

Examining the relationship between workplace rewards and the quality of motivational experience; a Self-Determination Theory perspective

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Declaration of authorship

I, Rebecca Hewett, hereby declare that this thesis and the work presented in it is entirely my own. Where I have consulted the work of others, this is always clearly stated.

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Abstract

The relationship between reward and motivation is one of the most fundamental questions in organisational research. Self-determination theory (SDT) acknowledges that performance-contingent rewards are motivational but suggests that these highly contingent rewards undermine better quality (autonomous) motivation because they thwart the satisfaction of individuals' basic psychological needs. Through three field-based empirical studies, these theoretical assumptions were tested. The first, a qualitative interview study, supported the distinction between different motivation types and found that more autonomous motivation related to a more positive emotional experience. The second and third studies addressed the primary aim of the thesis; to test SDT's theory about the reward–motivation relationship.

The second study was a longitudinal survey across two years which incorporated objective reward data. This focused on the relationship between merit pay and bonus level, and work motivation. This study found that high bonuses did not undermine autonomous motivation but did predict increased external motivation. The implication of this is that external motivation, in turn, predicted poorer subjective wellbeing. SDT hypothesises that reward undermines autonomous motivation to the extent that rewards thwart satisfaction of individuals' basic psychological needs. In fact, there was a positive indirect effect between high bonus and autonomous motivation through need satisfaction, therefore contradicting the theory.

The third study employed a daily diary method focusing on informal, everyday rewards. This tested the theory that the controlling nature of reward is explained by the extent to which it is perceived to be salient whilst performing the task. Reward salience did predict more controlled forms of motivation although, again, did not undermine autonomous motivation. This is the first time that this theory has been explicitly tested in the field and was particularly novel in that it focused on everyday task motivation. Contributions and implications are discussed.

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Chapter 1: Introduction to thesis

1.1. Introduction

The relationship between reward and motivation is one of the most enduring debates in organisational research. This is complicated by the fact that there is no universally accepted definition of motivation and that workplace reward practices are varied and complex. This thesis aims to shed new light on this controversial subject by examining both formal and informal workplace rewards and qualitative differences in motivational experience. It further aims to test Self-Determination Theory as a theory for understanding the full range of motivated behaviour at work.

This chapter provides an introduction to this dissertation. It begins with an overview of the aims of the thesis. The theoretical grounding for these is then considered as well as the contributions made by this research. This chapter finishes with an overview of the remaining chapters in the dissertation.

1.2. Aims

There are three aims of this thesis:

The primary aim is to examine the relationship between workplace reward practices and motivation as defined by Self-Determination Theory (SDT), taking into account the context in which rewards are administered. Rewards are considered both in relation to formal rewards given for individual job performance (in this case merit pay increases and bonuses) but also informal, psychological rewards which are given or expected in

relation to specific tasks in the working day. By doing so, I aim to add clarity to some of the disagreements from previous empirical research by identifying the conditions under which rewards can have positive motivational outcomes in the work environment.

Secondly, this research aims to examine the affective experience of different types of motivation as well as the associated behavioural outcomes. Each of the five motivation types as defined by SDT is examined in relation to subjective wellbeing, engagement and performance, both at the general attitudinal level towards the job, but also as they relation to specific experiences within the working day. This aim has important academic and practical implications for understanding more about the impact of different forms of motivation on desirable outcomes at work.

The final aim of this research is to reflect on the value of SDT as a theory of workplace motivation, and explore the nature of the motivation types defined by SDT. Based on reflections from the first two aims, the different antecedents and outcomes of motivation are examined to evaluate the extent to which the differentiation of motivation proposed by SDT provides useful insight into human behaviour at work. I also examine the relationship between the motivational types and reflect on the methods used to measure motivation as defined by SDT.

1.3. Background and contributions

This research tackles one of the most pervasive disagreements in organisational research; the relationship between rewards and motivation. In this section I set out the

background and rationale for the research and then introduce the theoretical and practical contributions.

Motivation research is diverse and complex and there is no universal theory to explain motivated behaviour (Locke & Latham, 2004; Miner, 2005). Most dominant theories of motivation treat the motivational force as singular and focus on the quantitative amount of motivation. In addition, much research has tended to measure the level of motivation through behavioural outcomes, particularly increased effort or performance, leading to the criticism that this is motivation research through the “back door” (Ambrose & Kulik, 1999). The particular value of SDT for organisational research is that it offers a differentiated model of motivation which proposes that there are different types of motivation. These motivation types are set out on a continuum from autonomous to controlled, according to the perceived locus of causality for motivated behaviour. More autonomous motivation (internal locus of causality) is seen as better quality motivation than more controlled motivation (external locus of causality) because it represents a more natural motivational state and is therefore conducive to optimal functioning (Deci & Ryan, 1985a). The theory provides a framework to understand the antecedents of these different types of motivation in relation to workplace practices and the behavioural and psychological outcomes of these. Despite this, and significant interest in the theory from both practitioners (e.g. Pink, 2010) and organisational psychologists (e.g. Gagné & Deci, 2005), SDT research is still relatively scarce in organisational research. This is mainly due to questions of generalisability of previous empirical studies, which have been primarily lab based and with non-working populations (Rynes, Gerhart, & Parks, 2005).

Rewards are an essential component of employment relationships. Organisations spend significant money, time and effort on designing strategies for rewarding employees to motivate employees (CIPD, 2011; R. Heneman, Wang, & Fay, 2001) but there continues to be considerable disagreement about what impact rewards, and particularly performance-related rewards, actually do have on motivated behaviour. Within psychological research and management practice, two broad camps have formed; those who believe that rewards to have overall positive outcomes for motivation and performance (e.g. Eisenberger, Rhoades, & Cameron, 1999; Latham & Locke, 2007; Rynes et al., 2005) and those who warn against potential negative consequences of some forms of reward practice (e.g. Deci, Koestner, & Ryan, 1999a; Kohn, 1993; Lepper & Greene, 1979; Pfeffer, 1998). Much of the debate surrounds the nature of motivation. As discussed above, most motivation research considers performance or effort as a manifestation of motivation at work (e.g. Gerhart, Rynes, & Fulmer, 2009; Locke, 1993) and contingent rewards are seen to reinforce motivation as increased effort. On the other side of the argument, which includes SDT, is research which recognises qualitative differences in motivation. This body of research does not dispute that reward is motivational, but rather that motivation which is focused on the reward outcome, rather than the task itself, is related to less positive and more negative outcomes, in particular with respect to wellbeing (Gagné & Deci, 2005; Lepper & Greene, 1979).

The basis of the relationship between rewards and motivation as theorised by SDT is grounded in psychology, and particularly education, health, sport and experimental psychology. Research from these fields has not transferred well to an organisational setting and has been criticised for not recognising the complexities of workplace

rewards (Gagné & Forest, 2008). The very limited amount of research that has examined the relationship between workplace rewards and motivation as proposed by SDT in the field has only considered the simple distinction between intrinsic motivation (driven by the task itself) or extrinsic motivation (driven by outcomes external to the task) (e.g. Fang & Gerhart, 2012; Kuvaas, 2006b). We do not, therefore, understand how workplace rewards relate to the full range of motivational experience proposed by SDT, which has been found to have different behavioural and psychological outcomes in other life domains (e.g. Koestner, Losier, Vallerand, & Carducci, 1996; Koestner & Losier, 2002).

This research makes several important contributions to theory, method and practice. With respect to theory, this thesis contributes to the field of reward–motivation research in several ways. It builds on previous empirical research which has found that different aspects of financial rewards have different motivational outcomes (Kuvaas, 2006b). To do this it examines two common forms of individual performance-related financial reward; merit pay and bonus levels (Gerhart et al., 2009; R. Heneman, 2000). It also acknowledges that the reward–motivation process does not operate in isolation from the job or task context by examining the moderating role of job and task characteristics (Johns, 2006).

In addition to examining these financial rewards, this thesis also recognises that, on a day-to-day basis, rewards can be informal and psychological in nature (e.g. expected verbal recognition). With respect to these psychological rewards, I apply an underdeveloped concept from social psychology that the perceived salience of rewards impacts on causal attribution (Ross, 1975), and therefore the resulting focus of

motivation. In doing so I propose that this is a way of understanding the motivational impact of rewards regardless of the form that they take. This is therefore an important contribution to future research on reward perceptions.

In relation to motivation; where most reward–motivation studies focus on the behavioural manifestations of motivation in the form of effort or performance (Ambrose & Kulik, 1999), this thesis utilises SDT to examine qualitative differences in motivation. This is important because these are likely to have differing relationships with reward antecedents and psychological and behavioural outcomes (Gagné & Deci, 2005). In applying SDT as the theoretical basis for this thesis I also test some basic assumptions of the theory. In particular, this research examines the antecedents and the outcomes of the motivation types proposed by SDT. In doing so, it attempts to overcome some of the ambiguities surrounding the motivation types by building up a picture of the context in which each type is likely to thrive, and how it relates to experience. This therefore contributes to future research utilising SDT to understand organisational behaviour.

The final theoretical contribution relates to the level at which motivation is examined. This thesis examines motivation both as a general attitude towards work, and also motivation to perform specific activities within the working day, thereby linking motivation as it is traditionally tested in the lab (task-focused) and in the field (attitudinal). Outside of the extensive body of research on Flow (Csikszentmihalyi & Csikszentmihalyi, 1992) there has been little research which has tried to understand everyday work motivation in the field. This is arguably a gap in the field of motivation research (Weiss & Rupp, 2011) which would benefit from being filled to expand our understanding of the nature of motivational experience.

The thesis also makes several important methodological contributions through the mixed methods approach applied here (see chapter 4). Firstly, financial rewards are measured with data from organisational records thereby improving the validity of the results and reducing the common method bias inherent in many reward studies which rely on self-reports. Secondly, although daily diary studies are an increasingly popular method of examining workplace experiences, there has been very little research utilising this method to examine a range of motivated behaviour in the working day (Weiss & Rupp, 2011) and none that I am aware of which has examined the motivational impact of day-to-day rewards in the workplace. Finally, it applies the qualitative methods used in the development of the theory of Flow theory (Csikszentmihalyi, 1975) to develop a richer picture of the experience of each of the motivation types proposed by SDT.

Finally, with respect to the practical implications of this research; the reward–motivation relationship continues to be of great interest to management practitioners and the theory set out by SDT has received particular attention (e.g. Pink, 2010). However, the theoretical assumptions have not been fully tested in the work environment so this research aims to fill that concerning gap. The findings from this study, about the relationship between reward and motivation and the context in which this is given, will therefore have potentially important implications for how organisations approach reward. Importantly, this is not just with respect to formal reward strategies but also how best to manage the day-to-day, informal rewards inherent to the work environment.

1.4. Chapter structure

Chapter 2 examines the extant literature that has contributed, theoretically and empirically, towards understanding the relationship between reward and motivation. It begins by considering the nature of work motivation, and then focuses on a review of dominant work motivation theories (behaviourist theories, needs theories, goal-setting and expectancy). It focuses in particular on how these different perspectives explain the link between reward and motivation. The second half of the chapter reviews theories and evidence that have suggested an 'undermining' effect of reward on more intrinsic or autonomous motivation. This leads into the next chapter which focuses on SDT, which is the most dominant theory that implicates this 'undermining' effect.

Chapter 3 provides a detailed overview of SDT. I outline the differentiated model of motivation as proposed by SDT, including definitions and empirical support. The behavioural and psychological outcomes of the different motivation types are then considered. This chapter also outlines basic needs theory, a sub-theory of SDT which proposes that individuals have three basic psychological needs which need to be satisfied by their environment if they are to thrive. These needs are theorised to explain the relationship between context and motivation. I then review research which has focused on the reward–motivation relationship from an SDT perspective. The chapter finishes by reflecting on some of the criticisms of the theory and issues which need to be examined empirically.

In **chapter 4** I set out the theoretical framework guiding this thesis. I begin by reflecting on the issues highlighted in the literature review which this thesis will address. I then

outline the research questions which are the focus of this thesis. I finish by introducing the following three empirical studies and consider the nature of mixed methods research.

In the first empirical chapter (**chapter 5**), I report on a qualitative interview study examining the nature of motivation as proposed by SDT. This pilot study aimed to examine whether employees distinguish between the different forms of motivation as proposed by SDT, and to characterise some of their features. Interviews focused on critical incidents of motivated behaviour to try to understand how the different motivation types are experienced in relation to work. In conclusion it reflects on the role of time and values in motivation, which shaped the later survey and diary studies.

Chapter 6 presents a longitudinal survey examining the relationship between two common forms of formal workplace rewards (merit pay level and bonus level) and work motivation at the general attitudinal level. The moderating role of job characteristics and managerial behaviours is considered in relation to the reward–motivation relationship. The different motivation types as proposed by SDT are also explored in relation to their behavioural and psychological outcomes (e.g. wellbeing, engagement and performance). This study considers between-person attitudinal motivation, rather than in relation to specific work behaviours which are considered in the next chapter.

Chapter 7 reports a quantitative diary study, which examines the salience of informal psychological rewards and motivation at work on a day-to-day basis. This builds on findings from the longitudinal survey and some previous experimental research, by examining the extent to which the salience (expectation, conspicuousness and

proximity) of rewards relates to more autonomous or more controlled motivation. In addition, where the longitudinal survey examines the impact of formal workplace rewards on motivation at an attitudinal level, this diary study examines the impact of the salience of day-to-day rewards, often much more informal, as they relate to everyday motivation focused on specific tasks. Once again, it considers the context of the reward, but this time in relation to specific tasks rather than the broader job. Adding to the findings of the survey, the study examines the relationship between different types of motivation and outcomes. The survey and diary studies taken together aim to build up a picture of motivational experience and rewards at two levels; towards work in general, and focused on specific activities.

Finally, **chapter 8** draws together the findings of the literature review and empirical studies to address the three aims of the thesis. It also discusses limitations of the research and suggestions for future research.

1.5. Summary

In this chapter, I have set out the aims of this dissertation, which are; firstly, to examine the relationship between workplace rewards and different types of motivation; secondly, to explore the behavioural and psychological outcomes of these different types of motivation and; finally, to reflect on SDT as a theory of work motivation. I also provided an introduction to the theoretical grounding of this thesis, including the contributions that it makes to research. The chapter finished with an overview of the seven remaining chapters in this dissertation, including the three empirical studies.

Chapter 2: Reward and motivation

2.1. Introduction

In line with the first aim of this research, to examine the relationship between reward and motivation at work, this chapter provides a review of existing research on this relationship. It is important to understand the complex landscape of reward–motivation theories to understand why further research is needed and specifically what SDT can offer to this.

The chapter begins with short sections on the nature of motivation and the nature of reward by way of an introduction to this body of research. I then consider the dominant theories of motivation and how they approach the question of reward. Theories about workplace reward and motivation are diverse but can broadly be placed into two groups by which this chapter is structured. The first group advocates the use of extrinsic rewards, particularly those contingent on achieving a certain level of performance, to incentivise desirable behaviours to enhance performance. These theories primarily treat motivation as a unitary concept conceptualised as effort or performance. The second group suggests that motivation should be differentiated according to its quality where better quality motivation is focused on interest, enjoyment or value of the task (intrinsic or autonomous motivation) and poorer quality motivation is focused on external outcomes, such as attaining reward or avoiding ‘punishment’ (extrinsic or controlled motivation). This second group suggests that externally controlled rewards can ‘undermine’ better quality motivation which then has

detrimental effects for optimal functioning. In other words, that some forms of reward might increase the amount of motivation this may be poorer quality (extrinsic) motivation. This review then leads on to chapter 3, which provides a theoretical overview of SDT, which is the dominant ‘undermining’ theory in applied psychology today.

2.2. The nature of motivation

Before considering specific theories, it is important to note several things about the nature of work motivation. Firstly, there is no universally accepted theory of motivation (Pinder, 1998). Secondly, work motivation theories sit within a number of different disciplines, including; social psychology, organisational behaviour, management theory, sociology, clinical psychology and economics (Kanfer, Chen, & Pritchard, 2008; Miner, 2005). As such, there are many definitions of motivation within the managerial and psychological literature. For example, work motivation can be seen as a “psychological process that influences how personal effort and resources are allocated to actions pertaining to work” (Kanfer et al., 2008, p. 5), “behaviour that is under central or voluntary control” (Lawler, 1973, pp. 2–3) or a term to describe “what energizes action; how action is directed; and to what extent action is under voluntary control” (Vroom & Deci, 1992, p. 9). This sample of definitions makes it clear that there is no agreement even about whether motivation is a process or behavioural outcome. In relation to this question, it seems sensible to suggest that the *process of motivation* (as in Kanfer and Vroom & Deci’s definitions) and *motivated outcome* (as Lawler describes it) are different concepts. The process of motivation describes how individuals interact with internal

and external stimuli which result in purposeful behaviour. Motivated outcomes are the observable results of this (e.g. effort, performance, productivity), which are associated with other behavioural and psychological outcomes (affective experience, satisfaction, engagement, performance etc.).

Following a review of different definitions, I adopt the following definition of work motivation:

“Work motivation is a set of energetic forces that originate both within as well as beyond an individual’s being, to initiate work-related behaviour, and to determine its form, direction, intensity, and duration” (Pinder, 1998, p. 11)

This definition recognises that motivation involves multiple forces, the locus of which can be internal or external to the individual. It also establishes motivation as the force behind behaviour, not the work-related behaviour itself (so is not the same as performance). Finally, it establishes that motivation can lead to behaviour which can be diverse in its “form, direction, intensity and duration”. In order to fully understand the relationship between motivation and behaviour it is therefore necessary to understand the different forms that motivation can take. This definition therefore shapes my interpretation of the motivation field, and has influenced the decision to adopt SDT as the central theory of this thesis because it recognises that motivation has multiple foci.

In the next chapter I set out SDT’s differential model of motivation but for the purposes of this chapter it is important to understand the distinction between intrinsic and extrinsic motivation as this is discussed with respect to many motivation theories.

Intrinsic motivation refers to motivation in the absence of external contingencies, and

the force thereby originates from the task itself. Extrinsic motivation, on the other hand, is driven by forces external to the task which form some kind of external contingency (Deci & Ryan, 1985a; Deci, 1971).

2.3. The nature of rewards

On the other side of the reward–motivation relationship the nature of rewards, particularly workplace rewards, is complex. In the broadest terms, rewards can be defined as “extrinsic forms of reinforcement such as money, prizes, desirable activities or outcomes, praise, or recognition” (Byron & Khazanchi, 2012, p. 810). As such, they can be tangible, financial rewards as one would typically expect in a work environment, but also informal, psychological rewards (De Gieter et al., 2006). There are also different internal characteristics such as the magnitude of the reward, the type of contingency associated with the reward, who it is administered by, whether it is expected and individual’s perceptions of fairness or satisfaction associated with the reward to name a few (e.g. Deci et al., 1999a; Greenberg, 1987; H. Heneman & Schwab, 1985).

This complexity is particularly significant for reward–motivation research because, as will be evident throughout this chapter, there have been contradictory findings with respect to reward and motivation and this is, in part, because empirical research is not always precise about the nature of the reward being studied. This is particularly true of experimental research, where the rewards tested do not always obviously translate to the field (Rynes et al., 2005). This, therefore, highlights the importance of field-based research in order to examine the reward–motivation link in the work environment.

Where financial or other formal rewards are of interest, objective reward data also adds

precision to understanding this relationship. In chapter four I outline the specific nature of the rewards examined in the empirical studies within this thesis.

2.4. Work motivation theories which advocate the use of external rewards to enhance overall motivation

“For as long as organizations have existed, rewards have been recognized as a major motivator of employees as well as an important tool and expense for organizations”

(Werner & Ward, 2004, p. 201)

This view, that rewards are motivational, is largely undisputed within organisational psychology/behaviour but there are many theoretical perspectives on the nature of the relationship. In this section, I will review some of the dominant theories of work motivation and their conclusions about the impact of reward on motivation. Firstly, I will consider the behaviourist theories which see reward as an important reinforcer of behaviour. Second, I briefly consider needs based theories of work motivation. I then will look at the two prominent theories of work motivation; goal-setting theory and expectancy theory to explore their take on the reward–motivation relationship.

2.4.1. Behaviourist theories

This section will consider the influence of behaviourism on the study of reward and motivation. I will begin by briefly considering some of the origins and influences of behaviourism before moving to the current research on reward and motivation in the field, known as *learned industriousness*.

Central to behaviourist theories is the view that behaviour is strengthened by the presence of desired outcomes such as instrumental reward. Eisenberger and Cameron (1996) sum up this view: “Most behaviorists believe that properly applied reward can help fulfil human potentialities without having detrimental effects on intrinsic task interest.” (p. 1156).

Probably the most notable psychologist in the field of behaviourism is B.F. Skinner (1963), who pioneered a form of radical behaviourism which focused on the role of reinforcement. At the basic level, the theory proposes that behaviour persists when it is reinforced; an individual performs a task and if this is reinforced, by the receipt of a desired outcome (i.e. reward) or the avoidance of an undesired one (i.e. punishment), their motivation to perform the task will increase. The required performance level can be increased as long as the value of the reward is increased. In Skinner’s form of behaviourism, the process is seen as mechanistic and additional cognition plays no part. Although this radical form of behaviourism now finds little support, primarily because it treats humans as entirely rational beings, B.F. Skinner is recognised as one of the most influential psychologists of the 20th century (Haggblom et al., 2002).

Although not strictly a behaviourist theory, Frederick Taylor’s (1913) *Scientific Management*, shares the same principles and has been hugely influential in management and organisational studies so is important to mention here. Taylor states that workers will only put in additional effort if they believe that it will lead to additional financial reward and proposed that output should be linked to remuneration to increase productivity. As Lawler (1973) points out, this is in line with the concept of “economic man” from the turn of the 20th century which assumes that people will make a

judgement as to how they can obtain the greatest financial reward for the smallest effort. Although the theory was largely ignored after the 1930s, with the introduction of a more welfare-based approach to people management, performance monitoring and the origins of performance-related reward are often linked to Scientific Management (or “Taylorism”) (e.g. Bain, Watson, Mulvey, Taylor, & Gall, 2002).

Focusing now on current research in behaviourist psychology, the most notable theory relevant to the reward–motivation link is known as *learned industriousness*. Learned industrious theory (Eisenberger & Cameron, 1996) sees effort as a negatively experienced condition brought about by continued performance of a task. The theory proposes that individuals will learn to perform tasks better with repetition and therefore reduce the aversiveness of the effort required to perform the task. When the low effort is rewarded this is combined with the reward of having to expend less effort in itself and the low effort tasks then become preferred over high effort tasks. These researchers therefore argue that high effort tasks should be rewarded because this encourages performance and learning of these tasks.

Research carried out by Eisenberger and Selbst (1994) examined the relationship between reward and creativity (which is important in the context of this research because it can be seen as a positive outcome of motivation). These researchers suggest that it is important to understand what is being rewarded and how salient the reward is. They propose that rewarding tasks which involve highly divergent thinking (in the form of creativity) will reinforce the importance of these tasks and therefore enhance performance. In contrast, rewarding only non-creative tasks will reduce the perceived

value of creative tasks which would result in a reduction in performance (Eisenberger and Cameron, 1996).

Eisenberger, Cameron and colleagues (Eisenberger & Cameron, 1996, 1998; Eisenberger & Selbst, 1994) propose that any detrimental effects of reward on continued persistence on a task (which is often used as a proxy for intrinsic motivation, and the basis of the 'undermining' theories) could be down to satiation, which involves a temporary decline in performance after completing a task for a period of time. They also use learned helplessness theory to explain why rewards given contingent only on task completion, not on task performance (in other words, getting the task done rather than completing it to a specified performance level), mean that individuals feel that they have no control over the reward (Eisenberger and Cameron, 1996).

2.4.2. Needs theories

A number of theories postulate that needs form the basic motivating force for human behaviour, including those by Murray (2007/1938), McClelland (1987), and White (1959). Two of the most influential needs theories with respect to practitioner perceptions of reward and motivation are Maslow's (1943) 'hierarchy of needs' and Herzberg's (1968) 'two-factor theory'. Both of these theories broadly suggest that rewards satisfy lower order, hygiene needs and therefore motivate only as a basic survival function. Although they remain popular with practitioners they have found little empirical support and have been subject to criticism as a result (e.g. Hofstede, 1984; Pinder, 1998; Wahba & Bridwell, 1976) so will not be reviewed in detail here.

Far more influential for researchers, though, has been McClelland's (1987) theory which suggests that people have three needs (or motives); for achievement, power and affiliation, which individuals possess in varying degrees. The strength of these motives then drives individual's behaviour. An important stream of research with respect to McClelland's work concerns the role of implicit motives. Whereas explicit motives are conscious attributions for behaviour, implicit motives are subconscious and aroused by situational cues, affective reactions or behavioural tendencies (Kehr, 2004). Importantly explicit and implicit motives appear to relate to different processes or aspects of the person. McClelland and colleagues (McClelland, Koestner, & Weinberger, 1989) suggest that discrepancies between implicit and explicit motives therefore lead to intrapersonal conflict.

Extending this, Kehr (2004) proposes a compensatory model whereby individual's implicit motives, explicit motives and perceived abilities interact. When a task or activity is congruent with all three of these elements individuals are likely to experience intrinsic motivation or flow (Csikszentmihalyi, 1975). That is, a natural motivational state which is characterised by heightened concentration, a loss of self awareness and being fully immersed in an activity (Csikszentmihalyi, 1978). When the activity only arouses either implicit or explicit motives, volitional regulation is required. Volitional regulation refers to the active processing required to motivate behaviour when there are conflicting impulses; from explicit influence and implicit tendencies (Kehr, 2004). Additional problem solving is also required when the activity is not congruent with their perceived abilities. These actions (volitional regulation and problem solving) are methods for compensating for motive incongruence.

This research has important implications for the reward–motivation relationship because McClelland et al (1989) found that implicit motives drive behaviour for reasons intrinsic to the task whereas explicit, consciously attributed motives direct behaviour due to extrinsic incentives. This, alongside Kehr’s model would therefore suggest that extrinsic rewards can relate to positive motivational experience (intrinsic motivation or flow) if they are congruent with implicit motives. However, extrinsic rewards might lead to conflict if these are incongruous with implicit motives (Kehr, 2004). It is therefore not the extrinsic reward itself which is important but the extent to which it is congruent with implicit motives.

2.4.3. Goal-setting theory

Turning now to one of the most influential theories of work motivation: The central tenet of goal-setting theory is that goals which are specific and difficult will encourage more high performance than vague and/or ‘do your best’ goals (Locke & Latham, 1990). The theory further proposes that goals mediate the impact of various management interventions (including reward and performance feedback) on performance (Latham & Locke, 2007; Locke & Latham, 2002). This is through a ‘high performance cycle’ in which challenging, meaningful goals, which are linked to contingent rewards, result in greater satisfaction, performance and commitment (Locke & Latham, 1990). Although this theory has not been thoroughly tested (Latham & Locke, 2007), there does seem to be some empirical support for aspects of it (Bipp & Kleingeld, 2011), including the role of contingent reward (e.g. Selden & Brewer, 2000).

Goal-setting theory proposes that financial incentives connected to goal-completion encourage goal-acceptance and therefore performance (Latham & Yukl, 1975). This is illustrated by Locke (2004), who suggests four alternative methods for successfully combining goal setting with incentives. Firstly, setting stretch goals with a substantial bonus for success but no bonus if they are not successful. Second, that the goal includes incremental success layers (e.g. five) with bonuses at each level to recognise the relative stretch of the goal. The third method takes this one step further by having a linear connection between targets and bonuses, for example 2% bonus for every 1% of sales. The final method proposes that performance goals should be set but, unlike the other methods, the level of reward is determined afterwards thereby recognising the level of effort as well as achievement. I am not aware of any empirical research testing these methods.

Deci (1992) criticises goal-setting theory for treating motivation as a unitary concept, therefore failing to recognise different motivating forces which result in qualitatively different performance (i.e. intrinsic versus extrinsic motivation). Although goal-setting theory does recognise the difference in performance on simple compared to complex tasks, Deci claims that it does not provide a motivational explanation for different performance on these types of tasks. In Locke's (1993) response he states clearly that goal-setting theory does not make the distinction between freely chosen actions (intrinsic motivation) and externally compelled actions (extrinsic motivation). This is because goal-setting theory believes that individuals have choice in all actions in that they consent to accept the external pressure. Locke also cites research which has found

that goals can be used to positive effect to encourage creativity on tasks, which is a correlate with intrinsic motivation (Hennessey & Amabile, 1998).

2.4.4. Expectancy theory

Expectancy theory is, along with goal-setting theory, one of the most popular and influential theories of motivation. The central belief of this theory is that individuals will evaluate potential courses of action in a given situation based on the extent to which the potential outcomes will maximise pleasure and avoid pain. Individuals make this evaluation based on three elements; valence, instrumentality and expectancy (hence the alternative name for the theory; V-I-E). Vroom (1964) defines *valence* as an individual's assessment of how much they value the potential outcomes (recognising individual preferences for different outcomes); *instrumentality* describes the belief that a certain level of performance will lead to a secondary outcome (e.g. reward or recognition); finally, *expectancy* is the belief that exerting effort will lead to required level of performance in order to achieve the valent outcome. These components provide a motivating force in that individuals will calculate the potential behaviours according to the extent to which these three components are satisfied. If any one of these components is weak (e.g. the individual does not value the potential outcome) the motivational force will be weak. Expectancy theory defines motivation as the amount of effort expended on a task or activity (Pinder, 1998).

In relation to reward, Porter and Lawler (1968) theorise, based on empirical research, that individuals will make an assessment of the value of the reward, and the probability that effort will lead to this reward. The impact of the resulting effort on performance is

moderated by the individual's abilities and traits and also their understanding of how to effectively direct their effort (role perceptions). Finally, the relationship between performance and job satisfaction (which is desirable for continued effort and performance) is mediated by the reward outcomes. The relationship between rewards and job satisfaction is then moderated by the individual's perception of the equity of the rewards. This equity perception is a result of the assessment of the size of the reward in relation to the effort and reward in relation to referent others (e.g. colleagues, people doing the same job in other organisations, family members) (Pinder, 1998).

The theory distinguishes between intrinsic and extrinsic rewards. Porter and Lawler (1968) propose that intrinsic rewards are likely to have a stronger relationship with higher performance than extrinsic rewards because intrinsic rewards are inherent in the task whereas extrinsic rewards rely on someone else to administer and are therefore likely to have a lower expectation. Expectancy theory sees intrinsic and extrinsic rewards as additive so adding extrinsic rewards to an already intrinsically rewarding task will increase the motivating force.

There appears to be surprisingly little empirical research testing the relationship between reward and motivation as proposed by expectancy theory. Two studies in particular, however, do explicitly test the theory. Igalens and Roussel (1999) suggest that there are three processes proposed which can explain the reward-motivation link according to expectancy theory: effort-performance expectancy, performance-outcome expectancy, and valence (Igalens & Roussel, 1999). In other words, individuals put a certain effort into work on the expectation of a certain level of performance, they expect that this performance level will lead to an outcome (such as performance-related

reward) and they value the outcome (valence). These authors examined the impact of these three processes on motivation (effort) through a cross-sectional survey study. They found that the effort–performance link does impact on effort as predicted. The performance–outcome expectancy process positively predicts effort when the outcome is fixed pay but not when it is variable pay (bonus). Finally, valence did not have a significant relationship with effort. This research therefore only supports one of the processes set out by the theory. In their qualitative study, Marsden and Richardson (1994) also applied expectancy theory, to a study of performance pay in the UK public sector. Based on this research they summarise the three conditions which need to be met to result in heightened motivation to perform: “1. Has to feel able to change his or her behaviour, 2. Has to feel confident that a change in the behaviour will reliably produce the rewards; and 3. Has to value the rewards sufficiently to justify the change in behaviour” (p.253). This research concluded that performance pay was not motivational in this case, and that this might be explained by the fact that two of these three conditions were not met.

Despite its popularity, expectancy theory has been levelled with a number of criticisms based primarily on lack of empirical support for the individual elements or combined elements of the theory (see Van Eerde & Thierry, 1996 for a summary). Pertinent to this thesis are criticisms about the definition of motivation within the theory. Motivation is operationalised and measured by expectancy theory as effort. This is somewhat simplistic, and only recognises the quantitative outcome of the motivation not the potential qualitative differences in experiences of motivation (Gagné & Deci, 2005).

2.4.5. Summary

The theme which ties all of these theories together is that linking extrinsic rewards to performance expectations will encourage enhanced motivation in the form of effort. These theories have been influential for practitioners and researchers alike although some have found inconsistent empirical support. One particular issue about these theories of reward–motivation, however, is that they tend to treat motivation as a unitary concept, or manifest as effort (Ambrose & Kulik, 1999), which therefore assumes that all forms of motivation are of the same ‘quality’ as far as individual functioning is concerned. This leads to the second group of theories; which suggest that extrinsic rewards undermine the quality of individuals’ motivation.

2.5. Motivation theories which suggest that extrinsic rewards ‘undermine’ intrinsic motivation

In this section I will review three main areas of research supporting the view, from different fields, that extrinsic rewards undermine intrinsic motivation and related positive outcomes: Firstly, Lepper and Greene (1979) propose an *over-justification effect*, a psychological theory which suggests that extrinsic rewards reduce subsequent intrinsic motivation by leading individuals to attribute their behaviour to a salient extrinsic reward rather than the value of the task itself. Similarly, Bruno Frey (1997) proposes and tests this same theory in psychological/behavioural economics and refers to it as *crowding-out* theory whereby extrinsic rewards ‘crowd-out’ intrinsic motivation. Finally, Teresa Amabile and colleagues (Amabile, Dejong, & Lepper, 1976) have amassed

a significant body of research on the impact of extrinsic rewards on *intrinsic motivation and creativity* in the work environment drawing primarily on the over-justification effect (Lepper & Greene, 1979). I then reflect on the theme of reward salience which is central to much of this research. I finish this section by considering the criticisms of undermining theories which apply largely to all three of the theories proposed here.

2.5.1. Over-justification theory

Lepper and Greene's (1979) work grew out of the social psychology tradition, influenced by work on cognitive dissonance. Cognitive dissonance theory states that individuals who perform an attitudinally inconsistent task without a salient extrinsic reason (e.g. the promise of reward) will 'internalise' the reason for their behaviour and believe it to be due to intrinsic motivation (Lepper, 1973). Lepper and Greene hypothesised that the opposite could be true; when an extrinsic incentive is particularly salient (expected) for a task that *does* have intrinsic value for the individual, they may attribute their behaviour to the extrinsic incentive leading to a reduction in the perceived intrinsic interest in the task. This is referred to as 'over-justification' because the intrinsic interest would be enough motivation in itself but in the presence of salient extrinsic reward individuals believe this to be the justification for their behaviour. An important point to note here is that it is the individual's *perception* of the salience of the reward, not just its presence that would lead to the over-justification.

During the 1970s, a number of experiments were undertaken by Lepper, Greene and their colleagues (Amabile et al., 1976; Greene, Sternberg, & Lepper, 1976; Lepper, Greene, & Nisbett, 1973) to test the over-justification effect. These experiments were all

performed with school children and tested a number of different forms of reward and contingency types. Typically (e.g. Lepper et al., 1973), children were asked to draw pictures during an experimental session. Subjects were divided into reward contingency types, e.g. expected reward, unexpected reward and no reward groups. The reward took the form of a 'Good Player Award' and the salience of this was manipulated by the experimenter's explanation of the reward. Intrinsic motivation was measured by a 'free-choice persistence' behavioural measure in which drawing materials were made freely available and children could choose whether or not to draw, without intervention. A baseline measure was taken before the experimental period, and measured again afterwards. The difference in free choice time spent drawing between the pre-experiment and post-experiment period was taken to indicate change in intrinsic motivation. These empirical studies found support for the hypothesis that subsequent intrinsic motivation was reduced for expected reward condition, but not the unexpected or no reward conditions. The conclusion, as summarised by Lepper and Greene (1979), was that the most important characteristic of the reward is the salience of "means-end relationship between the activity and the reward itself" (p.113).

A slow but steady stream of research has continued on the over-justification effect in the past four decades. The research has been almost exclusively in experimental conditions with children ranging from pre-school to college age. A meta-analysis by Tang and Hall (1995) of 50 studies of the over-justification effect provides a useful overview of later research. Their meta-analysis found that, on the whole, the over-justification effect is supported. However, there were some exceptions to this. Firstly, the introduction of extrinsic reward in situations of low task interest seems to increase

task interest. Secondly, verbal reward had no negative impact on intrinsic motivation, and neither did tangible reward when accompanied by verbal reward. Tang and Hall raised some concerns about the ecological validity of the findings which appear to be more valid with younger children than college age (so the same could be true for adults). Interestingly, these studies do not appear to explicitly test over-justification as the explanation for this phenomenon but rather infer this from a reduction in subsequent intrinsic motivation. This limitation is discussed in section 2.5.5.

2.5.2. Crowding-out Theory

Crowding-out theory, unlike traditional economic theories, utilises the psychological distinction between intrinsic and extrinsic motivation and proposes that individuals' intrinsic motivation, which is seen as desirable, can be 'crowded-out' by the presence of salient extrinsic rewards (Frey, 1997). Two theoretical explanations are offered for this. Firstly, as with the over-justification hypothesis outlined above, that this is due to a shift in preference brought about by the introduction of an external incentive because attention shifts from the task to the incentive when it is particularly salient (Frey & Jegen, 2001). Secondly, that contingent rewards tend to be used as compensation for completing tasks which are not interesting so the application of a reward to an interesting task gives the impression that it is not interesting (Bénabou & Tirole, 2003). The first explanation appears to be the most popular in this field of research although, as with over-justification effect, the explanatory mechanism (i.e. crowding out) does not appear to have been explicitly tested but rather inferred. This is discussed as a limitation at the end of this section.

Research in economics has not been as widespread as psychology but there are several significant empirical studies which have found support for the 'crowding-out' theory: Frey and Oberholzer-Gee (1997) surveyed residents in Switzerland near the site of a proposed nuclear power plant. At the initial survey, 50.8% supported the proposed site (despite expressed concerns about potential consequences in the event of an accident). After the initial survey, the Swiss government decided to compensate the residents with a per annum payment. The second survey, after the residents found out about the compensation payment, found that the acceptance level dropped to 24.6%. The compensation amount was subsequently increased significantly but only 1 respondent changed their mind. The study was repeated with another community in the same situation elsewhere in the country and the results were the same.

In the second set of studies, Gneezy & Rustichini (2000) performed two experiments to test the impact on incentive amount on performance. In the first, students were asked to complete an IQ test. All students were given a fixed 60 New Israeli Shekel (NIS) for participating. The control group were given no further incentive but three experimental groups were given additional incentive per question answered; 10 cents in the first group, 1 NIS in the second, and 3 NIS in the third. The research found that performance decreased between the no-reward and low reward group, but increased (above the no reward group) to the same level for the 1NIS and 3NIS groups. Their second study incentivised children who were collecting for charity. The first were simply told of the importance of the charity collection, the second were promised 1% of money collected and the third 10% of money collected (with it being made clear that the incentive would

not come from the charitable donations). The no reward groups collected the most, the 1% group the least and the 10% group in the middle.

The results of these studies would support the crowding-out theory but, as with the over-justification studies, the mechanism through which apparent intrinsic motivation (indicated by persistence) is crowded-out was not explicitly tested but rather inferred from the change in attitude. This is discussed at the end of this section. Despite the fact that the motivation crowding-out theory is counter to many economic models, which are based on the principle that increasing reward increases effort, the theory has found some level of interest within economics (e.g. Gibbons, 1998).

2.5.3. Reward, intrinsic motivation and creativity

Numerous studies have shown that there is a significant relationship between intrinsic (rather than extrinsic) motivation and creativity (e.g. Amabile, 1997; Amabile, 1985; Koestner, Ryan, Bernieri, & Holt, 1984). Although this is not a separate theory of motivation, there is a stream of research which has examined the relationship between reward, intrinsic motivation and creativity and found support for an undermining effect. A sample of these studies is briefly reviewed below as the findings are pertinent to this field.

Kruglanski, Friedman, & Zeevi (1971) carried out research to examine the impact of extrinsic reward on qualitative aspects of performance (including creativity). Subjects were children in their mid-teens. All participants were encouraged to volunteer with no mention of reward. Subjects were then divided into a no reward group and a reward

group. Reward took the form of the promise of a tour of the psychology department, which the participants had expressed interest in. This was not contingent on a specific level of performance, only taking part in the task. Subjects completed 'creativity' tasks based around words (e.g. coming up with possible titles for a passage of text). Creativity was found to be higher in the no reward condition. Two self-report measures were used which can be seen as proxies intrinsic motivation; task enjoyment and intention to repeat the activity. In both cases, these measures were higher for participants in the 'no reward' group.

Amabile (1985) performed a study in which a group of young people were asked to write creative poems. The group was divided in two; group 1 completed an intrinsic motivation for writing survey and group 2 an extrinsic motivation for writing survey, aimed to prime each orientation. There were no initial differences in creativity before the survey completion, but afterwards the creativity of the extrinsic orientation group significantly reduced. The creativity of the poems was assessed by a panel of experienced poets.

Baer, Oldham, & Cummings (2003) tested the role of task context on the relationship between extrinsic rewards and creativity in an organisational setting. Reward was measured through self-report scales indicating the extent to which the organisation rewarded creativity. Creativity was measured through manager reports. They also examined 'cognitive style' as an individual difference; individuals with an *adaptive* cognitive style tend to work within set procedures and processes and those with an *innovative* cognitive style will tend to look for unique solutions and challenge what has come before. These authors found that extrinsic rewards enhanced creativity for

relatively simple tasks for those individuals who have an adaptive cognitive style. They found a negative relationship between reward and those with an adaptive style working on complex jobs, and with an innovative style on simple jobs.

This sample of empirical studies would suggest that extrinsic rewards have been consistently found to be negatively related to creativity but this is by no means the case. There does not appear to be a meta-analysis of this body of research but a number of studies have failed to support the theory or indeed found the opposite; that contingent rewards positively predict creativity (for a review see Shalley, Zhou, & Oldham, 2004). Eisenberger and colleagues (e.g. Eisenberger & Cameron, 1998; Eisenberger & Selbst, 1994) in particular suggest that rewards recognise individual competence which therefore boosts creativity.

2.5.4. Reward salience

Central to the undermining theories of reward on intrinsic motivation is the perception of causality for behaviour. This is what distinguishes between these theories and work motivation theories which are concerned with the motivated behaviour, not the reason behind it. One of the themes that runs through many of these theories is the role of reward salience (e.g. Eisenberger & Selbst, 1994; Lepper & Greene, 1979; Reiss & Sushinsky, 1975; Ross, 1975). The findings of the studies reviewed above suggest that the salience of reward impacts on the extent to which individuals attribute the causality for their actions to the reward, although this has been rarely explicitly tested.

The role of salience originates from attribution theory (Heider, 1958; Kelley, 1973) which was particularly popular in social psychology in the 1970s but has seen little recent development and has not been widely adopted by organisational researchers (Martinko, Harvey, & Dasborough, 2011). Attribution theory states that individuals make causal inference based on salient aspects of their environment which could be seen as causes for behaviour (Kelley, 1973). The most comprehensive work on the concept of salience comes from Taylor and Fiske (Taylor, Crocker, Fiske, Sprinzen, & Winkler, 1979; Taylor & Fiske, 1975, 1978). These authors propose that causality is attributed based on 'top of the head' assessments of salient aspects of one's environment (Taylor & Fiske, 1978). In other words, they believe that most (or at least some) of the time, individual's perception of causality is not linked to a cognitive process but rather an automatic response to the most salient likely cause of the behaviour. Kelley's (1973) approach to attribution suggests that individuals take a more reasoned approach to causal attribution; taking into account the social context, historical experience and personal characteristics when making attributions based on salient stimuli. The theory of salience has been adopted but not fully developed by the undermining theories discussed above and further work would be beneficial, to make a clearer link between automatic responses and cognitive processes.

Although, as discussed above, some experimental research suggests that reward salience impacts on causal attribution (e.g. Ross, 1975) it is difficult to know how much this generalises outside of lab conditions and I have not been able to find any research which examines this in the field. Experimental studies are able to control which stimuli are salient whereas field-based studies are unable to do this. This is important because,

firstly, there may be many factors influencing the perception of reward salience which cannot be controlled outside of the lab. Secondly, there are many salient stimuli in any environment which may be influencing behaviour in addition or instead of reward so any effect of reward salience on motivation may be much smaller in the field. It seems, therefore, that research is needed to explicitly test perceived salience in the field.

