrance to one's own enjoyment, relaxation or personal growth, costs to personal and social life, employment, and finances (e.g.,

in the case of long-term caregiving; Brown & Brown 2014), and possibly diminished future helping.

Eudaimonic Orientation as a Balanced Time Perspective

Manuscript 1 revealed that eudaimonic orientation, relative to hedonic orientation, tended to be a combination of present and future focus. Past research shows that a balanced time perspective (present and future focus) is associated with greater well-being (e.g., positive affect, self-actualization; Boniwell, Osin, Linley, & Ivanchenko, 2010; Boniwell & Zimbardo, 2004; Webster, 2011; Zhang, Howell, & Stolarski, 2013). The present and future are intimately interwoven; prospection of a future self relies on an evaluation of one's present state and being mindful in the moment (Seligman, Railton, Baumeister, & Sripada, 2013; Sheldon & Vansteenkiste, 2005). Eudaimonic goals center on truth-seeking, perseverance, maturation, and reflection, which often requires contemplation of the future or a prolonged time frame. In particular, authenticity relies on exploration and trying new things overtime, and personal growth and excellence center on progression, transformation and devotion, which typically require awareness in the present moment and a vision of the future. Individuals with a balanced time perspective may have the opportunity for deep engagement and pleasure in the present, but also seek new challenges in the future, consequently reinforcing eudaimonic pursuits (Podlogar & Bajec, 2011).

Eudaimonic orientation was also associated with a future focus regarding the well-being of others. Specifically, eudaimonic orientation related to generative behaviours in Manuscript 1 and willingness to help others even if the results were in the future in Manuscript 2. Those who are able to delay immediate gratification may procure resources to invest in future behaviours that benefit others or society. A balanced time perspective may imbue a sense of continuity,

coherence or meaning in one's life – something that a eudaimonically oriented individual, in particular, would pursue. This ability would also require an abstract mindset.

Eudaimonic Orientation and an Abstract Mindset

An abstract mindset emerged as a prominent characteristic of eudaimonic orientation. Specifically, eudaimonic orientation related to a direct measure of abstract thinking (i.e. high-level construal), abstract prosocial behaviours such as generativity, community contributions where the recipient was unknown, and a cognitive abstract component of empathy – perspective taking. In Manuscript 2 we pitted abstract helping against concrete helping, finding that only eudaimonic orientation was related to willingness to help in anonymous situations and when results to the other were delayed. In these situations, individuals may develop concern for an abstract concept or cause as opposed to a specific concrete individual (Kinnunen & Windmann, 2013).

These findings can be interpreted within the framework of construal level theory (CLT), which proposes that information can be construed at either a high-level (e.g., essential qualities of behaviours or information) or a low-level (concrete details; Liberman & Trope, 2008; Trope & Liberman, 2003). Eudaimonic concepts, particularly meaning, has been described as a high-level construal based on a unified cognitive system (Janoff-Bulman, 1992; Kim, Kang & Choi, 2014), with the primary function of relating concepts (Baumeister, 1991). Relatedly, eudaimonic pursuits of excellence, growth and authenticity emphasize broad aspects of one's identity and often require deeper deliberation and cognitive complexity about selfhood. Elements of eudaimonic orientation tend to entail abstract and long-term evaluations of one's choices and behaviours, and integration of values into a meaningful framework.

Additionally, research shows that those with personal growth goals tend to be more open to change, and thus less rigid or narrow (Bhattacharya & Mehrotra, 2013; Schmutte & Ryff, 1997). Eudaimonic orientation may enhance receptivity and willingness to engage in new experiences which could expand one's perspectives and worldviews, cultivating an abstract mindset that considers the broader implications of one's behaviours.

Lastly, the current data showed that big picture concepts such as feeling interconnected with others, big picture thinking, empathic concern, and perspective taking were mediators in the link between eudaimonic orientation and prosocial behaviour. Our data points to the idea that an abstract ability to feel connected with others or project into another's situation underlies a eudaimonic orientation. Also, concern beyond the self may allow one to disengage from their own challenges and develop more complex and abstract ways of seeing the world (Schwartz & Sendor, 1999).

Hedonic Orientation as a Narrower Focus on the Self and the Present

Across all manuscripts, converging evidence showed that hedonic orientation was related to a narrower focus on the self and present moment. In particular, hedonic orientation related to only some prosocial behaviours (easy/common courtesy helping and wrongdoing to help another), self-focused values and self-focused/extrinsic motives for helping (e.g., returned benefits), preference to help in concrete situations whereby the recipient is visible and the benefits to the other are immediate (Manuscript 2, Study 1), and a present time perspective. Furthermore, hedonic orientation showed weaker and/or inconsistent relations with joy or sorrow for another human, animal or nature in pleasant or unpleasant circumstances, respectively.

We surmise that hedonic orientation is characterized by a mindset which is less proficient at relating to another's situation due to a greater focus on pleasure or comfort for the self.

Alternatively, hedonically oriented individuals may avoid empathizing with another's sorrow or distress because this can engender discomfort or pain.

In line with theoretical notions, hedonic pursuits appear to be based on immediate need satisfaction and fulfilling desires (Steger & Shin, 2012). Our findings bolster previous research showing that hedonic pursuits relate to extrinsic life goals (Anic & Toncic, 2013); preference for immediate rewards (Kryza-Lacombe, 2016); entail activities with immediate benefits (e.g. Steger et al., 2008); and tend to have strongest effects in the short-term (Huta & Ryan, 2010; Steger, 2016).

Interestingly, hedonic orientation also related to a present fatalistic time perspective suggesting that hedonic orientation is not exclusively about pleasure in the immediate moment, but rather a focus on the present in general (or detachment from a future focus). Hedonic pursuits (i.e., pleasure, comfort) tend to require less investment and contemplation, relative to eudaimonic pursuits, and can be typically achieved in the immediate moment. Overall, our findings limn a picture of hedonic orientation as immediate need satisfaction, bound by time and based on the resolution of a concrete experience.

Hedonic Orientation and Hindering Effects on the Broader Surroundings

Another focus of this thesis was to test the possible negative effects that hedonic orientation (and/or eudaimonic orientation) may have on the surrounding world, given that some researchers claim that both emphasize the self and can possibly be antithetical to societal well-being (e.g., see Annas, 2008; Held, 2004; Kashdan et al., 2008). The current data showed that hedonic orientation tended to have more negative effects beyond the self, as evidenced in links with engagement in minor hindering social behaviours and no relation with avoiding harm to others.