2.5.5. Criticisms of ‘undermining’ theories

A number of criticisms have been made of the undermining theories, primarily focused on the nature of the empirical research. Reiss and Sushinsky (1975) focus their criticisms on Lepper et al’s (1973) research but these equally apply to a number of other undermining studies. Reiss and Sushinsky question whether the young children in the experiment would have fully understood the reward-related instructions so it is not possible to conclude that they attributed the reason for their play to reward. They also suggest the over-justification researchers did not control for the ‘quality’ of play prior to the experiment; some subjects may have exhibited more rushed, poorer quality play before the reward condition was introduced, which would reduce their intrinsic interest in the play. Following two experiments, Reiss and Sushinsky (1975) concluded that the apparent over-justification effect is better explained by the competing response hypothesis. This hypothesis would also propose that highly salient reward could reduce intrinsic interest but, rather than providing over-justification for the task, it serves as a distraction from the performance of the task.

The neglected concept of salience is highlighted again by Eisenberger & Cameron (1996) who criticise research into reward and creativity (e.g. Amabile, 1985) for

neglecting to test the extent to which the reward was salient for individuals' performing the task. They reference research (Eisenberger & Selbst, 1994) which has shown that a large reward, presented in a non-salient way (i.e. not visible or proximal during the completion of a task) to recognise divergent thinking *increased* creativity. Hennessey and Amabile (1998) responded to this critique, by stating that Eisenberger and Cameron selectively reported empirical studies, that the tasks they used were not truly creative, and that the assessment of creativity was too subjective. The original authors disagreed (Eisenberger & Cameron, 1998).

Several summary points can also be made about limitations in this body of research. The first is that, while the empirical research reviewed above provides evidence that extrinsic rewards reduce subsequent intrinsic motivation in some circumstances, the theoretical mechanisms (namely over-justification and crowding-out) are not explicitly tested. Rather, these theoretical explanations are largely inferred on the basis of the observed reduction in intrinsic motivation. Secondly, pertinent to theories of work motivation, is that these theories are based almost entirely on experimental studies and primarily with children (Tang & Hall, 1995). This, therefore, draws into question whether they would apply where reward is the norm as it is at work (Fang & Gerhart, 2012). Reward norms have been found to influence the extent to which intrinsic motivation is undermined by extrinsic rewards (Staw, Calder, Hess, & Sandelands, 1980).

2.6. Conclusion

This chapter has provided an overview of the conflicting approaches to understanding the reward–motivation link. The first group of theories emphasise the importance of linking performance expectations to contingent reward in order to enhance performance and effort. Theories such as goal-setting theory and expectancy theory continue to have great influence on management practice, despite some concerns about the theoretical basis of their conclusions. Contrary to this, the second group of theories in psychology, economics and management suggest that it is important to understand the quality not just the quantity of motivation. These ‘undermining’ theories suggest that rewards can be detrimental to intrinsic motivation, and related positive outcomes but there are concerns about the empirical support for these conclusions.

This review has highlighted a number of gaps in our understanding of the reward–motivation link in the workplace. Firstly, dominant theories of work motivation (e.g. needs, goal-setting and expectancy theories) offer detailed explanations of the processes through which reward relates to motivation but focus almost exclusively on motivation as effort. These theories, therefore, fail to recognise qualitative differences in motivation which have been found to relate to different psychological and behavioural outcomes (e.g. Koestner & Losier, 2002; Van den Broeck, Lens, De Witte, & Van Coillie, 2013). Secondly, there is a group of theories which *do* emphasise the quality of motivation which have found that, in some cases, extrinsic rewards lead to a reduction in better quality (intrinsic) motivation. However, the empirical basis of these theories has been questioned. In particular, they fail to explicitly test the mechanisms by which reward undermines motivation. In addition, the theories are based on non-working

populations which therefore have questionable generalisability to the work environment where rewards are arguably the norm (Staw et al., 1980). This is also important because workplace rewards are complex and include a number of different elements (Kuvaas, 2006b) the motivational value of which cannot be fully understood in isolation from the context in which they are administered (Johns, 2006).

These limitations mean that these theories do not provide a sound theoretical basis for which to examine the impact of workplace rewards on qualitative differences in motivation. This brings us to SDT. SDT has the benefits of dominant work motivation theories in that it outlines the mechanisms through which rewards impact on motivation (basic psychological needs). It brings this together with the strength of the undermining theories by recognising that motivation should meaningfully be distinguished by its quality not just quantity (the autonomous–controlled motivation continuum). SDT further emphasises the importance of understanding the context in which phenomena occur in order to understand the resulting motivational impact (Ryan & Deci, 2000). While the theory is still relatively under developed within organisational research (Gagné & Deci, 2005) it has a strong field-based tradition in other fields of applied psychology (e.g. sport and education psychology). These elements have influenced the choice of SDT as the theoretical basis of this thesis and will be examined in detail in the next chapter.

Chapter 3: Self-Determination Theory

3.1. Introduction

As outlined in chapter 1, the aims of this thesis are to examine the link between reward and motivation as proposed by SDT; secondly, to examine the outcomes of the different motivation types proposed by SDT; and thirdly, to evaluate SDT as a theory of work motivation. This chapter therefore sets out SDT as a theory of motivation and explores some key concepts critical to the above aims. It begins by discussing the way that SDT views motivation including the concepts of intrinsic motivation and the differentiated model of extrinsic motivation. There follows an overview of the basic psychological needs, which are seen by SDT as the nutriments to optimal functioning, and an explanation of how contexts impact on motivation. Then, relating to the first aim of this thesis, I examine the theory and research examining the relationship between reward and motivation as defined by SDT. In relation to the second aim of the research, a review of research examining the relationship between different forms of motivation and outcomes follows. As this research is work based, an overview of SDT research in work organisations is also reviewed. SDT has, at times, been a controversial theory of motivation and, as such, the chapter finishes with an overview of the key criticisms or theoretical issues with SDT, which therefore lead onto the research framework set out in the following chapter.

3.2. The development of SDT

It is firstly important to understand the origins of SDT in order to understand the make-up of the theory. SDT developed from the early work of Edward Deci (Deci, 1971), who was exploring the interaction between intrinsic and extrinsic rewards after the work of Porter and Lawler (Porter & Lawler, 1968). As outlined in the previous chapter, these authors propose that the work environment should be structured to encourage both intrinsic and extrinsic motivation which, added together, encourage optimal motivation and job satisfaction. Contrary to this, Deci's research found that extrinsic rewards can interact negatively with intrinsic motivation, which he defined as the most natural and desirable motivational state because it leads to optimal functioning. He called this theory Cognitive Evaluation Theory (CET; Deci, 1975). In the early 1980s research, led by Richard Ryan (1982) who was working with Deci, explored further the interaction between intrinsic and extrinsic motivation in the education domain. This found that children could be motivated to do a painting activity, not just because of intrinsic interest or an entirely external control but could become motivated due to a personal understanding of the importance of the task. Their motivation was still extrinsic because it was not due to an inherent interest in the task, but was experienced as moderately self-determined. He called this "a kind of internal but extrinsic motivation set" (Ryan, 1982, pp. 458-459) and this saw the beginning of the development of a differentiated model of extrinsic motivation which became known as Self-determination Theory (Deci & Ryan, 1985a). Although the theoretical basis of some of the research reviewed in this chapter is more accurately labelled CET, I will be using SDT throughout for simplicity.

SDT is an organismic dialectic theory of motivation (Deci & Ryan, 2002). Organismic dialectic refers to the central concept of SDT that human beings are “active, growth-oriented organisms” (Deci & Ryan, 2000, p. 229) who naturally seek interesting activities, opportunities for growth and to feel connected to social groups to satisfy their basic psychological needs. When these needs are satisfied by the environment, motivation is experienced as entirely self-determined. As a result, humans are functioning at their best; contributing to society and experiencing positive wellbeing (Ryan & Deci, 2000). Central to SDT is the concept that there are qualitative differences between different loci of motivation, and that these can be placed along a continuum from more *autonomous* to more *controlled* (figure 3.1). These concepts, of motivation, needs and the interaction between these and the social environment, are explored in more detail throughout this chapter.

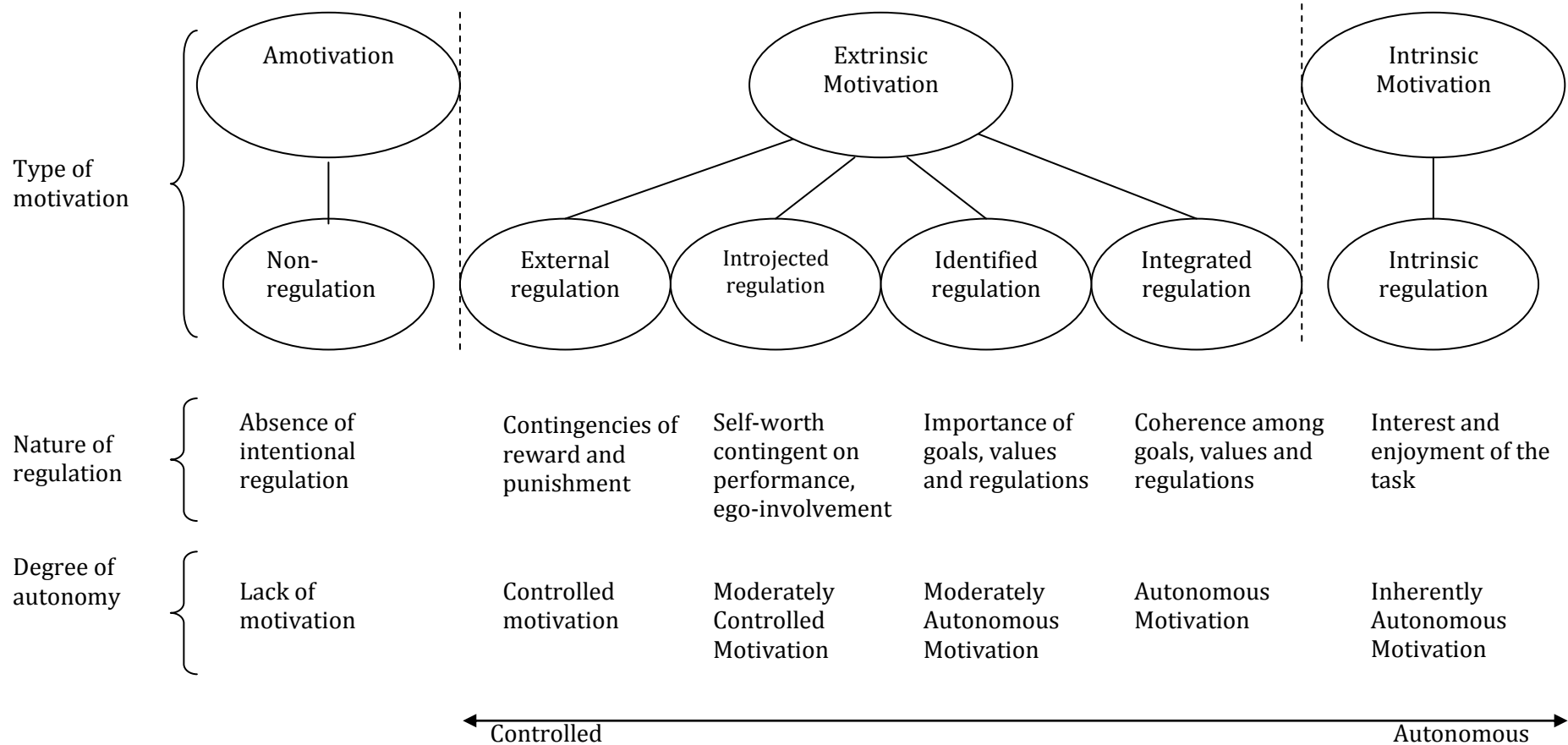


Figure 3.1: The self-determination continuum (Gagné and Deci, 2005:336)

3.3. The nature of motivation as proposed by SDT

This section introduces motivation as defined by SDT, including the concept of intrinsic motivation and the continuum of extrinsic motivation (figure 3.1).

3.3.1. Intrinsic motivation

Intrinsic motivation is based on the proposition that human beings have an innate desire for activities that encourage competence and self-determination and that the experience of the activity alone is reward enough (Deci & Ryan, 1985a). Motivation is said to be intrinsic when behaviour is driven by enjoyment or interest in the task itself, in order to feel challenged and to discover new things (Deci, 1975; White, 1959). An individual experiencing an intrinsically motivating task will feel satisfaction, enjoyment, a sense of fun (Csikszentmihalyi, 1978). Intrinsically motivated behaviours have an internal locus of causality as people experience the behaviour as emerging from within themselves rather than due to external controls or pressures (deCharms, 1968).

Although the concept of behaviour being regulated by the activity itself, rather than an external force, was first proposed at the beginning of the 20th century, it was as a response to Hull's (1943) work that it came to any prominence. Hull, building on the work of Freud (1924), proposed four drives (hunger, thirst, sex and the avoidance of pain) that motivate all human behaviour either directly or indirectly. This work was hugely influential and it took a decade or so for psychologists to begin to question the utility of drive theory of explaining the full range of human behaviour. As a result of this

a number of different theories emerged which have strongly influenced the development of SDT.

White (1959) felt that, while drive theories could explain behaviour driven by a deficit of physiological fulfilment, they did not explain those engaged in for exploration or novelty. He proposed that these behaviours can be explained by a psychological desire for competence. He refers to this as effectance motivation, representing a natural energy coming from within the person to feel effective in their environment and to seek out activities that support this. This suggestion was a dramatic change from his predecessors who had seen humans as passive creatures, motivated by physical drives; if humans seek out activities which fulfil psychological needs they must be active organisms (Deci & Ryan, 1985). The theory that humans are active organisms and experience a natural state of motivation in which they seek out optimum stimulation to fulfil the need for competence, can be seen in SDT which is directly influenced by White's work (Deci, 1975).

In addition to competence, SDT emphasises that behaviour is naturally motivated by a need for self-determination, which originates in the work of Heider (1958) and deCharms (1968) on personal causation. These authors propose that human beings have a basic desire to control their fate and that this is the central force for intrinsic motivation. DeCharms defines intrinsic motivation as the experience of an internal locus of causality of one's behaviour, and extrinsic motivation conversely as an external locus of causality. He warns that individuals can become a "pawn" to the outcomes of motivated behaviours, thereby experiencing them as controlled. SDT on the other hand, emphasises the need for self-determination rather than for control where the former is

characterised by a feeling of having had a choice about whether to be in control, not of necessarily actually being so (Deci & Ryan, 1985).

Contemporary to Deci's work on intrinsic motivation, Csikszentmihalyi (1978) proposed that individuals in a sense of pure intrinsic motivation will experience flow, which is characterised by positive emotions such as enjoyment and fun and a complete absorption with the activity. The motivation to continue with the activity is for the reward of continuing enjoyment. Based on evidence collected from a wide range of examples of real-life experiences of flow, Csikszentmihalyi identified some of the key characteristics of flow experience (Csikszentmihalyi & Csikszentmihalyi, 1992); the experience of optimal challenge (challenge balanced with skills); the presence of clear goals with quick, unambiguous feedback; the task involves focused concentration; outcomes feel under the individual's control; and there is a distorted sense of time. Intrinsic motivation is seen by SDT and related theories as an emergent experience (Csikszentmihalyi, 1978; Deci, 1975; White, 1959); the intrinsic motivation emerges as they perform the task. The memory of this intrinsic motivation may encourage them to undertake this, or a similar, task again. This is contrasted to the hedonic view of intrinsic motivation, which emphasises the importance of seeking enjoyable experiences for instant gratification, which have been shown to be short-lived and SDT would suggest would not satisfy an individual's basic psychological needs because it is focused on instant gratification rather than on feeling autonomous and competent in relation to the task or activity (Vansteenkiste et al., 2010).

Although intrinsic motivation is seen as, on the whole, a positive experience related to positive outcomes, there has been some research to indicate that there might be some

negative elements. For example, research by Koestner, Losier and colleagues (Koestner et al., 1996; Koestner & Losier, 2002) has found that intrinsic motivation is not necessarily the most advantageous form of motivation for persistence on important tasks. In the first set of studies, these authors (Koestner et al., 1996) found that, while intrinsically motivated college students were interested in political information in the lead up to a referendum, this did not translate into actually voting. Identified motivation, which is focused on the value or importance of the task, on the other hand *was* associated with voting. In the second set of studies, they (Koestner & Losier, 2002) examined educational transition from school to college, between college years (junior to senior) and from senior year to graduation. These studies found that, although intrinsic motivation predicted initial transition to college, it did not predict continued enrolment after 18 months whereas identified motivation did. This, therefore, suggests that intrinsic motivation is not ideal for encouraging positive engagement in activities which may not be persistently interesting but are nevertheless important.

Intrinsic motivation is not exclusive to SDT (e.g. Amabile et al., 1976; Csikszentmihalyi, 1978; deCharms, 1968). But, where SDT differs from these other theories, is in suggesting that extrinsic motivation can take different forms and that these are related to different outcomes (Ryan, 1982). I now explore this concept further.

3.3.2. Continuum of extrinsic motivation

Intrinsic motivation can only, by its nature, apply to activities that are inherently interesting or pleasing. The reality is that many of the tasks that one has to perform in life (e.g. at school or work) may not have intrinsic interest so may require external

regulation. As discussed above, research by Richard Ryan (1982) found that in some situations extrinsic motivation could be experienced in a less controlling way than had been traditionally suggested and this led to the development of a differentiated model of extrinsic motivation. The differentiation of extrinsic motivation is based on the assumption that individuals have a natural inclination to take into themselves (and therefore experience as more autonomous) the external regulation of behaviour, provided that their basic needs are satisfied (Ryan & Deci, 2002).

The process by which extrinsic motivation becomes more autonomous is known within SDT as *internalisation*, which involves “endorsing the value of extrinsically motivated behaviours” (Gagné & Deci, 2005, p. 113). SDT proposes a continuum of motivation based on the extent to which the regulation of the behaviour has been internalised. This has significantly moved the focus of SDT away from the intrinsic-extrinsic distinction to one that emphasises motivation that is more autonomous or controlled (Vansteenkiste, Ryan, & Deci, 2008).

Along the motivation continuum (figure 3.1), behaviour regulation that is internalised (where little or no external regulation is required) is said to be more *autonomous*. Where the individual relies on external stimulus to motivate their behaviour the regulation is more *controlled*. Intrinsic motivation, which is inherently autonomous, is on one end of the continuum and a complete lack of motivation (*amotivation*) on the other end. Between these is extrinsic motivation which can be more or less autonomous.

The most autonomous type of extrinsic motivation is when the individual has fully *integrated* the regulation of the behaviour with their own interests, values and beliefs and accepts full responsibility for doing an activity (Deci, Eghrari, Patrick, & Leone, 1994). The task may not be interesting or enjoyable in itself (and therefore not intrinsically motivating) but will be connected to their sense of self, and feels driven by the individual. The regulation of the behaviour is not only linked to the task but to their wider life. For example, a fundraiser might work extra hard to write a mailing to supporters because she knows that it will help encourage people to raise money for the cause. She does this not because she is interested in the task itself but because being a good fundraiser and helping a cause she believes in is fundamental to her identity.

If the individual believes in the importance of the task, but does not see it as linked to their wider life goals, their behaviour regulation is *identified*, which is moderately autonomous. In this example, the fundraiser might volunteer to take on extra responsibility for a project because it will help out her colleagues, the value of which she identifies with but is not central to her identity.

Introjected regulation is moderately controlled and refers to the 'taking in' of the regulation of behaviour (Deci & Ryan, 2000). When introjected, behaviour is regulated by contingent self-worth in the form of pride or protecting against guilt or shame (Deci et al., 1994). In this respect the value of the task has not been truly internalised because it is connected to a contingency but this contingency is administered by themselves rather than being external to the self (Deci & Ryan, 2000). When introjected, the fundraiser might work hard at writing a report on an event. She is not writing the report

because she feels that it's important and it has no desirable outcome for her, but she would feel bad about herself for having done a poor job if she didn't do it.

Finally, behaviour that is *externally* regulated relies on some kind of external contingency which the individual seeks to obtain or avoid, such as tangible reward or punishment. The fundraiser in the above examples knows that she might get noticed for a promotion if she manages to meet a fundraising target so puts extra effort to reach it. In this respect therefore the perceived locus of causality for her behaviour is the external contingency (expectation of promotion) which is therefore experienced as relatively controlled (Deci & Ryan, 2008; Gagné & Deci, 2005; Ryan & Deci, 2000).

It is important to note that the continuum is not designed to be developmental, with an individual's regulation moving from controlled or autonomous. An individual can internalise regulation at any point on the scale depending on the extent that their environment supports their basic psychological needs (Gagné & Deci, 2005). Another important characteristic of the continuum is the relationship between intrinsic and extrinsic motivation. Even though intrinsic is seen as the most autonomous form of motivation there is not a natural progression from integrated to intrinsic. Integrated motivation, although autonomous, is still extrinsic and therefore not centred on the task (Vansteenkiste et al., 2010).

3.3.3. Measurement of the motivation continuum

In order to understand the application of SDT to applied settings it is important to understand how the motivation types are measured. The most common method of

measuring the different types of motivation is through self-report questionnaires, after a survey developed by Ryan and Connell (1989). Based on the theory that the force behind behaviour is characterised by *perceived locus of causality* these authors propose that each type of motivation is reflected in different reasons for acting. These reasons are operationalised as statements which respondents rate on a Likert scale according to the extent to which the statement articulates their reason for performing a task of activity (e.g. doing homework, putting in effort). For example, in Ryan and Connell's original, which was designed for use in an educational setting, "Because I'll get into trouble if I don't" relates to external regulation and "Because I want to learn new things" reflects identified regulation. The applied research utilising these scales (e.g. Deci, Vallerand, Pelletier, & Ryan, 1991; Gagné et al., 2010; Ryan, Rigby, & King, 1993; Vallerand & Pelletier, 1992) has generally confirmed Ryan and Connell's suggestion that the continuum has a quasi-simplex pattern, meaning that each regulation type correlates most positively with those closest to it and least positively (or negatively) with those farthest from it.

Assuming this quasi-simplex structure, the quantitative motivation scale is often analysed using a Relative Autonomy Index (RAI; Grolnick & Ryan, 1987). The RAI is weighted such that it recognises that adjacent motivation types should be more highly correlated. It is calculated by positively weighting autonomous motivation types and negatively weighting controlled types, for example: $(2 \times \text{intrinsic}) + (\text{identified}) - (\text{introjected}) - (2 \times \text{external})$ (e.g. Lam & Gurland, 2008). The motivation scales are also commonly analysed as two subscales of autonomous (intrinsic + identified and sometimes integrated) and controlled (introjected + external) motivation (e.g. Parker,

Jimmieson, & Amiot, 2010). There is also some limited research which has taken a person-centred approach, utilising cluster analysis to identify different motivational experience. For example, Ratelle et al (2007) identified four clusters of motivational experience; a) high autonomous/high controlled, b) high autonomous/low controlled, c) high controlled/low autonomous and d) low autonomous/low controlled.

These scoring protocols are utilised primarily for practical reasons, to control the number of variables in the research model (McLachlan & Hagger, 2011) but also aim to recognise that individuals experience multiple motivations simultaneously (Gagné & Deci, 2005). However, there are a number of potential issues with these methods and scoring protocols.

The first concerns the ordering of the motivation continuum. Inherent in the structure of the continuum is the assumption that intrinsic motivation is the most positive and external motivation the most negatively experienced motivation. This is borne out in the formula used to calculate the RAI. However, as highlighted above, some research has suggested that intrinsic motivation might not always be related to the most productive outcomes. Specifically, that identified motivation may be more conducive to productive behaviour than intrinsic motivation (Koestner & Losier, 2002; Wilson, Sabiston, Mack, & Blanchard, 2012). This may suggest that intrinsic motivation should not always be the most positively weighted in the RAI.

Secondly, using any kind of index or combined measure has the potential to mask the value of the individual motivation types which has a number of implications. The RAI might, for instance, be the same for someone who has moderate levels of both

autonomous and controlled motivation as someone who has high autonomous and high controlled motivation (Ratelle et al., 2007). Therefore, any examination of antecedents or outcomes to this would likely compound different relationships.

Thirdly, with respect to the autonomous/controlled method, this assumes a sharp distinction between identified (autonomous) and introjected (controlled) motivation because identified motivation is positively weighted and introjection is negatively weighted. This, however, contradicts the simplex-like structure of the continuum which would assume that these conceptually overlap (Ryan and Connell, 1989). Connected to this, SDT suggests that internalisation and intrinsic motivation are separate psychological processes and one does not easily move from one to the other (Vansteenkiste et al., 2010). It therefore seems counter to this suggestion to include intrinsic motivation with the extrinsic motivation types in one index.

Finally, one of the particular challenges about comparing the results of different studies utilising SDT is that different researchers utilise different types of motivation, most commonly emitting integrated motivation because it is conceptually so similar to identified motivation and has been difficult to distinguish these two factors (Vallerand & Pelletier, 1992). The RAI can be adapted depending on which motivation types are included, with the most autonomous weighted most positively and most controlled most negatively ('SDT website', 2013). The autonomous/controlled subscales likewise. However, the use of different motivation types means that these same subscales or indices may be measuring slightly different things. This therefore has issues with respect to generalisability but also draws into question the universality of the motivation continuum. In other words, is it valid to distinguish between the five

motivation types in all situations if, for example, integrated and identified motivation cannot be distinguished?

There has been little research that I am aware of comparing the different scoring protocols. One study, in the exercise domain (Wilson et al., 2012) has compared the use of different RAI combinations to the autonomous/controlled dual measure and the individual motivation types. These authors concluded that, while the use of a combined method such as the RAI was justified on the basis of the structure of the continuum, it did mask important differences between antecedents and outcomes of the motivation types. They therefore recommend, in line with Koestner and Losier (2002), that it is preferable to use the individual motivation types but a combined scoring method could be used with clear justification.

The issues highlighted above suggest that there is not complete agreement about the ordering of the continuum or which motivation types apply in which conditions, and how these are measured. It would therefore be beneficial to examine the antecedents and outcomes of each individual motivation type. By comparing this to the use of one of the common indices, such as the RAI, it would therefore be possible to test whether the index does indeed mask differences in the types (Wilson et al., 2012). Furthermore, examining the relationship between the individual motivation types enables the simplex-like structure to be tested (Raykov, 1998; Rogosa & Willett, 1985), which is the theoretical basis of the RAI.

3.4. Basic psychological needs as a motivating force

The role of needs has been touched on several times so far in relation to motivation and is central to SDT. Basic needs theory, which is a sub-theory of SDT, proposes that individuals have three innate basic psychological needs, which produce the energetic force behind motivated behaviour (Vansteenkiste et al, 2010) and the nutriment for personal growth (Deci & Ryan, 1985a). These are the needs for; *autonomy*, to experience one's actions as self-determined and volitional (deCharms, 1968; Deci & Ryan, 1985a); *competence*, to feel effective in the way one interacts with the environment (White, 1959); and *relatedness*, to feel connected to those around you and to develop meaningful interpersonal relationships (Baumeister & Leary, 1995; Moller, Deci, & Elliot, 2010). In this section I outline basic needs theory, review research examining all three needs, examine the theoretical relationship between the satisfaction of the three needs and motivation types and finish by considering some of the criticisms of this theory.

SDT states that, in their natural state, human beings will seek to fulfil these needs in their environment, and will thrive if they do so, but factors can intervene to undermine this process leading to negative outcomes such as poorer wellbeing and productivity (Vansteenkiste et al., 2008). Need satisfaction is therefore theorised to mediate between the environment and motivation to the extent that a more needs-supportive environment relates to more autonomous motivation which is in turn related to more positive outcomes (Gagné and Forest, 2008). The nuances of the relationship between the three needs and the motivation types are examined later in this section.

Basic needs as proposed by SDT differ from the definition of classic needs theories such as those from Maslow (1965) and McClelland (1987) in a number of ways. Both Maslow and McClelland propose that needs when satisfied become less motivating and only when there is a deficit is behaviour motivated to fulfil this. SDT on the other hand proposes that needs thwarted over time will lead people to seek other satisfaction (through extrinsic means) which will not provide the basic nutrients needed for optimal functioning (Deci & Ryan, 1985a). Maslow's need theory further proposes that needs are hierarchically ordered with physiological needs being the most basic which need to be fulfilled in order for the individual to pursue higher order needs (self-actualisation being uppermost) (Maslow, 1965). SDT treats all three needs as universal, although satisfaction of the need for autonomy is dominant with respect to encouraging intrinsic or more autonomous motivation and therefore optimal functioning. This is because individuals who feel competence and relatedness towards an activity are likely to partly internalise the value of it but will still perceive an external locus of causality to some extent if they do not feel autonomy in completing the task (Deci & Ryan, 2000). McClelland (1987) believes that needs are acquired through engagement with the environment and that they vary in strength leading the individual to pursue some more than others. SDT, however, suggests that needs are innate rather than acquired and it is only factors in the environment which will draw attention away from the satisfaction of these needs (Deci & Ryan, 1985a).

The satisfaction of these basic needs will encourage intrinsic motivation or internalised extrinsic motivation and is therefore essential to encourage optimal functioning. When needs are thwarted, individuals will attempt to pursue need satisfaction in different

ways. For example, receiving negative feedback might reduce feelings of competence. The individual might then try to “prove themselves” to regain this feeling of competence but the motivation to do so will be ego-controlled, rather than to genuinely fulfil the need for competence. Even if they do manage to redeem themselves this is likely to improve their damaged self-esteem but not truly satisfy their need for competence. It is therefore experienced as partially controlled. The implication of this is that ego-controlled motivation has been associated with more negative outcomes (Koestner & Losier, 2002).

Research by Moller et al (2010) supports the suggestion that individuals who are high in general need satisfaction, it having accrued over time, value the satisfaction of that need more highly. Conversely, those who experience low general levels of need satisfaction devalue the satisfaction of these needs. This supports the theoretical suggestion by SDT, that need thwarting over time will lead individuals to seek alternative outcomes that do not provide the same psychological nutriment as the satisfaction of the basic needs. Sheldon and Niemiec (2006) found that children who experience balanced satisfaction of all 3 basic needs displayed more positive behavioural outcomes. In addition, Vansteenkiste et al (2007) found that low need fulfilment was related to poorer outcomes (e.g. poorer wellbeing, satisfaction and dedication). The following sections will explore the basic psychological needs in more detail and their relationship to motivated behaviour.

3.4.1. Need for autonomy

The basic need for autonomy comes from the idea that, through human development there is a tendency for self-organising, which leads to actions which are self-endorsed. It has been developed from the work of Heider (1958) and deCharms (1968) who suggest that individuals thrive if they experience self-endorsed action and an internal perceived locus of causality. Experiencing autonomy is a subjective feeling of psychological freedom and choice, which can be experienced even when relying on others or performing a task requested by someone else (Van Den Broeck, Vansteenkiste, & De Witte, 2008).

Autonomy has proved to be the most controversial of the proposed basic needs. In particular it has been criticised for its lack of validity in non-Westernised countries (Iyengar & Lepper, 1999) on the premise that autonomy is not possible in less individualist cultures. In response, Van den Broeck et al (2008) suggest that it is possible to internalise the values of a collectivist culture and therefore experience it as self-determined. Houlfort et al (2002) propose that this criticism originates from confusion about the definition of autonomy. In behaviourist theories of motivation, autonomy is defined in the *decisional* sense, meaning the extent to which individuals can choose between different actions. This is different from SDT's *affective* autonomy, which refers to a lack of pressure or tension from an external contingency in making choices, which are shaped by meaningful values or personal interests. The individual therefore experiences the freedom to make choices based on their interests and needs, even if there is an outside influence (Koestner & Losier, 1996). Vansteenkiste et al (2010) maintain that affective autonomy does have universal validity, and that there are indeed

cultural differences in the way in which the basic needs are satisfied but not in the fact that the need is universal. Research has supported this argument in the context of Russia, South Korea and Turkey (Chirkov, Ryan, Kim, & Kaplan, 2003) and Bulgaria (Deci et al., 2001) for example.

3.4.2. Need for competence

Competence comes from the work of White (1959) who defines it as an individual's desire to feel effective in interactions with their environment. That is, when the environment enables learning and mastery (Deci & Ryan, 1991). SDT proposes that the need for competence can be fulfilled by creating structure within an environment, but only if it is done in an autonomy-supportive way (Vansteenkiste et al., 2010). That is, by providing meaningful rationale and acknowledging the individual's perspective. The structure allows individuals to feel successful in their interactions with their environment. When people do not have the opportunity to master their environment or fail to master their environment, the need for competence will not be fulfilled, resulting in amotivation (Vansteenkiste et al., 2008). If the need for competence is fulfilled without support for autonomy the resulting motivation is likely to be introjected or external because the individual will feel as though there is some kind of external pressure to prove themselves in their environment (Gagné & Deci, 2005).

3.4.3. Need for relatedness

Relatedness is "a psychological necessity that involves having positive interpersonal interactions and trusting relationships...social encounters contribute to the satisfaction

of this need to the extent that the encounters foster feelings of trust and intimacy” (Moller et al., 2010, p. 754). The need for relatedness expresses the individual’s need to feel belonging within social groups, and to experience supportive, caring relationships (Vansteenkiste et al., 2008). Relatedness was not included in early CET because it is not a requirement of intrinsic motivation; reading a book, for example, can be intrinsically motivating but is done alone so without the need of a social group (Van Den Broeck, De Witte, Vansteenkiste, & Lens, 2007). Relatedness is, however, a prerequisite of internalisation; an individual whose relatedness is fulfilled by their social group is more likely to internalise the values and beliefs of that group (Gagné & Deci, 2005). Interpersonal support (which is manifest in warmth, empathy and interpersonal support) is necessary in order for the need for relatedness to be satisfied and these values and beliefs internalised (Vansteenkiste et al., 2010). However, as with the other environmental factors that encourage need fulfilment, it should be done in an autonomy-supportive way. If the interpersonal support is felt to be contingent upon something (e.g. a specific behaviour) it will be experienced as controlling and will therefore not fulfil the need for relatedness. An environment that fulfils the needs for competence and relatedness can encourage partial internalisation of extrinsic regulation but without autonomy support this is unlikely to be experienced as self-determined.

3.4.4. Need satisfaction as antecedent to motivation

SDT theorises that individuals have a natural propensity to be autonomously motivated and will seek environmental conditions which can help this to thrive. The extent to

which the environment does this is explained by the extent to which it satisfies individuals' basic psychological needs. In other words, when an environment satisfies an individual's needs for autonomy, competence and relatedness they are (in generalised terms) likely to be more autonomously motivated (Deci & Ryan, 2000).

In relation to intrinsic motivation, as explained above, satisfaction of the needs for competence and autonomy are seen as key, but not relatedness. With respect to the internalisation of extrinsic motivation, Gagné and Deci explain the theorised relationship thus:

"...when people experience satisfaction of the needs for relatedness and competence with respect to a behavior, they will tend to internalize its value and regulation, but the degree of satisfaction of the need for autonomy is what distinguishes whether identification or integration, rather than just introjection, will occur." (Gagné & Deci, 2005, p. 337).

So, in other words, relatedness and competence are important to the internalisation process but autonomy need satisfaction is key to encourage fully autonomous motivation. This is because, "for integration to occur there must be an opportunity for the individual to freely process and endorse transmitted values and regulations" (Deci & Ryan, 2000, p. 238). This is reflected in the ordering of the motivation types along a continuum of relative autonomy. The theorised relationships are summarised in table 3.1.

Table 3.1: Theorised relationships between satisfaction of each basic psychological need and each motivation type

Motivation type	Autonomy	Competence	Relatedness
Intrinsic	x	x	-
Integrated	x	x	x
Identified	x	x	x
Introjected	-	x	x
External	-	-	-

Notes:

x = need satisfaction is required; - = need satisfaction is not required

There has been little empirical research which specifically tests the individual relationships as stated in table 3.1. However, several studies have examined the relationship between need satisfaction and autonomous motivation in general terms. For example, Milyavskaya and Koestner (2011) found that need satisfaction in general (an aggregate of all three needs scales) has a positive relationship with relatively autonomous motivation (measured by the RAI) in multiple domains (e.g. school, relationships, work). Richer et al (2002) found a positive relationship between satisfaction of the needs for competence and relatedness in the work environment, although they did not test autonomy need satisfaction. Motivation was, once again, examined as an index of relatively autonomous motivation. Research has also been carried out into the relationship between an ‘autonomy-supportive context’, which could be seen as an indicator of need satisfaction, and relatively autonomous motivation (e.g. Deci et al., 1994; Grolnick & Ryan, 1989; Williams & Deci, 1996). The only study that I am aware of which has reported the relationship between satisfaction of each

individual need and individual motivation types is by Markland and Tobin (2010). In this study, in the exercise domain, relatedness need satisfaction was further distinguished into two factors; personal relatedness and social assimilation. These authors found, as predicted, that satisfaction of the needs for autonomy and competence predicted intrinsic motivation and autonomy, competence and personal relatedness need satisfaction predicted identified motivation. Introjected motivation was positively predicted by personal relatedness but negatively by social assimilation. Finally, external motivation was negatively predicted by satisfaction of the needs for autonomy and social assimilation. This, therefore, broadly supports the suggestion that autonomy and competence need satisfaction are key for more autonomous forms of motivation and that relatedness is not required for intrinsic motivation. However, a study by Sheldon and Filak (2008) which examined only intrinsic motivation found that satisfaction of all three needs, including relatedness, *did* predict intrinsic motivation. Further research would clearly merit to test these relationships in other domains, and with respect to integrated motivation, which has been largely neglected.

3.4.5. Criticisms of basic needs theory

Throughout this section I have highlighted a number of issues with respect to basic needs theory and these are summarised below.

Firstly, the majority of empirical research has tested the relationship only between general need satisfaction and a composite motivation measure or index. The only research which I am aware of which distinguishes between needs and motivation types does so in the exercise domain and does not examine integrated motivation (Markland

& Tobin, 2010). This means that there is only limited empirical support for the relationships between satisfaction of individual needs and individual motivation types and this would warrant further exploration. This therefore needs more empirical research to thoroughly test this theoretical relationship.

Secondly, as highlighted in the section on the need for autonomy, one of the significant criticisms of the theory has been the extent to which this need generalised to a non-Westernised culture (Iyengar & Lepper, 1999) and this criticism has also been levelled in relation to women (Jordan, 1997), and the working class (Stephens, Markus, & Townsend, 2007) as summarised by Vansteenkiste, Niemiec and Soenens (2010). It is important to note, however, that SDT does not propose that individuals' needs cannot be satisfied in different ways (as they may do between these groups) but that they are universal in that satisfaction of the three needs will lead to optimal functioning regardless of personal characteristics (Deci & Ryan, 2000). Indeed, there has been some empirical support for the universality of these needs with respect to 'Eastern' cultures (e.g. South Korea; Jang, Reeve, Ryan, & Kim, 2009; Russia and China; Lynch, La Guardia, & Ryan, 2009), working-class Americans (Williams, Niemiec, Patrick, Ryan, & Deci, 2009), and both men and women (Ryan, La Guardia, Solky-Butzel, Chirkov, & Kim, 2005). This criticism is therefore disputable.

Finally, there have been questions about the extent to which these three needs explain the whole range of human behaviour. Other needs have been suggested including power, structure, and physical safety (Duriez, 2010); security, growth, self-accomplishment, self-esteem and meaning of life (Szadejko & Bisagni, 2010). In addition is McClelland's (1987) need for achievement which has some overlap with competence

although, as discussed above, McClelland sees this as an emergent rather than innate need. Vansteenkiste et al (2010) explain that the proposal of only three universal needs is consistent with the theory of parsimony and there has not yet been enough empirical support for the addition of 'new' needs, although the theory would allow for the addition of needs if support was found. It is beyond the scope of this thesis to consider additional needs but further published research testing these proposed additional needs would be beneficial.

3.5. Facilitating internalisation; the role of the job context

SDT proposes that, by understanding the extent to which the environment encourages satisfaction of three basic psychological needs, it is possible to predict the extent of the internalisation. A context that supports the need for autonomy has been shown to be the most important factor in encouraging autonomous extrinsic motivation (identified and integrated) (Gagné & Deci, 2005). However, on the basis of the theory that the context should support the satisfaction of all three basic psychological needs (autonomy, competence and relatedness) I refer to this as a 'needs-supportive' job context. This can be characterised both by the interpersonal ambience, reflected in managers' style and specific elements of the job context, for example positive feedback and promoting autonomy (Gagné & Deci, 2005).

Beginning with the interpersonal ambience, three factors have been identified through empirical studies (Baard, Deci, & Ryan, 2004; Deci et al., 1994) that will promote autonomy support, thereby promoting internalisation when present: 1) providing a meaningful rationale for the task in a non-manipulative way; 2) acknowledging the

individual's perspective and; 3) providing choice rather than control. These characteristics are collectively referred to as 'manager autonomy support'. Deci et al (1994) manipulated these factors in the context of students performing a boring task (so as not to encourage intrinsic motivation). A non-autonomy-supportive environment was created by the presence of none or one of these factors, and an autonomy-supportive context included two or three. They found that, when the social context provided 2 or 3 of these factors, internalisation (in the form of integration) was encouraged, but when 0 or 1 were present the motivation remained controlled (introjected). There is empirical support for the role of this autonomy-supportive context in encouraging internalisation in the case of university lecturers (Williams & Deci, 1996), parents (Grolnick & Ryan, 1989) and managers (Baard et al., 2004).

With respect to the job context, there is much theory to draw on from the job design / job characteristics field about the extent to which aspects of the job predict intrinsic motivation (Porter, Lawler, & Hackman, 1975) but much less about the internalisation of motivation. Characteristics such as the extent to which the job itself provides autonomy (Hackman & Oldham, 1975), feedback from both significant others and from the job itself (Gagné, Senecal, & Koestner, 1997), and also the extent to which the job or task requires heuristic (independent, creative, reasoned) thought (McGraw, 1979) have all been found to predict increased intrinsic motivation. Several studies have also examined aspects of the job context (in the form of job demands and job resources) with respect to need satisfaction (Fernet, Guay, & Senecal, 2004; Van den Broeck, Vansteenkiste, De Witte, & Lens, 2008) but not the internalisation of motivation that I am aware of. Gagné and Deci (2005) point out that, although the factors that facilitate

internalisation are similar to those that maintain intrinsic motivation there are significant differences in that intrinsic motivation does not require such structure (from the job context) to maintain, whereas it is the structure that is internalised in the case of extrinsic motivation. This would, therefore, suggest that further research on the role of job context in encouraging more internalised extrinsic motivation would be beneficial.

The final point worth noting with respect to internalisation is that the research reviewed here has suggested that the needs-supportive job context might predict intrinsic motivation both towards work in general (Gagné et al., 1997) but also in relation to specific tasks (Deci et al., 1994). However, again, there is little or no research testing this with respect to internalisation. Further research is therefore required to examine this.

3.6. Reward and motivation from the point of view of SDT

In this section I will review the body of research which examines the reward-motivation relationship from the perspective of SDT. I begin by outlining the theoretical basis of the undermining theory proposed by SDT. I then review the extensive body of empirical research from other fields of psychology, primarily education psychology, testing this theory. I finish this section by considering the limited number of studies which have tested the theory with respect to workplace rewards and work motivation.

3.6.1. Theoretical basis of the ‘undermining theory’ of reward on autonomous motivation

The most significant, and controversial, proposition associated with SDT research is that external rewards can reduce autonomous motivation, and therefore negatively affect associated positive behavioural and psychological outcomes. As with the other ‘undermining’ theories reviewed in the previous chapter, this directly contradicts dominant theories of work motivation such as goal-setting theory (Latham & Locke, 2007) and expectancy-valence theory (Porter et al., 1975) which would suggest that extrinsic reward for an intrinsically interesting task would increase overall motivation to positive effect. It has led to spirited debate about the nature of motivation and led to many criticisms, which are discussed later in this section. In this section I first outline the theoretical relationship between different forms of reward and motivation as set out by SDT and review empirical support for this.

SDT proposes that rewards will have *controlling* and *informational* aspects (Deci and Ryan, 2002). Informational aspects are those which emphasise choice, providing information to allow individuals to effectively interact with their environment. For example; unexpected positive feedback which recognises the contribution of an individual’s performance to helping their colleagues, can be seen as informational because it allows individuals to evaluate how they are performing a task and relate this to the “bigger picture”. Controlling aspects provide pressure to think, feel or behave in certain ways in return for reward. For example; a performance-related bonus which is contingent upon answering a certain amount of calls within a day can be controlling

because the individual is under surveillance and therefore feels pressure to perform. These two aspects of reward interact with motivation through two cognitive processes. Firstly, if the informational aspects of reward are more salient it can lead to an increase in individual's *perceived competence* (White, 1959). For example, constructive feedback in relation to a task is perceived as informational in that it allows individuals to assess how competent they are at their job (Ryan & Deci, 2002). The second cognitive process derives from theories of personal causation (deCharms, 1968; Heider, 1958) and relates to the concept of *locus of causality*, which describes an individual's perceived reason for acting. When an external reward is introduced in which the controlling aspects are more salient it leads individuals' *perceived locus of causality* (their understanding of why they are performing the task) to shift from internal to external (Deci, 1975; Gagné & Deci, 2005). In other words, they believe that they are performing the task to obtain the external reward, not because of the value of the task in itself.

3.6.2. Empirical research on the 'undermining theory'

This proposition has a strong empirical background. The first published research on human subjects in relation to the interaction between intrinsic motivation and extrinsic reward was by Deci (1971), which was extended by numerous studies throughout the 1970s and 80s. Much of the early experimental work within SDT used free-choice persistence behaviour as a measure of intrinsic motivation. This measure derived from the operational definition of intrinsic motivation, which is the performance of a task or activity without the need for an external control (Deci & Ryan, 1985a). In these experiments, individuals were given an intrinsically interesting task to perform (usually

a puzzle or computer exercise) and the experimental group was normally given a target and/or reward, which had different characteristics depending on what was being measured (e.g. type of contingency). The experimenter would tell the subjects that the experiment was over and would give some reason for leaving the room for a period of time. During this time they observed the subjects' persistence on the activity once they have been told that the experiment was over. Persistence on the task in their "free-time" was taken to indicate intrinsic motivation in the task (Deci & Ryan, 2008). There has been some discussion over whether free choice persistence is the same form of intrinsic motivation as the theoretical definition (e.g. Cameron, 2001) and, as a result more recent research into the intrinsic-extrinsic interaction have used both free-choice persistence and self-report measures of intrinsic motivation.

In the 1990s several meta-analyses were undertaken examining the undermining effect of extrinsic reward on intrinsic motivation (Rummel & Feinberg, 1988; Tang & Hall, 1995; Wiersma, 1992). Eisenberger, Cameron and Pierce (Cameron & Pierce, 1994; Cameron, 2001; Eisenberger & Cameron, 1996) in particular reported no significant negative effect of extrinsic rewards on intrinsic motivation, leading to rebuttals from Deci, Koestner and Ryan (Deci et al., 1999a; Deci, Koestner, & Ryan, 1999b, 2001a, 2001b; Ryan & Deci, 1996) claiming that their methodology was flawed, that they used inaccurate definitions of reward contingencies and misrepresented their findings. Deci, Koestner and Ryan's (1999a) meta-analysis of 128 studies into this relationship in school and college age children was undertaken in response to Eisenberger, Cameron and Pierce (1996) and is now generally cited as the most definitive meta-analysis (Lepper, Henderlong, & Gingras, 1999). They identified a number of characteristics

which define whether reward would undermine intrinsic motivation or not. The first important characteristic is the type of contingency; performance contingent rewards (for achieving a specified level of performance on the task) have been shown to have less detrimental affect than engagement- (for simply taking part) or completion-contingent (for completing the task rather than the level of performance) rewards. Secondly, they found that unexpected rewards do not undermine intrinsic motivation, where expected rewards do. Verbal rewards in the form of positive feedback were found to enhance intrinsic motivation. This is likely to be because verbal rewards are largely unexpected in these experiments and therefore non-contingent. Deci, Koestner and Ryan (1999a) hypothesise that expected verbal rewards *would* undermine intrinsic motivation but this has not been tested. The meta-analytic findings can be explained by the cognitive processes outlined above: Performance-contingent rewards have controlling aspects, in that they involve a certain level of surveillance in order to assess performance, but also provide competence information through the performance evaluation. Therefore, the impact of this form of reward is somewhat detrimental to autonomous motivation (in that it shifts perceived locus of causality to external) but not as much as if competence has been undermined as well. Expected reward is designed to control behaviour, thereby leading to a reduction in autonomy and shift of locus of causality to external, as opposed to unexpected reward which can convey no control because it is unknown before the task is complete. Unexpected, verbal rewards provide information about competence but do not undermine satisfaction of the need for autonomy because they are not expected while completing the task and therefore do not impact on the perceived locus of causality.

It is also important to emphasise the distinction that SDT makes between heuristic (requiring creative thought and the application of skills and knowledge) and algorithmic (repetitive, low skilled, requiring little creative thought) tasks (McGraw, 1979). The negative effect of reward on autonomous motivation is hypothesised to apply only to heuristic tasks, and the theory acknowledges that algorithmic tasks, which have no intrinsic interest or value to the individual, will likely need an external reward to motivate behaviour because the task itself will not help to satisfy the basic psychological needs (Gagné & Deci, 2005). Further to the characteristics of the reward itself, SDT posits that the interpersonal context in which the reward is administered also affects the resulting motivation. In particular, the extent to which the context provides support for the basic psychological needs. It is important to note that controlled motivation (e.g. external motivation or introjection) is still motivation. Therefore, SDT does not propose that reward is not motivational. Rather, that it can shift the perceived locus of causality of behaviour to external to the self and that this has less positive outcomes than internal causality.

3.6.3. Empirical research on the ‘undermining theory’ from the work domain

Despite these interesting findings published research on individual’s workplace rewards and work motivation as defined by SDT has been scant (Gagné & Deci, 2005; Grant & Shin, 2011). Two relatively recent studies have, however, tested this in the field. In the first, a field-based study from Norway, Kuvaas (2006b) found that intrinsic motivation mediated the positive relationship between base pay and performance, but

not between bonus and performance. This study does not, therefore, support an undermining effect but does suggest that base pay can enhance intrinsic motivation, which would support SDT. Kuvaas suggests that these different results are because base pay provides more indication of job competence than bonus which draws attention more to what individuals have delivered over a fixed period of time. This highlights the need to examine different aspects of organisational reward. This study has the strengths of being field based and measures person level motivation (in contrast to the study by Fang and Gerhart, reviewed below) but utilised self report data and focused only on intrinsic motivation rather than the full range of motivation proposed by SDT.

In a second study Fang and Gerhart (2012) tested competing hypotheses deriving from CET and from attraction-selection-attrition theory. It explores the motivational impact of strength of the link between pay for individual performance (PFIP) and individual performance outcomes. This cross-sectional study examined these hypotheses across organisations. The strength of the performance–pay link was assessed by two top human resource professionals in each organisation and this was compared to average levels of need satisfaction and intrinsic motivation from self-reports of a sample of employees in each organisation. These authors found that organisations which had a stronger link between performance and pay to be associated with higher overall intrinsic interest and that this was, in part, mediated by satisfaction of the needs for autonomy and competence. This therefore contradicts CET/SDT. Fang and Gerhart suggest that this might be because rewards are the norm in the work environment so they are not as controlling as has been found in domains such as education and exercise.

These are important findings but there are a number of points to highlight with respect to the methods employed in this study. Firstly, the PFIP plan was assessed by human resource professionals in each organisation, with 6 items aimed to gauge the strength of the performance–pay link. No objective data were therefore employed or individual perceptions of reward measured, so there is no way of knowing how effectively the organisation’s approach to performance-pay link translated into employee perceptions. Secondly, intrinsic interest was measured through a self-report scale which is quite different from other psychological research in the field. Some items (e.g. “the chance to do something that makes use of my abilities”) are arguably more about the extent to which the task requires heuristic thought than they are about intrinsic interest. Likewise, “the chance to do different things from time to time” is about task variety, and “the feeling of accomplishment I get from the job” is about personal accomplishment, which is more about ego involvement, and therefore analogous to *introjected* motivation as defined by SDT.

Gagné and Forest (2008) published a theoretical paper which attempts to hypothesise the complex relationships between workplace compensation, need fulfilment and relatively autonomous motivation based on research from other domains. They propose a model whereby compensation is defined by the amount of pay, the variable vs. fixed ratio, the objectiveness of the performance assessment and whether it is individual or group based reward. The extent to which these factors relate to basic psychological need satisfaction is proposed to be mediated by distributive justice, the level of autonomy support in the work climate, procedural justice and the organisational culture. Need satisfaction will depend on the interaction between these variables (e.g.

the extent to which the climate and culture provides autonomy support as outlined above) and is then related to autonomous motivation and the associated positive outcomes. This is revisited in later chapters where I make specific hypotheses. Although these authors are currently testing this model, no data has yet been published on the subject (J. Forest, personal communication, May 2013).

As discussed in the previous chapter, there have been mixed findings for whether or not rewards 'undermine' intrinsic motivation. However, there is little (or no) research which examines this with respect to more autonomous extrinsic motivation proposed by SDT, or which tests the basic psychological needs as mediators of the reward-motivation relationship. The motivation continuum central to SDT now offers more flexibility in explaining the relationship between reward and motivation, because it does not simply consider intrinsically interesting tasks, and therefore has the potential to be applied to the work environment. Empirical research is needed to test this, which is therefore the central aim of this thesis.

3.6.4. Limitations of SDT reward-motivation research

Although the central proposition of SDT has found popularity in practitioner-focused literature (e.g. Pink, 2010) there are several significant reasons why the theory cannot yet be generalised to the work environment. Firstly, a key criticism from organisational scholars of SDT research into reward is that it is based largely in the lab, or in field conditions where reward is not necessarily the norm (Gerhart et al., 2009). Indeed, Staw et al (1980) suggest that extrinsic reward is 'socially obligatory' for some tasks (e.g. work) but not for others (e.g. exercise) which therefore creates a norm which influences

the extent to which the reward is experienced as controlling. Two important experimental studies in the 1970s examined the extent to which the norm of reward impacts on the hypothesised negative impact of reward on intrinsic motivation. Kruglanski et al (1975) manipulated two reward conditions, where adolescents were given a small financial reward for completing a task. The sample was split into two groups. The first completed a task where reward was implicit in the task (a coin-toss game in experiment 1 and stock market game in experiment 2). The second group completed a task which was unrelated to financial reward (a model-construction game in experiment 1 and athletics game in 2). Kruglanski and colleagues found that reward only reduced intrinsic interest (a proxy for intrinsic motivation) where reward was not the norm (the model construction or athletics games). In research by Staw et al (1980), college students were told that they needed to take part in an experimental study in order to gain course credits. One group were told, at the beginning of the semester, that it was appropriate for them to be paid for taking part in the session (norm for payment group) and the other group were told that students were not normally paid for these sessions (norm for no payment group). Reward was found to reduce satisfaction and persistence (as proxies for intrinsic motivation) only for the 'norm for no payment' group. Both of these studies indicate that reward might not undermine intrinsic motivation for the task where it is the norm for that task. One might suggest that, where rewards are the norm, they are less salient and therefore less likely to lead to an external locus of causality (deCharms, 1968). Although the extent to which reward norms exist in work organisations is likely to vary, pay for work is a basic expectation of paid employment so some level of norm is likely to exist. This therefore draws into

question the extent to which the findings from others fields or the lab can be generalised to the work environment. It therefore seems critical, before making any conclusions about reward and motivation at work, to examine this in the work environment.

The second important consideration is the extent to which the reward–motivation relationship is the same for different age groups. As highlighted by Fang and Gerhart (2012), the Deci, Koestner and Ryan (1999a) meta-analysis found that extrinsic rewards were more detrimental to intrinsic motivation for children than college students and further suggested that; “college students have greater cognitive capacity for separating the information and controlling aspects of rewards and are also more accustomed to operating with performance-goal orientations, so they may be more ready to interpret rewards as indicators of their effective performance than controls of behaviours” (Deci et al., 1999a, p. 656). If this is true of college students over school children, then it seems likely to go further for working adults. Without further examination of reward and motivation in relation to adults at work, this question cannot be answered.

A third point to note relates to the way in which rewards are conceptualised. As shown in Deci, Koestner and Ryan’s meta-analyses (1999a, 1999b, 2001a, 2001b), it is important to take into account the nature of the reward to understand its motivational effect. This has also been found in organisational research where Kuvaas (2006b) found that base pay increased intrinsic motivation but bonuses did not. Much of the research from other fields such as educational psychology is therefore difficult to generalise to the work environment not least because experimental rewards are invariably much smaller than workplace financial rewards. This also applies to the context in which

reward is administered. As highlighted by Johns (2006), organisational behaviour research should take into account the context of a phenomenon as this is a large part of the whole picture. Gagné and Forest (2008) suggest that the extent to which the work context provides support for needs will influence how individuals perceive reward and therefore the impact of workplace rewards on motivation but this has not yet been tested.

Finally, the vast majority of research carried out into reward and motivation as proposed by SDT (in labs or field settings other than work) have examined only the influence of reward in *intrinsic* motivation, not on the more elaborate distinction of autonomous relative to controlled motivation or the different extrinsic motivation types. This has several limitations. Firstly, it seems unlikely that all tasks at work will be inherently intrinsically motivating. Therefore, it is particularly beneficial to understand the relationship between reward and more autonomous extrinsic motivation, which has also been associated with positive behavioural and psychological outcomes (e.g. Ilardi, Leone, Kasser, & Ryan, 1993; Kuvaas & Dysvik, 2009; Van den Broeck et al., 2008). Related to this, as pointed out by Prendergast (2008), focusing only on structuring work to encourage intrinsic motivation might lead individuals to be motivated only to perform activities that they enjoy, rather than those which are useful. Further research is therefore needed to examine the relationship between reward and the other types of motivation as proposed by SDT, which is the primary aim of this thesis.

3.7. The relationship between motivation and outcomes

The particular strength of SDT as a theory of motivation is that it allows a greater understanding of the experience of motivation, by proposing that more autonomous motivation will be related to more positive experience for the individual. This has clear implications for organisational based research, where researchers and practitioners are interested in how to encourage happy and productive workers.

A wide range of research from a number of psychological fields has tested the relationship between different forms of motivation and psychological and behavioural outcomes. There have been consistent findings to support the suggestion that more autonomous forms of motivation are related to more positive outcomes but there are some questions about differences between individual motivation types. In this section, I begin by considering the theoretical link between motivation and outcomes as proposed by SDT. I will then review empirical support for the relationship between motivation as proposed by SDT and outcomes in the form of performance, intention to quit, engagement, subjective wellbeing and job satisfaction.

3.7.1. Theoretical link between motivation and outcomes

The theorised link between motivation and outcomes is centred on the proposition that individuals have an inherent tendency towards internalising the value of their experiences and, when they do so, this represents optimal functioning which is therefore associated with positive outcomes (Ryan & Deci, 2000). In other words, “employees are likely to display optimal performance and well-being in a context in

which their inherent tendency [to meaningfully integrate the value of their experiences] is cherished and encouraged” (Van Den Broeck et al., 2008, p. 64). So, motivation which is experienced as more autonomous (that is, intrinsic or internalised extrinsic motivation) is related to more positive outcomes. The outcomes considered here have been selected as they represent a range of experiential outcomes which could be seen as representative of individuals’ optimal functioning. In particular, engagement, subjective wellbeing and job satisfaction have been suggested as aspects of happiness at work (Warr & Inceoglu, 2012). Performance and intention to quit are important because they represent concerns of the organisation.

Much of the research cited below focuses either on the intrinsic/extrinsic or autonomous/controlled distinction, rather than the individual motivation types. As discussed earlier in this chapter, there has been some limited research which has identified distinctions between different types of autonomous motivation (Jang, 2008; Koestner & Losier, 2002). It is clear from the research cited below that the nuances of outcomes associated with different motivation types requires further exploration (Gagné & Deci, 2005).

In the following sections I review empirical support for the relationship between motivation as defined by SDT and different behavioural and psychological outcomes. Where possible, I focus on work-based outcomes, but there is limited research in this field so research from other fields of psychology is also cited. There also appears to be a dearth of meta-analyses on this subject. I was unable to find any which reviewed research on the relationship between any of the motivation types (even intrinsic, which

is arguably the most widely researched) and outcomes. My review therefore includes a summary of individual studies.

3.7.2. Performance

There have been a number of studies which have examined the relationship between intrinsic motivation and individual performance in an organisational setting. For example, Kuvaas and Dysvik (2009) found, in two field-based cross-sectional studies, that intrinsic motivation significantly predicted higher levels of self-reported effort at work. Likewise, Dysvik et al (2010) found the same for job trainees with respect to both self-reported work effort and quality. In a field-based panel study across two time points, Zapata-Phelan et al (Zapata-Phelan, Colquitt, Scott, & Livingston, 2009) found that change in self-reported intrinsic motivation positively predicted change in supervisor-rated performance. In relation to job searching, which is productive and therefore could be seen as a form of performance, Vansteenkiste et al (2004) found more relatively autonomous motivation to be associated with greater levels of job search behaviour. In all of these studies, the strength of the correlation between intrinsic or autonomous motivation and performance outcomes was moderate to strong (ranging from .21 to .35).

As highlighted above, there has been little research which has examined the relationship between the individual motivation types and performance outcomes. As outlined elsewhere in this thesis studies by Koestner, Losier and colleagues (Koestner et al., 1996; Koestner & Losier, 2002) have examined the differential effects of introjected, identified and intrinsic motivation on outcomes. Their research suggests that

individuals are more productive when they identify with the value of the task, where inherent interest in the task might not transfer to productive behaviours.

The studies reviewed in this section broadly support the suggestion that more autonomous forms of motivation relate to better performance but the research by Koestner, Losier and colleagues is particularly interesting in the context of work. Arguably, many work tasks are, by their nature, not intrinsically interesting and their study would suggest that internalised extrinsic motivation might encourage higher performance in these conditions. There is also the challenge in the work context about how performance is evaluated. In the above studies, performance was measured through the researcher's assessment. However, in field-based organizational studies, performance data is often available from organizational records, although the objectivity of this is not always certain (Bol & Smith, 2011; Bommer, Johnson, Rich, Podsakoff, & Mackenzie, 1995). The link between the different forms of motivation and performance in organisations therefore needs further exploration.

3.7.3. Engagement

There are several different interpretations of work engagement. Often seen as the originator of the concept, Kahn (1990) sees it as the extent to which individuals give themselves to their work role and is, as such, a psychological state manifest in behaviour. Whereas, Schaufeli and colleagues (Schaufeli, Bakker, & Salanova, 2006) describe work engagement as a positive affective state that is characterised by vigour, dedication, and absorption towards work. For the purposes of this research, the Schaufeli et al definition is adopted because it describes an affective state which can

therefore be seen as an outcome of motivated behaviour. It is also worth noting that engagement tends to be seen as a persistent affective state (Bakker, Schaufeli, Leiter, & Taris, 2008) but has also been examined as a more transient, everyday concept (Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009; Xanthopoulou, Bakker, Heuven, Demerouti, & Schaufeli, 2008).

There have been several studies that have examined the relationship between motivation as defined by SDT and engagement. For example, in their field-based cross-sectional survey, Parker et al (2010) found a strong relationship ($r_s = .48$ to $.66$) with between autonomous motivation and each of the dimensions of work engagement (dedication, absorption and vigour). However, controlled motivation also predicted higher engagement but the relationship was weaker ($r_s = .25$ to $.38$). It seems that controlled motivation can also predict increased engagement, but not as strongly as autonomous motivation. Autonomous motivation and controlled motivation were modelled as higher-order latent variables. Although Parker et al do not explain which motivation types constitute the latent constructs their referenced indicate that controlled motivation variable may include amotivation, which is a lack of motivation and I would argue therefore quite different from external or introjected motivation which are both active motivation types. The inclusion of amotivation would make the positive relationship with engagement even more surprising but the individual motivation types would warrant further investigation.

Burnout can be seen as the antithesis of engagement, and is commonly operationalised as exhaustion, cynicism towards work and a lack of personal efficacy (Schaufeli et al., 2006). In a longitudinal study, Fernet and colleagues (Fernet, Gagné, & Austin, 2009)

found that relatively more autonomous motivation towards work was negatively related to burnout a year later. Relatively autonomous motivation also moderated the relationship between co-worker relationships and burnout over the same period in that more autonomous motivation protected against the detrimental effects of poorer co-worker relationships.

As discussed above, the primary limitation of considering autonomous motivation together or as relative to controlled motivation is that it could mask some of the nuances between the different autonomous motivation types. This is illustrated by Jang (2008), who examined the impact of interest (intrinsic) and identified motivation on engagement in students performing a “boring” task, learning about correlations.

Although the task was seen as boring, individuals were asked if they have used strategies to make it more interesting. In this case engagement was conceptualised as attention, effort and persistence toward the task. Identified motivation was found to have a greater positive impact on engagement than intrinsic motivation. Jang suggests that this may be because recognising the value of the task (identified motivation) is more powerful for task engagement than encouraging an interest in the task (intrinsic motivation).

It is important to acknowledge that motivation, as defined by SDT, and engagement are closely related concepts. In fact, Meyer and Gagné (2008) suggest that state employee engagement and autonomous motivation are representative of the same psychological state. I would rather argue that motivation is the force behind behaviour (the ‘reason’ for the behaviour; Ryan & Connell, 1989) and engagement is a way of conceptualising the resulting state, considered alongside effort/performance, wellbeing, satisfaction or

intention to quit as outcomes. Indeed, Jang's study would suggest that it is too simplistic to suggest that more autonomous motivation (of which intrinsic is the most autonomous) is the same as greater engagement. There is also empirical support for the discriminant validity of engagement and both intrinsic (Jang, 2008; Rich, Lepine, & Crawford, 2010) and identified motivation (Jang, 2008).

It is clear that autonomous motivation and engagement are closely related but further research would merit to examine the relationship between all five types of motivation proposed by SDT, and engagement towards work.

3.7.4. Subjective wellbeing

As outlined above, one of the central propositions of SDT is that more autonomous forms of motivation, in particular intrinsic motivation, are conducive to optimal functioning which is in part characterised by positive affect. A wide range of research has found this to be the case and I was unable to find any research which contradicted this.

In a study by Nix et al (1999), two affective outcomes were examined in relation to motivation; happiness and vitality. Across three experiments, they manipulated both autonomous and controlled motivation for performing various interesting tasks (e.g. card sorting game) and found that autonomous motivation had a stronger positive relationship than controlled motivation with vitality but not with happiness, where there was no significant difference. On the other hand, Sheldon et al (2004) examined motivation for pursuing goals in 3 experiments. They found autonomous, relative to

controlled, motivation for goals to be related to greater levels of happiness, subjective wellbeing and life satisfaction. Levesque et al (2004) found relative autonomous motivation to be negatively related to emotional exhaustion in relation to teachers in Gabon. In an experimental study, Guay and colleagues (2008) found identified motivation to be positively related to self-esteem. The positive impact of autonomous motivation on wellbeing has also been found in sport (Mouratidis, Vansteenkiste, Lens, & Sideridis, 2008) and healthcare (Williams, Grow, Freedman, Ryan, & Deci, 1996).

Vansteenkiste et al (2004) examined the impact of autonomous and controlled motivation towards job seeking on affective experience and wellbeing. They discovered, contrary to their hypotheses, that more autonomous motivation was not consistently related to more positive affective and wellbeing outcomes in the face of job searching and unemployment. This suggests that it is particularly important to take the context into account.

There is generally good support for the suggestion that more autonomous motivation is related to more positive experience for individuals but, again, the differences between motivation types has been little explored. It is also clear, based on the final study, that context needs to be taken into account so it is not safe to assume that findings from other fields will automatically generalise to the work environment.

3.7.5. Job satisfaction

One of the most commonly studied outcome variables in relation to work-based SDT research appears to be job satisfaction and there is strong support for a positive

relationship between the two. In the field, a positive relationship has been found between intrinsic motivation and work satisfaction in junior and middle managers (Harigopal & Kumar, 1982), marketing professionals (Keaveney & Nelson, 1993) and factory workers (Ilardi et al., 1993). In relation to the wider concept of autonomous motivation, Levesque et al (2004) found relative autonomous motivation to be positively related to job satisfaction. I am not aware of any research which examines job satisfaction as an outcome of the full range of motivation as proposed by SDT. The other important point to note in relation to job satisfaction is that it is frequently found to be related to other outcome variables. For example, various studies have found wellbeing to be related to job satisfaction (e.g. Ilardi et al., 1993; Richer et al., 2002). It has also been associated with secondary outcomes, such as intention to quit, which is discussed below.

3.7.6. Intention to quit

There have been several studies which have found a direct negative relationship between intrinsic or autonomous motivation and intention to quit. For example, in two separate studies of working adults, Dysvik and Kuvaas (Dysvik & Kuvaas, 2010; Kuvaas, 2006a) concluded that intrinsic motivation was a strong negative predictor of intention to quit ($r_s = -.33$ and $-.37$). This relationship was also found in respect of individual differences in motivation orientation (autonomous or controlled); respondents with a higher tendency towards autonomous motivation had lower intention to quit (Vansteenkiste et al., 2007). Likewise, also in relation to working adults, Richer, Blanchard and Vallerand (2002) found support for the hypothesis that more

autonomous motivation is negatively related to intention to quit ($r_s = -.22$ to $-.42$), and that this relationship is mediated by emotional exhaustion and work satisfaction. This indirect relationship strengthens the argument as research has found, for example, that job satisfaction is negatively related to intention to quit (e.g. Porter & Steers, 1991; Vroom, 1964) which, as discussed above has been associated with more autonomous forms of motivation.

Although there are several studies examining intention to quit, they are focused on the intrinsic/extrinsic or autonomous/controlled distinction so further research would merit examining whether there are any nuances with the individual motivation types.

3.7.7. Summary – motivation and outcomes

This section has summarised the theoretical basis and empirical support for the relationship between intrinsic, but also more broadly, autonomous motivation and a range of outcomes. In the broadest terms these forms of motivation have been found to be associated with more positive outcomes and less with negative outcomes supporting the theory that they are more conducive to optimal functioning. However, where the differentiated forms of extrinsic motivation have been explored, these relationships are not always so clear cut. This, therefore, supports the need for further research to understand more about the behavioural and psychological outcomes of the different forms of motivation proposed by SDT.

3.8. A review of SDT research from the work domain

Despite this early influence of industrial psychology on Deci's work (1971, 1975), it is perhaps surprising that SDT is not more established within industrial/organisational psychology where behavioural and expectancy-valence theories of motivation are still dominant (Gagné & Deci, 2005). As outlined in this and the previous chapters, the important difference between SDT and other theories of work motivation, is the distinction that SDT draws between quantity and quality of motivation. While the dominant motivation theories such as goal-setting theory (Latham & Locke, 2007) and expectancy-valence theory (Porter et al., 1975) emphasise the importance of structuring work to encourage greater overall motivation, where intrinsic and extrinsic are additive, SDT proposes that autonomous motivation will lead to more positive outcomes than motivation which is controlled (Gagné & Deci, 2005; Van Den Broeck et al., 2008).

One of the main reasons that SDT has not been fully embraced by work psychologists is the level of criticism that early cognitive evaluation theory received within the field, as outlined above: The first issue concerns the applicability of intrinsic motivation to work tasks, and the suggestion that many activities at work do not have inherent intrinsic interest making extrinsic rewards necessary to encourage motivated behaviour (Locke, 1993). The second concern is that much SDT research is lab-based or from other fields of psychology, so its validity in an occupational setting has been questioned (Fang & Gerhart, 2012). Thirdly, it has been difficult for work psychologists to accept that reward can lead to negative behaviours and emotions when pay is an expectation in exchange for work (Gagné & Deci, 2005; Van Den Broeck et al., 2008). One of the

challenges, therefore, for SDT theorists has been to overcome the limitations of cognitive evaluation theory and to show how SDT has developed to address these concerns. Influentially, Gagné and Deci (2005) presented a research agenda for SDT in the work environment, identifying aspects of the work environment (challenge, choice, rationale, feedback and managerial autonomy support) and individual differences (autonomous causality orientation) as antecedents of autonomous work motivation, which in turn will encourage positive outcomes in the form of performance, wellbeing, trust & commitment and job satisfaction. A growing base of research has developed in the field supporting this which is outlined below.

In relation to the acceptance of intrinsic motivation as a valid form of work motivation, there has been recent work in both economics and management which has indicates that this is becoming more accepted. Economist Bruno Frey (1997) has suggested that the increased motivation brought on by payment for effort might be crowded out by the reduction in intrinsic motivation leading to an overall net reduction in motivation and performance. Theresa Amabile (1997) has amassed a significant body of work showing that intrinsic motivation is possible in relation to work tasks and is more conducive to creativity. In popular management literature, Daniel Pink in his recent book *Drive* (2010) promotes SDT's suggestion that reward introduced to already intrinsically interesting tasks can undermine intrinsic motivation and what organisations should focus on is fulfilling workers' basic psychological needs to encourage optimal functioning. In addition to this, the development of the differentiated model of extrinsic motivation with its shift from an intrinsic/extrinsic dichotomy to an autonomous/controlled continuum of motivation has great applicability in the work

environment. This means that, even if there is no intrinsic interest in the task or activity, workers can still experience positive emotions, better wellbeing, satisfaction and higher performance if they are able to internalise the value of the work that they are doing and experience it as autonomous.

In response to the criticism that SDT has been developed mainly in a lab environment, the last decade or so has seen a steady increase in field-based SDT research in organisational/ industrial psychology exploring the relationship between aspects of the work context and autonomous motivation (and the associated positive outcomes) through need fulfilment. Firstly, there has been a body of research which has examined the relationship between an interpersonal work environment which provides autonomy support and a variety of outcomes. Deci, Connell & Ryan (1989) found that it was associated with satisfaction, trust and positive work attitudes. Other studies have found a positive impact of autonomy support through need fulfilment on acceptance of organisational change (Gagné, Koestner, & Zuckerman, 2000) wellbeing (Baard et al., 2004; Kasser, Davey, & Ryan, 1992), satisfaction and adjustment (Ilardi et al., 1993), emotional exhaustion and turnover intention (Richer et al., 2002), and prosocial behaviour (Gagné, 2003). Bono & Judge (2003) established a positive relationship between transformational leadership, which could be seen as a specific manifestation of autonomy support, and the extent to which “followers” set self-concordant (internalised) goals, which had a positive effect on job attitudes and performance. Sheldon et al (2003) suggest that transformational leaders encourage internalisation through appealing to their subordinates’ values, providing vision in relation to activities and encouraging individuals to pursue intrinsic goals rather than economic self-interest.

As well as these studies on autonomy support, job design is seen as an important contextual antecedent of autonomous motivation as outlined earlier in this chapter. Van den Broeck et al (2008) used the basic needs as proposed by SDT to explain how the presence of job demands and absence of job resources (as proposed by the Job-Demands Resources model) relate to burnout. They found that satisfaction of the basic psychological needs partially mediates the relationship between job demands and exhaustion and job resources and vigour. Fernet, Guay & Senecal (2004) found that, for workers higher in work self-determination, job control mediated the unhealthy affect of job demands on burnout, more than those low in self-determination. Gagné, Senecal and Koestner (1997) showed that the relationship between job characteristics (task significance, autonomy support, feedback), and intrinsic motivation was mediated by empowerment (defined as meaningfulness, autonomy, impact and competence and therefore conceptually very close to the basic psychological needs).

Although the acceptance of SDT within work psychology has been slow, in 2009 Gagné and Deci's (2005) paper on SDT in the work context was identified as one of the most influential papers published in the Journal of Organizational Behavior in the last 30 years (Ashkanasy, 2009) indicating a growing interest in the theory.

3.9. Summary of criticisms and theoretical issues

In this final section, I provide a summary of the issues and criticisms associated with SDT which were discussed throughout this chapter, and highlight areas for further research. These provide the basis of the aims of this research and link with the research framework set out in the next chapter.

3.9.1. Lack of relevant field research on reward–motivation

One of the main reasons that SDT has not been so readily adopted in work psychology as in other applied fields is that the empirical basis of the theory is largely lab-based and/or with young subjects so the generalisability to working adults has been questioned (Gerhart et al., 2009). In particular, there has been very little research testing SDT's theory of the relationship between rewards and motivation in relation to workplace rewards and none that I am aware of which has gone beyond the intrinsic/extrinsic dichotomy of motivation to explore the full motivation continuum, despite calls for this (Gagné & Forest, 2008). Research is therefore needed to test these relationships in relation to real workplace rewards, and to examine the relationship with all of the motivation types proposed by the theory.

3.9.2. Lack of research examining job context and internalisation

SDT suggests that the context in which an individual works and lives will define the extent to which their motivation is internalised according to whether it satisfies their basic psychological needs for autonomy, competence and relatedness. Several empirical studies have supported the role of the interpersonal context in encouraging the internalisation of motivation (Baard et al., 2004; Deci et al., 1994) but there has been little or none exploring the role of the job context in this. This is despite a strong empirical base which supports the relationship between these job characteristics and *intrinsic* motivation (Gagné et al., 1997). Empirical research is therefore needed to examine this, both with respect to specific tasks and also general attitudes towards work.

3.9.3. Compounding motivation types

Much of the research which has gone beyond the intrinsic/extrinsic distinction has done so by compounding the motivation types along the continuum into either an autonomous/controlled dichotomy or by calculating a relative autonomy index. Firstly, this raises questions about whether it is valuable to fully distinguish between all five types or whether autonomous/controlled motivation is just a new way of defining intrinsic/extrinsic. Secondly, it seems to contradict the theory which would suggest that intrinsic motivation, internalisation of extrinsic motivation and amotivation are separate processes. Finally, the limited research that has been done to examine the characteristics of the individual motivation types suggests the motivation types in the 'middle' of the continuum might be related to different outcomes (Koestner & Losier, 2002). Therefore, research would merit examining the antecedents and outcomes of the individual motivation types to examine what, if anything, distinguishes between them.

3.9.4. Relationship between needs and motivation types

Satisfaction of the basic psychological needs for autonomy, competence and relatedness is seen as the mechanism by which an environment encourages intrinsic or internalised extrinsic motivation. Despite the centrality of this to the theory, there has been little research to test the relationship between satisfaction of the individual needs and motivation as proposed by SDT. The limited research that has been done has primarily focused on an aggregate "need satisfaction", grouping all three together, and has not examined the individual motivation types. It is also, therefore, not possible to say the extent to which satisfaction of these needs acts as a mediator between contextual

antecedents and motivation. For the purposes of this research, it is particularly pertinent that there has been little research testing need satisfaction as a mediator between rewards and motivation.

3.9.5. Level of motivation

One overarching point to highlight, which has only been touched on briefly before, is the level at which motivation is studied. The majority of experimental research tends to examine motivation towards specific tasks or activities (Deci et al., 1999a). Field-based research, on the other hand, tends to focus on motivation as a general attitude towards work examined through self-report survey measures (Gagné, Forest, Vansteenkiste, Crevier-Braud, & Van Den Broeck, 2012). It could be argued that these are different processes; that task-focused motivation fluctuates from task to task but that general work motivation is relatively more stable (e.g. Beal, Weiss, Barros, & MacDermid, 2005). Indeed, Vallerand and colleagues (Vallerand, 2000; Vallerand & Ratelle, 2002) have suggested that motivation operates at three different levels; global (personality), contextual (life domain) and situational (state). According to this definition, experimental conditions tend to focus on situational motivation whereas field studies tend to focus on contextual motivation. Vallerand and colleagues propose that these three levels interact; e.g. a general feeling of autonomous motivation towards work (contextual level) is likely to relate to more autonomous motivation at the situational level (day-to-day tasks). This theory has found empirical support in educational psychology (Blanchard, Mask, Vallerand, de la Sablonnière, & Provencher, 2007; Guay, Mageau, & Vallerand, 2003).

As much of the reward–motivation research to date has been undertaken in experimental conditions, and it could be argued that day-to-day rewards play an important role in the work environment, further research would be beneficial to understand how the reward–motivation relationship operates on a day-to-day, as well as general work level. Indeed, it may be that the reward–motivation relationship operates differently at these two levels, which may explain some of the conflicting views about the role of reward.

3.10. Summary

This chapter presented an overview of SDT, a theory of motivation which emphasises the natural propensity for individuals to be autonomously motivated, which is associated with more positive behavioural and psychological outcomes. SDT proposes that aspects of the work environment can undermine more autonomous motivation if it does not support individuals' basic psychological needs for autonomy, competence and relatedness. I finished by summarising the issues which need to be addressed by future empirical research, namely this thesis. In the following chapter I set out the research framework through which I aim to examine these aspects.

Chapter 4: Research framework

4.1. Introduction

In this chapter, I will summarise the issues that the literature review has highlighted and outline how this research will attempt to address these. I will then outline the research questions (RQs) which guide this thesis. The final section of this chapter provides an introduction to the empirical studies in this thesis and a discussion on mixed methods research.

4.2. Issues arising from literature review to be addressed by this research

This section summarises the issues raised from the review of the literature and an explanation of how these will be addressed with the primary data.

The most significant issue highlighted in the research into the relationship between reward and motivation is the diverse, and conflicting, conclusions that have been reached. Motivation is examined in many different ways and there is no 'megatheory' of motivation (Locke & Latham, 2004). Traditional theories of work motivation measure effort or performance as proxies for motivation and, in this case, motivation is treated as a one-dimensional concept. That is, individuals are more or less motivated and both intrinsic and extrinsic factors will increase the overall level of motivation (e.g. Gerhart et al., 2009; Lawler, 1973; Locke, 1993). However, it seems too simplistic to suggest that motivation is only about the effortful output, but rather that it should be seen as a

potential range of motivated behaviour. There has been strong empirical support for this suggestion (Deci & Ryan, 2002). SDT proposes a continuum of motivation, along which five types of motivation can be arranged from more controlled to more autonomous. More autonomous forms of motivation are seen as better quality because they have been associated with more positive behavioural and psychological outcomes (Gagné & Deci, 2005). SDT acknowledges the motivational impact of reward but motivation focused on external reward is seen as more controlled, and therefore poorer quality. This has been supported by empirical research in the lab and other fields of psychology (Gagné & Forest, 2008 for a review). An examination of the relationship between rewards and the full range of motivational experience could therefore build a much more nuanced picture of the motivational outcomes of rewards. It is for this reason that this research uses SDT as the theoretical basis to examine the motivational outcomes of rewards in the workplace.

Although SDT provides a strong theoretical base for examining the reward–motivation relationship there are a number of limitations of existing SDT research which this research aims to address. These are outlined in detail at the end of the previous chapter so summarised only briefly here. Firstly, much of the extant research has been lab-based, with non-working populations, manipulating rewards which may not be representative of workplace rewards so has questionable generalisability to the work environment. Secondly, the context in which reward is administered has been relatively neglected by previous research thereby only revealing a partial picture of the motivational processes. Thirdly, the scoring mechanisms used for the established self-report motivation scales compound the motivation types despite some evidence that

the individual types may highlight important differences with respect to antecedents and outcomes. Fourth, there has been little research testing of the theoretical relationship between satisfaction of the individual needs and individual motivation types which is at the heart of the theory. Finally, much of the experimental research under SDT has focused on task-level motivation whereas field studies tend to focus on motivational attitudes meaning that a comparison is difficult.

These limitations have therefore shaped the design of this research. This brings us back to the aims of the research, which are threefold. The primary aim is to examine the relationship between rewards and motivation as proposed by SDT in the work environment. This relationship will be considered both at the task and the general work level. Furthermore the context in which reward is administered will be taken into account. The second aim is to explore the experiential differences in the different types of motivation by examining the associated behavioural and psychological outcomes. The final aim is to test SDT as a theory of work motivation, specifically examining the distinctions between the different motivation types, the mediating role of the three basic psychological needs and reflecting on what this offers to our understanding of work motivation.

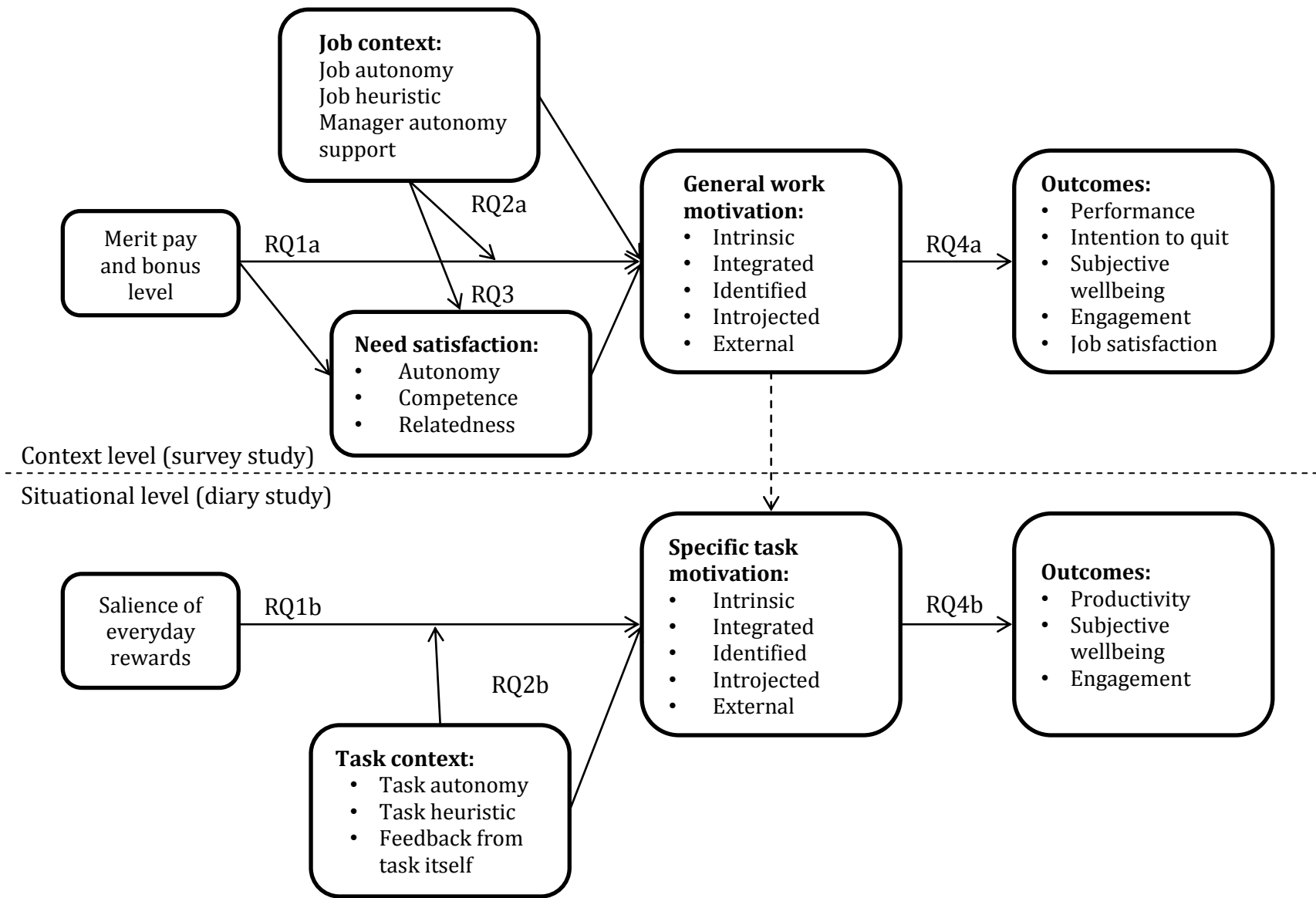


Figure 4.1: Path model representing research questions guiding this thesis

4.3. Research questions

The questions, outlined below, relate to the aims of the thesis. RQs 1 and 2 relate to the first aim, which is to examine the relationship between workplace reward practices and motivation as proposed by SDT, taking into account the context in which they are administered. RQ4 concerns the second aim of the thesis, which examines the behavioural and psychological outcomes related to each of the motivation types. The final aim is concerned with testing SDT as a theory of work motivation and is through RQ 3 and RQ 5. Figure 4.1 provides a summary of the RQs and how they relate to each other. This research model (figure 4.1) builds on that set out by Gagné and Forest (2008, fig. 1) which is yet to be tested in published research, but makes several additional contributions. This model recognises that the reward–motivation relationship operates at a situational (day-to-day) and general attitudinal level. In doing so, it also examines both formal workplace rewards in the form of merit pay and bonus level but also the salience of informal, everyday rewards.

Each RQ is set out below, followed by a rationale for how they relate to the aims of the thesis:

RQ1a. What is the relationship between merit pay level and bonus level and the motivation types?

RQ1b. What is the relationship between reward salience and the motivation types, in relation to informal everyday rewards.