There are a number of explanations for these findings; hedonic orientation may be linked to some undesirable behaviour due to the pleasurable experiences they can confer. Indeed, people can profit from dishonesty (Mazar, Amir, & Ariely, 2014) and manipulation (e.g., narcissism) if they do not contaminate one's self-image (e.g., Aghababaei & Błachnio, 2015; Gebauer, Sedikides, Verplanken, & Maio, 2012). Another reason is that emphasis on comfort and pleasure is less compatible with behaviours that could benefit others. For instance, an emphasis on relaxation or comfort could foster a mindset which avoids sacrificing one's time or resources to benefit beyond the self. The relation between hedonic orientation and mild negative social behaviours may also be attributed to an impulsive nature or lack of self-control, with less consideration of the ramifications of one's actions on the surrounding world (Milkman, & Sunderwirth, 2010). Pursuits of pleasure and comfort often do not require meticulous planning and laborious investment; headlong pursuits of pleasure and comfort could entail involvement in activities that inadvertently interfere with the well-being of others.

Meaning as a Core Feature of Eudaimonic Orientation

Many researchers posit that meaning is a hallmark of eudaimonia (Delle Fave, Brdar, Freire, Vella-Brodrick, & Wissing, 2011; see Huta & Waterman, 2014; Seligman, 2002; Steger et al., 2008). We believe that concern for the bigger picture and contributing to it is an essential piece of meaning. The present results showed that eudaimonic orientation, as assessed with the HEMA, correlates strongly with the Orientations to Happiness Scale (Peterson, Park, & Seligman, 2005) which focuses predominantly on meaning as concern for the bigger picture. These results, coupled with eudaimonia's link with prosocial behaviour, confirm the primacy of meaning as a core feature of eudaimonic orientation. We therefore believe that the HEMA should be revised to include broad scope of concern as a principal element of eudaimonia.

Relatedly, multiple eudaimonic factors have been theorized to contribute to meaning in life including personal growth (e.g. Delle Fave, Brdar, Wissing, & Vella-Brodrick 2013; Steger et al., 2008), excellence (McMahan & Estes, 2011; McMahan & Renken, 2011), and development of unique potentials (Waterman, 2011). Likewise, research shows that personal achievement and self-transcendence are linked to meaning in life (Barni & Danioni, 2016; Machell, Kashdan, Short & Nezlek, 2015), and that good relationships and communal values are sources of meaning in life (e.g. Bar-Tur, Savay, & Prager, 2001; O'Donnell, Shim, Barenz, & Steger, 2014; Stavrova & Luhmann, 2016; Steger & Kashdan, 2013).

It should be noted that we do not wish to predicate what constitutes a meaningful life; we believe that one ultimately decides their own meaning in life, personal growth, authenticity, and excellence. However, taken together, we feel that meaning in a eudaimonic sense encompasses a transcendence of self-interest and realization that contributing to the broader picture ultimately promotes personal and societal well-being.

Eudaimonic and Hedonic Orientations and Psychophysiology

The present research produced inconclusive findings for differences between eudaimonic and hedonic orientations at the physiological level. Considering there are copious factors that influence physiological responding, it is not entirely surprising that differences did not emerge between eudaimonic and hedonic orientations at this level. For instance, physiology is influenced by attention, stimulus significance, and novelty (Andreassi, 2007; Barry, 1990; Rushby, Barry & Doherty, 2005). Though we controlled for confounds in our research, another interpretation of these findings is that they were measuring general cognitive or attentional processes as opposed to affective responses.

Psychophysiological measures were included as complementary measures of empathic responses. These measures were assessed in real-time and may be more reflective of automatic emotional responses which can overcome social desirable responding biases (Cacioppo et al., 2000). However, in the present research, there was some synchronicity between skin conductance measures and self-report, but no correspondence between heart rate activity and self-report. Previous research has found little links between skin conductance activity and cardiovascular activity (Kettunen, Ravaja, Näätänen, & Keltikangas-Järvinen, 2000). Researchers posit that skin conductance (which is a direct measure of sympathetic activity) may be an initial alerting to one's distress, while HR (which is innervated by both the sympathetic and parasympathetic systems) may provide information about orienting responses as opposed to general arousal (Jones & Gagnon, 2007). In the present study, there may have been a coactivation of both the sympathetic and parasympathetic systems (Berntson, Cacioppo, & Quigley, 1993; Palomba et al., 2000) which may have contributed to the null findings for HR activity. Thus, more sophisticated measures of cardiovascular activity could be employed such as heart rate variability (which assesses fluctuations in HR overtime). Though, our hypotheses for SCR (a more robust measure of emotional activity) were also not met. We did however find that state negative affect and state empathic concern related to SCR magnitude, supporting previous evidence that empathy is related to increased SCRs (see Kreibig, 2010; Kunzmann & Grühn, 2005; Mehrabian, Young, & Sato, 1988). The eudaimonic-hedonic distinction may be made clearer by contrasting high arousal unpleasant images with lower arousal unpleasant images.

Past findings on psychophysiological changes to emotional stimuli have been mixed (see Kreibig, 2010 for a review). Specifically, some studies show that skin conductance and HR increase to unpleasant stimuli, while others show a deceleration in these measures. Since hedonic

orientation had no consistent relation to self-reported negative affect to suffering/degradation images or negative facial expressions, these findings suggest that the unchanged physiological responses may be indicative of detachment from another's suffering or less capacity to consciously put oneself in the situation of others.

Although eudaimonic orientation may encompass empathic concern, this does not necessarily have to manifest in physiological reactions. Eudaimonic orientation may entail cognitive or rational reflection of suffering relative to physiological or facial emotional responding. Alternatively, perhaps eudaimonically oriented individuals found the images less novel because they are invested in various charities or causes and have habituated somewhat to suffering, at least at the level of immediate physiological responses. Moreover, these images tended to tap into the aftermath of loss or implications of destruction (e.g., pollution), which may have activated cognitive processes rather than immediate visceral responses (see Kreibig, 2010).

Our findings can also be interpreted in the context of motivational systems, including an appetitive system which entails motivation towards resources and a defense system based on an aversive or avoidant reaction in response to threat (Balconi, Brambilla & Falbo, 2009; Lang & Bradley, 2013). Eudaimonic orientation was associated with greater self-report positivity to happiness/health images and quicker SCRs, suggesting an approach orientation toward another. Hedonic orientation showed trends of greater revulsion towards suffering/degradation images, which may suggest a defense mechanism and withdrawal from circumstances which evoke unpleasant feelings. However, more research is needed to replicate these findings.

Implications of the Present Research

The findings from this study have significant implications for applied contexts. Excellence, growth and authenticity, in particular, may be important for potentiating a broader

mindset which considers the needs of others and societal thriving. Although many existing facets of life do encourage eudaimonic pursuits, research shows that empathy is declining in younger generations in North America (Twenge, Campbell, & Freeman, 2012; Zarins & Konrath, in press). While positive psychology interventions are ubiquitous (see Bolier, Haverman, Westerhof, Riper, Smit, & Bohlmeijer, 2013, for a meta-analytic review) these could be tailored towards both self-flourishing and community and environmental thriving. Additionally, passions could be exploited to harness authenticity, and open-mindedness could be encouraged for one to explore their likes and dislikes and develop their true potential. Allowing for exploration and respecting the dignity of others could nourish an identity which considers values of fairness and equality for everyone at the level of the larger society.