As outlined in chapter two, rewards are forms of extrinsic reinforcement and can take the form of formal, financial rewards but also informal, psychological rewards (De Gieter et al., 2006). Psychological research has examined both financial and verbal/psychological rewards and their impact on motivation but in applied organisational research the focus tends to be interested in formal, financial rewards (Gerhart et al., 2009; Rynes et al., 2005). However, financial rewards in organisations are normally administered at intervals often up to a year (R. Heneman et al., 2001) and it seems naive to assume that the interim period does not include day-to-day rewards, which are likely to be far more psychological in nature and not governed by formal organisational policies. RQ1a and RQ1b reflect the diverse nature of rewards, and the belief that rewards should be seen as both formal workplace practices as well as informal everyday occurrences. By formal rewards I mean those set out in organisational policies and procedures, such as merit pay increase or bonuses (Trevor & Wazeter, 2006). Informal reward, on the other hand, are those which are not set out in organisational procedures and are therefore unlikely to be in the form of financial reward but more likely psychological rewards as outlined above.

Beginning with RQ1a, which explores formal rewards, this research aims to examine the relationship between individual performance-related reward and motivation. This is the focus because dominant motivation theories suggest that it is only by linking performance to reward that it will direct behaviour (Gerhart et al., 2009; Rynes, Gerhart, & Minette, 2004; Rynes et al., 2005). Whereas 'undermining' theories suggest that it is this performance-reward link which makes rewards controlling (Lepper and Greene, 1978; Deci, et al, 1999a). This study focuses on two common forms of

workplace reward practice which recognise individual performance; merit pay and individual performance-related bonuses. Merit pay is defined as;

“...an increase to base salary (often on an annual basis) that is based on (subjective) performance appraisal ratings, usually by an employee’s supervisor. Merit pay can be said to exist objectively when performance ratings validly differentiate employees on the basis of performance and these differences are positively and meaningfully correlated with salary increases in a particular year (and, over time, with salary levels).” (Gerhart et al., 2009, p. 260):

Secondly, performance-related bonuses are one-off cash payments paid in addition to base salary (Gerhart et al., 2009) and are paid “for attaining a certain performance standard or quota” (Gagné & Forest, 2008, p. 232). In this case, they are for individual performance rather than group of organisational level stock options or gain sharing (Rynes et al., 2005). These payments are also known as ‘short term incentives’, ‘pay at risk’ and ‘variable pay’ (Armstrong & Brown, 1999; R. Heneman et al., 2001). I use the term “bonus” because this is commonly used to describe these one-off cash payments (CIPD, 2012; Gagné & Forest, 2008). In the UK, 61.4% of organisations make decisions about base pay increases based in part on individual performance. In addition, 53.5% include individual performance-related bonuses as part of their reward package (CIPD, 2011). This pattern is also mirrored elsewhere in Europe and in the US (R. Heneman et al., 2001; WorldatWork, 2010). The relationship between formal rewards and motivation will be tested in an organisation which includes both of these reward elements, and can therefore be seen as representative of a large proportion of organisations in the UK. Although Kuvaas (2006b) examined the impact of bonuses and

base pay on intrinsic motivation and Fang and Gerhart (2012) looked at the strength of the performance link on intrinsic motivation, I am not aware of any research which has tested the relationship between bonus and merit pay level and the full differentiated model of motivation proposed by SDT.

In relation to RQ1b, experimental research outlined in chapter 2 has suggested that reward salience may explain the extent to which individuals experience reward as controlling (e.g. Eisenberger & Selbst, 1994; Lepper & Greene, 1979; Reiss & Sushinsky, 1975; Ross, 1975). As there is no precedent for field-based salience research that I am aware of no operationalisation of this exists. Through a review of the experimental research which references salience I suggest that it can best be operationalised as a combination of three characteristics; 1) proximity, 2) expectation and 3) conspicuousness. The proximity of reward is often manipulated in experimental conditions by promising and/or delivering the reward contingency before, during or after the event at various time intervals (e.g. Eisenberger & Selbst, 1994). Expectation involves a straightforward manipulation of either informing, or not informing the participants that they will receive a reward, before they completed the task. Lepper and Greene (1979), for example, showed children in the experimental group a promised 'good player' certificate before the task to emphasise the expectation of reward. Finally, conspicuousness has been controlled by, for example, placing reward in the form of coins (Eisenberger & Selbst, 1994) or a box containing an unnamed prize (Ross, 1975) in front of children as they perform a task. Using this operationalisation it is therefore possible to extend the previous experimental research into the field.

Based on the previous experimental research I would suggest that the salience of rewards is particularly pertinent to task-focused rewards administered on a day-to-day basis. This is based on the theory that salience is an environmental factor, rather than general characteristic of the context (Taylor & Fiske, 1978). The nature of these rewards is likely to be quite different to formal, workplace rewards, and I expect them to be more focused on informal, psychological rewards (De Gieter et al., 2006). I have chosen to use the terminology of *psychological rewards* coined by De Gieter et al rather than *positive feedback* or *verbal rewards* adopted in other research (Deci et al., 1999a, 2001a). This is because positive feedback might imply that the reward includes competence information whereas it could actually be that individuals engage in an activity to obtain praise so it is therefore relatively controlling. For example, someone performing a task in order to gain approval from their manager is not doing so for competence feedback but rather for controlled reasons. The term “psychological rewards” is broader so allows for both of these interpretations. Likewise, I do not refer to verbal rewards because in many instances I would expect the reward to be administered in written form (e.g. an email). Therefore, *psychological rewards* encompasses non-tangible, informal rewards which could be verbal or written (e.g. thanks or a compliment) but also non-verbal (e.g. respectful behaviour) and could include competence information, or not. The important characteristic in this research question is not necessarily the nature of the reward but the extent to which the individual perceives it to be salient during the completion of a task or activity.

RQ2a and 2b also relate to the first aim of thesis, in that they address the question about the role of context in understanding the relationship between rewards and motivation.

RQ2a. To what extent does the context (job autonomy, job heuristic and managerial autonomy support) in which reward is administered moderate the relationship of merit pay and bonus level with motivation?

RQ2b: To what extent does the task context (task autonomy, task heuristic and feedback from the task itself) moderate the relationship between informal everyday rewards and task-focused motivation?

The above research questions again acknowledge the multi-level nature of the reward-motivation relationship (that it can operate at the general, work-level and also at the specific task level). RQ2a is concerned with job level context and is explored through a longitudinal survey. RQ2b examines task-level context, as examined through a diary study. I make specific hypotheses in each of these studies.

Both RQs take into account contextual variables which are hypothesised to support satisfaction of the three basic psychological needs (autonomy, competence and relatedness) and therefore relate to more autonomous forms of motivation. For example, job or task autonomy could be seen to support satisfaction of the need for autonomy and feedback from the task itself could relate to competence. SDT varies from other undermining theories in suggesting that it is important to take into account the level of needs-support provided by the environment in order to understand the extent to which the reward is perceived as more controlling (Deci et al., 1999b). These contextual variables are therefore predicted to moderate any negative impact of reward on more autonomous forms of motivation. Although there is research supporting a positive relationship between some of these characteristics and need satisfaction (e.g.

Baard et al., 2004; Van den Broeck et al., 2008) there is far less which has tested this relationship with respect to autonomous motivation (Gagné et al., 1997). Importantly, there is none that I am aware of which has tested the theory that these ‘needs-supportive’ characteristics will moderate the relationship between reward and motivation by emphasising the informational, rather than controlling aspects of the reward (Gagné & Forest, 2008; Ryan, Mims, & Koestner, 1983).

RQ3 is pertinent to the third aim of the research, which focuses on testing SDT as a theory of motivation, but is included in this order because it relates to the reward–motivation relationship:

RQ3. To what extent does satisfaction of the basic psychological needs for autonomy, competence and relatedness explain the relationship between reward and motivation and, context and motivation?

This is a fundamental question to the application of SDT. The satisfaction of the three basic psychological needs is seen as key in explaining the impact of external influences on the quality of motivational experience (Gagné & Forest, 2008).

Empirical research has tested the relationship between contextual antecedents and need satisfaction (Van den Broeck et al., 2008), and between contextual antecedents and motivation (Guay, Boggiano, & Vallerand, 2001) but there is much more limited research which explicitly tests the mediating role of satisfaction of all three needs between context and the individual motivation types. Specifically, as highlighted in the previous chapter, there is a dearth of research examining the role of each individual

need, rather than a composite of the three. This is important in understanding the application of the theory and universality of the individual needs.

Turning now to the second aim of the research, which is concerned with the relationship between the different forms of motivation and behavioural and psychological outcomes:

RQ4a: How do the different types of motivation relate to behavioural (performance and intention to quit) and psychological (subjective wellbeing, engagement and job satisfaction) outcomes at general work-level?

RQ4b: How do the different types of motivation relate to behavioural (productivity) and psychological (subjective wellbeing and engagement) outcomes at specific task-level?

RQs 4a and 4b aim to examine the relationship between each motivation type as proposed by SDT and a range of outcome variables. The outcomes variables included in both of these RQs have been selected because they represent a range of outcomes which are seen as representative of optimal functioning at work. The theoretical basis of this is that individuals are seen as naturally growth-oriented individuals. Autonomous motivation is conducive to growth and, therefore, when autonomously motivated individuals will be at their best. Performance (and productivity, which is used as a proxy for performance at the task level) is commonly seen as an important motivational outcome of reward (Gerhart et al., 2009) and is therefore particularly important to understand in relationship with motivational behaviour at work. Likewise, intention to quit is an important consideration for organisations in retaining staff. Subjective

wellbeing, engagement and job satisfaction are all seen as characteristics of a positive affective experience at work (Warr & Inceoglu, 2012) and, as such, are important characteristics of optimal functioning.

Despite the fact that there has been some empirical research into the relationship between motivation as proposed by SDT and outcomes in the work environment, this research has almost exclusively looked at outcomes of relative autonomous motivation, rather than each individual motivational type (e.g. Fernet et al., 2009; Levesque et al., 2004; Vansteenkiste et al., 2004). It is therefore not possible to build a picture of the different affective and behavioural experiences of each motivation type. This is important because of the small number of studies, from other fields, which suggest that there are some unexpected differences between motivation types with respect to outcomes (Jang, 2008; Koestner & Losier, 2002). These RQs therefore also address in part the third aim of the research, which is to build up a picture of how each type of motivation is experienced.

The final RQ aims specifically to examine whether there are issues with the common method for measuring the motivation types:

RQ5: Does the conceptualisation of relative autonomy mask the distinctiveness of the individual motivation types as proposed by SDT

This refers to the fact that the vast majority of empirical research into SDT collapses the individual motivation types into a relative autonomy index (RAI). This research does not, therefore, acknowledge any distinctiveness of the individual types of motivation. This RQ will be addressed through a reflection of the findings in relation to the

antecedents and outcomes of each motivation type from the survey and diary studies and a comparison to using the RAI. If it is possible to say that there are differing antecedents and outcomes, then it supports the theory that these types are distinct. However, if combining the motivation types into a relative autonomy index does not lose any of the nuances in antecedents and outcomes, then it draws into question whether it is valuable to treat the motivation types as distinct. The only empirical research to compare the individual motivation types to the RAI that I am aware of is from the exercise domain (Wilson et al., 2012).

4.4. Link between research questions and empirical studies

The research questions outlined above are examined through data collected in the three empirical studies reported in this dissertation (figure 4.2) which are linked to the research questions set out above (table 4.1). The first is a qualitative interview study (chapter 5) which firstly served as a pilot to build understanding of the range of motivated behaviour proposed by SDT and help in the development of the later quantitative studies. It also addresses in particular RQ3, about the affective experience of motivation, and the third aim of the research, to explore SDT as a theory of motivation. The longitudinal survey (chapter 6) focuses on formal workplace rewards, in the form of merit pay and bonuses and motivation as proposed by SDT. The final study (chapter 7) is a quantitative daily diary which examines rewards and motivation as they occur on a day-to-day basis at work. Each of the empirical studies includes specific research questions (in the case of the interview study) or hypotheses (in the case of the survey and diary studies) which are explicitly linked to these research

questions. Chapter 8 brings the findings of these three studies together in a discussion which aims to answer all of the research questions set out above.

Figure 4.2: Summary and timeline of empirical studies in this thesis

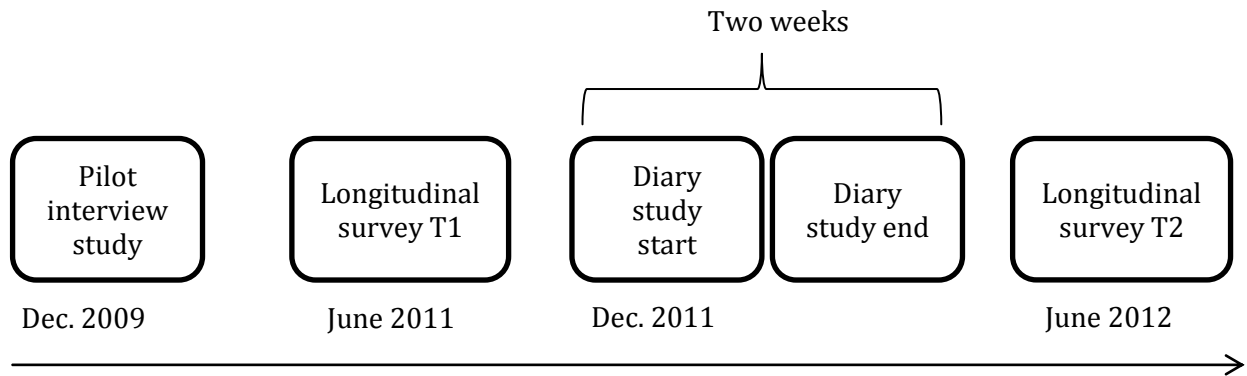


Table 4.1: Summary of research questions addressed by each empirical study

Study (chapter)	Research questions addressed
Interview study (chapter 5)	RQ3
Longitudinal survey (chapter 6)	RQs 1a, 2a, 3, 4a and 5
Quantitative daily diary (chapter 7)	RQs 1b, 2b, 4b and 5

4.5. Mixed methods research

The three empirical studies which comprise this thesis (figure 4.1) are a mixture of qualitative and quantitative studies and, as such, represent mixed methods research. In this section I will first define what is meant by mixed methods research, and establish how the studies that formulate this thesis constitute mixed methods research. I will then discuss the epistemological assumptions underlying this mixed methods research and a reflection of how these assumptions shaped this thesis.

Mixed methods research is, in the broadest terms, the combination of qualitative and quantitative research methods. It should, more accurately, be referred to as mixed methodology in that it refers to design, data collection, and analysis and interpretation of data as well as philosophical questions (e.g. ontology and epistemology) (Johnson, Onwuegbuzie, & Turner, 2007). Johnson et al (2007) propose that mixed methods studies can be seen on a continuum with pure quantitative and pure qualitative on either end and pure mixed in the middle. The dominant studies in this thesis (longitudinal survey and diary study) are quantitative as a reflection of the primary aim which seeks to examine relationships between variables (between reward and motivation as defined by SDT) and this research should therefore be accurately referred to as quantitative mixed research. Furthermore, the research incorporated in this thesis should be referred to as a quantitative mixed *programme* of research in that qualitative and quantitative studies were carried out, using different data collection methods, across different samples (and is therefore a programme, rather than a single study)

(Johnson et al., 2007). For brevity, the term “mixed methods research” is used to describe the approach taken here.

J. Greene, Caracelli and Graham (1989) outline a number of possible aims of mixed methods research. Two in particular, development and triangulation, apply to this research. Firstly, *development* refers to the use of the results from one method to help to inform and develop another. In this case the exploratory nature of the qualitative interview study was aimed, in part, to guide the later quantitative studies. In particular, the interview study had two significant influences on the diary study: It firstly highlighted the temporal nature of motivation which led to the decision to utilise a diary study at all. Secondly, it showed the value of using a critical incident approach to studying motivation on a day-to-day basis, which was then employed in the diary study. The pilot also influenced the design of some of the items in the longitudinal survey (see chapter 6 for more details). The conclusions from the longitudinal survey likewise influenced the design of the diary study, in particular the focus on the salience of rewards. To illustrate the development of the research, a short section is included at the end of chapters 5 and 6 to link the findings of the study to the subsequent study.

The second purpose, *triangulation*, “seeks convergence, corroboration, correspondence of results from the different methods” (J. Greene et al., 1989, p. 259). The pilot study, longitudinal survey and diary study all seek to build understanding of the affective experience of the different motivation types (RQ4a and 4b) and also to answer some important questions about the structure of the SDT continuum (RQ5, as well as the antecedents and outcomes of the motivation types examined throughout). The use of mixed methods in this thesis therefore allows me to triangulate the findings of the three

studies with the aim of increasing the validity of the conclusions. Several authors have presented different approaches for combining methods which can be done at different stages; through the research questions, data collection, analysis or discussion stage (Johnson et al., 2007; Tashakkori & Creswell, 2007). In this thesis, I bring together the findings from the separate studies in chapter 8, where I discuss the findings of the three studies in light of the research questions set out in this chapter.

The question of research paradigm has become inextricably linked with the discussion of mixed methods research. A paradigm is “an organizing structure, a deeper philosophical position relating to the nature of social phenomena and social structure” (Feilzer, 2010, p. 7) and therefore represents an epistemological stance towards research which influences research design, the nature of data and data collection, and the interpretation of results. Traditionally, epistemology has been viewed through two opposing paradigms; positivist/post-positivist and interpretivist/constructivist. Simplistically, the former adopts the view that there is a truth which can be observed through objective enquiry and is therefore associated with deductive, quantitative methods. The latter, which is associated with qualitative research, suggests that there is no objective reality, only subjective enquiry through which we interpret and give meaning to social action and tends to be inductive (Bryman & Bell, 2006; Feilzer, 2010). Mixed methods research does not strongly adopt either one of these paradigms, which has led some to reject it as an approach to social research. In response to this, Howe (1988) suggests that, while quantitative and qualitative research methods clearly have many differences, to suggest that they come from two strictly opposing paradigms is to greatly exaggerate these distinctions and based on historical assumptions about

epistemology. Likewise, Tashakkori and Teddlie (2003) suggest that it is too simplistic to suggest that qualitative research is always inductive and quantitative research always deductive when, in fact, many researchers are trying to answer both types of questions in which case mixed methods are ideal. This has led to the association of mixed methods research with alternative research paradigms (Mertens, 2012), in particular the pragmatic paradigm. Pragmatism “focuses on the problem to be researched and the consequences of the research” (Feilzer, 2010, p. 7) rather than the methods and therefore adopts the view that any methods may be appropriate to answer relevant questions (Creswell & Plano Clark, 2010). In contrast to solely qualitative or quantitative research, Morgan (2007) proposes that research which adopts a pragmatic, mixed methods approach can therefore be seen as abductive (the theory and data interact, rather than being a one way process), intersubjective (neither objective or subjective) and transferable (neither context bound, nor entirely generalisable). For this thesis, I adopt a pragmatic paradigm, and utilise methods which focusing on answering the research questions set out above. Through this, I acknowledge that throughout the research process the theory shaped my data collection and analysis but the analysis of this data also shaped my interpretation of the theory. Feilzer (2010), reflecting on her experiences of using mixed methods, suggests that pragmatism involves being committed to uncertainty, acknowledging that causality is both difficult to identify and transitory and that pragmatic researchers should be flexible and curious. In this respect, the design of this programme of research is flexible in that the idea and design of the diary study emerged during analysis of the pilot study data as discussed above.

4.6. Summary

In this chapter I have outlined the research framework which guides this thesis. I provided a summary of the issues and questions raised from the literature review and linked these to the aims of the thesis. The main section of this chapter set out the research questions which the following three empirical studies are designed to answer. I ended this chapter by considering the nature of this programme of mixed methods research and how the pragmatic paradigm has shaped the design of the empirical studies.

In the following three chapters I set out the three empirical studies which focus on the aims of the thesis and finish, in chapter 8, by reflecting on the theoretical and practical implications of the findings of these.

Chapter 5: Pilot study exploring the experience of motivation

5.1. Introduction

This chapter presents an interview study that was carried out to examine the motivation distinctions as proposed by SDT and to identify key characteristics of the motivation types. The main aim of this study was to build an understanding of how workers describe the regulation of motivated behaviour and the affective experience associated with the different types of motivation. Although exploratory, it is heavily guided by the motivation types defined by SDT. In that respect, it is connected to the third aim of the thesis, which is to test SDT as a theory of work motivation. It also has an important secondary aim, which is as a pilot to help inform the design of the later studies by drawing out characteristics of motivation and also looking for themes which might be pertinent to the main aims of the thesis. The chapter begins with an overview of the theoretical basis of this study, highlighting some of the particular definitional questions which need to be addressed. There follows the study itself where I set out the methods and results. I end the chapter with a discussion of the findings of this study and a reflection on how this might influence further research.

5.2. Theoretical framework

As outlined in detail in chapter three, SDT posits a continuum of motivation along which five types of motivation are ordered in a simplex-like structure, from more autonomous

to more controlled: intrinsic, integrated, identified, introjected and external. This distinction is absolutely central to the theory yet, despite this, there are still some definitional issues and confusion between the motivation types and how they manifest¹.

One particular issue is linked to the measurement of motivation in the field. This issue is outlined in chapter 3, but I will briefly recap the pertinent points here. The majority of the applied SDT research uses a quantitative self-report measure, after a survey developed by Ryan and Connell (1989) which has been adapted for use in many fields (including work). The scale can then be analysed in a number of ways. Most commonly, it is combined into a Relative Autonomy Index (RAI) by weighting the motivation types according to their relative positioning on the continuum (e.g. Lam & Gurland, 2008). It is sometimes combined into two subscales; autonomous (intrinsic and identified) and controlled (introjected and external) (e.g. Parker et al., 2010). Researchers have also adopted a 'person-centred' approach by using cluster analysis to identify motivation profiles; a) high autonomous/high controlled, b) high autonomous/low controlled, c) high controlled/low autonomous and d) low autonomous/low controlled (e.g. Ratelle et al., 2007).

There are three issues with these methods pertinent to this study. The first issue relates to the structure of the continuum. Both the RAI and the autonomous/controlled subscales methods include an assumption that the motivation continuum can be divided into an autonomous/controlled dichotomy. In the RAI this is the case because identified

¹ This assertion is based primarily on discussions with other SDT researchers at the 4th (2010) and 5th (2013) International Self-Determination Theory conferences (see appendix IV). This study was presented at the 2010 conference and received many positive comments about the need for such research to expand our understanding of the definition of the motivation types.

motivation (autonomous) is positively weighted whereas introjected motivation (controlled) is negatively weighted even though they are adjacent on the continuum. This contradicts the theory that the SDT continuum has a simplex-like structure in which each motivation type is more strongly correlated with its 'neighbour'.

The second issue relates to the motivation types which are included in the measure. Some studies and scales have excluded integration (e.g. Vallerand & Pelletier, 1992), some identification (e.g. Williams & Deci, 1996) others include both (e.g. Lonsdale, Hodge, & Rose, 2009). The omission is primarily because it has not been possible to differentiate between identified and integrated motivation in factor analysis. I believe that an additional issue is that much SDT research has been focused on children, who may not have yet developed their own values with which to integrate the value of the task (Deci, personal communication, 14 May 2010). This does not apply for working adults yet the existing work motivation scales omit integration due to the same issues of factor structure (Gagné et al., 2010, 2012; Tremblay, Blanchard, Taylor, Pelletier, & Villeneuve, 2009).

The final issue is concerned with the implied assumption that intrinsic motivation is the 'best quality' form of motivation and external motivation the 'worst quality' which would therefore suggest that intrinsic motivation is related to the most positive outcomes. Although much research has supported the psychological and behaviour benefits of intrinsic motivation (Amabile, Barsade, Mueller, & Staw, 2005; Baard et al., 2004; Csikszentmihalyi, 1975), the research by Koestner and Losier (2002) suggests that intrinsic motivation is likely to be beneficial for tasks which are interesting but not necessarily useful, where identified motivation might be more fruitful. They observe

that in life domains where tasks will often not have an intrinsic interest (which could be said about work), internalisation should therefore be encouraged instead of or as well as intrinsic motivation because selecting tasks with intrinsic value in such a situation might be unhelpful to active participation. The issue here is therefore that the distinction between intrinsic and identified motivation is masked by any combination of these subscales (such as in all of the scoring protocols outlined above) so this needs more empirical examination.

The issues raised above are linked, in part, to the fact that there has been little research which has attempted to identify the key cognitive and behavioural components of the motivation types in themselves. Work by Koestner, Losier and colleagues (Koestner et al., 1996; Koestner & Losier, 2002) has gone some way to trying to define the experience of some forms of motivation as defined by SDT. These authors provided a summary of the key components of intrinsic, identified and introjected motivation (table 5.1). This summary is helpful in trying to understand more about the way in which these motivation types manifest, and summarises the findings of much of the research reviewed in chapter 3. However, it has not been examined in relation to working adults and does not include either intrinsic or external motivation. This study, therefore, aims to expand on the work of Koestner and Losier to explore the key components of the motivation types in the work environment and to expand our understanding about how these different forms of motivation are manifest.

Table 5.1: Characteristics of introjection, identification and intrinsic motivations (Koestner & Losier, 2002, p. 105)

Conceptual features	Introjection	Identification	Intrinsic
Involvement level	High	High	High
Emotional experience	Negative	Positive	Positive
Locus of causality	External (Controlled)	Internal (Autonomous)	Internal (Autonomous)
Motivating force	Compulsion	Personal importance	Attraction (interest)
Regulatory guide	Conditional self-regard (Learned)	Values & identity (Learned)	Emergent emotions (Innate)
Goal orientations	Approach/avoidance (Conflicted)	Approach (Long-term/outcome)	Approach (short term/process)
Needs implicated	Autonomy vs. relatedness (Conflicted)	Autonomy & relatedness (Congruent)	Autonomy & competence (Congruent)

SDT research is dominated by quantitative methods which have the benefit of testing relationships between variables, of generalisable results and may allow causation to be inferred, but assume a priori knowledge of the range of possible reasons for behaviour. Qualitative data provide a richness of experience that is not possible through quantitative data. They have a particular strength in revealing the underlying causes of behaviour (King, 2004) and can therefore help to solidify our understanding of the multiple foci of motivated behaviour at work. Qualitative methods also allow new themes and ideas to emerge (Pratt, 2009), they look to understand the world from the point of view of the subject (Bryman & Bell, 2006), are well placed to understand the complexity of behaviour regulation and contextual factors within an organisational

setting (Randall et al, 2007) and are particularly good at answering “why” questions (Pratt, 2009), all of which are essential in fully understanding the constructs posited by SDT. This study will therefore employ qualitative methods in the aim to expand our knowledge of the experiences of behaviour regulation at work and uncover the complexities, distinctions and overlaps between the types of motivation.

In order to map the experience of different regulatory styles, this research builds on the work of Koestner and Losier and expands the definition of key concepts to integrated and external motivation. To do this it will answer the following exploratory questions:

1. How do workers account for different types of highly motivated behaviour at work?
2. What emotions are reported in relation to different types of motivation?

In addition to being able to map the experience of different motivation types, some key themes emerged from the data, which have implications for SDT research: The role of values in the internalisation process; and the experience of behaviour regulation over time. These will be addressed in the discussion section.

5.3. Method

5.3.1. Organisational context

This study was carried out in a small UK-based charity. The charity is a fundraising and grant giving organisation consisting of c.250 staff based primarily in London with a very small number in national offices in Scotland, Wales and Northern Ireland. All staff are primarily desk-based undertaking roles included fundraising, UK and international grant making, communications, web design, marketing and office support functions (HR, Finance, Facilities). The organisation has grown organically over the past 20 years, since its inception, with most growth in the past 5-7 years. Many staff work on fixed term contracts, as workloads peak around annual fundraising campaigns so permanent contracts are particularly sought after (as is evident in some of the interview data). No performance-related reward is administered in this organisation but a proposal had recently been mooted to introduce it which caused a very mixed reaction from the workforce. Employees working on the traditional 'charity' side of the organisation (e.g. grant making) felt that this would de-value their contribution to the organisation which is not about financial reward but about 'doing good' (e.g. from the interview data: *I don't believe in giving outstanding rewards – they're divisive in public and charitable sector* PD). Employees on the marketing side of the organisation (e.g. TV production, corporate fundraising, web communications) were largely positive about the change on the basis that it would effectively recognise their hard work. This indicates that there are a variety of motivations and reward perceptions present in the workforce which makes it an interesting case for this study.

5.3.2. Sample and procedure

Semi-structured interviews were undertaken with 18 London based staff; 5 male and 13 female, spread evenly across 4 job grades and across length of service (6 in each category of less than 2 years, 2-5 years and over 5 years). Respondents were employed in office based jobs typical for to the charity office environment (e.g. campaign management, fundraising, administrative support). Interviews lasted between 45 and 60 minutes and were carried out at the charity's head office. In the interviews, subjects were assured of the anonymity of their responses and that the purpose was purely academic and would not be fed back to the organisation.

5.3.3. Interview protocol

As the main aim of the interviews was to tap the motivation types as defined by SDT, an interview protocol was devised from items used in the Work Extrinsic and Intrinsic Motivation Scale (WEIMS; Tremblay et al., 2009) and from 2 pilot interviews. The full protocol is included in appendix I. The protocol was flexible, allowing me the opportunity to ask more detailed questions where appropriate. The interviews were not recorded but I took verbatim notes on a laptop and the accuracy was confirmed with the respondent before leaving the room (Randall et al., 2007). In the interview, respondents described critical incidents of behaviour in the forms of a task or activity that they had worked hard on at work that day. The focus on 'working hard' aims to tap only highly motivated behaviour, rather than activities carried out despite a lack of motivation. In cases where the interview was early in the morning they could give examples from the previous working day. If they deviated from a specific example I allowed them to

continue if it was useful for answering the research questions. Some of the data therefore refer to tasks earlier than that day, where these examples were relevant. In total, 108 incidents of motivated behaviour were gathered.

They were first asked to give a general example of a task where they had worked hard today. The following questions then guided them to think of tasks which they had worked hard for specific reasons, linked to the SDT motivation types as summarised in table 5.2. Follow-up questions were asked appropriate to the responses to find out, for example, how they felt about doing the task, whether they had always felt that way about it, whether they expected to feel the same in future, or how important the task was to them. Focusing on critical incidents in this way enables the respondents to “hook” their experiences to tangible, self-generated examples rather than abstract emotions (Chell, 2004). In addition, global impressions of work are likely to be influenced by mood, so using a task-specific approach is designed in part to remove this bias (Reis et al, 2000).

Table 5.2: Summary of interview questions linked to motivation types

Motivation type	Can you give an example of task you worked hard on today primarily because...
Intrinsic	... you enjoyed it or thought it was interesting?
Integrated	... it felt personally important to you?
Identified	... it would help you to further your career or wider life goals?
Introjected	... it made you feel good about yourself for doing it? [or you would have felt bad if you didn't do it]
External	...you knew that you would get rewarded for it? [or because you would have got in trouble for not doing it?]

5.3.4. Analysis

Data collected through the interviews were analysed using template analysis, which describes a group of techniques for identifying themes in textual data (King, 2004). The benefits of template analysis over other textual analysis is that it emphasises a pragmatic and flexible approach to coding data enabling the researcher to not only test theories established prior to data collection but also to allow new ideas to emerge (Randall et al., 2007). On a practical level it is also less time consuming than some other qualitative data analysis because the researcher does not need to continue coding the data to saturation but can choose to delve only into those areas more pertinent to the research questions (King, 2004).

An initial template was developed following a review of relevant literature and the pilot interviews. The individual interview notes were read through several times and sections of text were colour coded in line with the codes in the initial template. The segments of text were then re-grouped into their individual codes. Hierarchical coding was used so each time the segments of data were re-grouped these were read through and coded to a further level of meaning where appropriate. A coding dictionary, including definitions and examples of each code, was developed to ensure consistency. During the coding process, as re-grouped text was read through different codes and groupings emerged and the coding template was revised accordingly. This was an iterative process that continued as the data was analysed and interpreted and codes were inserted, deleted or re-grouped as necessary (King, 2004).

As discussed above, one of the benefits of template analysis is that it allows the researcher the flexibility to focus on whichever portions of the template are more pertinent to the research question. As such, the sections in the template that refer to the nature of the task and feelings about the task that are not connected to working hard on it (and therefore not highly motivated behaviour) were not expanded and will not be discussed. The focus will be on the codes describing workers' experience of behaviour regulation and the associated emotions. Throughout the analysis section, data are presented in italics and each respondent was assigned initials (which do not signify their real name) to identify them.

5.4. Results

In this section I first introduce the coding template, and themes which emerged pertinent to each motivation type. I then set out, one by one, the data which relate to each motivation type. Within these I consider the nature of the motivating force, the stability of the motivation (which emerged as an important theme and will be introduced later) and the emotional experience of that particular type of motivation.

5.4.1. The experience of motivation

The data were coded down to four levels. The top level category was labelled "reasons for working hard" which referred to the reasons given for motivated behaviour. The final coding template for this portion is presented in figure 5.1. Below this top level, the level two categories became: Reasons intrinsic to the task (intrinsic); Reasons that are integral to the self/ habitual (integrated); Reasons congruent with beliefs and values

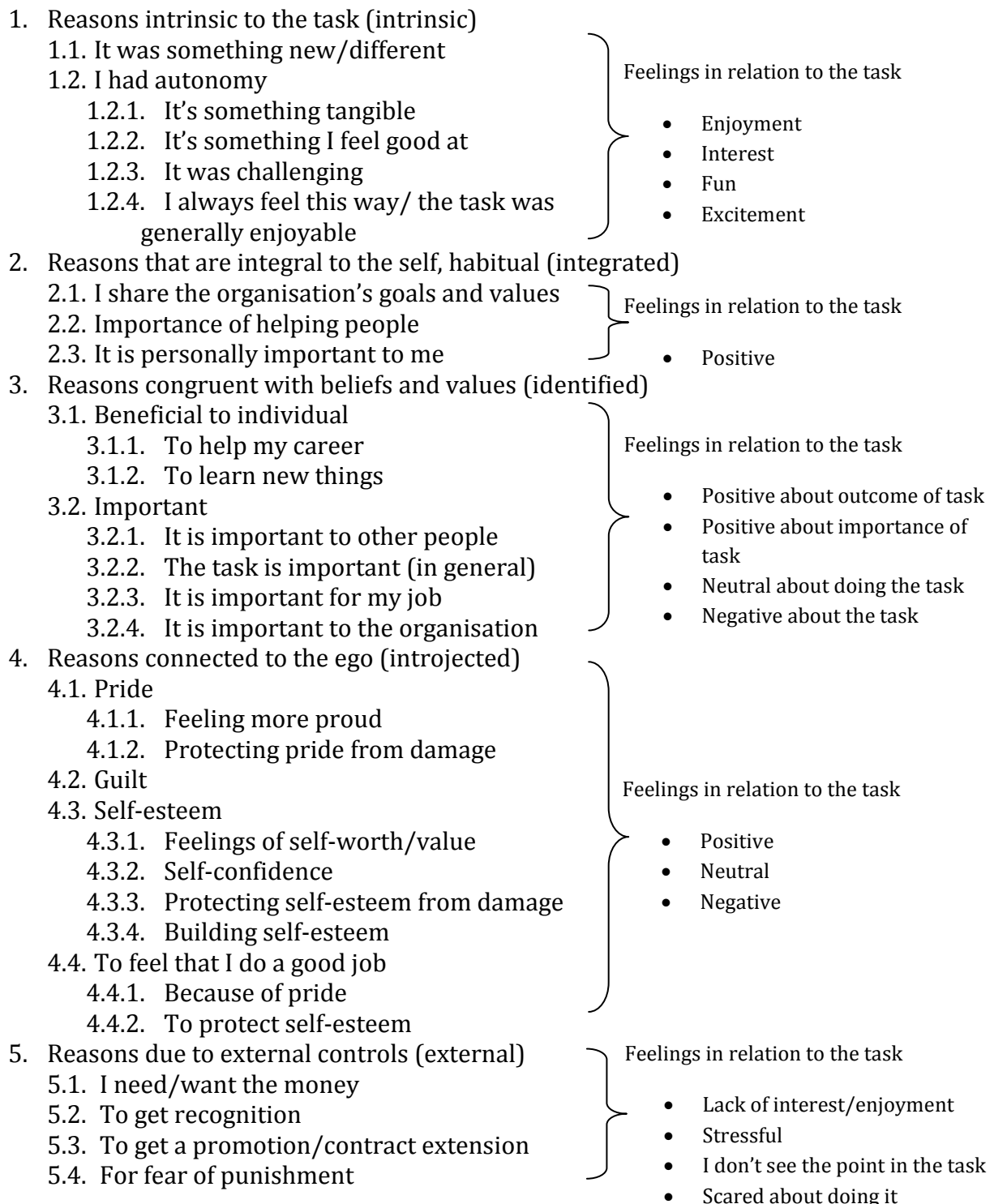
(identified); Reasons connected to the ego (introjected); and Reasons due to external controls (external). Initially, definitions of each of these regulatory styles, drawn from SDT literature, were used to ensure consistent coding. The definitions then evolved throughout the coding process as the data analysis helped to refine these. Every time the definition was revised, the data were reviewed and re-coded if necessary. All of the data relating to reasons fit within these codes, supporting the construction of the SDT continuum. Each of these level two codes was analysed to at least one further level, depending on the complexity of the data until a full picture emerged of the experience of that motivation type. Emotions or feelings in relation to the tasks cut-across the range of level 3 codes within each regulatory style and as such are represented in the template in a non-linear fashion (King, 2004).

Once the data were coded into the individual motivation types the key features of each type were identified, building on the research by Koestner and Losier (2002). The majority of the features identified by these authors (see table 5.1) have been confirmed in this study. The experience of external regulation and integration have been added to the model and an additional feature has also been added; the stability of the regulation. The involvement level in Koestner and Losier's model has not been included because this research was only interested in highly motivated behaviour so this would have been the same for all of the types. Locus of causality and needs implicated have also been omitted as this research did not draw out enough information on these features. These features are summarised in table 5.3 and are discussed with supporting qualitative data in more detail in the following sections.

Table 5.3: Summary of features of regulatory styles

Conceptual features	External	Introjection	Identification	Integration	Intrinsic
Emotional experience (focus)	Negative (towards task)	Negative (avoidance) Positive (approach)	Neutral or Positive (towards outcomes)	Positive (towards outcomes)	Positive (towards task)
Motivating force	Reward & punishment	Compulsion	Personal importance or benefit	Values & beliefs	Attraction (interest)
Regulatory guide	External contingency (Learned)	Conditional self-regard (Learned)	Externally influenced values (Learned)	Self-determined values	Emergent emotions (Innate)
Goal orientations	Approach/avoidance	Approach/avoidance (conflicted)	Approach (long-term/outcome)	Approach (long-term/outcome)	Approach (short-term/process)
Stability	Unstable – dependant on contingency	Unstable – linked to delicate ego	Somewhat stable – value of outcome fragile	Long-term stability – value is self-determined	Stable or unstable – depends on source of IM

Figure 5.1: Final coding template (“Reasons for working hard” section)



The following sections will focus on the nature of motivation and some of the key conceptual features of each motivation type: motivating force, stability and emotional experience. The findings in relation to regulatory guide and goal orientation supported observations in previous research (e.g. Gagné & Deci, 2005; Koestner & Losier, 2002) which have been covered in detail in chapter 3 so are not discussed in detail here.

5.4.2. Reasons intrinsic to the task (intrinsic motivation)

Motivating force

The reasons given for being intrinsically motivated, driven by an interest or enjoyment in the task itself, were varied. The data revealed five codes describing different reasons for feeling intrinsically motivated towards a task:

- It was something new/different (*“Helping to organise it really interested me too. It’s different from the norm. I’ve never helped out on an event so it was something new and different kinds of skills were involved”* SG)
- They had autonomy (*“one, which I found most interesting because I generated it myself where the others were delegated to me or initiated by someone else.”* LMc)
- It was tangible (*“It’s fun – it’s great to actually see the materials so it feels really good to get the actual physical posters etc.”* HR)
- It was challenging (*“It’s really hard work because I have done a lot – I have immersed myself in the subject. Really intense but really enjoyable....”* PD)

- The task is the kind of thing they always find enjoyable (*"I always find presentations, cold calling, selling interesting and enjoyable."* DH)

This distinction supports the findings of Vallerand et al (1992) from the educational domain, that intrinsic motivation can be divided into different sub-types: -to know, -to accomplish things and -to experience stimulation. There are some parallels between these distinctions and the above findings; being intrinsically motivated to perform a task because it is tangible could be similar to a feeling of accomplishment and doing something new or different could cross-over with Vallerand et al's -to experience stimulation and -to know, because the activity leading to learning is a new one.

Although this definition does not fit neatly with the above findings it does support the data in suggesting that intrinsic motivation can manifest itself in different ways.

This research supports the theory that, broadly, the motivating force for intrinsic motivation is due to an interest in the task or activity. However, two examples emerged from the data which support the suggestion that intrinsic motivation may not always be conducive to productive behaviours. In these examples, respondents described tasks as interesting but not useful: *"[I worked hard because] they were interesting but not really that important."* (MA); *"There have been aspects of that that I probably researched a lot more thoroughly because I enjoyed them. I didn't really need to go into that much depth"* (TE). SDT has traditionally treated intrinsic motivation as the most desirable form of motivation in all domains but this indicates that this might not always be the case. This certainly warrants further investigation and could have implications for SDT research in an occupational setting.

Stability

The most significant finding in relation to intrinsic motivation is that this can be short term and unstable in some forms. Intrinsic motivation focused on doing something new or different appears to be short-lived in relation to the other forms of intrinsic motivation, as TE and AP describe in these examples:

“I changed the way I wrote presentations about 6 months ago and I found that quite hard to begin with but more interesting. You refresh the way you do things occasionally and it’s interesting then as you get more comfortable you bed back down into neutrality.” (AP)

“I think I would feel the same...it would be fun but...by the time I’ve worked on something for weeks I’m always a bit tired of it and want to move on.” (TE)

In this case, the passage of time has reduced the overall motivation, and the individuals no longer have any interest in the tasks. This, added to the finding discussed above that intrinsic motivation might not always encourage active participation, has implications for what is seen as “desirable” in terms of motivation. It has always been assumed that all forms of intrinsic motivation lead to the most positive behavioural outcomes but if they are less sustainable they may not be as valuable as longer-term internalised extrinsic motivation.

One example also emerged which seems to support Sheldon and Kasser’s (2001) findings that, as they get older, people will be more inclined to experience their motivation autonomously: BF, who is a Personal Assistant to one of the charity’s

directors, explained her feelings towards organising the day's papers for her manager, which she described in the context of the importance to her of being a good PA:

"I've probably not always enjoyed it. As I've got older and got more work experience I know that I'm good at organising and planning. The fact that I know that I'm good at it makes it more enjoyable."

BF's internalisation has resulted from her direct experience and increased feelings of competence, and did not explicitly involve intervention from her environment. The enjoyment in this case is not based on novelty as in the above examples, but is related to the code 'something I feel good at' which might be a more stable form of intrinsic motivation.

Emotional experience

When discussing intrinsic motivation, respondents described the tasks as; (1) interesting ("*we decided to do it because we thought it would be interesting for us*" MA); (2) enjoyable ("*I enjoyed analysing the staff rep group survey...I always find working with numbers in this way enjoyable*" MN); (3) fun ("*It's fun trying to fit it all in and make it all work*" BF); and (4) exciting ("*It was exciting when I got given it, something to get my teeth into*" TE). These wholly positive emotions spread across all of the different reasons for being intrinsically motivated. There was no evidence of negative emotions in relation to tasks with intrinsic value for the individual.

5.4.3. Reasons that are integral to the self, habitual (integrated motivation)

Motivating force

As discussed above, integration has been the most problematic motivation type to empirically examine so it seems particularly significant that respondents described three reasons for fully integrating the value of what they were working hard on, which became the following level three codes; because the organisation's goals linked closely with their own (*"The reason I do my job is because I really believe in fair trade and ethical trade"* LH), because they believed in the importance of helping people (*"I suggested to Caroline that everyone has big team meetings because they were struggling and needed extra support...I felt it was important"* JL) or because the task felt personally important to them in some way (*"I took part in Mental Health 1st Aid Training. I suffer from a mental health problem so it was really important to me"* SC).

Although integration is clearly evident in this sample, it is conceptually very close to identification as theorised. The key distinction between these two concepts is the role of values as the motivating force. When integrated, the value of the task is experienced not only as entirely self-determined but as part of the individual's identity (Gagné & Deci, 2005). In these examples, respondents describe the importance of sharing the organisation's values:

"The role I do, the reason I work for this organisation, is because its values are aligned with mine and that's what brings me to work in the morning. The reason that I do what I do is not just the value of the organisation but also the value of

organising events – so not just about individual tasks but about the role I do and how it contributes to the wider organisation. It would be depressing to think that there are certain tasks that aligned to my values and other things didn't. I am really values driven.” (AP)

“I really care about our grant making, and all of our work obviously helps that...I do think that this plays a big part in doing some boring things at work, I know that it helps in the end” (BH).

“the value bit is the bedrock of what I do, which allows me to enjoy what I do but also to be good at I what I do” (AP).

It is clear from this extract that the reason for AP's behaviour is fully internalised. His statement; “I am really values driven” expresses the importance of these values to him, not as a means to an end, but as part of his identity. To say that he identifies with the value of his behaviour underestimates the level of integration that the organisation's values have with his own, self-set values.

Stability

Some examples emerged to indicate that integrated motivation is very stable across time. In this example, PD describes the role of his previous experiences in helping him to internalise the value of customer care, which he has *integrated* with his own identity as someone working in this kind of role;

“The importance of customer care fell into place the first job I had dealing with customers. I heard colleagues giving a really naff response and I thought “what

kind of impression are you giving? You sound so bored"...I think subconsciously I was aware of my own poor experience of customer care so I want to treat them as I want to be treated"

In this case, he describes customer care as though it is a fundamental part of who he is at work and, as it has been decades since his 'first job' (he is now in his 50s); this value has had long-term stability. His interactions with others helped to solidify this value but it is difficult to imagine what would change this personally held belief.

Emotional experience

The emotions associated with tasks that have been integrated were entirely positive ("*I felt quite privileged to be involved*" KA; "*Going on a trip to Zambia [was] a fantastic surprise and it galvanised what the organisation does so I can personally talk about it now, from personal experience*" DH). This emotional profile supports SDT's suggestion that increased autonomous behaviour generally encourages more positive well-being. Emotions were focused on the outcome, rather than the task itself as is the case with intrinsic motivation.

5.4.4. Reasons congruent with beliefs and values (identified motivation)

Motivating force

In contrast to integration, identified behaviour is motivated by the personal importance or benefit of the task, but the importance is not connected to self-determined values, rather something that is understood to be beneficial (e.g. career or learning goals).

Tasks motivated by identification were divided into two codes; tasks beneficial to the individual (but not about an externally controlled contingency) or tasks/activities that they recognise as being personally important or beneficial in some way (but do not have deep personal importance). Those that are beneficial to the individual were divided into the following level-four codes; 1) to help with their career (*"I think I've put additional emphasis on working with particular corporate partner organisations which I would like to work with in the future in my career"* AP) or, 2) to learn new things (*"It's important to me because it's a learning experience"* TE). These outcomes have utility to the individual but are not driven by their beliefs or values or connected to their sense of self as with integration. In this example MA explains how she completed her logbook in order to help her become a chartered psychologist so believes in the reason for doing the task but has not fully integrated the value of it with her sense of self:

"I do my chartership logbook, which I was doing for my own benefit but at work the organisation was paying for it. It's self evaluation so it made me evaluate projects that I was working on so was beneficial in this way, and probably made me work harder on some aspects of these as a result." (MA)

The tasks that they identify with because of their importance fell into 4 level-four codes;

- Because they are important to other people (*"I worked hard because I know that it's important...I know that it's important to internal and external stakeholders"* LH)
- Important for their job (*"it helps me to reflect on the meeting, which is important in my role as project manager"* DH), or

- Important for the organisation (*"To deliver to the organisation because I want campaign to be successful, it's what we're about."* KA).
- Because of the general (unspecified) importance of the task (*"I put time into it because it's important and make an effort for this reason"* AP)

It is clear from the above examples that the value of the behaviour being described has been internalised to an extent but still describe a significantly different process than the examples of integrated behaviour regulation.

Stability

Identified behaviour seems to be relatively stable, as long as the individual continues to believe in the value of what they are doing. In this example, LMc explained that she used to do her job only because she had to (she has a mortgage to pay) but she can now see how it could help her long term career so *identifies* with the value of the work:

"In the last 6-9 months my feelings about work have changed so that I enjoy utilising my experience, knowledge and skills a bit more...I don't really have direction here, I don't know where I'm headed, but someone told me to think bigger picture about where I want to go outside of here and gave me new ways to think about my work which helped to inspire me."

In this respect it seems that the motivational focus of LMc is relatively stable because she now understands the value of it. However, as the value of the outcome has not been fully internalised it is more likely to change than if LMc felt that the job was connected to her sense of self (integration).

Emotional experience

Tasks motivated either because they were beneficial to the individual, or because they were important in some way, were experienced mainly with neutral emotions. For example, SC explains the utility of the task but does not feel positive emotions towards the task itself: *"I hoped that it would help me in my future training to be a counsellor as well as helping me on a day-to-day basis at work"* (SC). There were also examples of positive emotions but, in contrast to intrinsic motivation where the feeling is directed at the task itself, they were positive about either the benefit of the outcome of performing the task; *"My boss is about to leave so I am looking forward to doing more things in the gap, like working on a staff survey, so that it'll help build up my CV and help progress my career. When I talked about it I thought "this would be really useful for me, I want to do this""* (SG); or about the importance of the outcome of the task (*"It's really important to the organisation – if I wasn't involved I would still find it really interesting"* LT). There were no negative emotions experienced in relation to tasks beneficial to the individual for career development or learning opportunities, but there was one example of negative emotion, where DH doesn't enjoy the task but is motivated by the fact that it is important to his job:

"Some of the reporting and process that I do I don't enjoy but it's necessary. I've taken on responsibility of minuting a meeting that I've just been in which is a pain but it helps me to reflect on the meeting, which is important in my role as project manager. I felt good about doing it once it was done but it'll take me a while to get it done because I don't really enjoy it." (DH)

DH describes his reason for doing the task as driven by an acceptance of its importance but he also describes feeling good once the task has done. This may, therefore, suggest that the motivation is partly introjected which may explain some of the negative experience, as described below.

5.4.5. Reasons connected to the ego (introjected motivation)

Motivating force

Examples emerged of behaviour that was controlled internally by 1) a desire to build or protect their self-esteem or 2) pride and 3) to avoid feelings of guilt. They also gave extensive examples of being motivated by 4) a desire to feel like they were doing a good job. These became the level-three codes within introjected regulation. Motivation described as linked to self-esteem was coded into four level-four codes. The first two describe reasons either connected to self-worth or feeling valued (*"It makes me feel important – not in rank – but that there are a lot of people looking forward to something that I've made happen. It makes me feel valued"* CW) or about gaining or protecting self-confidence (*"Being out of work for a while meant that my confidence was lower so this has really helped me to gain some more confidence again"* PD). The latter two are about behaviour that was motivated by protecting self-esteem from damage or building feelings of self-esteem. Pride was expressed either in terms of the task helping the individual to feel proud (*"there's a certain pride, standing up in front of 200 people, for a sense of professional pride you want it to look and feel good"* AP) or protecting their pride from damage (*"I knew that I had to work hard because it would have been re-written if it was wrong and this would have affected how I was viewed"* CW). The need to do a good

job has been separated into a different code because of the volume of data relating to this, although the reasons that people felt like this were either because of a need to protect 1) pride (*"I work my arse off for the campaign – it was made clear that I had responsibility for new business and I didn't want to shirk from that."* DH) or 2) their self-esteem (*"I am my own worst critic and if I haven't done a job properly I feel bad...It's not nice when you're feeling like that, I feel bad about myself."* TE). Where self-esteem and pride are both expressed in relation to the individual's perceptions of themselves, guilt is focused on relationships with significant others, in this case colleagues, such as in this examples from BH; *"I have been helping sort out the Christmas cards with Jo – it's a horrible job and I would have felt guilty if I hadn't helped her out"*.

Stability

There is some indication that introjection is relatively unstable. For example, LT is new to the organisation and determined to prove herself; *"It's the first big task that I've been given and I wanted to show that I could do it, to prove myself and for people to be impressed"*, but this motivation only applies for a short period. As the individual has no desire to perform the task, the motivation can diminish if the compulsion for the task does.

Emotional experience

Koestner and Losier (2002) came to the overall conclusion that the emotional experience of introjected regulation is negative², but this study found a much more mixed picture. Protecting self-esteem was always expressed as a negative emotion as in this example from TE, which shows how she experienced the pressure she puts on herself:

“Most things, if I don’t do it I feel bad. I have to do everything as though I feel like I’ve done my best job. I am my own worst critic and if I haven’t done a job properly I feel bad...It’s not nice when you’re feeling like that, I feel bad about myself”

Building self-esteem, by contrast, was always described positively (“*When I have to do this kind of task I feel that it’s nice to be asked. It feels that I’m trusted so it’s quite complimentary*” LMc). With pride, as with self-esteem, positive emotions were all associated with tasks that help the individual feel proud whereas examples of tasks which were done to protect pride from damage were described exclusively in negative terms. The patterns of emotion connected to pride and self-esteem indicate the fragility of feelings associated with ego-centric motivation where they can easily switch from positive to negative or vice versa. Motivation driven by guilt was described exclusively in negative terms; none of the tasks described had any intrinsic interest to the individual nor did they associate with the value of what they were doing.

² With respect to voters, when things ‘went their way’ voters were found to have conflicted emotions (both highly positive and highly negative) but when the other side of the vote were victorious, the emotional experience was negative (Koestner, Losier, Vallerand, & Carducci, 1996).

One explanation for the variety of emotional experiences could be their focus on either approach or avoidance outcomes. Research by Assor and colleagues (Assor, Vansteenkiste, & Kaplan, 2009) suggests that introjection should be distinguished according to whether the behaviour is motivated due to a desire to *avoid* feelings such as guilt or shame or to *approach* feelings of pride or higher self-esteem. Assor et al found that approach introjection was associated with marginally less negative emotions than avoidance introjection. This seems to be supported by this study.

5.4.6. Reasons due to external controls (external motivation)

Motivating force

In this case four codes were identified describing factors which acted as external pressures on the individual's behaviour:

- Financial reward (*"The pay was absolutely rubbish but I needed the money and worked really hard"* PD, in relation to a project he managed)
- Recognition (*"You don't get a physical reward but you do get positive feedback from your manager"* LMc, about doing a presentation to a potential corporate partner)
- Career progression (*"When I worked for the CEO I took on additional responsibility in the hope that it would get recognized and I would be upgraded and I did get that"* BH; *"I hope it contributes to me getting a permanent job here."* DH)

- To avoid punishment (*“There’s an element of fear – I know the repercussions of not doing it could be severe”* DH, about arranging a photo shoot)

Stability

The examples of stability with respect to external motivation were consistently unstable because they focused on an external contingency as illustrated in the following examples:

When I worked for the CEO I took on additional responsibility in the hope that it would get recognized and I would be upgraded and I did get that....If there was opportunity to get this again I would work harder to get it. (BH)

I had to do it to get promoted and restructure the department (CW)

I want to because I’m going to keep working until I wear them down and they give me a permanent job. (DW)

In all of these cases the employees are working for the contingency (promotion or permanent contract). Once this is achieved the source of the motivation does so the level of motivation is likely to diminish. For example, when BH says *“...I would work harder to get it again”* this suggests that this was a relatively short-term burst of activity to gain the promotion. In this example from AP, he explicitly describes the short-lived nature of the motivation for financial incentive:

“If the money’s big enough it could be a huge draw... [but] after the newness and the big cheque, what makes you go to work in the morning? I know that I have to be inspired. There has to be a reason, would the driving for excellence be enough

without the values? My gut feeling is that they wouldn't be. Some people value money and the best way to drive them is with money but I need values."

Emotional experience

The emotions expressed in relation to external regulation were entirely negative and divided into the following four codes: 1) Stress as in this example where BH felt stressed because she was working hard to get a promotion; *"when I was working hard like this sometimes it was stressful because I kept thinking, 'I really hope this is recognised'."* Several people complained that they 2) didn't see the point of the task but were doing it, *"because someone wanted me to, even though I couldn't see the point of it"* (DH). In contrast to intrinsic motivation, several respondents described 3) the tasks themselves in negative ways; *"I didn't enjoy it – I had to do it to get promoted"* (CW), *"I hated the job"* (SC), *"I don't care about them, they're not interesting"* (SG). Finally, several people expressed 4) fear; *"slightly scared by it, which helps me focus and get the job done to a good standard"* (LT), *"I had to work hard for fear of retribution"* (PD). This experience supports SDT's suggestion that controlled motivation is more likely to result in negative outcomes.

5.5. Discussion and implications

The primary aim of this study was to develop the definition of motivation proposed by SDT by identifying key characteristics and related emotions of each motivation type. In doing so, it has a secondary aim to act as a pilot for the later empirical studies in this thesis by identifying key themes and questions about the nature of work motivation. In

this section, I discuss the findings in relation to the guiding research questions and the additional themes that emerged.

5.5.1. Structure of the SDT continuum

The first guiding research question asked how individuals account for different forms of motivation at work and the second focused specifically on the emotional experience associated with these. Through these accounts all five motivation types proposed by SDT were evidenced but the features of the different types draw into question which can be seen as the most desirable and raise several important questions about the nature of motivation, which I reflect on below.

Firstly, a number of points were raised with respect to intrinsic motivation, which has traditionally been considered to be the most desirable form of motivation. Intrinsic motivation seems to be short-lived when the task's intrinsic value is due to its novelty. The interviews would suggest that this is because of habituation. In addition to this, tasks that encourage intrinsic motivation might not be those of the most value to "getting the job done" (Koestner et al., 1996), and therefore less likely to encourage high performance. The implications of this for organisational behaviour are that, at least in some cases, integrated and identified motivation appear to have more positive outcomes, from the organisation's perspective, than not only external regulation but also some forms of intrinsic motivation. This raises concerns about the use of an aggregate score to measure within the work environment, like the Relative Autonomy Index, which gives the most positive weighting to intrinsic motivation. In addition, it

confirms the need for further research to examine these other forms of autonomous motivation.

Secondly, despite the fact that integration is commonly excluded from measures of motivation, there is evidence that it exists in this case and has a powerful role to play in some individuals' motivation at work, as well as a positive emotional experience.

Although identification and integration are conceptually similar, they can be differentiated primarily by the extent to which the value of the task is experienced as self-determined and part of the individual's identity. The implication of this for SDT researchers is that more work needs to be done to try to capture integrated motivation to understand the antecedents and outcomes of this type of motivation as has been done with other types on the continuum. This is particularly important as integrated motivation was found to be associated with a consistently positive emotional experience, and therefore has benefits for individuals and organisations.

Turning to the 'controlled' forms of motivation; the emotional experience of introjected regulation was found to be more mixed than Koestner and Losier's (2002) research has suggested. Introjection can be experienced either positively or negatively and this seems to be explained by whether the motivation is focused on approach (such as building self-esteem or feeling proud) or avoidance (guilt or feeling bad about oneself) (Assor et al., 2009). This, therefore, suggests that introjected motivation might not always be associated with a negative experience. This has an implication for the measurement of introjected motivation, which is commonly included with external motivation as a combined 'controlled' motivation.

Finally, four types of contingency were identified which act as external motivators for this group of workers; financial reward, recognition, career progression and punishment. These have particular importance for this research and for work-based SDT more broadly. The first three motivators, and to some extent punishment as well, are established features of the work environment and are extolled by dominant motivation theories as valuable motivators (Locke & Latham, 1990). The important point to note, however, is that all of these were described in relation to negative emotions, as suggested by SDT. This supports the importance of understanding the link between these forms of external contingency and the *quality* not just *quantity* of motivation at work. It also supports the focus of this dissertation on not just financial, but also psychological rewards (e.g. recognition).

In summary, this study supports the theoretical differentiation of motivation as proposed by SDT, and develops on the limited previous research to identify some of the key characteristics of the motivation types, including raising some important questions which have implications for future research.

5.5.2. Values and SDT

The first of the themes that emerged from this study is with respect to values. Firstly, values seem to have an important role to play in encouraging internalised motivation at work and respondents described the way that they values helped them to do this.

The language used to describe individuals' values ("...I'm a recognition monkey"; "...I need values") suggests that they represent the general tendencies rather than transient and

task focused attitudes. This fits with Kasser's definition of values as "...guiding principles of life [which] organize people's attitudes, emotions, and behaviours, and typically endure across time and situations" (Kasser, 2002, p. 123). This concept, known as value or goal orientation, is recognised within one of the sub-theories of SDT. Specifically, Kasser (2002) sets out two propositions relating to the nature of values associated with SDT; he proposes that values can reflect either intrinsic or extrinsic motivations. That is values can be growth-oriented and congruent with the self (intrinsic) or focused on the feeling of self-worth or power associated with them (extrinsic) (Kasser & Ryan, 1996). Secondly, that values can be autonomously endorsed to a greater or lesser extent. Intrinsic values, autonomously endorsed are related to the most positive outcomes but extrinsic values can also be autonomously endorsed (Kasser, 2002). Both of these propositions found support in this study, as outlined below where respondents described their association with the values of the organisation (e.g. "*the value bit is the bedrock of what I do, which allows me to enjoy what I do but also to be good at I what I do*" AP). The shared values expressed are not task-focused, but more general towards the work they do and help them to internalise the value of their work.

AP goes further, to explain that he would not be motivated to work for a bank even if there was a large financial reward because he wouldn't share the organisation's values: "*Some people value money and the best way to drive them is with money but I need values.*" In this respect, AP is driven by intrinsic values, experienced autonomously. He helpfully highlights the difference from these kinds of values to extrinsic values ("*Some people value money*"). These extrinsic values were also evident, in this example from KA, who sees gaining recognition as part of her sense of self and integral to what she strives

from at work: *“For myself, I’m a recognition monkey, I like to achieve...I really value recognition...I need recognition”*. She expresses an extrinsic value but believes it to be self-determined and has therefore internalised it to some extent. This supports Kasser’s theory that, although intrinsic values will be on the whole more beneficial for the individual, the extent to which the value is self-defined also has an impact (Kasser, 2002). That is, intrinsic values experienced as non-self-determined might have less positive impact on motivation and extrinsic values experienced as autonomous (as in KA’s example) might have more positive impact than those experienced as controlling. In a work context, this has implications for the way in which behaviour is rewarded; if an external contingency has self-determined meaning for the individual it might not lead to negative behavioural outcomes as has traditionally been suggested within SDT (Deci et al, 1999a). This theory has had mixed empirical support in the past (Vansteenkiste et al., 2010 for a review) and only one example emerged from this study to support this so it would warrant further study, which is out of the scope of this thesis. It would also be interesting to explore the role of values in different types of organisations. The charity in this case is very “values-driven” and attracts workers who are less likely to have strong external goals. Would values be as significant in a for-profit company, which by its nature is focused on extrinsic goals?

5.5.3. Behaviour regulation over time

The proposal that the form of motivation changes over time is central to SDT. It suggests that individuals have a natural tendency to internalise motivation and that environmental factors can either support or impinge this (Deci, 1975). This process

happens across time, either in the short term related to specific activities or domains (Deci et al, 1994; Williams & Deci, 1996) or across life stages as relatively stable individual differences (Sheldon & Kasser, 2001).

Different forms of behaviour regulation appear to be affected by the passage of time in different ways. Not only does the stability of the different types vary but the speed in which they can change also seems to be different. The more internalised forms of extrinsic motivation (identification and integration) seem to be more resistant to environmental factors than external and introjected regulation, which can change much more quickly. The implication of this in an organisational setting is that any interventions designed to encourage internalisation may take some time to have the desired effect on motivation, whereas the impact of reward or “punishment” could be instantaneous.

The notion of time is also important for the design of research interested in changes in motivation. Even longitudinal data, if not collected over a long enough period, may only capture changes in the less stable forms of motivation (external, introjected and intrinsic for novel tasks) towards specific tasks. Whereas, motivation can also be seen as focused on a general domain level (e.g. I generally put effort in at work because I think my job is important) (Guay et al, 2003; Vallerand, 2000). For example Deci et al (1994) used experimental methods to explore the impact of autonomy support on the internalisation of an uninteresting task but measured intrinsic, identified and introjected motivation 5 minutes after the task is completed. This study might suggest that identified motivation might take longer than this to be realised.

The implications of these findings are on the way in which motivation is researched within SDT. The growing body of SDT measures of motivation research in the workplace tends to examine motivation at the domain level, as a relatively stable attitudinal construct, rather than specific activities or tasks. Vallerand and colleagues (Guay et al, 2003; Vallerand, 2000) propose that domain (e.g. work) and situational (task or activity) level motivation can impact on one another. It seems that less stable forms of motivation (e.g. intrinsic motivation towards novel tasks) could change task-by-task or day-to-day and could therefore influence perceptions of domain level motivation. For example, asking respondents to rate “Because the work I do is interesting” as a reason for putting in effort at work (Gagné et al., 2012) might illicit a different response from the same person depending on which tasks they are focusing on that day. The critical incident technique of interviewing also only looks at a point in time but this method could be adapted for use in task-focused quantitative methods to tap specific experience, rather than general attitudes. Perhaps a multi-method approach would help researchers to gain a fuller picture of individual’s motivation.

5.6. Limitations of study

There are several limitations of this study which it is important to recognise.

Firstly, the context of this study, being a charity, might have made the role of values seem more significant than it would be in for-profit organisations. Further research would therefore warrant to explore the extent to which values play a role in motivation in for profit organisations and to see whether this context makes a difference.

Secondly, I was employed in the organisation as an HR professional at the time of this study so my role within the organisation has the potential to influence the extent to which respondents were willing to be candid with their experience. I took steps to recognise this as much as possible and reassured them on anonymity to minimise this risk.

The third limitation relates to the size of the study. Although only a pilot study, and focusing on rich experience rather than generalisable trends, the relatively small number of individuals included in the study is a limitation. It would be valuable to gain insight into more experiences in future research to build on the characteristics of motivation identified here.

Finally, the question of the stability of motivation is an interesting one and it would be valuable to gather qualitative accounts the same respondents over time to see how their motivation changes. For example, utilising methods such as qualitative diaries (Cassell & Symon, 2004), to sample the richness of ongoing motivation at work.

5.7. Implications for later studies

This study highlighted several themes which it would be valuable to explore further in the later empirical studies that make up this thesis.

Firstly, there were several important implications about how the motivation types are measured. Evidence was found for both integrated and identified motivation, indicating that it would be worthwhile measuring both types in the quantitative studies. Two findings suggest that it would be valuable to examine the motivation types individually,

rather than calculating a composite score; that intrinsic motivation is not always conducive to productivity and that introjected motivation can be associated with positive emotional experience so it might not be appropriate to group it with external motivation, when this motivational experience is entirely negative.

Another implication for the measurement of motivation is the evidence that the motivating force can be more or less stable, and therefore may fluctuate at different rates. This would suggest that simply measuring motivation as a general attitude towards work is not the best way to approach this question. Diary studies can access day or task focused motivation in the field (Beal and Weiss, 2012) and would therefore be one way of doing this.

The final implication relates to the use of critical incidents to understand more about the nature of motivation using tangible examples. This was a fruitful method for ascertaining examples of activities pertaining to the motivation types. Further qualitative research would be beneficial to expand on the characteristics identified in this study and previous research and this might also be effectively combined with quantitative methods to act as a focus for specific motivated behaviour in the working day.

5.8. Summary

This study supports the differentiation of all five types of motivation as proposed by SDT within the work environment and provides insight into some of the characteristics and emotional experience of these types. In particular, it supports the theory that more

autonomous motivation is related to a more positive affective experience for the individual.

It also suggests that, while it is associated with a consistently positive emotional experience, intrinsic motivation might not always relate to 'getting the job done' so may not be as favourable, from an organisational perspective, as motivation theories would normally assume. In relation to internalised extrinsic motivation, support was found for the differentiation between integrated and identified motivation based on the extent to which the value of the task is congruent with the individuals own values. With respect to 'controlled' forms of motivation, introjected motivation was found to have a mixed emotional experience, drawing into question whether this should be grouped with external motivation, as it often is, which was associated with an entirely negative experience. These findings led to my recommendation that the motivation types should be studied more as individual types, rather than a composite.

The suggestion that the motivation types are affected by the passage of time in different ways and at different rates has implications for the level of study of motivation, which might be better considered as transient than a stable attitude. Finally, this research suggests that it might be possible for extrinsic values to be experienced as self-determined and the resulting motivation therefore internalised. This has implications for academics and practitioners interested in SDT as the level of internalisation of the extrinsic goal might mitigate the impact of any external control. Overall, this study suggests that we do not fully understand the experience of behaviour regulation at work and work-based SDT would benefit from exploring this further but identified some important considerations for research design and future study.

Chapter 6: A longitudinal study into individual performance-related reward and motivation at work

6.1. Introduction

This chapter presents a longitudinal survey exploring the relationship between financial reward and motivation at work. This study relates to all three aims of the thesis; firstly, to examine the relationship between workplace reward practices and motivation as defined by SDT, taking into account the context in which rewards are administered. Secondly, to examine the affective experience of different types of motivation as well as the associated behavioural outcomes. Finally, to test some of the basic tenets of the theory; specifically the extent to which basic psychological need satisfaction explains the impact of environment factors (reward and job context) on motivation as defined by SDT, and to examine the impact of the use of the RAI to measure motivation.

This study is guided by the following research questions (RQs) for the thesis, as stated in chapter 4. These RQs are tested through specific hypotheses set out below.

RQ1a. What is the relationship between merit pay level and bonus level and the motivation types?

RQ2a. To what extent does the context (job autonomy, job heuristic and managerial autonomy support) in which reward is administered moderate the relationship of merit pay and bonuses with motivation?

RQ3. To what extent does satisfaction of the basic psychological needs for autonomy, competence and relatedness explain the relationship between reward, context and motivation?

RQ4a: How do the different types of motivation relate to behavioural (performance and intention to quit) and psychological (subjective wellbeing, engagement and job satisfaction) outcomes at general work-level?

RQ5: Does the conceptualisation of relative autonomy mask the distinctiveness of the individual motivation types as proposed by SDT?

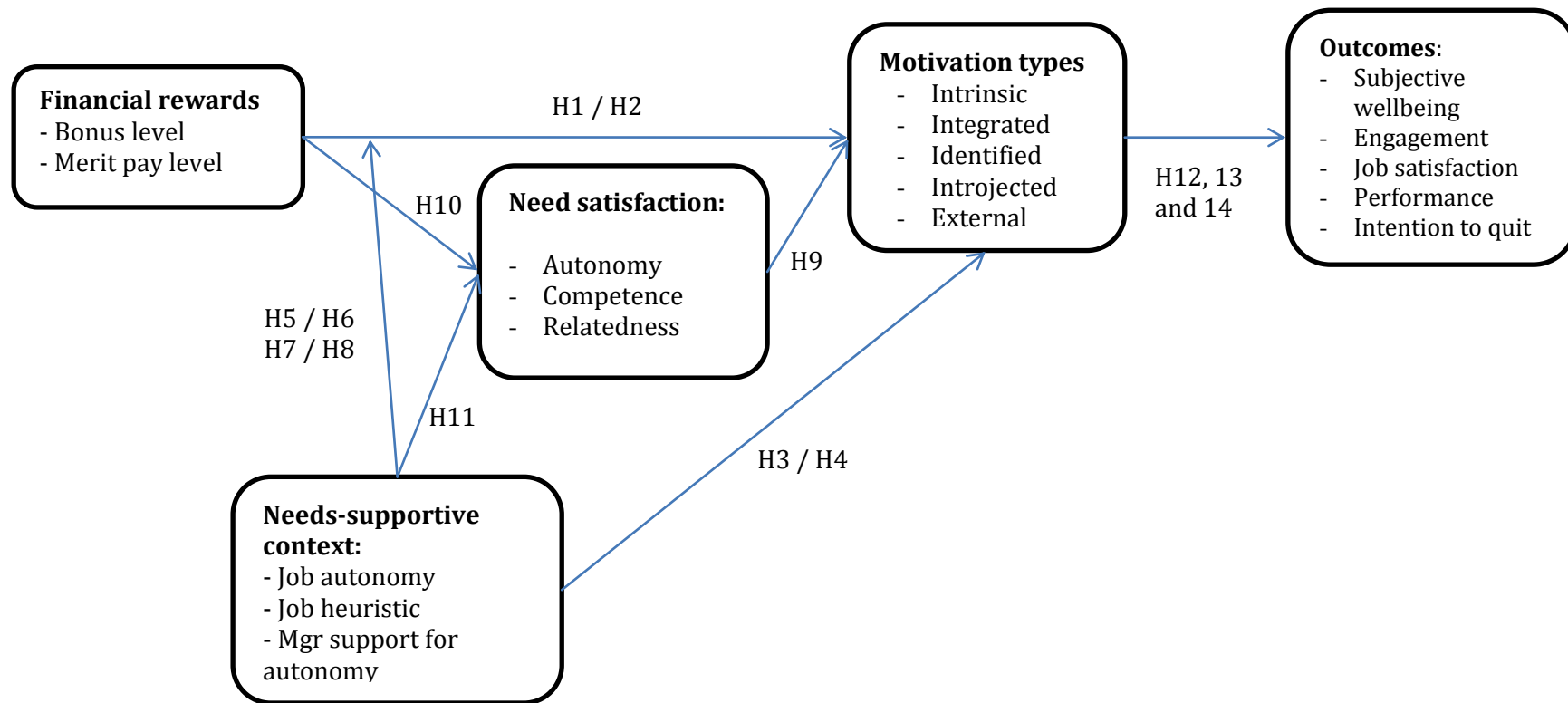
There follows an overview the theoretical framework and hypotheses to be tested by this study. The following sections then present the research itself.

6.2. Conceptual framework

6.2.1. Introduction to theoretical framework

Before detailing the specific hypotheses that will be tested in this study, I will introduce the theoretical model guiding the study, which is depicted in Figure 6.1. This is the top portion of the research model introduced in chapter four, representing the contextual level relationships.

Figure 6.1: Theoretical model



Addressing the main aim of this thesis, the primary relationship being tested here is between reward and motivation (H1 and H2). This study is concerned with formal financial rewards, which are set down in policy and therefore observable from organisational records (Trevor & Wazeter, 2006). In this organisation, formal financial rewards take the form of merit pay (increases to base pay) and bonuses (one-off cash payments), both of which are based in part on individual performance. As discussed in chapter 4, these forms of reward are the most common approaches to reward in UK organisations (CIPD, 2011). The relationship between these forms of reward and motivation is theorised to occur through satisfaction of the three basic psychological needs (Gagné & Forest, 2008) so, as well as the direct reward–motivation relationship, need satisfaction is examined as a mediator (H10).

Recognising that reward does not operate in isolation of the context in which it is administered, I will also examine the moderating role of the extent to which reward is administered in a needs-supportive context (H5-8). This is operationalised through three variables; the extent to which the job provides autonomy (Gagné et al., 1997), the individual's manager provides support for autonomy (Deci et al., 2001) and also whether the task is more heuristic (reasoned, creative) as opposed to algorithmic (repetitive, requiring little creativity) (McGraw, 1979). The direct relationship between the needs-supportive context variables and the motivation types is considered (H3 and H4). The mediating role of basic psychological need satisfaction between context and motivation is also examined (H11).

The next set of relationships being explored relates to the second aim of the thesis; the relationship between the motivation types as proposed by SDT and behavioural and

psychological outcomes (H12 – 14). Specifically, I will examine the relationship between each of the motivation types and subjective wellbeing, engagement, job satisfaction, performance and intention to quit.

I end with a question (research question 5) which links to the final aim of the thesis, which is to test SDT as a theory of work motivation. Specifically, I examine whether the use of a Relative Autonomy Index, which is common, masks the distinctiveness of the individual motivation types.

6.2.2. Hypotheses building

The following section sets out the rationale behind the hypotheses to be examined in this study, linked to the above research questions.

RQ1a: What is the relationship between merit pay and performance-related bonus amount and the motivation types?

The central proposition within SDT regarding the relationship between extrinsic rewards and motivation is that salient external reward will lead individuals' perceived locus of causality for their behaviour to shift from internal to external. That is, from motivation due to reasons which are experienced as autonomous to reasons experienced as more externally controlled. As Deci and Porac (1979, p. 155) explain; "we might expect that salient extrinsic rewards will lead to the development of instrumentalities between the behaviour such that rewards represent the reason for engaging in the activity". The two forms of financial reward that I examine here are argued to make this instrumentality particularly salient, on the basis that their aim is to

recognise and improve job performance (Rynes et al., 2005) and therefore to control behaviour (Locke & Latham, 1990).

As discussed in chapter 3, experimental research has yielded very mixed results in relation to this theory (e.g. Cameron, 2001; Deci et al., 1999a; Rummel & Feinberg, 1988) and field based research is more scarce. There has been remarkably little empirical research examining the motivational impact of merit pay level (Gardner, Van Dyne, & Pierce, 2004; Rynes et al., 2005) and none that I am aware of which examines the impact of merit pay level on the full range of motivation types as proposed by SDT. In relation to performance-related bonuses; although research has generally reported a positive relationship between bonuses and *effort*, which is used as a proxy for motivation quantity, (see Gerhart et al., 2009 for a review), some studies have found no significant relationship (e.g. Igalens & Roussel, 1999; Kuvaas, 2006b). Again, I am not aware of any research which has explicitly tested the relationship between bonus and differentiated motivation as proposed by SDT. As discussed in detail in chapters 2 and 3, many of the experimental studies examining the impact of reward on intrinsic motivation have utilised one-off payments, which are of a similar nature to bonuses, and these have been found to be detrimental to intrinsic motivation (Deci et al., 1999a). However, these monetary amounts tend to be far smaller than workplace bonuses, have often been administered on children and not an expected part of the experimental tasks in the same way as workplace bonuses are (Rynes et al., 2005).

With limited empirical research to draw on, I base the following hypotheses on the theory that merit pay and performance-related bonuses make the instrumentality of reward particularly salient, and the higher the level (i.e. greater monetary value) of

these forms of reward, the more salient they will be. This causes individuals to attribute their behaviour to this external contingency which therefore increases their controlled motivation (external perceived locus of causality) and reduces their autonomous motivation (internal perceived locus of causality):

H1a: Merit pay level negatively predicts change in intrinsic, integrated and identified motivation.

H1b: Merit pay level positively predicts change in introjected or external motivation.

H2a: Bonus level negatively predicts change in intrinsic, integrated and identified motivation

H2b: Bonus level positively predicts change in introjected and external motivation

RQ2a. To what extent does the context (job autonomy, job complexity and managerial autonomy support) in which reward is administered moderate the relationship of merit pay and bonuses with motivation?

Rewards are not administered in isolation and it is therefore important to understand the impact of the job context on the relationship between reward and motivation. In this study I examine, firstly, the direct relationship between job context and motivation and, secondly, the extent to which job context moderates the relationship between financial reward and motivation. Taking first the direct relationship, SDT proposes that “social contexts...influence people’s intrinsic need satisfaction and thus their motivation”

(Baard et al., 2004, pp. 2047–2048). A ‘needs-supportive’ job context would therefore relate to more autonomous motivation as this is theorised to be an outcome of greater satisfaction of individual’s basic psychological needs. Based on previous empirical research, a needs-supportive context is defined as one which encourages job autonomy by providing meaningful and interesting work (Gagné et al., 1997) and managers who are supportive of autonomy (Baard et al., 2004; Deci, Connell, & Ryan, 1989). Manager autonomy support is characterised by acknowledging the subordinate’s perspective, providing meaningful rationale in a non-manipulative way, offering opportunities for choice and encouraging self-determination (Baard et al., 2004; Deci et al., 1994). In addition, jobs which require more heuristic (independent, creative, reasoned) thought (McGraw, 1979) are likely to be more interesting than repetitive tasks and will allow individuals to feel more autonomous and competent because the job provides them with the information to evaluate their own performance. It is therefore hypothesised that:

H3: A needs-supportive context, characterised by a) high job autonomy, b) high manager support for autonomy, and c) a job which requires heuristic thought is positively related to intrinsic, integrated and identified motivation

H4: A needs-supportive context, characterised by a) high job autonomy, b) high manager support for autonomy, and c) a job which requires heuristic thought is negatively related to introjected and external motivation

Turning now to the moderating role of context between reward and motivation, I make two sets of hypotheses. The first is on the basis of the theory that rewards have both

informational and controlling aspects and it is the context in which reward is given that will influence which of these are more salient (Ryan et al., 1983). A reward context which provides meaningful rationale and supports individual's self-determination (through job autonomy and manager support for autonomy) will make the informational aspects of reward more salient and therefore reduce the controlling aspects. This therefore allows individuals to assess their own performance and feel volitional in achieving performance outcomes so individuals are more likely to attribute their behaviour to self-determined reasons and the resulting motivation will be more autonomous and less controlled.

There has been little, or no, research testing this but based on the theory I hypothesise that:

H5: The relationship between merit pay level and the motivation types is moderated by a needs-supportive context characterised by a) job autonomy and b) manager autonomy; the more needs-supportive the context, the weaker the relationships between merit pay level and motivation (negative with autonomous motivation and positive with controlled motivation).

H6: The relationship between bonus level and the motivation types is moderated by a needs-supportive context characterised by a) job autonomy and b) manager autonomy; the more needs-supportive the context, the weaker the relationships between bonus level and motivation (negative with autonomous motivation and positive with controlled motivation).

The second set of moderation hypotheses relate to the extent to which the job requires heuristic thought. As discussed above, individuals are more likely to be autonomously motivated towards jobs which require higher levels of heuristic thought because they provide opportunities for satisfaction of the basic psychological needs of autonomy and competence. However, for algorithmic (simple, repetitive) jobs, the activity itself does not provide the nutrients to encourage autonomous motivation so individuals are more likely seek extrinsic motivation. The introduction of an extrinsic reward for jobs which are in themselves stimulating (as in heuristic jobs) has the potential to shift individuals' attribution towards the reward, thereby moving from an internal to external perceived locus of causality. For algorithmic tasks, the motivation is likely to have been more controlled in the first place so the shift will not take place. There is little, if any, empirical research examining the role of job complexity on the pay-motivation relationship. The majority of experimental research which has examined the relationship between reward and motivation has done so in relation to algorithmic tasks despite calls to recognise the potential moderating role of task complexity (Gagné & Forest, 2008). On the basis of the theory that more heuristic jobs have the potential to be more inherently autonomously motivating, I hypothesise:

H7: The relationship between merit pay level and the motivation types is moderated by the extent to which the job requires heuristic thought; the more heuristic thought, the stronger the relationships between merit pay level and motivation (negative with autonomous motivation and positive with controlled motivation).

H8: The relationship between bonus level and the motivation types is moderated by the extent to which the job requires heuristic thought; the more heuristic thought, the stronger the relationships between bonus level and motivation (negative with autonomous motivation and positive with controlled motivation).

RQ3: To what extent does satisfaction of the basic psychological needs for autonomy, competence and relatedness mediate the relationship between reward and motivation?

This question aims to test one of the central theories underpinning SDT; that individuals are naturally growth-oriented, who thrive when their environment satisfies their basic psychological needs for autonomy, competence and relatedness. These needs are seen as the nutriments of optimal functioning and, when satisfied, individuals are likely to be more self-determined in their motivation (Deci & Ryan, 2000). The extent to which these needs are satisfied is therefore a way of understanding the impact of the external context on motivated outcomes (Deci & Ryan, 2000; Vansteenkiste & Deci, 2003).

Likewise, aspects of the external environment can 'thwart' satisfaction of these three basic psychological needs to the extent that it is controlling, reduces feelings of competence or is contrary to a sense of relatedness to others.

In order to examine this question I make two sets of hypotheses; the first set considers the direct relationship between the satisfaction of the three basic psychological needs and motivation and the second set examines the extent to which need satisfaction mediates the relationship between both reward and job context with motivation.

SDT broadly suggests that greater need satisfaction is related to more autonomous motivation. However, there are some nuances between the autonomous motivation types. Gagné and Deci (2005) theorise that satisfaction for the needs for autonomy and competence, but not relatedness, are key for intrinsic motivation. That is because one can be intrinsically motivated on a task performed in isolation (e.g. reading a book). In relation to extrinsic forms of motivation, they state that: “when people experience satisfaction of the needs for relatedness and competence with respect to a behavior, they will tend to internalize its value and regulation, but the degree of satisfaction of the need for autonomy is what distinguishes whether identification or integration, rather than just introjection, will occur.” (Gagné & Deci, 2005; p. 337). Satisfaction of the need for autonomy is therefore seen as the most important in encouraging more autonomous motivation (intrinsic, integrated and identified) but satisfaction of the needs for competence and relatedness alone could also encourage introjected motivation. As need satisfaction relates to an internal perceived locus of causality one would also assume that it would be negatively related to an external locus of causality in the form of external motivation.

Although there is evidence to support the suggestion that need satisfaction will be related to intrinsic or more autonomous motivation (Arshadi, 2010; Milyavskaya & Koestner, 2011; Richer et al., 2002) there has been little, or no, research which links satisfaction of the individual needs with each of the individual motivation types. Based on the theory set out above, I make the following hypotheses in relation to each motivation type:

H9a: Satisfaction of basic psychological needs for autonomy and competence are positively related to intrinsic motivation.

H9b: Satisfaction of basic psychological needs for autonomy, competence and relatedness are positively related to integrated and identified motivation.

H9c: Satisfaction of basic psychological needs for competence and relatedness have a positive relationship with introjected motivation.

H9d: Satisfaction of basic psychological needs for autonomy, competence and relatedness has a negative relationship with external motivation.

Turning now to the mediating role of need satisfaction; it has been suggested that satisfaction of the basic psychological needs mediates the relationship between reward and motivation but there have been few attempts to empirically test this (Gagné & Forest, 2008; Vansteenkiste & Deci, 2003). The theorised relationship between extrinsic rewards and need satisfaction is as follows: Firstly, reward is designed to control behaviour and makes external contingency particularly salient, which therefore has the potential to reduce the feelings of autonomy associated with an internal locus of causality (deCharms, 1968). Secondly, performance-related reward is designed to provide information on performance, which could therefore satisfy individuals' need for competence (Vansteenkiste & Deci, 2003). Finally there is no reason to believe that reward based on individual performance (rather than team or group performance) contributes either to the satisfaction or frustration of the need for relatedness in itself although, clearly, the context in which the reward is administered might. This is considered in a later hypothesis. Therefore, one would expect the salient external

rewards examined here to decrease satisfaction of the need for autonomy, increase competence need satisfaction and have no significant relationship with relatedness. Overall, I would hypothesise a net negative relationship between both merit pay and bonus level with more autonomous motivation on the basis that “perceived competence does not enhance intrinsically motivated behavior if people do not feel autonomous” (Vansteenkiste & Deci, 2003, p. 280). As discussed above, greater satisfaction of the basic psychological needs is related to more autonomous motivation.

Therefore, I make the following hypotheses:

H10a: The combined indirect effect of both merit pay level and bonus level on autonomous motivation (intrinsic, integrated and identified) through satisfaction of the basic psychological needs for autonomy, competence and relatedness is negative. The indirect effect through autonomy need satisfaction is negative, it is positive through competence, and not significant through relatedness.

I also predict a positive indirect effect of merit pay and bonus level on both introjected and external motivation. This is on the basis that the undermining effect of high reward on autonomy need satisfaction will not impact on introjection (because I expect no significant relationship) and will relate to higher controlled motivation (because autonomy need satisfaction and external motivation are negatively related).

H10b: The combined indirect effect of both merit pay level and bonus level on introjected motivation through satisfaction of the basic psychological need for competence is positive. .

H10c: The combined indirect effect of both merit pay level and bonus level on external motivation through satisfaction of the basic psychological needs for autonomy, competence and relatedness is positive. The indirect effect through autonomy need satisfaction is positive, it is negative through competence, and not significant through relatedness.

As with the reward relationship described above, need satisfaction is seen as important in explaining the extent to which the environment is more or less conducive to autonomous motivation. All three characteristics of the context examined here (job autonomy, manager support for autonomy and job heuristic) are hypothesised to have a positive relationship with the autonomous motivation types and to a lesser extent with introjected motivation because they satisfy the basic psychological needs as outlined in hypotheses 9a-c. Likewise, this would also suggest that the relationship with external motivation should be negative. There has been some empirical support for a relationship between manager autonomy support and satisfaction of all three needs (Baard et al., 2004; Deci et al., 2001) although not in a mediating role with motivation. There has also been some research which found a positive relationship between task autonomy (Van den Broeck et al., 2008) and job control (Fernet, Austin, Trépanier, & Dussault, 2013), which is a related construct, and need satisfaction although, again, this was not mediating with motivation. I am not aware of any research which has examined the link between job heuristic and need satisfaction. Based on the theory and this limited empirical research I hypothesise that:

H11: Satisfaction of basic psychological needs for autonomy, competence and relatedness partly mediates the relationship between a needs-supportive job context, in the form of; a) high job autonomy, b) high manager support for autonomy, and c) a job which requires heuristic thought) and the motivation types.