This research also has implications for emotion regulation. Pedagogical methods could be employed to facilitate children's understanding of their own and other's emotions in an effort to promote perspective taking and empathy. Courses in philosophy and world views could also be implemented at younger ages to encourage broader viewpoints and solidify values. Humane education programs or therapeutic interventions focusing on contact with non-human animals (Binfet & Passmore, 2016; Thompson & Gullone, 2003) or nature (e.g. Passmore & Holder, 2016), could be applied with the idea that this could transfer empathy towards humans and all living things.

Hedonic orientation was also associated with some types of prosocial behaviours, namely those that were face-to-face and had immediate benefits. According to the identifiable victim effect, people are more likely to help when confronted with the suffering of a single, identifiable person as opposed to large numbers of people suffering (Kogut & Kogut, 2013; Small, Loewenstein, & Slovic, 2007). Hedonic orientation may rely less on rational processes

implicated in helping an abstract group or cause as opposed to a concrete individual. This could provide insight on different ways of framing fundraising messages to appeal to one's different approach to achieving personal well-being.

Lastly, research could look at what is driving hedonically oriented individuals to engage in some hindering behaviours such as manipulation or dishonesty. Presumably these behaviours are sought because they are rewarding or instil pleasure for the self. More enduring forms of pleasure could be inculcated at young ages such as savouring – appreciation and constant attention to the experience of pleasure (Bryant & Veroff, 2007), in an effort to circumvent emphasis on more ephemeral or impulsive types of pleasure.

Limitations and Future Directions

Although this thesis produced enlightening findings on the intersection of personal quests of well-being and collective concern, there are some limitations and areas for future research. A main limitation of this program of research is that the studies were correlational and thus causal inferences cannot be made about the link between eudaimonic orientation and hedonic orientation and the various outcome measures. This research would be strengthened if eudaimonia and hedonia could be induced in an experimental study to obtain causal data. Future studies could also use longitudinal designs to investigate ongoing prosocial behaviours, including commitment to a volunteering activity. Furthermore, individuals could indicate the amount of time invested in eudaimonic and/or hedonic pursuits in addition to the degree to which they wish to achieve these aims. Another limitation of this program of research is that the studies were predominantly self-report, which introduces the confound of social desirability. Eudaimonic orientation related to social desirability in all our studies. However, the research in this field is controversial with some researchers suggesting that social desirability may also be assessing

virtue, as indicated in self-report and other-report ratings of honesty and humility with social desirability (Vries, Zettler, & Hilbig, 2013). Additionally, participants may be basing their responses on social desirability scales on an average degree to which they engage in a behaviour, rather than the extremes of behaviours (e.g., I never do this behaviour, or I do this activity all the time). Future studies could circumvent this issue by assessing prosocial behaviours in real-time, in economic games, or obtaining informant ratings.

There are many factors which influence prosocial behaviour which could be considered in future studies. For instance, socialization practices, self-efficacy beliefs (e.g. Caprara & Steca, 2007), and heritability (Knafo & Solomon, 2010). More cognitive aspects of prosocial behaviours could also be explored such as a feeling of competence/skills to help others and moral obligation/adherence to internalized principles or norms (Eisenberg, VanSchyndel, & Spinrad, 2016; Kohlberg, 1984). Moreover, this thesis only assessed the tendency to take another's point of view and not perspective taking ability/accuracy or empathic matching. Perspective taking capacity could be assessed using paradigms such as computer-based tasks whereby participants make judgements on the amount of dots seen by another (e.g. Qureshi, Apperly, & Samson, 2010) and/or locating objects on a shelf based on another's viewpoint (e.g., Dumontheil, Küster, Apperly, & Blakemore, 2010).

More real-time prosocial behaviours could be evaluated beyond self-report including behaviours in the lab or in economic games. Most work on adult prosocial behaviour has been in the context of economic games (e.g., prisoner's dilemma, the dictator game, ultimatum game), which has predominantly assessed sharing behaviours and cooperation via the allocation of resources (e.g., Fantino & Kennelly, 2009; Kennelly & Fantino, 2007; Zhao, Ferguson, & Smillie, 2016; Zin, Escobal, Esteves, & Goyos, 2015). These paradigms have the benefit of

assessing one's sharing behaviours or fairness values in real-time (but have also been challenged on their real-world validity). Furthermore, mixed motives games (Haesevoets, Folmer, & Van Hiel, 2015), whereby individuals must choose between acting upon self-interest or concern for others may be ideal for clearly distinguishing priorities among eudaimonically and hedonically oriented individuals.

With regards to empathic concern and psychophysiology, research would benefit by using a greater variety of images or more evocative images (or videos) that distinguish between personal distress and empathic concern. This may produce more disparate results among eudaimonic and hedonic orientation at the physiological level. Future research could also incorporate more robust measures of cardiovascular activity such as heart rate variability (HRV), which provides information about emotion regulation abilty (e.g., Appelhans & Luecken, 2006; Beffara, Bret, Vermeulen, & Mermillod, 2016). We'd expect eudaimonic orientation to relate to greater emotion regulation ability towards emotional stimuli, which is suggestive of emotional control and well-being (De Jonckheere, Rommel, Nandrino, Jeanne, & Logier, 2012). Additionally, a larger picture set could be included for human, animal and nature categories to examine nuanced differences between eudaimonic and hedonic orientations and broad scope of concern.

Future research could also unpack different types of hedonic pursuits, for instance distinguishing between sensory pleasures (e.g., sexual, culinary, consuming luxurious goods; Kivetz & Simonson, 2002; Oishi, Schimmack, & Diener, 2001) and deeper pleasures such as aesthetic pleasure, accomplishment pleasure and savouring (Kubovy, 1999; Oishi, Diener, Suh & Lucas, 1999). These types of higher pleasures may involve greater striving and effort compared

to merely sensual pleasures. The distinction between comfort as physical relaxation versus peace of mind/serenity could also be explored (e.g., Tsai, Knutson, & Fung, 2006).

A next step would be to investigate the dynamic interplay between pursuits of well-being, prosocial behaviour and well-being outcomes. For example, prosocial behaviour might enhance well-being by providing a sense of purpose and meaning in life (Koenig, 2007; Piedmont, Ciarrochi, Williams, & Dy-Liacco, 2009) or personal growth (Deci & Ryan, 1985), which in turn may increase subsequent engagement in prosocial behaviours. Indeed, people who are motivated to help others to gain pleasure show greater volunteer engagement (Vecina & Fernando, 2013).

Future research could examine the complementary roles of eudaimonic and hedonic orientations and how much eudaimonia is required to offset some of the self-focused aspects of hedonia. Or alternatively, research could look at the role that hedonic orientation may play in maintaining high levels of eudaimonic orientation to strengthen continual engagement in other-regarding behaviours. Indeed, eudaimonia has been conceptualized as a higher pleasure (Seligman, 2002; Waterman, 1993), and Aristotle (2001) postulated that one can live well and do well with an appropriate amount of pleasure and goods (if they are pursued in accordance with reason). Psychological thriving, at times may require disengagement from eudaimonic activities and indulging in pleasures or relaxation so as to accrue resources to perpetuate future eudaimonic endeavours, including societal contributions. Indeed, hedonic orientation may provide escapism, at least for a short period (Bartsch & Schneider, 2014). Hedonia is essential for personal well-being, and personal well-being in turn is vital for commitment to the welfare of others (Singh, Bassi, Junnarkar, & Negri, 2015; Son & Wilson, 2012).

Another limitation of the present research is the demographics studied – university students from a Western culture. Future studies could look at a wider age range as well as more

diverse ethnic cultures (e.g. Chopik, O'Brien, & Konrath, 2015; Feygina & Henry, 2015), including individualistic versus collectivistic cultures (Lampridis & Papastylianou, 2014). Younger adults may be involved in activities such as volunteering and civic engagement (Pratt & Lawford, 2014), while older adults may participate more frequently in generative behaviours (see Hammond & Brownell, 2015).

Future research could also investigate the darker side of eudaimonic orientation. As this thesis demonstrated, eudaimonia is not exclusively other-focused; extreme emphasis on eudaimonic pursuits may also lead to poorer outcomes for the self (e.g., exhaustion, stress/anxiety, perfectionism) and possibly poorer effects beyond the self as well (e.g., overly competitive, superiority, entitlement, stubborn).

Lastly, this dissertation took a global trait approach to orientations and behaviours which has previously been challenged (Gosling, John, Craik, & Robins, 1998). To rectify this limitation, future research could look at both trait and state levels of eudaimonia and hedonia whereby results may be more pronounced. One study revealed that participants who were reminded of their highest ideals and values (eudaimonia) were more aware and tolerant toward others' perspectives (McGregor, Haji, & Kang, 2008), while other studies have shown that inducing positive mood states increased helping behaviours (e.g., Haidt, 2003; Isen & Levin, 1972; Lyubomirsky, King, & Diener, 2005). However, no research has pitted inductions of personal growth, authenticity or excellence against pleasure and the effects on prosocial behaviour.

Concluding Remarks

This thesis provides a unique contribution to the literature on personal pursuits of well-being and benefits beyond the self using a multi-method approach. Our findings suggest that

eudaimonic orientation is a balance of self and other concern, while hedonic orientation is exemplified by an emotional surge which is likely short lived and has less enduring benefits for society at large. Even if a person starts out with somewhat selfish motives, they eventually learn that personal thriving and societal thriving are inextricably linked; they (and others) will do better in life if they can regulate their impulses, foresee future consequences, appreciate different perspectives, understand how the broader community works, and take care of that broader community. While both eudaimonic and hedonic orientation are beneficial for personal well-being, eudaimonic orientation appears to be ideal for nurturing broader concern for the surrounding world.

References

Aghababaei, N., & Błachnio, A. (2015). Well-being and the dark triad. *Personality and Individual Differences*, 86, 365-368. doi: 10.1016/j.paid.2015.06.043

Aknin, L. B., Dunn, E. W., Whillans, A., Grant, A. M., & Norton, M. I. (2013). Making a difference matters: Impact unlocks the emotional benefits of prosocial spending. *Journal of Economic Behaviour and Organization,* 88, 90-95. doi: 10.1016/j.jebo.2013.01.008

Alicke, M.D., & Sedikides, C. (2009). Self-enhancement and self-protection: What they are and what they do. *European Review of Social Psychology*, 20, 37-41. doi: 10.1080/10463280802613866

Andreassi, J. L. (2007). *Psychophysiology: Human behaviour and physiological response* (5th ed.). Mahwah, NJ: Lawrence Erlbaum Associates.

Anić, P., & Tončić, M. (2013). Orientations to happiness, subjective well-being and life goals. *Psihologijske teme,* 22, 135-153.

Annas, J. (2008). Virtue ethics and the charge of egoism. In P. Bloomfield (Ed.), *Morality and self-interest* (pp. 205-221). Oxford: Oxford University Press.

Appelhans, B.M., & Luecken, L.J., (2006). Heart rate variability as an index of regulated emotional responding. *Review of General Psychology*, 10, 229-240. doi:10.1037/1089-2680.10.3.229

Balconi, M., Brambilla, E., & Falbo, L. (2009). Appetitive vs. defensive responses to emotional cues. Autonomic measures and brain oscillation modulation. *Brain Research*, 1296, 72–84. doi: 10.1016/j.brainres.2009.08.056

Barni, D., & Danioni, F. (2016). Adolescents' basic personal values and sense of coherence. *Personality and Individual Differences,* 102, 46-50. doi: 10.1016/j.paid.2016.06.053

Barrett-Cheetham, E., Williams, L. A., & Bednall, T. (2016). A differentiated approach to the link between positive emotion and wellbeing. *Journal of Positive Psychology,* 11, 595-608. doi: 10.1080/17439760.2016.1152502

Barry R.J. (1990). Scoring criteria for response latency and habituation in electrodermal research: A study in the context of the orienting response. *Psychophysiology*, 27, 94–100.

Bartsch, A., & Schneider, F.M. (2014). Entertainment and politics revisited: How non-escapist forms of entertainment can stimulate political interest and information seeking. *Journal of Communication*, 64, 369-396. doi: 10.1111/jcom.12095

Bar-Tur, L. Savaya, R., & Prager, E. (2001). Sources of meaning in life for young and old Israeli Jews and Arabs. *Journal of Aging Studies,* 15, 253-269.

Batson, C. D. (1991). *The altruism question: Toward a social-psychological answer*. Hillsdale, NJ: Erlbaum.

Bauer, J.J., & McAdams, D.P. (2004). Personal growth in adults' stories of life transitions. *Journal of Personality,* 72 (3), 573-602. doi: 10.1111/j.0022-3506.2004.00273.x

Bauer, J. J.**,** & Wayment, H. A. (2008). The psychology of the quiet ego. In H. A. Wayment & J. J. Bauer (Eds.), *Transcending Self-Interest: Psychological Explorations of the Quiet Ego*, pp. 3-19. Washington, D.C.: American Psychological Association Books.

Baumeister, R.F. (1991). *Meanings of life*. New York: Guilford.

Beaumont, S.L. (2009). Identity processing and personal wisdom: An information-oriented identity style predicts self-actualization and self-transcendence. *Identity: An International Journal of Theory and Research*, 9, 95-115. doi: 10.1080/15283480802669101

Beffara, B., Bret, A.G., Vermeulen, N., & Mermillod, M. (2016). Resting high frequency heart rate variability selectively predicts cooperative behaviour. *Physiology and Behaviour,* 164, 417-428. doi: 10.1016/j.physbeh.2016.06.011

Berzonsky, M. D., Cieciuch, J., Duriez, B., & Soenens, B. (2011). The how and what of identity formation: Associations between identity styles and value orientations. *Personality and Individual Differences*, 50, 295-299. doi: 10.1016/j.paid.2010.10.007

Besser-Jones, L. (2014). Eudaimonic ethics: *A contemporary theory of the philosophy and psychology of well-being.* New York: Routledge Press.