RQ4a: How do the different types of motivation relate to behavioural (performance and intention to quit) and psychological (subjective wellbeing, engagement and job satisfaction) outcomes at general work-level?

SDT's meta-theory states that individuals are naturally growth-oriented and thrive when their motivation towards tasks and activities is self-determined (Deci & Ryan, 1985a). Connected to this is therefore the theory that more autonomous motivation will be related to more positive behavioural and psychological outcomes, as characteristics of thriving. This theory has been supported in that more autonomous, relative to controlled, motivation is associated with positive outcomes such as acceptance of organisational change (Gagné et al., 2000) wellbeing (Baard et al., 2004; Kasser et al., 1992), satisfaction and adjustment (Ilardi et al., 1993), prosocial behaviour (Gagné, 2003) and performance (Dysvik & Kuvaas, 2012), and negatively associated with emotional exhaustion and intention to quit (Richer et al., 2002). However, this previous research examines only more simplistic motivation distinctions (e.g. intrinsic/extrinsic, autonomous/controlled). There is some limited research which indicates that different types of autonomous motivation are related to different outcomes. For example that identified motivation might be more conducive to more productive behaviour (Koestner & Losier, 2002) or engagement (Jang, 2008) than intrinsic motivation for activities

which are not inherently interesting. I would therefore expect slight differences between the autonomous motivation types. However, due to the limited previous research I combine these into one hypothesis. I have tentatively hypothesised that introjected motivation will be weakly related to a more negative experience on the basis that it is relatively controlled although, as found in the pilot study (chapter 4) the experience may well be mixed.

H12: Intrinsic, integrated and identified motivation are positively related to positive outcomes; a) subjective wellbeing, b) engagement, c) job satisfaction and d) performance and negatively with e) intention to quit.

H13: Introjected motivation has a weak but negative relationship with positive outcomes; a) subjective wellbeing, b) engagement, c) job satisfaction and d) performance and weak positive relationship with e) intention to quit.

H14: External motivation is negatively related to positive outcomes; a) subjective wellbeing, b) engagement, c) job satisfaction and d) performance and positively related to e) intention to quit.

RQ5: Does the conceptualisation of relative autonomy mask the distinctiveness of the individual motivation types as proposed by SDT?

As previously outlined, the family of motivation scales which are used to measure the individual motivation types proposed by SDT, deriving from the work of Ryan and Connell (1989), can be scored in a number of different ways. One of the most common is the calculation of a Relative Autonomy Index (RAI; Grolnick & Ryan, 1989), as discussed

in chapter 3. The RAI is used primarily for practical purposes, to reduce the number of motivation variables in a research model (McLachlan & Hagger, 2011) and to deal with covariance between the motivation types. It is calculated by weighting more autonomous motivation types positively compared to more controlled motivation types, thus; $2 \times \text{intrinsic} + 1 \times \text{integrated} + 1 \times \text{identified} - 1 \times \text{introjected} - 2 \times \text{external}$ (Lonsdale et al., 2009). A more positive score on the RAI would therefore indicate that an individual's motivation is relatively more autonomous than more controlled.

The RAI is based on two components of the theory; firstly, that individuals' motivation is not isolated to one motivation type at a time but rather that they are likely to experience multiple motivations (Gagné & Deci, 2005). Secondly, that the motivation types can be ordered along the an autonomous-controlled continuum in a quasi-simplex structure (Ryan & Deci, 2002), in that the adjacent motivation types (e.g. intrinsic-integrated) are more closely related to one another than those more distal on the continuum (e.g. intrinsic-introjected). So, if an individual's motivation is driven by integration they are also likely to be more intrinsically motivated and motivated through identifying with the task (both of which are adjacent to integration on the continuum) than they will be motivated through introjection (which is not adjacent to integration).

In chapters 3 and 5 I highlighted a number of concerns about the use of the RAI. Firstly, that it might obscure the value of the individual motivation types so, for example, an RAI score might be the same for someone who has moderate levels of both autonomous and controlled motivation as someone who has high autonomous and high controlled motivation (Ratelle et al., 2007). Secondly, it seems to devalue the findings that different

forms of motivation might have different behavioural and psychological outcomes (e.g. Koestner & Losier, 2002; Wilson, Rodgers, Loitz, & Scime, 2006; Wilson et al., 2012).

It is difficult to make a specific hypothesis about the number of complex relationships tested in this study so I will instead approach this research question (RQ5) as exploratory to examine the different findings when using the RAI compared to the individual motivation types.

6.3. Method

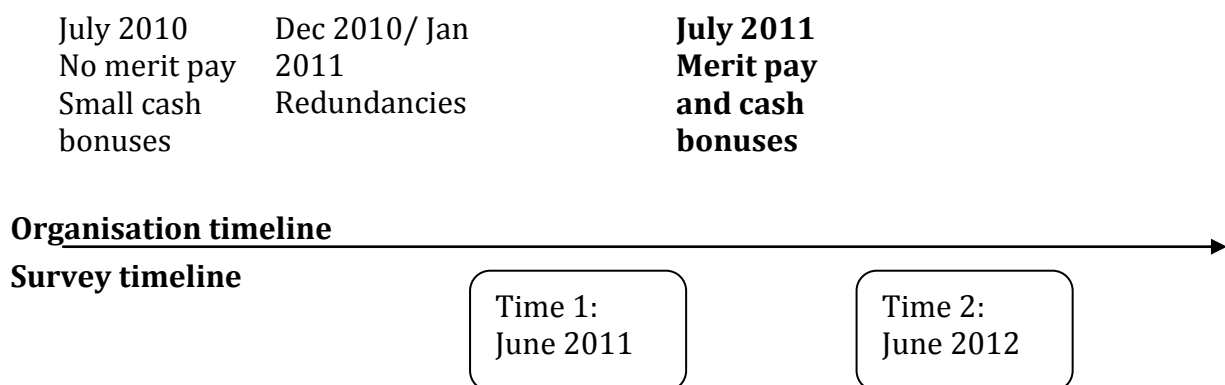
6.3.1. Organisational and reward context

Participants were employed in a UK-based public corporation performing salaried desk-based roles ranging from customer service to strategic economists. The organisation had 733 staff, most of whom were based in the head office in London. All participants were eligible for merit pay and performance-related bonuses as part of the organisation's reward strategy. In this section I outline the recent historical reward context and the pay policies.

The two survey waves were administered in June 2011 and June 2012. Prior to 2011 there had been a 2 year "pay freeze" due to the recession of the UK economy and significant budget cuts. In 2009 staff did not receive a pay increase or bonus. In 2010 low value cash bonuses were paid to a large proportion of staff but no increase on base salary. In the 9 months prior to the survey (end 2010 / beginning 2011), 10% of the workforce was made redundant, as an impact of the recession. In 2011 it was

announced that there would be merit pay and performance-related bonuses as had been the policy pre-recession. At the point of the time 1 survey being administered, staff knew that a pay review was expected and had been told their performance rating but did not know how much merit pay or bonus they would receive. They were told their merit pay and bonus level 2 weeks after the time 1 survey closed. In 2011 around 50% of the organisation would expect to receive a bonus. At the point of the second survey wave, respondents were expecting their 2012 merit pay and bonuses so this was salient once more. The reward timeline, including survey time points, is included in figure 6.2. The July 2011 merit pay and bonuses were used as the reward variables in this survey.

Figure 6.2: Reward administration and survey timeline



Merit pay decisions in the organisation are made based on four factors; internal relativity, external relativity, performance and potential. Performance is rated based on completion of qualitative or quantitative work objectives and behaviours in line with the explicit organisations values. It is not possible to determine the proportion of pay increase attributed to each of these factors. There are no objective rules applied across the organisation; some business areas choose to apply a more stringent formula (e.g.

high against the market and performance rating 1 = x% increase) but most make individual judgements. These conditions mean that merit pay and bonus expectations are likely to be based on previous experience, explicit and implicit messages from the organisation and managers, self evaluation of performance, and informal information shared between co-workers.

Pay and bonus decisions are moderated in management meetings, facilitated by senior HR managers, and across the organisation to ensure fairness across groups (e.g. gender, job level, organisational section). Maximum bonus potential is set according to job level, ranging from 8% to 20%. Based on unpublished data obtained by the organisation from an external consulting firm this level is set to be above the median for the type of industry. Very few individuals would expect to achieve their maximum bonus potential, due to the external financial situation. Individual bonuses are awarded based primarily on the performance rating assigned at the annual appraisal. Individuals whose performance is rated 1 or 2 (the highest ratings) would normally expect a bonus; those rated 3 would receive a bonus in very exceptional circumstances; and those rated 4 or 5 would not receive a bonus. As with pay increases, there are no fixed rules applied to decisions but there is normally a level of consistency within business areas. For example, individuals in the Finance department, of the same job level, rated 1 would expect to receive roughly the same bonus. The guidelines on the distribution of bonus and merit pay were communicated to all employees around the time of the annual pay review in each year through the staff intranet and team meetings.

6.3.2. Procedure

The survey was administered electronically. Participants were emailed instructions for the survey and a link and were given two weeks to complete the survey. Reminders were sent out at the end of week 1 and with 1 day to go. The two waves of the survey were timed to maximise the salience of financial rewards in line with the organisational timetable. This is important because, as outlined in the hypotheses section, more salient reward is hypothesised to shift individual's perceived locus of causality from internal to external. Times 1 and 2 were sent out 2 weeks before the decisions of the pay and bonus review were communicated, 1 year apart. Respondents knew that they would be receiving some kind of merit pay and/or bonus at this time but not the monetary amount.

6.3.3. Response and attrition rates

The surveys were sent out to all 733 employees within the organisation. The final sample consisted of 155 respondents with pay data and an additional 41 respondents with no pay data which were included in analysis of the relationship between motivation and outcomes as pay data were not required for this.

Response rates were 396 at time 1 and 394 at time 2. Of these, 196 respondents completed the survey at both time points, giving a response rate of 26.7%. Pay data were obtained from organisational records only where permission was given. Of 196 respondents, 139 gave permission for me to obtain their records, leaving 57 without pay data. Of these, 16 provided self-report pay data through the survey as monetary

amounts. These self-reported figures were checked against the distribution for the organisation and respondents at the same job level to ensure that they were within the expected range.

Of the 196 retained respondents, 36.7% were female and the average age was 41.29 (SD = 10.52). The average tenure was 8.65 years (SD = 7.38). There are five job levels within the organisation which I labelled from 1 (administrative or technical) to 5 (senior manager) with 1 representing the lowest level in hierarchy and 5 the highest level. The distribution of job level was representative of the organisation; 5.6% at job level 1, 29.6% at 2, 34.1% at 3, 19% at 4 and 11.7% at job level 5. This was roughly representative of the structure of the organisation, with the exception of level 1, which was slightly underrepresented. The rest of the demographic variables were also representative of the whole organisation.

6.3.4. Measures from organisational records

Participants were asked permission to access organisational records in respect of merit pay, bonus amount, salary level and performance rating.

Merit pay level

Data on merit pay, administered annually as part of the pay review, were available as both a monetary amount and a percentage increase on base pay. Previous research into merit pay varies in whether the monetary (e.g. Shaw, Duffy, Mitra, Lockhart, & Bowler, 2003) or percentage increase (e.g. Harris, Gilbreath, & Sunday, 1998; Vest, Scott, & Markham, 1994) is used. For the purposes of this research, percentage increase was

used because it controlled for stable base pay level. The distribution of merit pay was heavily positively skewed so the dataset was split into high, low and no merit pay. Two dummy variables were created to represent high and low merit pay each representing around half of those who received merit pay. Low merit pay represented a 0.8 to 2.8% increase of base pay (N = 69, 45%) and high merit pay a 2.9 to 12.9% increase (N = 67, 43%). The omitted variable therefore represented no merit pay (N = 19, 12%). It is worth noting that, in the context of the global and national financial crisis in 2011 these increases were relatively generous as many organisations were still experiencing a pay freeze or very minor increases.

Bonus level

Bonus data were also available in two forms; as a monetary amount and a percentage of base pay and percentage was used for the reasons outlined above. As with merit pay, bonus level was heavily skewed and censored so two dummy variables were created. Low bonus was 1.2 to 6.4% of base pay (N = 48, 31%) and high bonus 6.5 to 13.5% (N = 49, 32%). Once again, the omitted variable represented no bonus (N = 58, 37%).

Salary level

Salary level was not included in the research model as an independent variable because I am concerned with the impact of variable pay rather than stable pay on motivation. However, it was included as a control variable to remove stable reward effects from the model. Salary was measured via the monetary amount of annual salary (before deductions) taken from organisational records. Where staff worked part-time, their full time equivalent salary was used. The average salary of participants was £55,190 per annum (min = £20,500, max = £157,000).

Performance

Respondents' official performance ratings were obtained from organisational records. Performance was rated by line managers on a scale from 1-5, with 1 being highest. Performance ratings were based on performance against work objectives, taking into account skill and behavioural competencies. Although there was no forced distribution, the performance ratings within the organisation were normally distributed, with a slight skew towards the higher rating (very few people received the lowest rating of 5). In this sample, 5.1% of respondents received a 1 rating (the highest), 37.2% a 2, 33.7% a 3, 3.6% a 4 and no 5s were recorded. This is broadly representative of the organisational distribution although 1s were under-represented (around 10% of staff received a 1 rating) and there were a very small number of 5 ratings which were not represented here. Ratings were reverse coded for analysis purposes so that a higher number indicated higher performance.

There has been some discussion about whether subjective, objective and self-report measures should be seen as the same construct (for a review see; Bommer et al., 1995). In this instance, performance information was obtained from organisational records because the organisation's perception of performance was an important outcome in the context of work based research.

6.3.5. Questionnaire design

This section presents the variables measured through the questionnaire. All questionnaire scales and items are included at appendix II. The Cronbach's alpha coefficients reported below are all based on an N of 196.

Job heuristic

"Job heuristic" was used as short hand to describe the extent to which the job required heuristic thought. Job or task heuristic is normally manipulated through experimental studies and I am not aware of any measure to establish whether work activities are heuristic or algorithmic so items were adapted from established research on job characteristics (Hackman & Oldham, 1975; Morgeson & Humphrey, 2006). Four items were included in total, three from the problem solving subscale of Morgeson and Humphrey's (2006) Work Diagnostic Questionnaire (WDQ), which asked respondents to rate the statements in relation to their job from 1 (strongly disagree) to 7 (strongly agree). For example; "The job involves solving problems that have no obvious or correct answer." One additional item was added, which aimed to tap the extent to which individuals were required to use their skills and knowledge to solving problems ("The job requires me to apply my skills and knowledge to find the solution to problems"). Coefficient alpha for this scale is .83.

Job autonomy

Job autonomy was measured with items from the WDQ (Morgeson & Humphrey, 2006). The WDQ includes three sub-scales entitled: Work Scheduling Autonomy, Work Methods Autonomy and Decision-Making Autonomy, each containing 4 items. For the

purposes of this research, 4 items were used (1 from each of work scheduling and work methods autonomy and 2 from decision-making autonomy). An example item is; “The job provides me with significant autonomy in making decisions”. Respondents were asked to rate the statements in relation to their job from 1 (strongly disagree) to 7 (strongly agree). Coefficient alpha is .88.

Perceived Managerial Support

Four items were taken from the Work Climate Questionnaire (WCQ; Baard et al, 2004), which was developed specifically to examine perceptions of managerial support for autonomy from the employees’ perspective. Respondents were presented with a series of statements about the level of support that they receive from their manager which were rated on a 7-point Likert scale from (1) strongly disagree to strongly agree (7). An example item is; “My manager listens to how I would like to do things”. A total score for managerial support was generated by averaging the individual item scores. Cronbach’s alpha coefficient was .93.

Need satisfaction

Need satisfaction was measured with Van den Broeck et al’s (2010) “Work-related Basic Need Satisfaction Scale” (W-BNS). The scale contained 18 items measuring the 3 basic psychological needs of competence (4 satisfaction, 2 frustration), autonomy and relatedness (3 frustration and 3 satisfaction each). Example items are; “I feel free to do my job the way I think it could best be done” (autonomy); “I feel competent at my job” (competence) and “At work, I feel part of a group” (relatedness). These were scored on a 5-point Likert scale from Totally Disagree (1) to Totally Agree (5). Need frustration items were reverse scored and all items for each need were added together to create a

total score for each need, higher scores representing higher satisfaction. Alpha coefficients for the three subscales were; .79 (autonomy), .85 (competence) and .78 (relatedness).

Motivation towards work

The Multidimensional Work Motivation Scale (MWMS; Gagné et al., 2012) was used to measure the motivation types as set out by SDT. The scale has 22 items which respondents completed on a 7-point Likert scale, indicating the extent to which the statement was a reason for them putting in effort at work. Example items include; “Because I am more likely to get rewarded if I do” (external), and “because I personally consider it important to put effort into this job” (identified). As intrinsic motivation is such a central concept to the motivation scale four additional items were included to measure this motivation type from Kuvaas and Dysvik (2009). These researchers’ original scale included six items but two were discounted for overlapping with intrinsic motivation the MWMS (“My job is very exciting”) and for being too close to the concept of identified motivation (“My job is meaningful”). The MWMS does not include items for integrated motivation because all of the items that the authors tested loaded onto the same factor as identified motivation during confirmatory factor analysis. Integration is commonly excluded from other survey measures for the same reason. However, the pilot study indicated that integration regulation is distinguishable from identified and research in sports psychology has indicated that it is an important distinction (Wilson et al., 2006). For the purposes of this research 3 additional items were added to tap integration. One item was taken from Leana et al’s (2009) scale assessing calling orientation towards work (as opposed to a job or career orientation), which implies that

the individual fully shares the values of the work that they do; “Because my work is one of the most important things in my life”. The other two were developed for the purposes of this research based on the theoretical definition of integration (Deci & Ryan, 1985a; Ryan & Deci, 2002) and SDT research in sports psychology (Wilson et al., 2006); “Because my job is a large part of who I am” and “Because my work is a chance to express my personal values”. A mean was created for each set of items on each of the individual subscales (alpha coefficients ranged from .71 to .92; table 6.1). Validation of the scale is included in the preliminary analysis section, below.

In order to address research question 5, which tests the use of a Relative Autonomy Index (RAI), this was calculated. The majority of studies which have employed the RAI have done so with four motivation subtypes; intrinsic, identified, introjected and external but not integrated. The motivation types are then weighted to form the following calculation: $2 \times \text{intrinsic} + \text{identified} - \text{introjected} - 2 \times \text{external}$. The SDT website (‘SDT website’, 2013), which is managed by the SDT research lab at the University of Rochester, explains that:

“...regardless of the number of subscales in the particular scale, can be combined to form a Relative Autonomy Index (RAI)...the controlled subscales are weighted negatively, and the autonomous subscales are weighted positively. The more controlled the regulatory style [motivation type] represented by a subscale, the larger its negative weight; and the more autonomous the regulatory style represented by a subscale, the larger its positive weight.”

(‘SDT website’, 2013)

Lonsdale et al (2009) applied an SDT motivation scale, in sports psychology, with all five motivation types as I have done and calculated the scale thus;

$2 \times \text{intrinsic} + 1 \times \text{integrated} + 1 \times \text{identified} - 1 \times \text{introjected} - 2 \times \text{external}$. This method was therefore employed. Several alternative methods of calculation were tested in this study³ but there was very little difference in the pattern of results from the different calculation methods tested.

Subjective wellbeing

Warr's (1990) scale of positive and negative affect was used for this research as it was designed specifically for use in work organisations. The scale includes six adjectives for each of positive (e.g. cheerful, optimistic) and negative (e.g. gloomy, worried) affect. In line with other research (e.g. O'Driscoll et al., 2011) an overall subjective wellbeing score was calculated by reverse coding all negative affect items and calculating a mean score for each respondent. Coefficient alpha for the combined subjective wellbeing scale was .88.

Work engagement

The Utrecht Work Engagement Scale (Bakker & Bal, 2010) was used to measure engagement. The scale included 9 items, 3 for each of vigour, dedication, and absorption which are seen to be the three key characteristics of engagement. Items were scored on a 7-point Likert scale from 1 (almost never, a few times a year or less) to 7 (always, every day). Schaufeli et al (2006) present a validation of the 9-item scale and

³ The alternatives were: 1) Combining the integrated and identified subscales by calculating a mean of all items from both scales; 2) excluding integrated motivation (as it is commonly excluded from studies); 3) weighting the scale as follows: $3 \times \text{intrinsic} + 2 \times \text{integrated} + 1 \times \text{identified} - 1 \times \text{introjected} - 2 \times \text{external}$.

recommend that it is treated as 1 factor of engagement not three separate factors of vigour, dedication and absorption. Cronbach's alpha for the engagement scale was .93.

Intention to quit

Intention to quit was measured using two-items adapted from Gagné et al (2010); "It is highly probable that I will leave this job within the next year" and "I will very likely look for a new job this year". Alpha coefficient for these items was .78.

Job satisfaction

Job satisfaction was measured with one item from Wanous et al (1997), which has been found to relate strongly to multi-item scales of job satisfaction: "How satisfied are you, all in all, with your job?" This item was scored on a Likert scale from (1) extremely dissatisfied to (7) extremely satisfied.

Mean, standard deviation and Cronbach's Alpha coefficients are presented in table 6.1 for all variables

Table 6.1: Mean, standard deviation and alpha coefficient for study variables

	Time 1		Time 2		Alpha ⁶
	Mean	SD	Mean	SD	
Age (years)	41.29	10.52	-	-	-
Tenure (years)	8.65	7.38	-	-	-
Job level ¹	3.02	1.09	-	-	-
Intrinsic ²	4.21	1.26	4.35	1.16	0.92
Integrated ²	3.85	1.40	3.97	1.40	0.78
Identified ²	5.15	1.21	5.25	1.11	0.72
Introjected ²	4.45	1.31	4.50	1.15	0.71
External ²	3.65	1.14	3.72	1.18	0.84
RAI	5.95	4.26	6.23	4.26	0.76
Job autonomy ²	4.87	1.24	5.09	1.26	0.88
Mgr autonomy support ²	5.05	1.41	5.18	1.45	0.93
Heuristic ²	5.25	1.06	5.32	1.08	0.83
Autonomy need ²	4.44	1.13	4.32	1.12	0.79
Competence need ²	5.65	0.88	5.65	0.90	0.85
Relatedness need ²	4.87	1.12	4.89	1.16	0.78
Subjective wellbeing ³	3.52	0.75	3.62	0.80	0.88
Engagement ²	4.42	1.08	4.50	1.14	0.93
Job satisfaction ²	4.48	1.33	4.69	1.48	-
Performance ⁴	3.82	0.74	3.55	0.68	-
Intention to quit ⁵	2.57	1.33	2.57	1.36	0.78

Notes:

N = 196 (except pay and performance variables, N = 155)

¹ Grade range from 1-5 ² Likert scale 1-7 ³ Likert scale 1-6

⁴ Performance ratings 1-5 (reverse coded so that 5 is highest) ⁵ Likert scale 1-5

⁶ Mean of time 1 and time 2 coefficient alpha

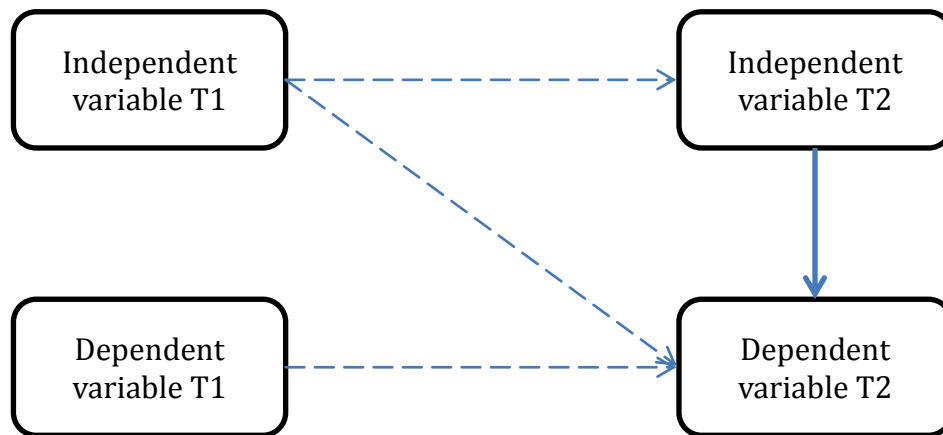
6.3.6. Analytical strategy

The data were analysed in two stages. Firstly, the single-order correlations between all variables were run to examine the cross-sectional relationships between variables (N = 196). Secondly, the data were analysed longitudinally through panel regression as outlined below (N = 155 or 196 as indicated in each table).

6.3.7. Panel analysis

The data collected in this study can be referred to as two-wave time series panel data in that they are repeated measures for the same population over two time points. Using a process outlined by Finkel (1995), the outcome variables were modelled as first-order autoregressive processes (Boswell, Boudreau, & Tichy, 2005), in that the regression model controls for the independent and dependent variables at a previous time point as represented in figure 6.3. For example, subjective wellbeing at time 2 is predicted by intrinsic motivation at time 2 controlling for subjective wellbeing and intrinsic motivation at time 1. This method removes any stable effects between variables, thereby examining only change (Finkel, 1995). In this example, the coefficient between intrinsic motivation and subjective wellbeing at time 2 (the solid line in figure 6.3) represents the extent to which change in the former predicts change in the latter, rather than a stable relationship between the two.

Figure 6.3: Two-wave panel analysis controlling for lagged variables (solid arrow represents the association between change in independent variable and change in dependent variable)



This method was followed for all regression models estimated in this study with the exception of those where merit pay and bonus were the independent variables. The lagged reward variables were not included in the panel analysis because, as outlined above, the organisation had just come out of a pay freeze so in 2010 (the lagged period) no pay increase was awarded and bonuses were much smaller. Finkel (1995) suggests that one important reason to include the lagged independent variable is to control for the likely strong correlation with the independent variable at the subsequent time point but that would not be the case here. The results from this type of regression model are likely to be more conservative than not including the lagged variable (Boswell et al., 2005). All continuous independent and mediator variables were grand mean centred by subtracting the raw score from the mean for the population. This reduces the risk of multicollinearity and removes differences in measurement scales (Snijders & Bosker, 1999). All longitudinal regression analyses were carried out using SPSS for Windows version 20.

6.3.8. Mediation analysis

Some of the hypotheses that I make predict mediation effects. After the method outlined by Preacher and Hayes (2004, 2008) mediation analysis was undertaken in two stages. It was firstly necessary to establish whether there were significant direct effects between the independent variable and the mediator ($X \rightarrow M$), and the mediator and the dependent variable ($M \rightarrow Y$). In the second stage, the strength and significance of the indirect effects of the independent variable (X) on the dependent variables (Y) through one or more mediators ($X \rightarrow M \rightarrow Y$) were examined for those which were significant in stage one. This was performed using the PROCESS macro in SPSS (Hayes, 2013). The significance of the indirect effect was tested through bias corrected 95% confidence intervals (Hayes, 2013) by establishing whether the upper and lower bounds are entirely above or below zero. The models were estimated using 5000 bootstrapped samples as recommended by Hayes. Bootstrapping replicates the analysis by re-sampling a random subsample of the population data 5000 times and allows an estimation of the accuracy of the sample estimate (Tabachnick & Fidell, 2005). The direct ($X \rightarrow Y$), indirect ($X \rightarrow M \rightarrow Y$) and total effects (indirect + direct) are reported.

6.3.9. Moderation analysis

With respect to the moderation analyses, these were carried out by regressing the dependent variable onto the interaction between the independent and moderating variable, whilst controlling for the direct effects of the independent and moderating variables (Singer & Willett, 2003).

6.4. Results

This section presents the results in relation to the above hypotheses. Firstly, I discuss preliminary analysis testing for multicollinearity and confirming the structure of the motivation model. I then examine the correlations between all variables in this study, across both time points (tables 6.4 and 6.5). The panel regression results are then discussed, by hypothesis.

6.4.1. Preliminary analysis

Multicollinearity

Multicollinearity was examined in two stages as recommended by O'Brien (2007) to reduce the risk of making arbitrary decisions based on 'rules of thumb'. Firstly, the single order correlations between each variables were examined. Any coefficients over .70 might highlight the risk of collinearity. The only correlation exceeding .70 is between the Relative Autonomy Index and intrinsic motivation; as these are not included in the same analysis this is not a problem. Secondly, collinearity statistics were run in SPSS. Cut-offs of $\leq .20$ for tolerance and ≥ 5 for VIF (variance inflation factor) were used⁴. No relationships exceeded these levels thus suggesting no issues with multicollinearity.

⁴ The tolerance and VIF indicate the extent to which the variance of the coefficient between variables is accounted for by collinearity. The tolerance figure is the reciprocal of the VIF ($1 / 5 = .2$). A lower VIF and higher tolerance is desirable (Tabachnick & Fidell, 2005)

Motivation scale validation

As it measures the primary construct under consideration, the MWMS is given particular emphasis with regards to scale validity. This is particularly important because, as described above, the original MWMS does not include any items to measure integration so additional items were added for this subscale. Confirmatory factor analysis (CFA) was conducted using the Maximum Likelihood estimation method in Amos (Arbuckle, 2007) to test the factor structure of the motivation measure. All items measured by the MWMS were loaded onto latent variables representing each of the motivation subscales; intrinsic (7 items), integrated (3 items), identified (3 items), introjected (4 items) and external (8 items). Three models were estimated; a base model with only one factor, a five factor model which included all of the motivation subscales and a four-factor model which combined integration and identification into one factor (6 items). Post hoc model modification was carried out based on the Modification Indices reported in Amos to add covariance between error terms of individual items. This is done to improve model fit (Byrne, 2009) but modifications were made only where there was theoretical justification to do so (i.e. where covariance would be theoretically expected).

The fit statistics for each model are presented in table 6.2. A range of common fit statistics were consulted. The comparative fit index (CFI) and incremental fit index (IFI) assess the fit of the model compared to the 'perfect' and worst models respectively (Tabachnick & Fidell, 2005). The CFI has the particular strength that it is not liable to be affected by sample size. It is generally accepted that a value of $>.90$ on these indices indicates adequate fit (Hoyle & Panter, 1995). The parsimonious goodness of fit index

(PGFI) tests the parsimony of the fit indices. It is important to consider alongside the other fit statistics to understand the impact of adding additional parameters through model modification on the parsimony of the model because high parsimony indicates good fit (Mulaik et al., 1989). Finally, the root mean square error approximation (RMSEA) estimates the lack of model fit compared to the saturated model and a value of $<.05$ indicates good fit and $<.08$ adequate fit (Browne & Cudeck, 1993). These fit statistics were chosen because they control for the number of parameters in the model rather than providing an absolute measure of goodness of fit.

The χ^2 statistic for all models is significant $< .001$ but this may be in part due to the sample size so it is more reliable to consult the fit statistics. The single factor model is poorly fitting across all statistics so this will not be discussed further. For both the four and five factor models the CFI and IFI are above $> .90$ in all cases with the exception of the four-factor model at time 2, which is below this. The CFI index is used to compare more than one model whereby a change $> .01$ indicates significant improvement in model fit (Cheung & Rensvold, 2002). At time one, the fit of the four-factor model is better although not significantly ($\Delta\text{CFI} = .006$) but the five-factor model is a significantly better fit at time 2 ($\Delta\text{CFI} = .032$). A higher PGFI indicates a more parsimonious model but a 'cut-off' is not appropriate and the value is expected to be much less than $.90$. The PGFI indicates that the four-factor model is the most parsimonious at time 1 but the five-factor model is at time 2. Finally, the RMSEA is $<.08$ on both the four and five factor models therefore indicating satisfactory fit (Browne & Cudeck, 1993) and the 90% confidence intervals support this, with the exception of the four-factor model at time 2. The upper bound confidence interval is $> .08$ indicating a poorly fitting model

(MacCallum, Browne, & Sugawara, 1996). Fit was achieved in the four factor model by adding 10 additional constraints (i.e. adding 10 paths of covariance between error terms) and five factor model fit was achieved by adding seven.

All the above indicate that there is little difference in model fit between the two models. The five-factor model is marginally better fitted at time 2, whereas the four-factor model is marginally better at time 1. Overall, the five-factor model appears to be moderately better fitted and fits the theory more closely so this will be adopted.

Table 6.2: Model fit statistics for Confirmatory Factor Analysis of Revised Motivation at Work Scale

		χ^2 (df)	CFI	IFI	PGFI	RMSEA	RMSEA CI
Five factor model	Time 1	660.76 (249)	.908	.909	.661	.070	.064 / .077
	Time 2	624.61 (249)	.916	.917	.663	.067	.060 / .074
Four factor model	Time 1	643.55 (256)	.914	.915	.684	.067	.061 / .074
	Time 2	770.29 (256)	.884	.886	.659	.077	.071 / .084
Single factor model	Time 1	910.96 (258)	.855	.831	.629	.087	.081 / .093
	Time 2	1037.09 (258)	.825	.826	.601	.095	.089 / .101

Notes:

χ^2 all $p < .001$

N = 196

CFI = Comparative fit; IFI = Incremental fit; PGFI = Parsimonious goodness of fit; RMSEA = Root mean square error approximation; RMSEA CI = RMSEA 90% confidence intervals (upper and lower bounds)

The correlations between the latent variables were also explored. The motivation continuum is theorised to be ordered in a quasi-simplex structure where adjacent motivation types are more closely correlated than those less proximal (Ryan & Deci, 2002) therefore I would expect this pattern to be borne out in the correlations (Wilson et al., 2012). Although the pattern is broadly supported at time 1 there are notable exceptions. Firstly, intrinsic motivation has a strong positive relationship with

integrated, identified and introjected motivation with little variation between the three. Secondly, external motivation is positively correlated with all motivation types, including intrinsic ($r = .18, p < .05$) which contradicts the simplex-like structure entirely. The pattern finds better support at time 2, with the exception of external motivation, which is significantly positively correlated with integrated motivation to approximately the same magnitude as introjected, which is adjacent on the continuum.

In summary, the motivation measurement model is a satisfactory fit to the data and the theorised five-factor model was supported so will be adopted for further analysis. However, the intercorrelations between subscales were not as expected which has implications for the use of the RAI. The implication of this is considered in the discussion section.

Table 6.3: Intercorrelations between latent motivation variables (five factor model)

	Intrinsic	Integrated	Identified	Introjected	External
Intrinsic		.71***	.57***	.51***	.07
Integrated	.69***		.66***	.67***	.14*
Identified	.64***	.75***		.93***	.01
Introjected	.69***	.69***	.90***		.19*
External	.18*	.21**	.18*	.32***	

Notes:

Time 1 below the diagonal, Time 2 above the diagonal

*** $p < .001$, ** $p < .01$, * $p < .05$

6.4.2. Correlation analysis

The correlation tables presented below include the relationships within time 1 (table 6.4, above diagonal), within time 2 (table 6.4, below diagonal) and lagged effects between time 1 and time 2 (table 6.5). For brevity I provide an overview of the

correlations and focus primarily on lagged correlations which are noteworthy in the light of the later panel regression analysis.

There are very few significant relationships between the reward variables and motivation types. One of note is that high bonus is negatively related to intrinsic motivation at time 2 ($r = -.15, p < .05$) in line with the hypothesis. Although only a control variable it is also interesting to note that salary level is positively related to intrinsic motivation ($r = .27, p < .01$) and integrated motivation ($r = .20, p < .05$) and negatively with external motivation ($r = -.17, p < .05$) all at time 2. The relationships with intrinsic and identified motivation would broadly support previous findings from Kuvaas (2006b) that base pay level is conducive to higher intrinsic motivation. The negative relationship with external motivation is somewhat surprising and perhaps might be because of the expected relationship between intrinsic and external motivation, which are seen as negatively interactive (Deci, 1971). In other words, where higher base pay is greater intrinsic motivation, external motivation is less.

There is a consistently positive correlation between needs-supportive job context variables (job autonomy, job heuristic and manager support for autonomy) with intrinsic motivation at both time points and lagged effects between time 1 and time 2. This is slightly less consistent, although still positive, with integrated and identified motivation thereby supporting these hypotheses.

The three need satisfaction variables (autonomy, competence and relatedness) are consistently positively correlated with the autonomous motivation types at both time points and lagged as expected. Interestingly, while autonomy need satisfaction is

negatively correlated with external motivation as expected at time 2 ($r = -.16, p < .05$), relatedness need satisfaction is *positively* correlated with external motivation at time 2 ($r = .18, p < .05$). The lagged correlations of this relationship are not significant but this will be explored in the panel regression.

With respect to the expected antecedents of need satisfaction, there are no significant correlations with any of the reward variables. However, job autonomy and manager support for autonomy are positively related to all three needs at both time points and lagged. Job heuristic is not, which might suggest that this is not a 'needs-supportive' context characteristic.

Finally, regarding the relationship between the motivation types and outcomes variables there are a number of points to note. Intrinsic motivation is significantly positively related to all outcomes at both time points and lagged except intention to quit (which is not significant). Performance at time 2 is positively predicted by the lagged intrinsic ($r = .17, p < .05$), identified ($r = .21, p < .01$) and introjected motivation ($r = .23, p < .01$) at time 1. Finally, external motivation is not significantly related to any of the outcomes. These relationships are all in line with the hypotheses.

In summary, the correlational analysis broadly supports the hypothesised relationships. The complexity of the cross-sectional relationships (i.e. that some are significant only at time 1, some at time 2 and some lagged effects) supports the need for longitudinal analysis in order to be able to examine whether these are change relationships.

Table 6.4: Single-order coefficients for Time 1 (above diagonal) and Time 2 (below diagonal) variables (see notes under table 6.5)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Age	-	-	-	-	-	.08	.11	.13	.00	-.09	.17*	.06	-.10
2 Tenure	.55**	-	-	-	-	.01	.02	.08	-.01	-.02	.05	-.06	-.18*
3 Gender1	-.19*	-.14	-	-	-	-.14	.01	.03	.07	.03	-.11	-.06	.03
4 Job level	.13	-.07	-.14	-	-	.30**	.24**	.19*	.09	-.10	.34**	.14	.12
5 Salary	.25**	-.05	-.14	.86**	-	.29**	.29**	.12	.05	-.11	.34**	.13	.00
6 Intrinsic	.13	.03	-.21**	.30**	.27**	-	.62**	.55**	.38**	.15*	.75**	.35**	.09
7 Integrated	.17*	.04	-.05	.24**	.20*	.65**	-	.56**	.48**	.25**	.57**	.12	-.03
8 Identified	.21**	.09	.03	.12	.03	.49**	.57**	-	.57**	.20**	.51**	.19**	.12
9 Introjected	-.03	.01	.15*	.01	-.11	.25**	.47**	.55**	-	.42**	.01	.15*	.10
10 External	-.13	-.11	.03	-.04	-.17*	.02	.23**	.07	.37**	-	-.43**	-.01	.09
11 RAI	.25**	.11	-.17*	.28**	.34**	.78**	.56**	.51**	-.04	-.53**	-	.26**	.00
12 Job autonomy	.08	-.05	-.06	.11	.10	.40**	.28**	.34**	.14	-.15*	.43**	-	.43**
13 Mgr aut. support	.00	-.11	-.05	.08	.06	.24**	.20**	.22**	.14	.10	.16*	.47**	-
14 Job heuristic	-.06	-.22**	-.08	.35**	.32**	.46**	.24**	.12	.11	-.01	.32**	.31**	.16*
15 Autonomy need	.08	-.04	-.07	.22**	.23**	.58**	.38**	.40**	.12	-.16*	.57**	.59**	.47**
16 Competence need	.18*	-.02	-.18*	.17*	.18*	.39**	.27**	.45**	.15*	-.04	.39**	.34**	.27**
17 Relatedness need	.00	-.07	.08	-.05	-.02	.32**	.26**	.29**	.17*	.18*	.19*	.19*	.36**
18 Low bonus level	-.06	-.12	.10	-.06	-.09	.09	.10	.18*	.07	.01	.10	.02	-.01
19 High bonus level	-.02	-.04	-.06	.31**	.40**	-.04	.04	.02	.08	.07	-.06	.07	.12
20 Low merit pay level	.20**	.12	.00	.00	.07	.06	.03	-.10	-.22**	-.06	.11	-.09	-.16*
21 High merit pay level	-.19*	-.07	-.02	-.01	-.11	-.15*	-.06	.08	.18*	.10	-.18*	.06	.14
22 Subjective wellbeing	.17*	-.02	-.15*	.16*	.20*	.51**	.26**	.30**	-.02	.01	.43**	.36**	.39**
23 Engagement	.22**	.04	-.15*	.30**	.28**	.76**	.53**	.50**	.22**	-.01	.64**	.56**	.39**
24 Job satisfaction	.20**	-.05	-.16*	.29**	.30**	.54**	.35**	.22**	-.04	.07	.42**	.41**	.50**
25 Performance rating	-.10	-.07	.12	.26**	.24**	.16	.12	.21*	.15	.07	.10	.16	.27**
26 Intention to quit	-.25**	-.12	.06	.06	.05	-.21**	-.19*	-.11	-.06	-.14	-.11	-.21**	-.34**

Table 6.4 (continued): Single-order coefficients for Time 1 (above diagonal) and Time 2 (below diagonal) variables (see notes under table 6.5)

	14	15	16	17	18	19	20	21	22	23	24	25	26
1 Age	.02	-.02	.21**	.04	-.06	-.02	.20**	-.19*	.16*	.16*	.13	-.11	-.20**
2 Tenure	-.01	-.10	.04	.07	-.12	-.04	.12	-.07	-.10	.03	-.04	-.12	-.05
3 Gender1	-.19**	.01	-.18*	.08	.10	-.06	.00	-.02	-.15*	-.13	-.06	.19*	-.06
4 Job level	.38**	.13	.24**	-.05	-.06	.31**	.00	-.01	.15*	.29**	.09	.35**	.10
5 Salary	.34**	.11	.26**	.02	-.09	.40**	.07	-.11	.19*	.29**	.02	.32**	.10
6 Intrinsic	.43**	.40**	.46**	.27**	.10	.02	.07	-.13	.44**	.72**	.38**	.24**	-.11
7 Integrated	.23**	.16*	.26**	.09	.05	.07	.08	-.13	.21**	.51**	.19**	.23**	.05
8 Identified	.08	.18*	.39**	.10	.13	.11	-.05	.06	.31**	.48**	.11	.31**	.05
9 Introjected	.08	.08	.10	.00	.14	.04	-.11	.14	.10	.27**	.08	.20*	.02
10 External	.04	-.01	-.05	-.02	.08	-.05	-.03	.07	-.03	.04	.05	-.01	.01
11 RAI	.30**	.32**	.46**	.23**	.03	.08	.10	-.18*	.40**	.63**	.27**	.23**	-.04
12 Job autonomy	.29**	.63**	.31**	.19**	.04	.04	-.08	.11	.40**	.44**	.35**	.12	-.16*
13 Mgr aut. support	.13	.42**	.16*	.23**	.03	.11	-.16*	.17*	.33**	.22**	.32**	.22**	-.22**
14 Job heuristic	-	.10	.17*	.04	-.04	.03	.02	-.05	.14	.38**	.28**	.04	-.04
15 Autonomy need	.27**	-	.37**	.41**	.04	.00	-.03	.02	.61**	.52**	.45**	.19*	-.36**
16 Competence need	.16*	.49**	-	.32**	.12	.10	.06	-.07	.48**	.48**	.23**	.28**	-.05
17 Relatedness need	.13	.39**	.35**	-	.10	.05	-.09	.06	.42**	.35**	.35**	.20*	-.30**
18 Low bonus level	.09	.10	.07	.07	-	-.52**	-.02	.02	.06	.04	.01	.18*	-.07
19 High bonus level	.09	.06	.09	.01	-.52**	-	-.32**	.39**	-.04	.07	-.03	.52**	.18*
20 Low merit pay level	.00	-.06	.04	-.12	-.02	-.32**	-	-.83**	.15*	.03	.09	-.28**	-.07
21 High merit pay level	-.03	-.01	-.01	.09	.02	.39**	-.83**	-	-.18*	-.07	-.16*	.26**	.17*
22 Subjective wellbeing	.07	.56**	.47**	.46**	.04	-.04	.06	-.11	-	.61**	.55**	.16	-.38**
23 Engagement	.36**	.63**	.46**	.33**	.08	.02	.01	-.07	.63**	-	.50**	.31**	-.25**
24 Job satisfaction	.30**	.50**	.30**	.31**	-.13	.10	-.01	-.05	.57**	.66**	-	.16	-.42**
25 Performance rating	.21**	.25**	.28**	.17*	.09	.40**	-.17*	.26**	.09	.27**	.13	-	-.07
26 Intention to quit	-.03	-.37**	-.09	-.24**	.00	.02	-.01	.02	-.39**	-.27**	-.42**	-.02	-

Table 6.5: Single-order coefficients for Time 1 (horizontal) with Time 2 (vertical) variables

	6	7	8	9	10	11	12	13	14
6 Intrinsic	.73**	.52**	.36**	.14	-.01	.60**	.27**	.05	.42**
7 Integrated	.45**	.64**	.37**	.23**	.08	.42**	.11	-.05	.21**
8 Identified	.31**	.44**	.60**	.33**	.02	.35**	.20**	.03	.12
9 Introjected	.25**	.41**	.46**	.51**	.18*	.14	.13	.00	.12
10 External	.01	.20**	.10	.22**	.49**	-.23**	.02	-.05	.00
11 RAI	.59**	.41**	.31**	-.02	-.30**	.68**	.20**	.06	.31**
12 Job autonomy	.35**	.16*	.28**	.09	-.02	.29**	.55**	.38**	.29**
13 Mgr aut. support	.15*	.09	.17*	.18*	.15*	.02	.30**	.54**	.17*
14 Job heuristic	.36**	.10	.03	-.03	-.06	.26**	.16*	-.01	.56**
15 Autonomy need	.37**	.22**	.29**	.00	.06	.30**	.39**	.32**	.13
16 Competence need	.37**	.24**	.43**	.07	-.12	.42**	.22**	.07	.15*
17 Relatedness need	.28**	.14	.21**	.06	.05	.20**	.24**	.18*	.12
22 Subjective wellbeing	.43**	.23**	.34**	-.02	.03	.37**	.32**	.23**	.06
23 Engagement	.61**	.49**	.40**	.12	.01	.54**	.33**	.23**	.26**
24 Job satisfaction	.33**	.22**	.24**	.04	.13	.23**	.27**	.26**	.19**
25 Performance rating	.12	.27**	.24**	.23**	.10	.09	.10	.16*	.16
26 Intention to quit	-.15	-.12	-.11	.01	.02	-.16*	-.18*	-.25**	.06

Table 6.5 (continued): Single-order coefficients for Time 1 (horizontal) with Time 2 (vertical) variables

	15	16	17	22	23	24	25	26
6 Intrinsic	.37**	.28**	.20**	.33**	.59**	.32**	.17*	-.03
7 Integrated	.22**	.17*	.18*	.15*	.36**	.16*	.09	.06
8 Identified	.16*	.25**	.10	.10	.35**	.04	.21**	.07
9 Introjected	.05	.05	.05	-.01	.26**	-.03	.23**	.02
10 External	-.19*	-.15*	-.01	-.04	.03	-.09	.00	-.02
11 RAI	.43**	.36**	.20**	.30**	.47**	.32**	.12	.03
12 Job autonomy	.46**	.37**	.17*	.31**	.48**	.38**	.13	-.16*
13 Mgr aut. support	.32**	.20**	.31**	.26**	.26**	.30**	.24**	-.27**
14 Job heuristic	.15	.04	-.06	.04	.25**	.21**	.15	.08
15 Autonomy need	.56**	.36**	.34**	.49**	.45**	.46**	.13	-.24**
16 Competence need	.28**	.61**	.13	.38**	.35**	.15*	.10	.01
17 Relatedness need	.29**	.27**	.60**	.38**	.32**	.22**	.08	-.20*
22 Subjective wellbeing	.39**	.41**	.34**	.65**	.50**	.39**	.01	-.17*
23 Engagement	.40**	.35**	.24**	.46**	.67**	.44**	.19*	-.13
24 Job satisfaction	.26**	.23**	.25**	.37**	.46**	.45**	.12	-.22**
25 Performance rating	.21*	.21**	.16	.00	.18*	.05	.53**	.01
26 Intention to quit	-.31**	-.06	-.18*	-.34**	-.20**	-.34**	.02	.59**

Notes:

N = 196 (except pay variables and performance, N = 155). ** p < .01 * p < .05. ¹Female = 1. RAI = Relative autonomy index.

Variables only measured at one time point (merit pay, bonus and demographic variables) are not reported in table 6.5. Variable numbering remains the same as table 6.4. Coefficients on the diagonal within-variable relationships across time points.

6.4.3. Results by research question and hypothesis

All significant relationships found in this study are summarised in figure 6.10 later in section 6.4.3.

RQ1a. What is the relationship between merit pay level and bonus level, and the motivation types?

The relationships between the reward and motivation variables were examined through panel regression, as outlined above. The full regression results are presented in table 6.6. The models were estimated in three steps; firstly, including only control variables, secondly including the bonus and merit pay level variances, then including the lagged motivation variable. In all cases, only the final model is presented which includes demographic and lagged control variables as well as the independent variables in question. The change in R^2 shows the development of the model.

H1a: Merit pay level negatively predicts change in intrinsic, integrated and identified motivation.

H1b: Merit pay level positively predicts change in introjected or external motivation.

The panel analysis (table 6.6) revealed only one significant relationship in relation to merit pay level. H1a is not supported in that there are no significant relationships between merit pay level and intrinsic, integrated and identified motivation. There is a negative relationship between low merit pay level and introjected motivation ($\beta = -.25$, $p < .05$). There is no significant relationship between merit pay level and external motivation. This, therefore, fails to support H1b.

Table 6.6: Panel regression predicting each motivation type from merit pay and bonus level

Control variables	Intrinsic T2	Integrated T2	Identified T2	Introjected T2	External T2
Intercept	4.20***	3.43***	4.93***	4.02***	3.16***
Age	0.03	0.14	0.12	-0.07	-0.11
Tenure	0.02	-0.02	0.00	0.09	0.04
Gender (female)	-0.01	-0.01	0.03	0.11	-0.06
Job level	0.17	0.09	0.13	0.24	0.15
Salary T2	-0.08	-0.11	-0.18	-0.29	-0.24
Independent variables: Reward					
Low bonus level	-0.02	0.09	0.14	0.08	0.11
High bonus level	-0.07	0.08	0.02	0.08	0.22*
Low merit pay level	-0.14	0.00	-0.12	-0.25*	-0.04
High merit pay level	-0.16	0.03	-0.09	-0.22	-0.06
Lagged variables					
Motivation T1	0.67***	0.58***	0.51***	0.54***	0.54***
Model statistics					
Adjusted R ²	0.43	0.35	0.29	0.35	0.30
F	0.94	1.52	2.40*	2.56*	1.33
ΔR ² (controls)	0.05	0.07	0.06	0.07	0.04
ΔR ² (reward)	0.03	0.04	0.08*	0.08*	0.03
ΔR ² (lagged)	0.39***	0.29***	0.20***	0.25***	0.27***

Notes:

N = 155, * $p < .05$, ** $p < .01$, *** $p < .001$.

Coefficients are standardised. Reported coefficients are after all variables were entered into model. Bold added to emphasise significant correlations.

H2a: Bonus level negatively predicts change in intrinsic, integrated and identified motivation

H2b: Bonus level positively predicts change in introjected and external motivation

With respect to hypothesis 2a, there is no significant relationship with intrinsic, integrated or identified motivation. Hypothesis 2a is therefore not supported.

Turning to hypothesis 2b; there was a significant positive relationship between high bonus level and external motivation at time 2 ($\beta = .22, p < .05$). This, therefore, supports the hypothesis that the introduction of a high bonus relates to an increase in external motivation between time 1 and 2. There was no significant relationship between bonus level and introjected motivation. Hypothesis 2b is therefore only supported with respect to external motivation.

Table 6.7: Summary of support for hypotheses relating to research question 1a

Hypothesis	Support
<i>H1a: Merit pay level negatively predicts change in intrinsic, integrated and identified motivation.</i>	Unsupported
<i>H1b: Merit pay level positively predicts change in introjected or external motivation.</i>	Unsupported Low and high merit pay level both negatively predict change in introjected motivation
<i>H2a: Bonus amount negatively predicts change in intrinsic, integrated and identified motivation</i>	Unsupported
<i>H2b: Bonus amount positively predicts change in introjected and external motivation</i>	Partially supported High bonus positively predicts change in external motivation

RQ2a. To what extent does the context (job autonomy, job heuristic and managerial autonomy support) in which reward is administered moderate the negative relationship between merit pay level and bonus level, and autonomous motivation?

Two sets of hypotheses address this research question. The first (H3 and H4) examine the direct relationship between the needs-supportive context variables and the motivation types. The second set (H5 – H8) examines the moderating effect. H5 and H6 look at the moderating role of job autonomy and manager support for autonomy and H7 and H8 examine job heuristic. These are addressed in turn, below.

H3: A needs supportive context, characterised by a) high job autonomy, b) high manager support for autonomy, and c) a job which requires heuristic thought is positively related to intrinsic, integrated and identified motivation

H4: A needs supportive context, characterised by a) high job autonomy, b) high manager support for autonomy, and c) a job which requires heuristic thought is negatively related to introjected and external motivation

The direct relationships between the three context variables and the motivation types were examined through regression models built in three stages; firstly including only the control variables, secondly with the three context variables at time 2 added as predictors and thirdly, including the lagged effects of both the context predictors and the motivation dependent variable. The final model is reported in table 6.8. All three context variables were added as predictors of each motivation type in one step thereby examining the

unique variance explained by each predictor and the total variance explained by the three variables.

With respect to hypothesis 3, change in job autonomy does not significantly predict change in any of the motivation types. Change in manager support for autonomy significantly predicted change in intrinsic ($\beta = .18, p < .05$) and integrated motivation ($\beta = .22, p < .05$). Finally, change in job heuristic has a significant positive relationship with intrinsic ($\beta = .20, p < .05$) and integrated motivation ($\beta = .17, p < .05$) indicating positive change in both of these. The combination of the three context variables predicted 24% of the variance in intrinsic motivation and 9% of both integrated and identified motivation. This, therefore, partially supports hypothesis 3. The exceptions are that neither manager support for autonomy or job heuristic significantly predicts change in identified motivation. Job autonomy also does not uniquely predict intrinsic or integrated motivation.

In relation to hypothesis 4, no significant relationships were found between any of the context variables and either introjected or external motivation so this is not supported.

Table 6.8: Panel regression predicting each motivation type from job autonomy, manager support for autonomy and job heuristic

Control variables	Intrinsic T2	Integrated T2	Identified T2	Introjected T2	External T2
Intercept	4.38***	4.03***	5.36***	4.43***	3.64***
Age	0.02	0.09	0.06	-0.13	-0.12
Tenure	0.08	0.05	0.01	0.12	0.05
Gender (female)	-0.01	-0.01	0.03	0.10	-0.06
Job level	0.00	-0.01	-0.04	0.00	0.04
Independent variables: job context					
Job autonomy T2	0.11	0.06	0.17	0.09	-0.17
Mgr autonomy support T2	0.18*	0.22*	0.09	0.07	0.09
Job heuristic T2	0.20*	0.17*	-0.02	0.09	0.06
Lagged variables					
Motivation T1	0.58***	0.60***	0.51***	0.54***	0.54***
Job autonomy T1	-0.01	0.02	0.05	-0.09	0.06
Mgr autonomy support T1	-0.04	-0.06	0.01	0.07	0.10
Job heuristic T1	0.00	-0.10	-0.02	-0.13	-0.12
Model statistics					
Adjusted R ²	0.53	0.44	0.33	0.33	0.30
F	14.74***	10.63***	7.00***	7.23***	6.24***
ΔR ² (controls)	0.05	0.07	0.04	0.06	0.04
ΔR ² (context)	0.24***	0.09**	0.09**	0.04	0.02
ΔR ² (lagged)	0.27***	0.32***	0.25***	0.29***	0.30***

Notes:

N = 155, * $p < .05$, ** $p < .01$, *** $p < .001$.

Coefficients are standardised. Reported coefficients are after all variables were entered into model.

Bold added to emphasise significant correlations.

Turning now to the moderating effect of the context variables between reward and motivation, the regression models were built in four steps. Firstly with only the demographic control variables; secondly with the direct effects of both the reward (merit pay and bonus level) and context variables (job autonomy, manager autonomy support and job heuristic) at time 2; thirdly with the interaction terms at time 2 and finally, including the lagged effects of the context and motivation variables. Due to the volume of interactions, only those with high merit pay level and high bonus level are reported. No interactions with the low dummy variable were significant. Table 6.9 shows only the interactions, not the direct effects, for brevity. Only one interaction was significant and the slopes for this are depicted in figure 6.4⁵.

H5: The relationship between merit pay level and the motivation types is moderated by a needs-supportive context characterised by a) job autonomy and b) manager autonomy; the more needs-supportive the context, the weaker the relationships between merit pay level and motivation (negative with autonomous motivation and positive with controlled motivation).

There were no significant interaction effects between merit pay level and either job autonomy or manager support for autonomy. Hypothesis 5 is therefore not supported.

⁵ As the reward variables are dummies, the two points of the slope represent dummy = 0 and dummy = 1.

Table 6.9: Panel regression predicting each motivation type from interactions between reward and context variables

	Intrinsic T2	Integrated T2	Identified T2	Introjected T2	External T2
Intercept	4.49***	3.64***	5.06***	4.06***	3.12***
Interaction effects					
High merit pay x Job autonomy	0.00	0.09	0.12	0.01	-0.10
High merit pay x Mgr autonomy support	0.12	0.08	-0.01	0.12	0.16
High merit pay x Job heuristic	-0.10	-0.21	-0.20	-0.19	-0.12
High bonus x Job autonomy	0.10	-0.03	-0.07	0.20*	0.08
High bonus x Mgr autonomy support	0.07	0.03	0.18	0.00	0.03
High bonus x Job heuristic	0.01	0.05	0.03	-0.02	0.09
Model statistics					
Adjusted R ² (cross-sectional)	0.22	0.06	0.14	0.09	0.00
Adjusted R ² (panel)	0.53	0.41	0.32	0.36	0.30
F (cross-sectional)	3.21***	1.52	2.31**	1.74*	1.02
F (panel)	7.87***	5.30***	3.94***	4.52***	3.64***
ΔR ² (controls)	0.04	0.05	0.06	0.07	0.04
ΔR ² (direct effects)	0.25***	0.11*	0.15**	0.10	0.05
ΔR ² (interactions)	0.03	0.01	0.03	0.04	0.04
ΔR ² (lagged)	0.26***	0.30***	0.20***	0.26***	0.28***

Notes:

N = 155, * $p < .05$, ** $p < .01$, *** $p < .001$.

Coefficients are standardised.

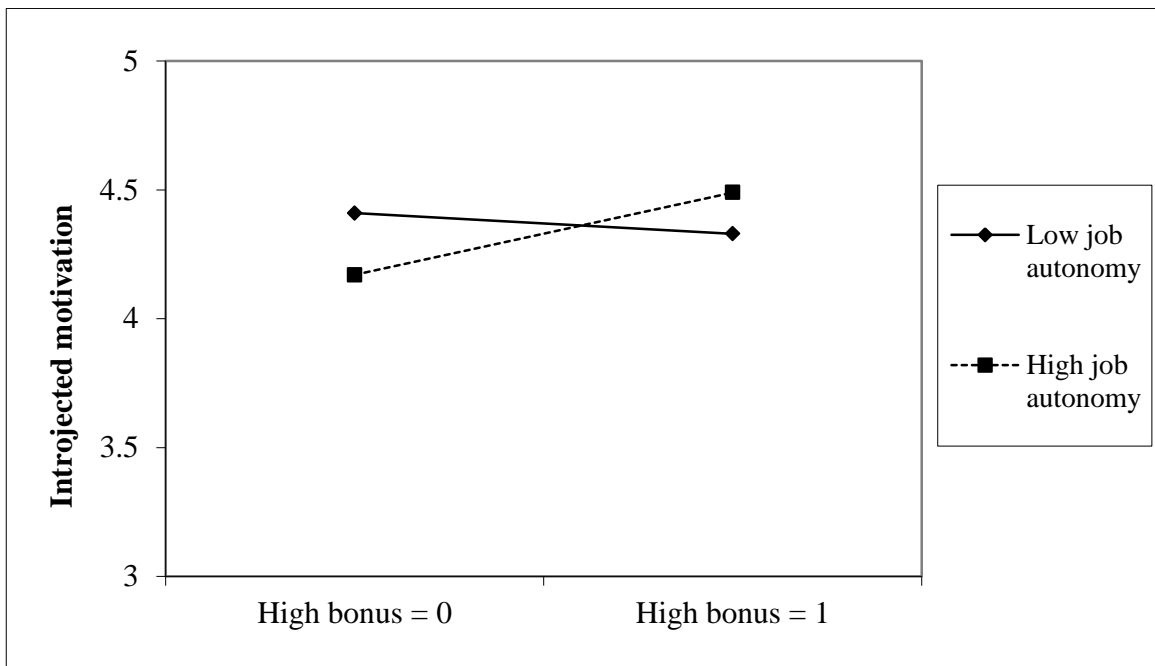
Bold added to emphasise significant correlations.

Direct effects, control and lagged variables were included in the model but are not reported here for brevity. Reported coefficients are after all variables were entered into model.

H6: The relationship between bonus level and the motivation types is moderated by a needs-supportive context characterised by a) job autonomy and b) manager autonomy; the more needs-supportive the context, the weaker the relationships between bonus level and motivation (negative with autonomous motivation and positive with controlled motivation).

In relation to hypothesis 6, there were no significant interactions with respect to intrinsic, integrated and identified motivation. There was, however, a significant interaction between bonus level and job autonomy on introjected motivation ($\beta = .20, p < .05$). An examination of the slopes of this relationship (figure 6.4) revealed that the presence of a high bonus was related to a small increase in introjected motivation for jobs high in autonomy and a small decrease for jobs low in autonomy. This was the relationship that I predicted for the autonomous, not controlled, forms of motivation on the basis that greater job autonomy promotes satisfaction of the need for autonomy, which therefore 'protects' against the detrimental effect of higher bonuses on autonomous motivation. On the basis of the number of interactions calculated this could be a chance finding but it may also indicate that introjected motivation shares theoretical attributes with more autonomous types of motivation.

Figure 6.4: Moderation effect of job autonomy on the relationship between bonus level and introjected motivation



H7: The relationship between merit pay level and the motivation types is moderated by the extent to which the job requires heuristic thought; the more heuristic thought, the stronger the relationships between merit pay level and motivation (negative with autonomous motivation and positive with controlled motivation).

With respect to hypothesis 7, no significant interaction effects were found between merit pay level and job heuristic on any of the motivation types. This hypothesis is not, therefore, supported.

H8: The relationship between bonus level and the motivation types is moderated by the extent to which the job requires heuristic thought; the more heuristic thought, the stronger the relationships between bonus level and motivation (negative with autonomous motivation and positive with controlled motivation).

No significant interaction was found between bonus and job heuristic (table 6.9) so this hypothesis is not supported.

Table 6.10: Summary of support for hypotheses relating to research question 2a

Hypothesis	Support
H3: A needs supportive context, characterised by a) high job autonomy, b) high manager support for autonomy, and c) a job which requires heuristic thought is positively related to intrinsic, integrated and identified motivation	Partially supported a) None significant b) & c) Positively related to intrinsic and integrated motivation
H4: A needs supportive context, characterised by a) high job autonomy, b) high manager support for autonomy, and c) a job which requires heuristic thought is negatively related to introjected and external motivation	Partially supported a) Job autonomy negatively related to external motivation. No other significant relationships.
H5: The relationship between merit pay level and the motivation types is moderated by a needs-supportive context characterised by a) job autonomy and b) manager autonomy; the more needs-supportive the context, the weaker the relationships between merit pay level and motivation (negative with autonomous motivation and positive with controlled motivation).	Unsupported
H6: The relationship between bonus level and the motivation types is moderated by a needs-supportive context characterised by a) job autonomy and b) manager autonomy; the more needs-supportive the context, the weaker the relationships between bonus level and motivation (negative with autonomous motivation and positive with controlled motivation).	Unsupported a) Job autonomy moderated merit pay and introjection relationship although in the opposite direction to the prediction.
H7: The relationship between merit pay level and the motivation types is moderated by the extent to which the job requires heuristic thought; the more heuristic thought, the stronger the relationships between merit pay level and motivation (negative with autonomous motivation and positive with controlled motivation).	Unsupported
H8: The relationship between bonus level and the motivation types is moderated by the extent to which the job requires heuristic thought; the more heuristic thought, the stronger the relationships between bonus level and motivation (negative with autonomous motivation and positive with controlled motivation).	Unsupported

RQ3. To what extent does satisfaction of the basic psychological needs for autonomy, competence and relatedness mediate the relationship between reward, context and motivation?

To answer this question I firstly examine the direct relationship between satisfaction of the three basic psychological needs and motivation (H9a, b and c). I then test the extent to which satisfaction of the three needs mediates the relationship between merit pay level (H10a) and the motivation types, and between bonus level (H10b) and the motivation types. Finally, I examine the mediating role of need satisfaction between the context variables and the motivation types (H11).

H9a: Satisfaction of basic psychological needs for autonomy and competence are positively related to intrinsic motivation.

Panel regression models were run to examine the direct effects. The final stage of the model, including lagged effects, is reported in table 6.11.

In line with hypothesis 9a, there was a significant positive relationship between satisfaction of autonomy and intrinsic motivation ($\beta = .35, p < .001$). However, no significant relationship was found between satisfaction of the need for competence and intrinsic motivation. As expected, satisfaction of the need for relatedness did not predict change in intrinsic motivation. These variables explained 32% of the variance in intrinsic motivation.

Hypothesis 9a is therefore partly supported in that greater satisfaction of the need for autonomy predicted increased intrinsic motivation. The expected relationship between

satisfaction of the need for competence and intrinsic motivation was not found and is discussed more at the end of this section.

H9b: Satisfaction of basic psychological needs for autonomy, competence and relatedness is positively related to integrated and identified motivation.

There is a positive relationship between satisfaction of the needs for autonomy ($\beta = .26, p < .01$) and relatedness ($\beta = .26, p < .01$) with integrated motivation. Once again, there is no significant relationship with satisfaction of the need for competence. Need satisfaction explained 16% of the variance in integrated motivation.

Identified motivation was only significantly predicted by relatedness need satisfaction ($\beta = .20, p < .05$). This variable explained 22% of the variance in identified motivation. As would be expected with the order of the motivation continuum, the relationships are slightly weaker here, but it is surprising that need satisfaction explains more variance than with integrated motivation when only relatedness was significant.

These relationships therefore partly support hypothesis 9b. The lack of significant relationship with competence is discussed below.

H9c: Satisfaction of basic psychological needs for competence and relatedness have a positive relationship with introjected motivation.

Only one significant relationship was revealed with respect to introjected motivation.

Satisfaction of the need for relatedness positively predicted change in introjected motivation ($\beta = .20, p < .01$). This, therefore, only partly supported the hypothesis because no significant relationship was found with competence need satisfaction.

H9d: Satisfaction of basic psychological needs for autonomy, competence and relatedness has a negative relationship with external motivation.

Somewhat surprisingly, a significant positive relationship was found between relatedness need satisfaction and external motivation ($\beta = .25, p < .05$). The predicted negative relationships were not found.

In summary, greater satisfaction of the need for autonomy predicted increased intrinsic, integrated and identified motivation. This relationship was strongest with intrinsic motivation, followed by integrated and identified. Satisfaction of the need for relatedness was positively predictive of all forms of extrinsic motivation to roughly the same degree. Finally, competence need satisfaction did not significantly predict any unique variance in any of the motivation types. The lack of significant effects here are surprising, particularly when considering the correlation analysis which showed consistently positive relationships with intrinsic, integrated and identified motivation. Further analysis of this revealed that this relationship becomes non-significant when satisfaction of the need for autonomy is added to the model indicating that this is due in part to covariance between these two variables. Other SDT researchers have found this to be the case and there is not yet a satisfactory solution (Viladrich, Quested, Appleton, & Duda, 2013). This does question, however, whether satisfaction of the need for competence can be said to predict more autonomous motivation over and above satisfaction of the need for autonomy.

Table 6.11: Panel regression predicting each motivation type from satisfaction of needs for autonomy, competence and relatedness

Control variables	Intrinsic T2	Integrated T2	Identified T2	Introjected T2	External T2
Intercept	4.35***	4.06***	5.53***	4.56	3.65
Age	0.02	0.10	0.03	-0.16	-0.16†
Tenure	0.04	0.02	0.05	0.12	0.06
Gender (female)	-0.03	-0.01	0.07	0.11	-0.08
Job level	0.01	-0.02	-0.11	-0.04	0.05
Independent variables: Needs					
Autonomy need T2	0.35***	0.26**	0.16	0.13	-0.11
Competence need T2	0.10	0.03	0.14	0.13	0.09
Relatedness need T2	0.12	0.20*	0.20*	0.20***	0.25*
Lagged variables					
Motivation T1	0.58***	0.55***	0.45***	0.56***	0.52***
Autonomy need T1	-0.13	-0.05	-0.02	-0.20*	0.06
Competence need T1	-0.04	-0.01	0.15	0.00	-0.09
Relatedness need T1	-0.01	-0.11	-0.08	-0.08	-0.05
Model statistics					
Adjusted R ²	0.59	0.49	0.43	0.38	0.31
F	18.77***	11.12***	10.34***	8.61***	6.67***
ΔR ² (controls)	0.05	0.07	0.04	0.06	0.04
ΔR ² (need satisfaction)	0.32***	0.16***	0.22***	0.05	0.07*
ΔR ² (lagged)	0.25***	0.27***	0.22***	0.32***	0.27***

Notes:

N = 155, * $p < .05$, ** $p < .01$, *** $p < .001$.

Coefficients are standardised. Reported coefficients are after all variables were entered into model.

Bold added to emphasise significant correlations.

Turning now to the mediation analysis; as outlined in the methods section, mediation analysis is performed by estimating the indirect relationships of the predictor (X) on the outcome variable (Y) through a mediator (M). Before the indirect effects are examined, however, it is first necessary to establish whether there is a significant direct effect of $X \rightarrow M$ and $M \rightarrow Y$.

The direct relationships between the merit pay level (H10a), bonus level (H10b) and the context variables (H11) and need satisfaction variables ($X \rightarrow M$) were examined although are not reported here for brevity. All of the independent variables, except merit pay level, significantly predicted some of the need satisfaction variables so these indirect effects were estimated. Merit pay level did not significantly predict any of the needs variables so the indirect effects were not examined. The direct effects of need satisfaction on motivation ($M \rightarrow Y$) were reported above. Although some of the hypothesised direct effects were found to be non-significant, this was largely due to covariance between the needs variables so mediation models were estimated including all three of the needs variables in each model. Mediation models were therefore estimated for all potential relationships, with the exception of merit pay.

The significance of the indirect relationships is tested by examining the 95% confidence intervals generated through a bootstrapping procedure, using 5000 bootstrapped samples (Hayes, 2013). Models were estimated controlling for the lagged effects of the mediating and dependent variables in line with panel analysis. The models for the job context variables (job autonomy, job heuristic and manager support for autonomy) also controlled for lagged independent variables (as discussed earlier, lagged pay data were

not available). Cross-sectional models were also tested (although are not reported) and there were no material differences in results so the models reported include lagged effects and are therefore change analysis (Finkel, 1995).

The discussion below reports the combined mediation effect of all three needs and significant mediation models are presented. A significant indirect effect suggests mediation.

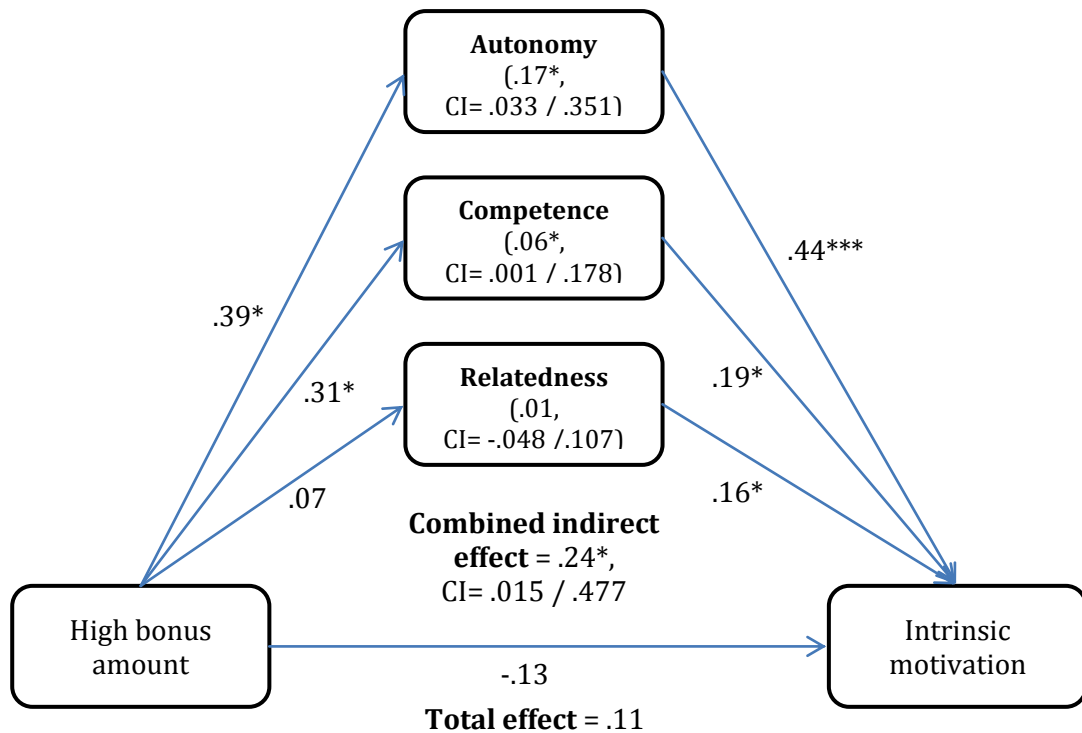
H10a: The combined indirect effect of both merit pay level and bonus level on autonomous motivation (intrinsic, integrated and identified) through satisfaction of the basic psychological needs for autonomy, competence and relatedness is negative. The indirect effect through autonomy need satisfaction is negative, it is positive through competence, and not significant through relatedness.

There was no direct effect of merit pay level on need satisfaction indicating no mediation relationship. This was the case when the need satisfaction variables were added individually or together and whether or not lagged effects were controlled for. This does not, therefore, support hypothesis 10a.

The only significant mediation effect in relation to bonus level was found with respect to intrinsic motivation (figure 6.5). This model reveals that there are two significant *positive* indirect effects through the need satisfaction variables; autonomy (contrary to the hypothesis) and competence (in line with the hypothesis). Therefore, and counter to the hypothesis, the combined indirect effect of high bonus on intrinsic motivation through satisfaction of the three basic psychological needs is positive ($\beta = .24, p < .05$). The direct effect between high bonus level and intrinsic motivation is negative, but not

significant. This suggests that high bonus level relates to higher levels of autonomy and competence need satisfaction which, in turn, relates to higher levels of intrinsic motivation. These results are therefore contrary to hypothesis 10a.

Figure 6.5: Satisfaction of the three basic psychological needs as mediators between **high bonus amount** and **intrinsic motivation**



Notes:

Bias corrected indirect effects. All coefficients are unstandardised.
 CI = Confidence interval for indirect effect at 95% confidence level based on 5000 bootstrapped samples
 Indirect effects are presented in boxes with need satisfaction variables
 $* p < .05$, $** p < .01$ $*** p < .001$

H10b: The combined indirect effect of both merit pay level and bonus level on introjected motivation through satisfaction of the basic psychological need for competence is positive.

As with hypothesis 10a, there was no direct effect between merit pay and need satisfaction so no mediation is present. The indirect effect of bonus level on introjection through need satisfaction was also not significant. Hypothesis 10b is therefore not supported.

H10c: The combined indirect effect of both merit pay level and bonus level on external motivation through satisfaction of the basic psychological needs for autonomy, competence and relatedness is positive. The indirect effect through autonomy need satisfaction is positive, it is negative through competence, and not significant through relatedness.

There were no significant indirect effects with respect to external motivation. Hypothesis 10c is therefore not supported.

H11: Satisfaction of basic psychological needs for autonomy, competence and relatedness partly mediates the relationship between a needs-supportive job context, in the form of; a) high job autonomy, b) high manager support for autonomy, and c) a job which requires heuristic thought and the motivation types.

The mediation between the job context variables and the motivation types will be discussed in turn. Firstly, with respect to job autonomy, satisfaction of the three basic psychological needs significantly mediates the relationship with intrinsic (figure 6.6), integrated (figure 6.7) and identified (figure 6.8) motivation but not with introjected or external motivation. In relation to intrinsic and integrated motivation, satisfaction of the need for autonomy seems to account for most of the mediation whereas competence need satisfaction does in relation to identified motivation. The combined indirect effect is strongest with respect to intrinsic (*unstandardised coefficient* =.29, $p < .05$), followed by integrated (*unstandardised coefficient* =.23, $p < .05$) and then identified (*unstandardised coefficient* =.13, $p < .05$) thereby supporting the structure of the motivation continuum. These relationships therefore partly support the hypothesis that job autonomy is positively related to more autonomous motivation through satisfaction of the three basic psychological needs. The hypotheses with respect to introjected and external motivation are not supported.

Figure 6.6: Satisfaction of the three basic psychological needs as mediators between **job autonomy** and **intrinsic motivation** (see notes under figure 6.8)

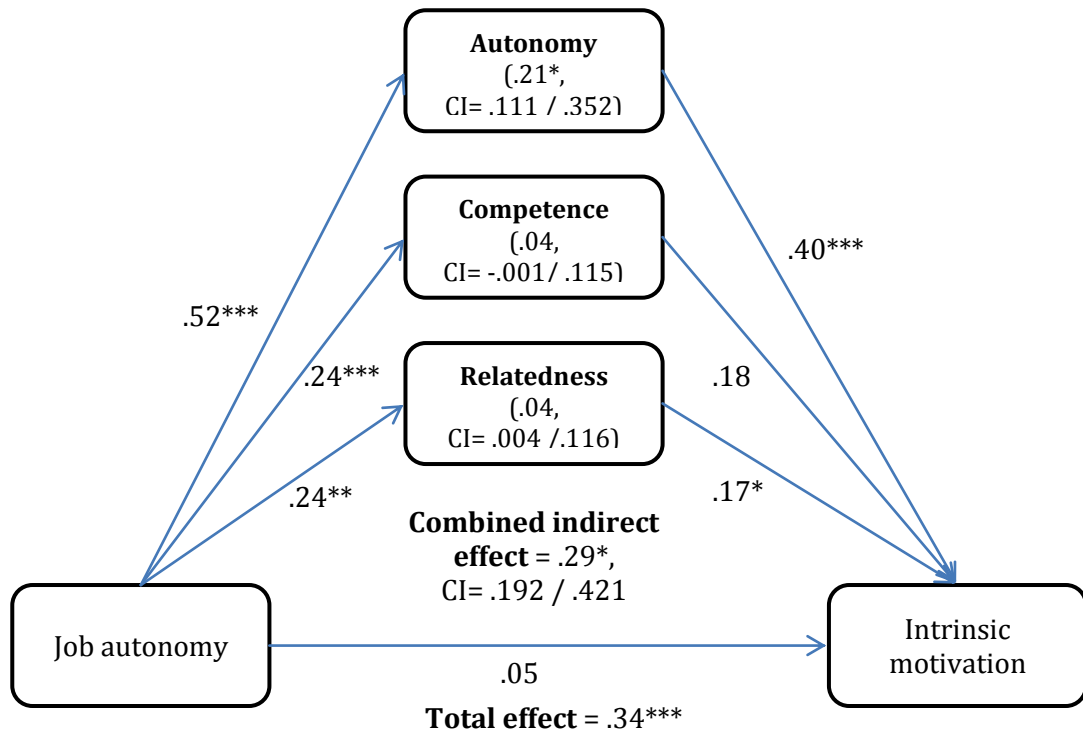


Figure 6.7: Satisfaction of the three basic psychological needs as mediators between **job autonomy** and **integrated motivation** (see notes under figure 6.8)

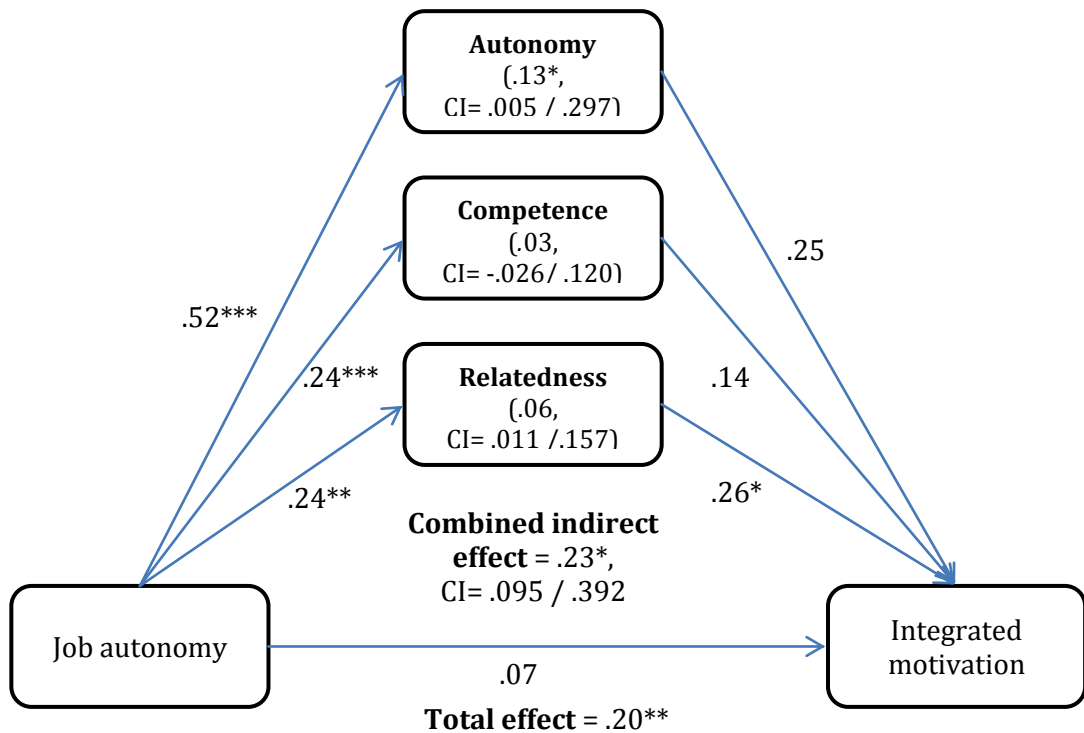
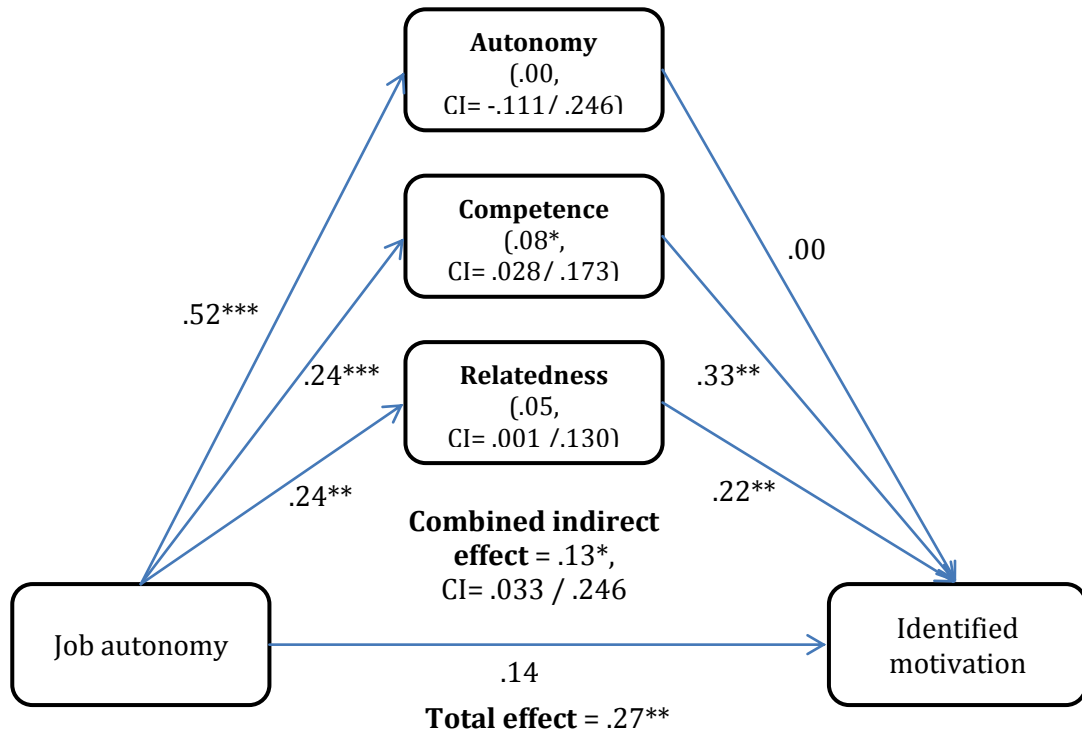


Figure 6.8: Satisfaction of the three basic psychological needs as mediators between **job autonomy** and **identified motivation**



Notes for figures 6.6, 6.7 and 6.8:

Bias corrected indirect effects. All coefficients are unstandardised.

CI = Confidence interval for indirect effect at 95% confidence level based on 5000 bootstrapped samples.

Indirect effects are presented in boxes with need satisfaction variables.

* $p < .05$, ** $p < .01$ *** $p < .001$.

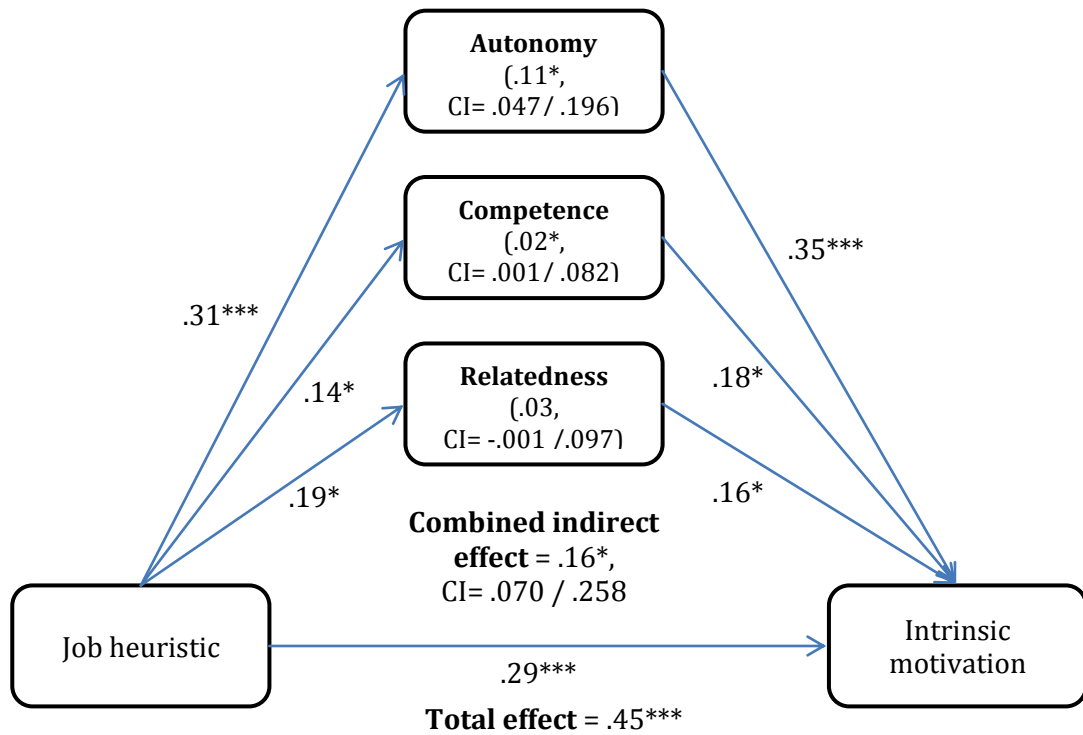
The same pattern of relationships was found in relation to manager support for autonomy; satisfaction of the three basic psychological needs mediated the relationship with intrinsic (*unstandardised combined indirect effect* = .25*, CI = .162 / .359), integrated (*unstandardised combined indirect effect* = .29*, CI = .109 / .341) and identified motivation (*unstandardised combined indirect effect* = .14*, CI = .044 / .255) but not introjected or external. The total effects in all three cases were also significant; .23, .22 and .26 respectively (all $p < .01$). The models are not depicted, for brevity. As with job autonomy, the mediation with intrinsic and integrated motivation seems to be

explained primarily by satisfaction of the need for autonomy whereas identified motivation is explained by satisfaction of the need for competence.