Bhattacharya, A., & Mehrotra, S. (2013). The journey of personal growth: A qualitative exploration of personal growth processes in young adulthood. *Psychological Studies*, 58, 456-463. doi: 10.1007/s12646-013-0222-x

Binfet, J.-T., & Passmore, H.-A. (2016). Hounds and homesickness: The effects of an animal-assisted therapeutic intervention for first-year university students. *Anthrozoos,* 29, 441-454. doi: 10.1080/08927936.2016.1181364

Bloomfield, P. (2014). *The Virtues of Happiness: A Theory of the Good Life. Oxford:* Oxford University Press.

Bolier, L., Haverman, M., Westerhof, G.J., Riper, H., Smit, F., & Bohlmeijer, E. (2013). Positive psychology interventions: a meta-analysis of randomized controlled studies. *BMC Public Health*, 13, 119. doi: 10.1186/1471-2458-13-119

Boniwell, I., Osin, E., Linley, P.A, & Ivanchenko, G.V. (2010). A question of balance: Time perspective and well-being in British and Russian samples. *The Journal of Positive Psychology*, 5, 24-40. doi: 10.1080/17439760903271181

Boniwell, I., & Zimbardo, P. (2004). Balancing time perspective in pursuit of optimal functioning. In P.A. Linley & S. Joseph (Eds.), *Positive psychology in practice* (pp. 165-178). New Jersey: John Wiley & Sons.

Brown, R.M., & Brown, S.L. (2014). Informal caregiving: a reappraisal of effects on caregivers. *Social Issues and Policy Review*, 8, 74–102. doi: 10.1111/sipr.12002

Bryant, F. B., & Veroff, J. (2007). *Savoring: A new model of positive experience*. Mahwah, NJ: Lawrence Erlbaum.

Caprara, G.V., & Steca P. (2007). Prosocial agency: The contribution of values and self-efficacy beliefs to prosocial behaviour across ages. *Journal of Social and Clinical Psychology*, 26, 220–241. doi: 10.1521/jscp.2007.26.2.218

Choi, N.G., & Kim, J. (2011). The effect of time volunteering and charitable donations in later life on psychological well-being. *Ageing and Society*, 31, 590-610. doi: 10.1017/S0144686X10001224

Chopik, W., O'Brien, E. H., & Konrath, S. H. (2016). Patterns of empathic responding around the world: Cross-cultural comparison of trait empathy. *Journal of Cross-Cultural Psychology*, 48, 23-38. doi: 10.1177/0022022116673910

Crocker, J., & Canevello, A. (2008). Creating and undermining social support in communal relationships: The role of compassionate and self-image goals. *Journal of Personality and Social Psychology*, 95, 555-575. doi: 10.1037/0022-3514.95.3.555

Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behaviour*. New York: Plenum.

De Jonckheere, J., Rommel, D., Nandrino, J.L., Jeanne, M., & Logier, R. (2012).Heart rate variability analysis as an index of emotion regulation processes: interest of the Analgesia

Nociception Index (ANI). *Conference Proceedings: Annual International Conference of the IEEE Engineering in Medecine and Biology Society*, 3432-3435.doi: 10.1109/EMBC.2012.6346703.

Delle Fave, A., Brdar, I., Freire, T., Vella-Brodrick, D., & Wissing, M.P. (2011). The eudaimonic and hedonic components of happiness: Qualitative and quantitative findings. *Social Indicators Research*, 100, 185-207. doi: 10.1007/s11205-010-9632-5

Delle Fave, A., Brdar, I., Wissing, M.P, & Vella-Brodrick, D., &. (2013). Sources and motives for personal meaning in adulthood. *The Journal of Positive Psychology*, 8, 61-73.doi:10.1080/17439760.2013.830761.

Dumontheil, I., Küster, O., Apperly, I.A., & Blakemore, S. (2014). Taking perspective into account in a communicative task. *Neuroimage*, 52, 1574-1583. doi:10.1016/j.neuroimage.2010.05.056

Dunn, E.W., Aknin, L.B., & Norton, M.I. (2008). Spending money on others promotes happiness. *Science*, 319, 1687-1688. doi: 10.1126/science.1150952

Eisenberg, N. (2000). Emotion, regulation, and moral development. *Annual Review of Psychology*, 51, 665-697.

Eisenberg, N., Vanschyndel, S.K., & Spinrad, T.L. (2016). Prosocial motivation: Inferences from an opaque body of work. *Child Development*, 87, 1668-1678. doi: 10.1111/cdev.12638

English, T., & John, O.P. (2013). Understanding the social effects of emotion regulation: the mediating role of authenticity for individual differences in suppression. *Emotion*, 13, 314–329. doi: 10.1037/a0029847

Fantino, E., & Kennelly, A. (2009). Sharing the wealth: Factors influencing resource allocation in the sharing game. *Journal of Experimental Analysis of Behaviour*, 91, 337-354. doi: 10.1901/jeab.2009.91-337

Feygina, I., & Henry, P.J. (2015). Culture and prosocial behaviour. In D.A. Schroeder & W.G. Graziano (Eds.), *The Oxford handbook of prosocial behaviour* (pp. 188-208). New York: Oxford University Press. doi: 10.1093/oxfordhb/9780195399813.013.009

Flanagan, O. (2009). Buddhist Persons & Eudaimonia Buddha. In J. Symons & P. Calvo (Eds.), *Routledge Companion to Philosophical Psychology* (pp. 659-673). New York, NY: Taylor & Francis Group.

Franklin, S.S. (2010). *The psychology of happiness: A good human life.* New York, NY: Cambridge University Press.

Gebauer, J. E., Riketta, M., Broemer, P., & Maio, G. R. (2008). Pleasure and pressure based prosocial motivation: Divergent relationships to subjective well-being. *Journal of Research in Personality,* 42, 399-420. doi:10.1016/j.jrp.2007.07.002

Gebauer, J. E., Sedikides, C., Verplanken, B., & Maio, G. R. (2012). Communal narcissism. *Journal of Personality and Social Psychology*, 103, 854–878. doi: 10.1037/a0029629

Gosling, S. D., John, 0. P., Craik, K. H., & Robins, R. W. (1998). Do people know how they behave? Self-reported act frequencies compared with on-line codings by observers. *Journal of Personality and Social Psychology*, 74, 1337-1349.

Gross, J.J., & John, O.P. (2003). Individual differences in two emotion regulation processes: Implications for affect, relationships, and well-being. *Journal of Personality and Social Psychology*, 85, 348–362. doi: 10.1037/0022-3514.85.2.348

Haesevoets, T., Folmer, C.R., & Hiel, A.V. (2015). Cooperation in mixed-motive games: The role of individual differences in selfish and social orientation. *European Journal of Personality,* 29, 445-458. doi: 10.1002/per.1992

Haidt, J. (2003). Elevation and the positive psychology of morality. In C. L. M. Keyes & J. Haidt (Eds.), *Flourishing: Positive psychology and the life well-lived* (pp. 275–289). Washington, DC: APA.

Hammond, S.I., & Brownell, C.A. (2015). Prosocial development across the lifespan. In *Encylopedia on Early Childhood Development*. Retrieved from http://www.child-encyclopedia.com/prosocial-behaviour/according-experts/prosocial-development-across-lifespan

Heppner, W. L., Kernis, M. H., Nezlek, J. B., Foster, J., Lakey, C. E., & Goldman, B. M. (2008). Within-person relationships among daily self-esteem, need satisfaction and authenticity. *Psychological Science*, 19, 1140–1145. doi: 10.1111/j.1467-9280.2008.02215.x

Hill, P.L., Edmonds, G.W., Peterson, M., Luyckx, K., & Andrews, J.A. (2016). Purpose in life in emergin adulthood: Development and validation of a new brief measure. *Journal of Positive Psychology*, 11, 237-245. doi: 10.1080/17439760.2015.1048817

Hitokoto H., & Uchida Y. (2014). Interdependent happiness: Theoretical importance and measurement validity. *Journal of Happiness Studies*, 14, 211–239. doi: 10.1007/s10902-014-9505-8

Huta, V. (2015). An overview of hedonic and eudaimonic well-being concepts. In L. Reinecke, M. B. Oliver (Eds.), *The Routledge handbook of media use and well-being*. New York, NY: Routledge.

Huta, V., Pearce, K., Voloaca, M., & Myskiw, K. (July, 2014). *Research findings to date on hedonic and eudaimonic motivation*. Symposium given at the Second Canadian Conference on Positive Psychology, Ottawa, Ontario.

Huta, V., & Ryan, R. M. (2010). Pursuing pleasure or virtue: The differential and overlapping well-being benefits of hedonic and eudaimonic motives. *Journal of Happiness Studies*, 11, 735-762. doi: 10.1007/s10902-009-9171-4

Huta, V., & Waterman A. S. (2014). Eudaimonia and its distinction from hedonia: Developing a classification and terminology for understanding conceptual and operational definitions. *Journal of Happiness Studies*, 15, 1425-1456. doi:10.1007/s10902-013-9485-0

Huta, V., & Zuroff, D. C. (2007). Examining mediators of the link between generativity and well-being. *Journal of Adult Development,* 14*,* 47-52. doi: 10.1007/s10804-007-9030-7

Isen, A. M., & Levin, P. F. (1972). Effect of feeling good on helping: Cookies and kindness. *Journal of Personality and Social Psychology*, 21, 384 –388.

Janoff-Bulman, R. (1992). *Shattered assumptions: Towards a new psychology of trauma*. New York: Free Press.

Jennings, B.M. (2008). Work stress and burnout among nurses: Role of the work environment and working conditions. In R.G. Hughes (Ed.), P*atient safety and quality: An evidence-based handbook for nurses.* Rockville, MD: Agency for Healthcare Research and Quality.

Kashdan, T. B., Biswas-Diener, R., & King, L. A. (2008). Reconsidering happiness: The costs of distinguishing between hedonics and eudaimonia. *Journal of Positive Psychology,* 3, 219-233. doi: 10.1080/17439760802303044

Kennelly, A., & Fantino, E. (2007). The sharing game: Fairness in resource allocation as a function of incentive, gender, and recipient types. *Judgment and Decision Making*, 2, 204–216. doi: 10.1901/jeab.2009.91-337

Kim, J., Kang, P., & Choi, I. (2014). Pleasure now, meaning later: Temporal dynamics between pleasure and meaning. *Journal of Experimental Social Psychology*, 55, 262-270. http://dx.doi.org/10.1016/j.jesp.2014.07.018 0022-1031

Kinnunen, S.P., & Windmann, S. (2013). Dual processing altruism. *Frontiers in Psychology*, 18, 193. doi: 10.3389/fpsyg.2013.00193

Kivetz, R., & Simonson, I. (2002). Earning the right to indulge: Effort as a determinant of customer preference. *Journal of Marketing Research*, 39, 155-170.

Kjell, O. N. E. (2011). Sustainable well-being: a potential synergy between sustainability and well-being research. *Review of General Psychology*, 15, 255–266. doi 10.1037/a0024603

Klein, N. (2016). Prosocial behaviour increases perceptions of meaning in life. *The Journal of Positive Psychology*, 12, 354-361. doi: 10.1080/17439760.2016.1209541

Knafo, A., & Solomon, I. (2010). Genetic and environmental influences on prosocial behavior. In M. Mikulincer, & P. R. Shaver, *Prosocial motives, emotions, and behavior: The better angels of our nature* (pp. 149–167). Washington, DC: American Psychological Association.

Koenig, H.G. (2007). Religion, spirituality and medicine in Australia: Research and clinical practice. *Medical Journal of Australia*, 186, S46.

Kogut, T., & Kogut, E. (2013). Exploring the relationship between adult attachment style and the identifiable victim effect in helping behaviour. *Journal of Experimental Social Psychology,* 49, 651-660. doi: 10.1016/j.jesp.2013.02.011

Kohlberg, L. (1984). *The Psychology of Moral Development: The Nature and Validity of Moral Stages (Essays on Moral Development, Volume 2)*. San Francisco: Harper & Row

Konrath, S. H. (2013). The power of philanthropy and volunteering. In F.A. Huppert & CL. Cooper (Eds.), *Interventions and Policies to Enhance Well-being: Well-being: A Complete Reference Guide*, Volume VI (pp. 387-424). John Wiley & Sons. doi: 10.1002/9781118539415.wbwell11

Kristjánsson, K. (2007). *Aristotle, Emotions, and Education*. Aldershot: Ashgate.

Kristjánsson, K. (2013). Ten myths about character, virtue and virtue education – plus three well-founded misgivings. *British Journal of Educational Studies*, 61, 3, 269-287. doi: 10.1080/00071005.2013.778386

Kryza-Lacombe, M. (2016). *Hedonia and eudaimonia: Associations with academic success, wellbeing, and neuropsychological functioning* (Master's thesis). *CUNY Academic Works. Retrieved from* http://academicworks.cuny.edu/cc_etds_theses/589

Kubovy, M. (1999). On the Pleasures of the Mind. In D. Kahneman, E.D. Diener & N. Schwarz (Eds.), Well-Being: *The Foundations of Hedonic Psychology*. New York: Sage Foundation.

Kunzmann, U., & Grühn, D. (2005). Age differences in emotional reactivity: The sample case of sadness. *Psychology and Aging*, 20, 47–59. doi: 10.1037/0882-7974.20.1.47

Lampridis, E., & Papastylianou, D. (2014). Prosocial behavioural tendencies and orientation towards individualism–collectivism of Greek young adults. *International Journal of Adolescence and Youth*. doi: 10.1080/02673843.2014.890114

Lang, P.J., & Bradley, M.M. (2013). Appetitive and defensive motivation: Goal-directed or goal-determined? *Emotion Review,* 5, 230-234. doi: 10.1177/1754073913477511

Leary, M.R. (1994). *Self-presentation: Impression management and interpersonal behaviour*. Dubuque, IA: Brown & Benchmark.

Liberman, N., & Trope, Y. (2008). The psychology of transcending the here and now. *Science,* 322*,* 1201–1205. doi:10.1126/science.1161958

Lyubomirsky, S., King, L., & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, 131, 803-855. doi: 10.1037/0033-2909.131.6.803

Lyubomirsky, S., & Lepper, H. S. (1999). A measure of subjective happiness: Preliminary reliability and construct validation. *Social Indicators Research*, 46, 137–155.

Lyubomirsky, S., Tkach, C., & Sheldon, K. M. (2004). [Pursuing sustained happiness through random acts of kindness and counting one's blessings: Tests of two six-week interventions]. Unpublished raw data.

Machell, K.A., Kashdan, T.B., Short, J.L., & Nezlek, J.B. (2015). Relationships between meaning in life, social and achievement events, and positive and negative affect in daily life. *Journal of Personality*, 83, 287-298. doi:10.1111/jopy.12103

Mazar, N., Amir, O.N., & Ariely, D. (*2008*). The dishonesty of honest people: A theory of self-concept maintenance. *Journal of Marketing Research*, 45, 633-644. doi: http://dx.doi.org/10.1509/jmkr.45.6.633

McGregor, I., Haji, R., & Kang, S.-J. (2008). Can ingroup affirmation relieve outgroup derogation? *Journal of Experimental Social Psychology*, 44, 1395-1401.

McMahan, E.A., & Estes, D. (2011). Hedonic versus eudaimonic conceptions of well-being: Evidence of differential associations with self-reported well-being. *Social Indicators Research*, 103, 93-108. doi: 10.1007/s11205-010-9698-0

McMahan, E.A., & Renken, M.D. (2011). Eudaimonic conceptions of well-being, meaning in life, and self-reported well-being: Initial test of a mediational model. *Personality and Individual Differences*, 51, 589-594. doi: 10.1016/j.paid.2011.05.020

Mehrabian, A., Young, A. L., & Sato, S. (1988). Emotional empathy and associated individual differences. *Current Psychology: Research & Reviews*, 7, 221-240. doi:10.1007/BF02686670

Milkman, H., & Sunderwirth, S. (2010). *Craving for ecstasy and natural highs*. Thousand Oaks: Sage Publications, Inc.

Neff, K.D. (2003). The development and validation of a scale to measure self-compassion. *Self and Identit*y, 2, 223-250. doi: 10.1080/15298860390209035

Nelson, S. K., Layous, K., Cole, S.W., & Lyubomirsky, S. (2016). Do unto others or treat yourself? The effects of prosocial and self-focused behavior on psychological flourishing. *Emotion*, 16 850-861. doi:10.1037/emo0000178

O'Donnell, M.B., Shim, Y., Barenz, J.D., & Steger, M.F. (2014). Revisiting the Meaning in Life Questionnaire Part 1: Psychometrics, health and special populations. *International Forum for Logotherapy,* 37, 96-105.

Oishi, S., Diener, E., Suh, E., & Lucas, R.E. (1999). Value as a moderator in subjective wellbeing. *Journal of Personality*, 67, 157–84. doi: 10.1111/1467-6494.00051

Oishi, S., Schimmack, U., & Diener, E. (2001). Pleasures and subjective well-being. *European Journal of Personality*. 15, 153–167. doi: 10.1002/per.406

Passmore, H.-A., & Holder. M. D. (2016). Noticing nature: Individual and social benefits of a two-week intervention. *Journal of Positive Psychology*. Advance online publication. doi:10.1080/17439760.2016.1221126

Peterson, C., Park, N., & Seligman, M. E. P. (2005). Orientations to happiness and life satisfaction: The full life versus the empty life. *Journal of Happiness Studies*, 6, 25-41. doi:10.1007/s10902-004-1278-z

Piedmont, R.L., Ciarrochi, J.W., Dy-Liacco, G.S., & Williams, J.E.G. (2009). The empirical and conceptual value of the spiritual transcendence and religious involvement scales for personality research. *Psychology of Religion and Spirituality,* 1, 162-179. doi:10.1037/a0015883

Piliavin, J.A. (2010). Volunteering across the lifespan: Doing well by doing good. In S. Stürmer & M. Snyder (Eds.), *The psychology of prosocial behaviour: Group processes, intergroup relations and helping* (pp. 157-172). Oxford, Englad: Wiley-Blackwell.

Pinquart, M., & Sörensen, S. (2003). Associations of stressors and uplifts of caregiving with caregiver burden and ¨ depressive mood: a meta-analysis. *The Journals of Gerontology: Series B Psychological Sciences and Social Sciences*, 58, P112–28.

Podlogar, T., & Bajec, B. (2011). The connection of time perspective with personality traits and subjective well-being. *Horizons of Psychology*, 20, 43-62.

Pollock, N. C., Noser, A. E., Holden, C. J., & Zeigler-Hill, V. (2015). Do orientations to happiness mediate the associations between personality traits and subjective well-being? *Journal of Happiness Stud*ies. 17, 713–729. doi: 10.1007/s10902-015-9617-9

Pratt, M. W., & Lawford, H. L. (2014). Early generativity and types of civic engagement in adolescence and emerging adulthood. In L. M. Padilla-Walker & G. Carlo (Eds.) *Prosocial Development: A Multidimensional Approach* (pp. 410-432). New York, NY: Oxford University Press.

Qureshi, A., Apperly, I. A., & Samson, D. (2010). Executive function is necessary for perspective-selection, not Level-1 visual perspective-calculation: Evidence from a dual-task study of adults. *Cognition*, 117, 230–236. doi: 10.1016/j.cognition.2010.08.003

Rushby, J. A., Barry, R. J., & Doherty, R. (2005). Separation of the components of the late positive complex in an ERP dishabituation paradigm. *Clinical Neurophysiology*, 116, 2363-2380. doi:10.1016/j.clinph.2005.06.008

Schmutte, P.S., & Ryff, C.D. (1997). Personality and well-being: Reexamining methods and meanings, *Journal of Personality and Social Psychology* 73, 549–559.

Schulz, R., & Sherwood, P.R. (2008). Physical and Mental Health Effects of Family Caregiving. *The American Journal of Nursing,* 108, 23-27. doi: 10.1097/01.NAJ.0000336406.45248.4c

Schwartz, C.E., & Sendor, M. (1999). Helping others helps oneself: response shift effects in peer support. *Social Science and Medicine*, 48, 1563-1575.

Seligman, M.E.P. (2002). *Authentic happiness: Using the new positive psychology to realize your potential for lasting fulfillment*. New York, NY: Free Press.

Seligman, M. E. P., Railton, P., Baumeister, R. F., & Sripada, C. (2013). Navigating into the future or driven by the past. *Perspectives on Psychological Science*, 8, 119-141. doi: 10.1177/1745691612474317

Sheldon, K.M., & Vansteenkiste, M. (2005). Personal goals and time travel: How are future places visited, and is it worth it? In A. Strathman, & J. Joireman (Eds.), *Understanding behaviour in the context of time: Theory, research, and application* (pp. 143-163). Mahwah, NJ: Lawrence Erlbaum Associates Publishers.

Singh, K., Bassi, M., Junnarkar, M., & Negri, L. (2015). Mental health and psychosocial functioning in adolescence: an investigation among Indian students from Delhi. *Journal of Adolescence*, 39, 59-69. doi: 10.1016/j.adolescence.2014.12.008.

Sirgy, M. J., & Wu, J. (2009). The pleasant life, the engaged life, and the meaningful life: What about the balanced Life? *Journal of Happiness Studies*, 10, 183-196. Retrieved from http://dx.doi.org/10.1007/s10902-007-9074-1

Slote, M. (1993). Virtue ethics and democratic values. *Journal of Social Philosophy*, 14, 5-37.

Small, D. A., Loewenstein, G., & Slovic, P. (2007). Sympathy and callousness: The impact of deliberative thought on donations to identifiable and statistical victims. *Organizational Behaviour and Human Decision Processes*, 102, 143–153. doi: 10.1016/j.obhdp.2006.01.005

Sommer, K.L., Baumeister, R.F., & Stillman, T.F. (2012). The construction of meaning from life events: empirical studies of personal narratives. In P.P. Wong (Ed.), *The human quest for meaning: theories, research, and applications* (2nd edition, pp. 297–313). New York, NY: Routledge/Taylor & Francis Group.

Son, J., & Wilson, J. (2012). Volunteer Work and Hedonic, Eudemonic, and Social Well-Being. *Sociological Forum*, 27, 658-681. doi: 10.1111/j.1573-7861.2012.01340.x

Soosai, N.L., & Delle Fave, A. (2014). The altruism spiral: An integrated model for a harmonious future. In Marujo, A. & L.M. Neto (Eds.), *Positive nations and communities: Collective, qualitative and cultural-sensitive processes in positive psychology* (pp. 35-64). New York, NY: Springer Science and Business Media.

Stavrova, O., & Luhmann, M. (2016). Social connectedness as a source and consequence of meaning in life. *The Journal of Positive Psychology*, 11, 470–479. doi: 10.1080/17439760.2015.1117127

Steger, M.F. (2016). Hedonia, eudaimonia and meaning: Me versus us: Fleeting versus enduring. In Vittersø (Ed.), *Handbook of eudaimonic well-being, international handbooks of quality of life*, (pp. 175-182). Switzerland: Springer International Publishing.

Steger, M.F., & Kashdan, T.B. (2013). The unbearable of meaning: Well-being and unstable meaning in life. *The Journal of Positive Psychology*, 8, 103-115. doi: 10.1080/17439760.2013.771208

Steger, M.F., Kashdan, T.B., & Oishi, S. (2008). Being good by doing good: Daily eudaimonic activity and well-being. *Journal of Research in Personality*, 42, 22-42. doi:10.1016/j.jrp.2007.03.004

Steger, M. F., & Shin, J Y. (2012). Happiness and meaning in a technological age: A psychological approach. In P. Brey, A. Briggle, & E. Spence (Eds.), *The good life in a technological age* (pp. 92-108). New York: Routledge.

Thompson, K.L., & Gullone, E. (2003). Promotion of empathy and prosocial behaviour in children through humane education. *Australian Psychologist*, 38, 175-182. doi: 10.1080/00050060310001707187

Trope, Y., & Liberman, N. (2003). Temporal construal. *Psychological Review,* 110, 403–421. doi: 10.1037/0033-295X.110.3.403

Tsai, J.L., Knutson, B., & Fung, H.H. (2006). Cultural variation in affect valuation. *Journal of Personality and Social Psychology,* 90, 288-307. doi: 10.1037/0022-3514.90.2.288

Twenge, J. M., Campbell, W. K., & Freeman, E. C. (2012). Generational differences in young adults' life goals, concern for others, and civic orientation, 1966–2009. *Journal of Personality and Social Psychology,* 102*,* 1045–1062. doi:10.1037/a0027408

Vallacher, R.R., & Wegner, D.M. (1987). What do people think they're doing? Action identification and human behaviour. *Psychological Review,* 94, 3-15.

Van Lange, P. A. M. (1999). The pursuit of joint outcomes and equality in outcomes: An integrative model of social value orientation. *Journal of Personality and Social Psychology*, 77, 337–349.

Van Tongeren, D.R., Green, J.D., Davis, D.E., Hook, J.N., & Hulsey, T.L. (2015). Prosociality enhances meaning in life. *The Journal of Positive Psychology*, 11, 225-236. doi: 10.1080/17439760.2015.1048814

Vecina. M., & Fernando, C. (2013). Volunteering and well-being: is pleasure-based rather than pressure-based prosocial motivation that which is related to positive effects? *Journal of Applied Social Psychology*, 43, 870-878. doi: 10.1111/jasp.12012

Waterman, A.S. (2011). Eudaimonic identity theory: Identity as self-discovery. In S.J. Schwartz, K. Luyckx, & V.L. Vignoles (Eds.), *Handbook of Identity Theory and Research (Vols 1 and 2)*. New York, NY: Springer Science and Business Media.

Webster, J.D. (2011). A new measure of time perspective: Initial psychometric findings for the balanced time perspective scale (BTPS). *Canadian Journal of Behavioural Science*, 43, 111-118. doi: 10.1037/a0022801

Wong, P.T.P. (2012). Toward a dual-systems model of what makes a life worth living. In P.T.P, Wong (Ed.), *The Human Quest for Meaning* (3-23). New York, NY: Taylor & Francis Group.

Zarins, S., & Konrath, S. H. (in press). Changes over time in compassion-related variables in the United States. *Handbook of Compassion Science.* Oxford University Press.

Zhang, J.W., Howell, R.T., & Stolarski, M. (2003). Comparing three methods to measure a balanced time perspective: The relationship between a balanced time perspective and subjective well-being. *Journal of Happiness Studies*, 14, 169-184. doi: 10.1007/s10902-012-9322-x

Zhao, K., Ferguson, E., & Smillie, L.D. (2016). Individual differences in good manners rather than compassion predict fair allocations of wealth in the dictator game. *Journal of Personality*, 85, 244-256. doi**:** 10.1111/jopy.12237

Zimbardo, P. G., & Boyd, J. N. (1999). Putting time in perspective: A valid, reliable individual-differences metric. *Journal of Personality and Social Psychology*, *77*, 1271-1288.

Zin, G., Escobal, G., Esteves, G., & Goyos, C. (2015). Sharing Game: Influence of gender, cost of response, history of reinforcement, and amount of money in the resource distribution of undergraduate students. *Behaviour Analysis: Research and Practice*, 15, 65-80. doi: 10.1037/h0101071