Finally, with respect to job heuristic, the pattern is the same once again, although the significant indirect effects are slightly weaker. The expected mediation effect was found in relation to intrinsic (figure 6.9: *unstandardised combined indirect effect* = .16*, CI= .070 / .258), integrated (*unstandardised combined indirect effect* = .14*, CI= .002 / .147) and identified motivation (*unstandardised combined indirect effect* = .11*, CI= .038 / .206) but not introjected or external. The integrated and identified motivation models are not depicted for brevity. The direct effect between job heuristic and intrinsic motivation remains significant (figure 6.9; *unstandardised coefficient* = .29, $p < .001$) indicating partial mediation.

In summary, support was found for the hypotheses that satisfaction of the three basic psychological needs mediates the relationship between job autonomy, manager support for autonomy and job heuristic with the autonomous motivation types (intrinsic, integrated and identified). Specifically, satisfaction of the need for autonomy mediates between context and intrinsic and integrated motivation and competence mediates between context and identified motivation. This mediation was not found with respect to introjected or external motivation, where the indirect effects were not significant. Hypothesis 11 is therefore partially supported.

Figure 6.9: Satisfaction of the three basic psychological needs as mediators between **job heuristic** and **intrinsic motivation**



Notes:

Bias corrected indirect effects. All coefficients are unstandardised.

CI = Confidence interval for indirect effect at 95% confidence level based on 5000 bootstrapped samples.

Indirect effects are presented in boxes with need satisfaction variables.

** $p < .05$, ** $p < .01$ *** $p < .001$.*

Table 6.12: Summary of support for hypotheses relating to research question 3

Hypothesis	Support
H9a: Satisfaction of basic psychological needs for autonomy and competence are positively related to intrinsic motivation.	Partially supported Competence need satisfaction does not uniquely predict change in intrinsic motivation.
H9b: Satisfaction of basic psychological needs for autonomy, competence and relatedness is positively related to integrated and identified motivation.	Partially supported - Competence need satisfaction does not uniquely predict change in integrated or identified motivation. - Autonomy need satisfaction only predicts integrated motivation
H9c: Satisfaction of basic psychological needs for competence and relatedness have a positive relationship with introjected motivation.	Partially supported Only relatedness need satisfaction positively predicted change in introjection.
H9d: Satisfaction of basic psychological needs for autonomy, competence and relatedness has a negative relationship with external motivation.	Partially supported Counter to hypothesis relatedness positively predicted change in external motivation
H10a: The combined indirect effect of both merit pay level and bonus level on autonomous motivation (intrinsic, integrated and identified) through satisfaction of the basic psychological needs for autonomy, competence and relatedness is negative. The indirect effect through autonomy need satisfaction is negative, it is positive through competence, and not significant through relatedness.	Unsupported No significant indirect effects with merit pay. Combined indirect effect of bonus level on intrinsic motivation was positive, not negative.
H10b: The combined indirect effect of both merit pay level and bonus level on introjected motivation through satisfaction of the basic psychological need for competence is positive.	Unsupported
H10c: The combined indirect effect of both merit pay level and bonus level on external motivation through satisfaction of the basic psychological needs for autonomy, competence and relatedness is positive. The indirect effect through autonomy need satisfaction is positive, it is negative through competence, and not significant through relatedness.	Unsupported

<p>H11: Satisfaction of basic psychological needs for autonomy, competence and relatedness partly mediates the relationship between a needs-supportive job context, in the form of; a) high job autonomy, b) high manager support for autonomy, and c) a job which requires heuristic thought) and the autonomous motivation types.</p>	<p>Supported</p>
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RQ4a: How do the different types of motivation relate to behavioural (performance and intention to quit) and psychological (subjective wellbeing, engagement and job satisfaction) outcomes at the general work-level?

Each of the outcome variables was tested through panel regression including all five motivation types. Unlike the earlier analysis, it was not necessary to exclude cases where no reward data were available so the sample size is 196 for these analyses, with the exception of performance. As performance data were obtained from organisational records only where permission was given, the N is smaller and includes only 155 cases. The same control variables were included as in the above regression.

As with previous analysis, the models were built in the following steps; control variables only, cross-sectional model with motivation types as predictors and a panel model including the lagged effects of the dependent variable (outcomes) and independent variables (motivation). Only the panel models are presented in table 6.13.

Table 6.13: Panel regression predicting each outcome variable from all motivation types

		Engagement	Job	Performance	Intention to
Control variables	SWB T2	T2	satisfaction	T2	quit T2
		T2	T2	T2	T2
Intercept	3.68***	4.27***	4.17***	3.30***	2.67***
Age	0.04	0.07	0.13	-0.07	-0.11
Tenure	0.02	0.00	-0.07	0.02	-0.05
Gender (female)	0.02	0.02	0.02	0.04	0.02
Job level	0.03	0.07	0.12	0.12	-0.03
Independent variables: Motivation					
Intrinsic T2	0.47***	0.65***	0.58***	0.09	-0.40**
Integrated T2	-0.03	-0.07	0.13	-0.09	-0.06
Identified T2	0.08	0.08	-0.02	0.09	0.13
Introjected T2	-0.03	0.07	-0.21*	-0.05	0.06
External T2	-0.01	-0.10	0.09	0.04	-0.09
Lagged variables					
Intrinsic T1	-0.21	-0.16	-0.24*	-0.01	0.34**
Integrated T1	0.00	-0.07	-0.07	-0.12	0.08
Identified T1	-0.09	0.07	0.03	-0.01	-0.11
Introjected T1	-0.10	-0.05	-0.01	0.19	-0.01
External T1	0.09	0.12	-0.04	-0.04	-0.04
Outcome variable at T1	0.53***	0.40***	0.26***	0.48***	0.58***
Model statistics					
Adjusted R ²	0.48	0.72	0.48	0.25	0.43
F	10.96***	25.85***	8.95***	4.00***	8.48**
ΔR ² (controls)	0.07*	0.12***	0.13***	0.10**	0.80*
ΔR ² (motivation)	0.27***	0.53***	0.28***	0.05	0.09*
ΔR ² (lagged)	0.19***	0.08***	0.07**	0.19***	0.32***

Notes:

N = 196, * $p < .05$, ** $p < .01$, *** $p < .001$.

Coefficients are standardised. Reported coefficients are after all variables were entered into model.

Bold added to emphasise significant correlations.

H12: Intrinsic, integrated and identified motivation are positively related to positive outcomes; a) subjective wellbeing, b) engagement, c) job satisfaction and d) performance and negatively with e) intention to quit.

Beginning with intrinsic motivation; change in intrinsic motivation was positively related to change in subjective wellbeing ($\beta = .47$), engagement ($\beta = .65$), job satisfaction ($\beta = .58$) and negatively with intention to quit ($\beta = -.40$). These relationships support the hypothesis. There was no significant relationship with performance.

No significant relationships were found with respect to either integrated or identified motivation when controlling for the other motivation types. Further examination revealed the same pattern of relationships as intrinsic motivation, but these became non-significant when intrinsic motivation was added to the model. This suggests that neither integrated nor identified motivation explain the positive outcomes over and above intrinsic motivation.

The motivation types together predicted a significant amount of variance in each of the outcomes, with the exception of performance; 27% of subjective wellbeing, 58% of engagement, 28% of job satisfaction and 9% of intention to quit. The relationships above would indicate that these are primarily accounted for by intrinsic motivation.

In summary, only intrinsic motivation significantly predicts change in positive outcomes above and beyond the other autonomous motivation types. Intrinsic motivation predicted increases in subjective wellbeing, engagement and job satisfaction and a reduction in intention to quit. It was not related to performance. Hypothesis 12 is therefore partly supported.

H13: Introjected motivation has a weak but negative relationship with positive outcomes; a) subjective wellbeing, b) engagement, c) job satisfaction and d) performance and weak positive relationship with e) intention to quit.

The panel regression model revealed a moderate negative relationship between introjected motivation and job satisfaction ($\beta = -.21, p < .05$). No other significant relationships were found so H13 is only weakly supported.

H14: External motivation is negatively related to positive outcomes; a) subjective wellbeing, b) engagement, c) job satisfaction and d) performance and positively related to e) intention to quit.

The panel regression analysis revealed no significant relationships between external motivation and any outcomes. This, therefore, fails to support hypothesis 14.

Table 6.14: Summary of support for hypotheses relating to research question 4a

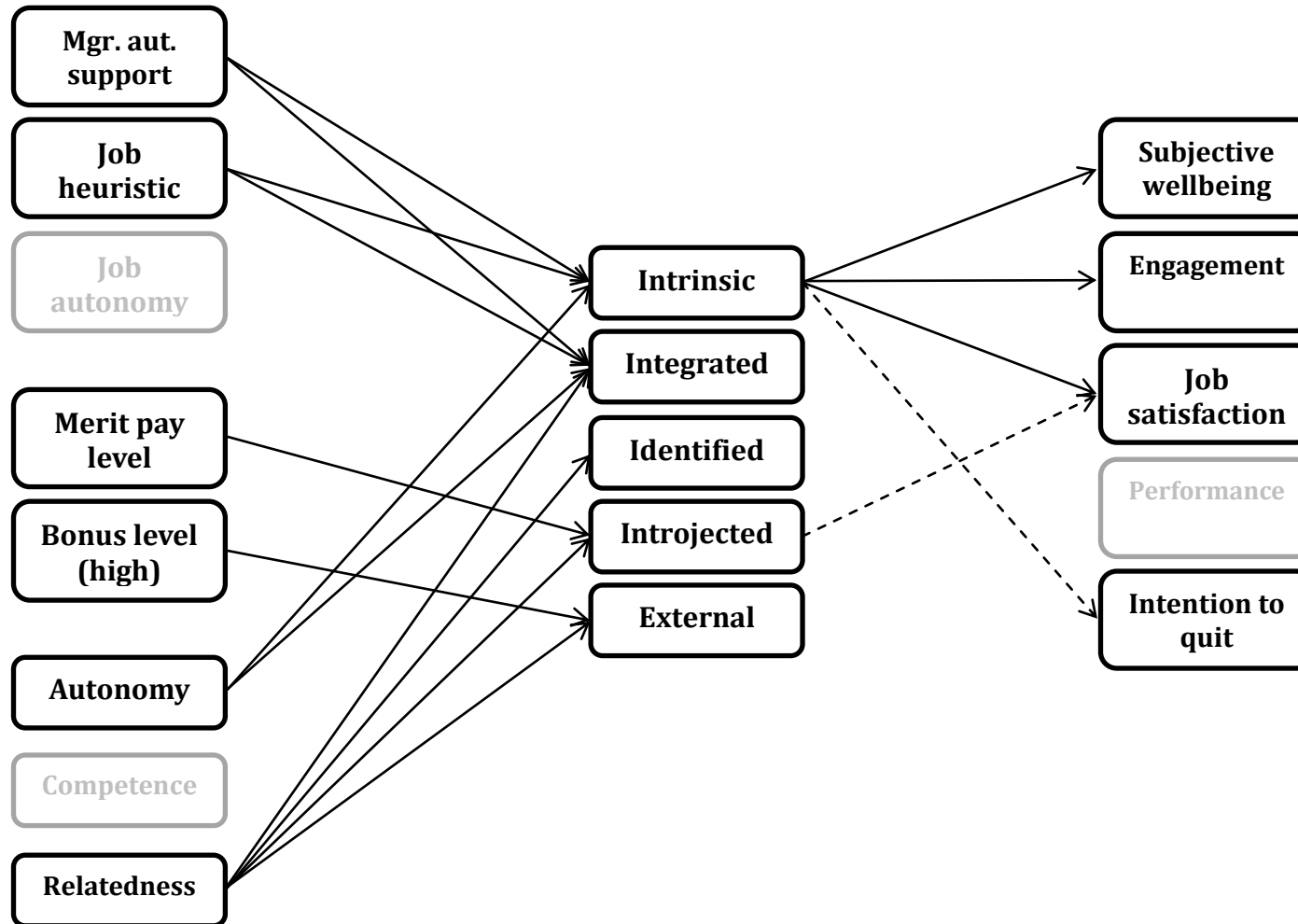
Hypothesis	Support
<i>H12: Intrinsic, integrated and identified motivation are positively related to positive outcomes; a) subjective wellbeing, b) engagement, c) job satisfaction and d) performance and negatively with e) intention to quit.</i>	Partially supported a, b, c, e) Only supported in relation to intrinsic motivation. d) No significant relationships with performance.
<i>H13: Introjected motivation has a weak but negative relationship with positive outcomes; a) subjective wellbeing, b) engagement, c) job satisfaction and d) performance and weak positive relationship with e) intention to quit.</i>	Partially supported a, b, d, e) Unsupported c) Change in introjection negatively predicts change in job satisfaction.
<i>H14: External motivation is negatively related to positive outcomes; a) subjective wellbeing, b) engagement, c) job satisfaction and d) performance and positively related to e) intention to quit.</i>	Unsupported

RQ5: Does the conceptualisation of relative autonomy mask the distinctiveness of the individual motivation types as proposed by SDT?

This research question aims to explore the empirical implications of using an RAI to operationalise the motivation continuum, rather than examining the individual motivation types. In order to compare the use of the RAI to the individual motivation types, I re-ran all of the above analyses, replacing the five motivation types with the RAI. Each hypothesis will be taken in turn and I will end this section with a comparison of findings between the individual motivation types and RAI.

Firstly, with respect to the relationship between reward (merit pay and bonus level) and motivation, the regression analysis in table 6.15 revealed no significant relationships nor did the reward variables explain any significant improvement in the model.

Figure 6.10: Summary of significant direct relationships found in longitudinal survey



Notes: Dotted lines indicate negative relationships. Grey boxes indicate no significant relationships with other variables

Table 6.15: Panel regression predicting RAI (time 2) from merit pay and bonus level

Control variables	RAI T2
Intercept	6.70***
Age	0.16
Tenure	-0.04
Gender (female)	0.01
Job level	-0.01
Salary T2	0.10
Independent variables: Reward	
Low bonus level	-0.03
High bonus level	-0.16
Low merit pay level	-0.01
High merit pay level	0.02
Lagged variables	
RAI T1	0.63***
Model statistics	
Adjusted R ²	0.42
F	10.65***
ΔR ² (controls)	0.12**
ΔR ² (reward)	0.01
ΔR ² (lagged)	0.33***

Notes:

N = 155, * $p < .05$, ** $p < .01$, *** $p < .001$.

Coefficients are standardised.

Reported coefficients are after all variables were entered into model.

Bold added to emphasise significant correlations.

The second set of hypotheses predicted a positive relationship between a needs-supportive job context, in the form of job autonomy, manager support for autonomy and job heuristic, and more autonomous motivation. The panel regression model presented in table 6.16 reveals that change in RAI is positively predicted only by job autonomy (β

= .20, $p < .001$). The three context variables explained 15% of the variance in RAI above the control variables.

Table 6.16: Panel regression predicting RAI (time 2) from job autonomy, manager support for autonomy and job heuristic

Control variables	RAI T2
Intercept	6.58*
Age	0.16*
Tenure	0.00
Gender ¹	0.02
Job level	-0.04
Independent variables: Context	
Job autonomy T2	0.20***
Mgr autonomy support T2	0.13
Job heuristic T2	0.10
Lagged variables	
RAI T1	0.56***
Job autonomy T1	0.01
Mgr autonomy support T1	-0.12
Job heuristic T1	0.07
Model statistics	
Adjusted R ²	0.5
F	13.55***
ΔR^2 (controls)	0.12**
ΔR^2 (context)	0.15***
ΔR^2 (lagged)	0.27***

Notes:

N = 196, * $p < .05$, ** $p < .01$, *** $p < .001$.

Coefficients are standardised.

Reported coefficients are after all variables were entered into model.

Bold added to emphasise significant correlations.

The third set of hypotheses examines the moderating role of context on the relationship between reward and motivation. The same panel regression models were run (table 6.17); including the direct effects of both the reward variables (merit pay and bonus) and context variables (job autonomy, manager support and job heuristic) and the

interactions between these. No significant interaction effects were found so these hypotheses were not supported.

Table 6.17: Panel regression predicting RAI (time 2) from interactions between reward and context variables

Control variables	RAI T2
Intercept	6.85**
Interaction effects	
High bonus x Job autonomy	0.03
High bonus x Job heuristic	-0.02
High bonus x Mgr autonomy support	0.09
High merit pay x Job autonomy	0.15
High merit pay x Job heuristic	0.00
High merit pay x Mgr autonomy support	-0.12
Model statistics	
R ²	0.30
Adjusted R ²	0.20
F	2.96***
ΔR ² (controls)	0.12**
ΔR ² (direct effects)	0.17***
ΔR ² (interactions)	0.02

Notes:

N = 155, * $p < .05$, ** $p < .01$, *** $p < .001$.

Coefficients are standardised.

Reported coefficients are after all variables were entered into model.

Bold added to emphasise significant correlations.

Turning now to the relationship between satisfaction of the three basic psychological needs for autonomy, competence and relatedness with motivation; the panel regression (table 6.18) revealed only one significant relationship. Change in RAI was significantly predicted by change in autonomy need satisfaction ($\beta = .35, p < .001$). This explained 23% of the variance in RAI.

Table 6.18: Panel regression predicting RAI (time 2) from satisfaction of needs for autonomy, competence and relatedness

Control variables		RAI T2
Intercept		6.47***
Age		0.20*
Tenure		-0.03
Gender (female)		0.01
Job level		-0.04
Independent variables: Needs		
Autonomy need T2		0.35***
Competence need T2		0.01
Relatedness need T2		-0.01
Lagged variables		
RAI T1		0.48***
Autonomy need T1		-0.06
Competence need T1		0.08
Relatedness need T1		-0.01
Model statistics		
Adjusted R ²		0.51
F		13.75***
ΔR^2 (controls)		0.12**
ΔR^2 (need satisfaction)		0.23***
ΔR^2 (lagged)		0.19***

Notes:

N = 155, * $p < .05$, ** $p < .01$, *** $p < .001$.

Coefficients are standardised.

Reported coefficients are after all variables were entered into model.

Bold added to emphasise significant correlations.

The same procedure was followed to test the mediating role of need satisfaction between both the reward and context variables and RAI. Beginning with reward; need satisfaction did not significantly mediate the merit pay level → RAI relationship but did mediate between bonus level and RAI. The hypothesis predicted that there would be an overall negative indirect effect, a negative indirect effect through autonomy need satisfaction and a positive indirect effect through competence need satisfaction. The

model (figure 6.11) reveals that, as with intrinsic, integrated and identified motivation, there is a combined *positive* indirect effect through satisfaction of the three needs (*unstandardised coefficient* = .81, CI = .213 / 1.539). This is explained by a positive indirect effect through both autonomy (*unstandardised coefficient* = .63, CI = .131 / 1.230) and competence (*unstandardised coefficient* = .20, CI = .002 / 1.298) need satisfaction, thereby following the same pattern as intrinsic motivation.

The mediation models for job autonomy, manager support for autonomy and job heuristic are presented in figures 6.12, 6.13 and 6.14 respectively. All three models revealed a significant indirect effect, mediated by satisfaction for the need for autonomy. In the case of job heuristic, the direct effect with RAI (*unstandardised coefficient* = .69, $p < .01$) was still significant indicating only partial mediation.

The final set of hypotheses refers to the relationship between motivation and outcomes and predicts that more autonomous motivation will be positively related to subjective wellbeing, engagement, job satisfaction and performance and negatively with intention to quit. As can be seen in table 6.19; Change in RAI significantly predicted change in subjective wellbeing ($\beta = .30, p < .001$), engagement ($\beta = .47 p < .001$) and job satisfaction ($\beta = .36 p < .001$) but not performance or intention to quit.

Figure 6.11: Satisfaction of the three basic psychological needs as mediators between **high bonus level** and the **Relative Autonomy Index** (see notes under figure 6.13)

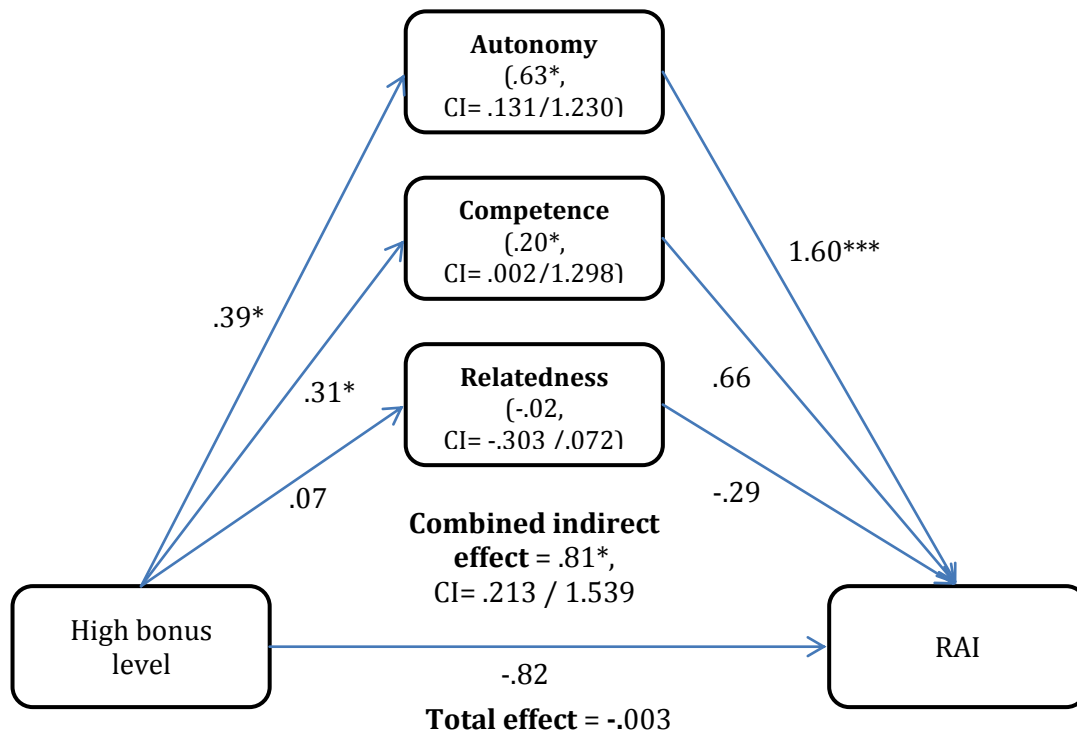
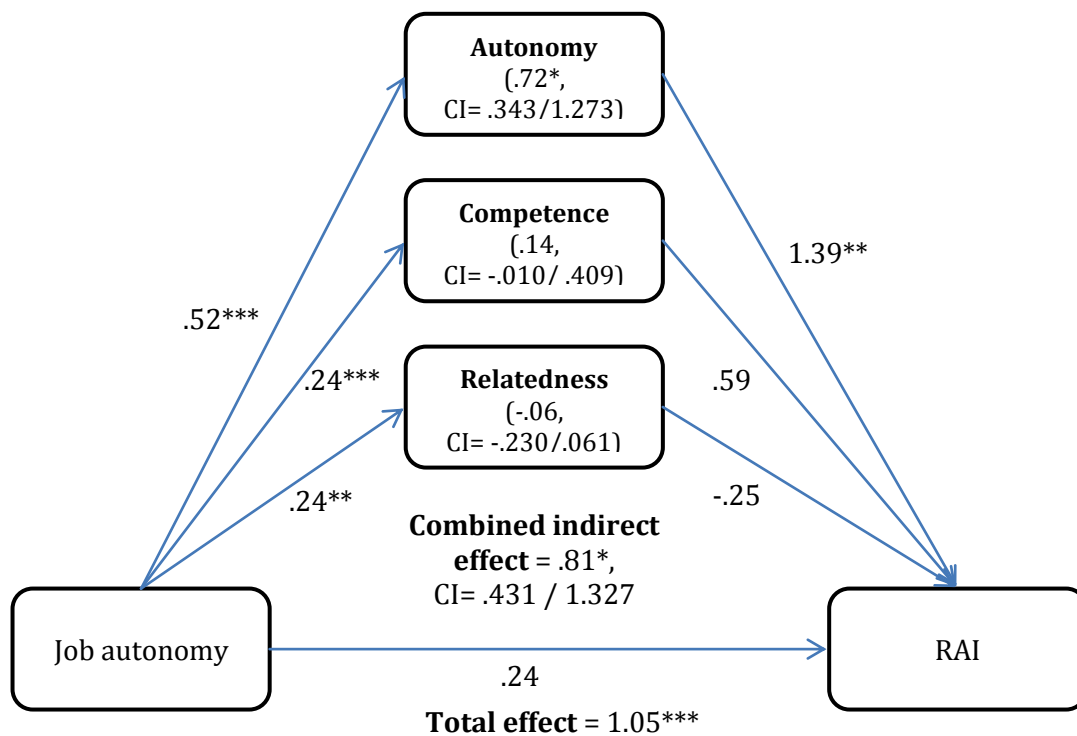


Figure 6.12: Satisfaction of the three basic psychological needs as mediators between **job autonomy** and the **Relative Autonomy Index**



Notes:

Bias corrected indirect effects. All coefficients are unstandardised.
 CI = Confidence interval for indirect effect at 95% confidence level based on 5000 bootstrapped samples
 Indirect effects are presented in boxes with need satisfaction variables
 * $p < .05$, ** $p < .01$, *** $p < .001$

Figure 6.13: Satisfaction of the three basic psychological needs as mediators between **manager support for autonomy** and the **Relative Autonomy Index** (see notes under figure 6.15)

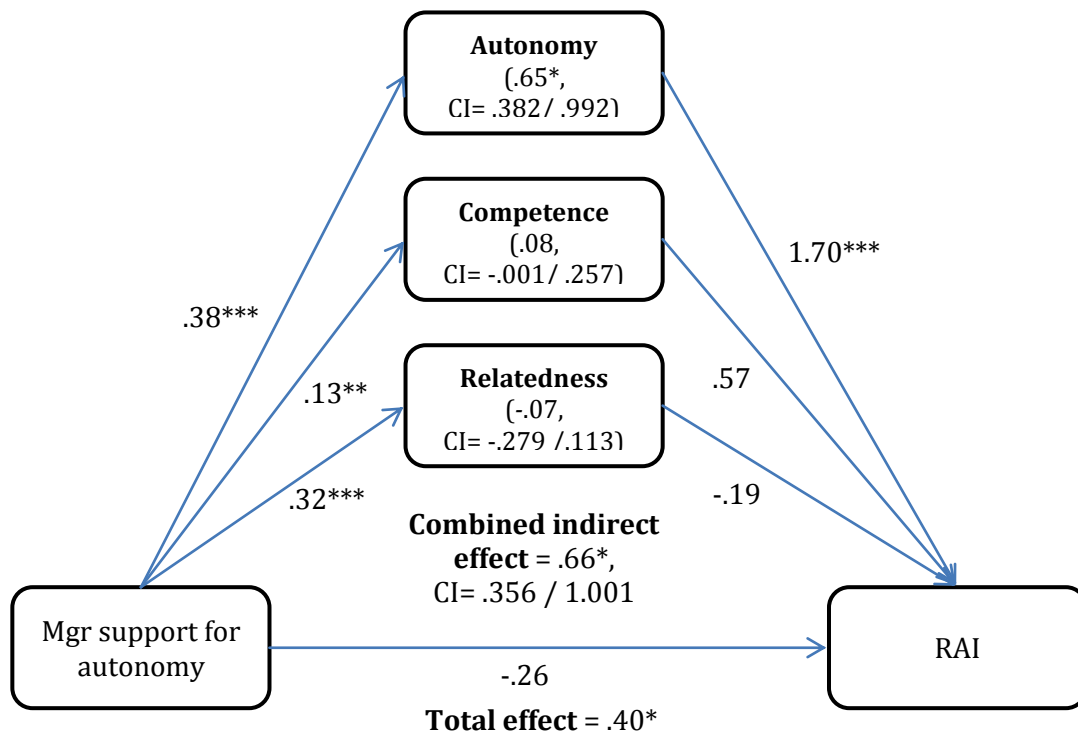
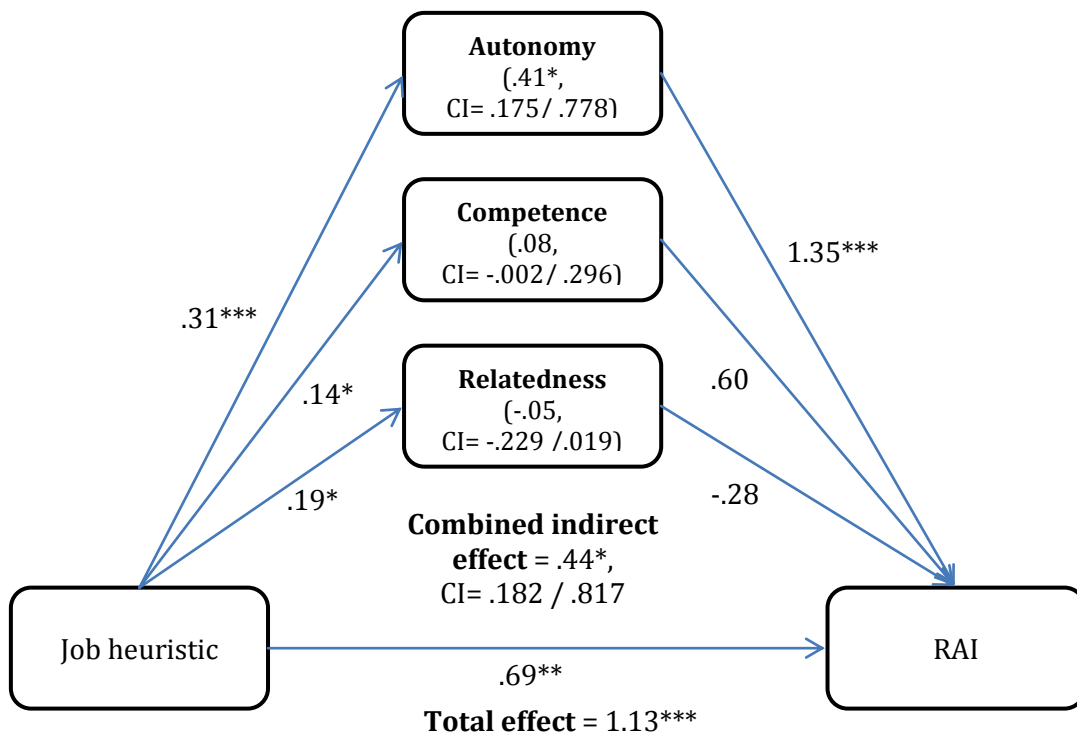


Figure 6.14: Satisfaction of the three basic psychological needs as mediators between **job heuristic** and the **Relative Autonomy Index**



Notes:

Bias corrected indirect effects. All coefficients are unstandardised.
 CI = Confidence interval for indirect effect at 95% confidence level based on 5000 bootstrapped samples
 Indirect effects are presented in boxes with need satisfaction variables
 † $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

Table 6.19: Panel regression predicting each outcome variable (time 2) from RAI

Control variables	Job				
	SWB T2	Engagement T2	satisfaction T2	Performance T2	Intention to quit T2
Intercept	1.31***	4.25***	4.11***	3.37***	2.77***
Age	0.02	0.03	0.10	-0.08	-0.09
Tenure	0.01	0.01	-0.09	0.02	-0.04
Gender (female)	-0.01	0.00	-0.08*	0.02	0.06
Job level	0.04	0.09	0.16	0.09	-0.07
Independent variables: Motivation					
RAI T2	0.30***	0.47***	0.36***	0.06	-0.13
Lagged variables					
RAI T1	-0.17*	-0.15*	-0.07	-0.08	0.17
Outcome variable at T1	0.58***	0.49***	0.31***	0.51***	0.60***
Model statistics					
Adjusted R ² (panel)	0.42	0.58	0.33	0.26	0.43
F (panel)	17.91***	33.59***	12.17***	7.99***	15.09***
ΔR ² (controls)	0.07*	0.12***	0.13***	0.10**	.08*
ΔR ² (RAI)	0.13***	0.33***	0.14***	0.01	0.02
ΔR ² (lagged)	0.25***	0.15***	0.09***	.20***	.33***

Notes:

N = 196, * $p < .05$, ** $p < .01$, *** $p < .001$.

Coefficients are standardised. Reported coefficients are after all variables were entered into model.

Bold added to emphasise significant correlations.

In summary, there are a number of differences in the analysis using RAI compared to the individual motivation types. The noteworthy comparisons are summarised by research question in table 6.20.

The differences highlighted in table 6.20 would suggest that the use of the RAI does mask some distinct relationships between the individual motivation types and both antecedents and outcomes which would lead to some spurious conclusions.

Table 6.20: Comparison of findings between individual motivation types and RAI analysis

Research question	Motivation types and RAI analysis comparison
RQ1a. What is the relationship between merit pay level and bonus level and the motivation types?	The positive relationship between high bonus and external motivation and negative relationship between low merit pay and introjection is masked in the RAI analysis (where there are no significant relationships).
RQ2a. To what extent does the context (job autonomy, job heuristic and managerial autonomy support) in which reward is administered moderate the relationship between merit pay level and bonus level and motivation?	Manager support for autonomy and job heuristic appear non-significant with the RAI. This therefore masks the positive relationship between these variables and intrinsic and integrated motivation.
RQ3. To what extent does satisfaction of the basic psychological needs for autonomy, competence and relatedness explain the relationship between reward, context and motivation?	<p>The RAI analysis obscures the fact that relatedness predicts all motivation types, including external. The relatedness–RAI relationship was not significant.</p> <p>The positive indirect effect of bonus on RAI through need satisfaction reflects the same pattern which was found with intrinsic motivation. None of the other motivation types were significant which is masked by the RAI.</p>
RQ4a: How do the different types of motivation relate to behavioural (performance and intention to quit) and psychological (subjective wellbeing, engagement and job satisfaction) outcomes at general work-level?	The pattern of relationships is roughly the same, with exception of intention to quit which is reduced by intrinsic motivation but not reflected by the RAI.

6.5. Discussion of results

The primary aim of this study was to examine the relationship between the level of individual performance related financial rewards in the form of merit pay and bonuses, and the motivation types as proposed by SDT. It also considered the impact of job context on this relationship, specifically the extent to which reward was administered in the needs-supportive environment. With that in mind, satisfaction of the three basic psychological needs were explored as mediating the relationship between both reward and context with motivation. In order to examine the importance of the motivation distinction, this study further examined the relationship between the motivation types and behavioural and psychological outcomes (subjective wellbeing, engagement, job satisfaction, performance and intention to quit). Finally, I asked the question as to whether the use of a Relative Autonomy Index of motivation masked the distinctiveness of the motivation types with respect to antecedents and outcomes.

This discussion is largely descriptive. The findings of this, along with the other two studies in this thesis, are discussed critically in chapter 8 along with implications for research and practice. In this section I also identify areas which would warrant further investigation in the diary study.

6.5.1. RQ1a. What is the relationship between merit pay level and bonus level and the motivation types?

Merit pay level was not found to have a significant direct relationship with any of the motivation types with the exception of introjection. In this case low merit pay predicted

a reduction in introjected motivation. Bonus level had a moderate positive relationship with external motivation. By controlling for lagged effects, this suggests that a high bonus administered after time 1 explains an increase in external motivation between time 1 and time 2. No significant relationships were found with any of the other motivation types as proposed by SDT.

The relationship between rewards and motivation reveals three things. Firstly, the introduction of a high bonus relates to an external perceived locus of causality which appears to support the theory that more salient rewards impact on the attribution for behaviour (Lepper & Greene, 1979). However, secondly, it fails to support an 'undermining' effect of merit pay or bonuses (whether high or low) on intrinsic or any other form of autonomous motivation (Deci et al., 1999a). The implication of this finding goes back to Deci's early work in formulating the theory which suggests that increased extrinsic motivation decreases intrinsic motivation (Deci, 1971), which does not seem to be the case here. The third also contradicts this theory, in that high bonus level has a net positive effect on intrinsic motivation when taking into account satisfaction of the basic psychological needs (which is discussed further below).

The finding that bonus, but not merit pay, is related to more controlled motivation might be explained by the salience of the reward. Based on previous research (Kuvaas, 2006b) I would suggest that bonuses make the reward contingency more salient because they recognise what individuals have done at work, and can therefore be experienced as more controlling. I discuss this as a suggestion for future research, below.

6.5.2. RQ2a. To what extent does the context (job autonomy, job complexity and managerial autonomy support) in which reward is administered moderate the relationship of merit pay and bonuses with motivation?

The three context variables were added into the regression model simultaneously and, as one would expect, this revealed fewer significant relationships than the correlational analysis would suggest. Job autonomy did not uniquely predict any of the motivation types. Change in manager support for autonomy and job heuristic did both predict increased intrinsic and integrated motivation between time 1 and time 2. The three context variables were included as simultaneous predictors for good reason; because, while they are distinct constructs, they are aspects of a needs-supportive context and do not, therefore, operate entirely independently of one another. The lack of unique effect with respect to job autonomy is likely to be due to the covariance between the three variables evidenced in the correlational analysis⁶. This would therefore support the theory and previous empirical research that a needs-supportive context predicts increased autonomous motivation (Baard et al., 2004; Deci et al., 1989; Gagné et al., 1997).

Turning now to the moderation effects; in the main, context did not moderate the relationships between the reward and motivation variables. This seems to suggest that

⁶ It could also be that one or more of the context variables might be antecedent to another. This was tested through a series of regression models, controlling for lagged effects in order to examine causality, and the only significant relationship was manager autonomy support predicting job autonomy (although not the other way around). This seems to suggest that manager autonomy support is antecedent to job autonomy, which may explain the lack of significant unique effect of job autonomy.

the positive effect of high bonus on external motivation occurs irrespective of the context.

There was one exception to this in that job autonomy significantly moderated the relationship between high merit pay and introjected motivation. High merit pay was related to greater introjected motivation for jobs high in autonomy and less introjection for jobs low in autonomy. This relationship was not expected. It might suggest that individuals internalise the value of merit pay to a small extent (resulting in introjection) when the job provides support for autonomy. Taken alongside the direct negative relationship between low merit pay and introjection this would suggest that merit pay influences this ego-related motivation which is connected to a sense of self, rather than the fuller internalisation of motivation (Ryan, 1982).

6.5.3. RQ3. To what extent does satisfaction of the basic psychological needs for autonomy, competence and relatedness explain the relationship between reward and context with motivation?

The first set of analyses tested the direct relationship between need satisfaction and the motivation types. Increased satisfaction of the need for autonomy predicted increased intrinsic and integrated motivation and, in line with the motivation continuum, this relationship was strongest with intrinsic motivation. This, therefore partly supports the theory that “the degree of satisfaction of the need for autonomy is what distinguishes whether identification or integration, rather than just introjection, will occur” (Gagné & Deci, 2005, p. 337). The non-significant relationship is surprising and indicates that autonomy need satisfaction is conducive to full integration of motivation or motivation

driven by intrinsic interest but not partially internalised motivation in the form of identification.

Competence need satisfaction did not significantly predict any unique variance in any of the motivation types. This lack of significant effect seems to be due to covariance with satisfaction of the need for autonomy. It may also be an indication that competence is a proxy for autonomy. Vansteenkiste et al (2010) explain that covariance is to be expected because many situations will satisfy more than one of the needs. This, however, brings challenges for the measurement of the individual needs (e.g. Viladrich et al., 2013) and is one of the reasons why a general 'need satisfaction' variable is often used.

Finally, satisfaction of the need for relatedness is positively predictive of change in all extrinsic forms of motivation; integrated, identified and introjected *and* external. This supports the theory that relatedness need satisfaction is not necessary for intrinsic motivation (Gagné & Deci, 2005) but surprisingly, this positive relationship was strongest with external motivation. This is an unexpected result and is discussed more in chapter 8.

Testing the theoretical basis of the undermining effect as hypothesised by SDT, I examined whether thwarting satisfaction of the three basic psychological needs for autonomy, competence and relatedness explained the expected negative relationship between high levels of reward (merit pay and bonus) and autonomous forms of motivation. Contrary to the hypothesis, a significant *positive* indirect effect was found between high bonus and intrinsic motivation through satisfaction of the needs for

autonomy and competence. This, therefore, contradicts a central theory of SDT; that more salient, contingent reward will be negatively related to intrinsic motivation because it undermines satisfaction of the need for autonomy (Deci & Porac, 1979).

Need satisfaction did, however, explain the positive relationship between a needs-supportive job context (one which has manager support for autonomy, job autonomy and a job which requires heuristic thought) and more autonomous motivation types as expected. The combined indirect effects through satisfaction of the three needs were positive between all three context variables with intrinsic, integrated and identified motivation. Satisfaction of the need for autonomy mediated the relationship between context with intrinsic and integrated motivation. Satisfaction of the need for competence mediated these relationships with respect to identified motivation.

Relatedness need satisfaction did not significantly mediate any of the relationships. These findings broadly support the theory that a needs-supportive job context has an indirect relationship with more autonomous, but not controlled motivation through need satisfaction (Gagné, 2003; Van den Broeck et al., 2008). More specifically, though, they suggest that satisfaction of the need for autonomy is the dominant explanation for the relationship between a needs-supportive context and the most autonomous forms of motivation (intrinsic and integrated). This would further support the theory that it is satisfaction of the need for autonomy that defines the extent to which individuals' perceived locus of causality is internal (Gagné & Deci, 2005) but raises questions about the role of relatedness which are discussed further in chapter 8.

6.5.4. RQ4a: How do the different types of motivation relate to behavioural (performance and intention to quit) and affective (subjective wellbeing, engagement and job satisfaction) outcomes at general work-level?

The panel analysis revealed that intrinsic motivation positively predicted change in subjective wellbeing, engagement and job satisfaction; and negatively predicted intention to quit as expected. This suggests that motivation due to interest or enjoyment with the task has positive outcomes over and above the internalisation of the value of the task. In addition, higher introjected motivation, which is theorised to be partially controlled, related to lower levels of job satisfaction. This supports the large body of research which has found intrinsic motivation to be related to positive outcomes (e.g. Dysvik & Kuvaas, 2010; Ilardi et al., 1993; Kuvaas, 2006a) but it is interesting that autonomous extrinsic motivation (integrated and identified) does not seem to add anything to this. Although intrinsic and identified motivation were positively correlated with performance these relationships did not hold in the panel analysis. This, therefore, fails to support the body of research which suggests that identified motivation might be conducive to more productive behaviour over and above intrinsic motivation (Koestner & Losier, 2002; Wilson et al., 2012).

6.5.5. RQ5: Does the conceptualisation of relative autonomy mask the distinctiveness of the individual motivation types as proposed by SDT?

In order to test the extent to which the use of the RAI might mask the distinctiveness of the individual motivation types, all panel regression models were repeated, replacing the individual motivation types with an RAI.

Although the pattern of relationships with respect to the RAI broadly supports the analysis using the individual motivation types, there are some results which do not. Firstly, a non-significant relationship was found with high bonus when the individual analysis indicates that this is predictive of external motivation. Secondly, the RAI seems to obscure the fact that satisfaction of the need for relatedness predicts all of the extrinsic motivation types, not just those that are more autonomous. One overarching point is that the pattern of relationships is representative more of either intrinsic or external motivation, because they are more heavily weighted, than the full range of motivation types.

Although there are clear benefits of using the RAI, in particular because it recognises the covariance between motivation types, these findings suggest that it may mask some nuances with respect to the antecedents or outcomes of motivation as defined by SDT. This is discussed in more detail in chapter 8.

6.6. Limitations and implications for further study

I finish this chapter by considering two particular limitations of this study which have implications for future research, and which shape the empirical study reported in the following chapter.

Firstly, the central proposition of undermining theories with respect to reward and motivation is that more salient reward will lead individuals to attribute their behaviour to the external contingency and therefore shift their perceived locus of causality from internal to external (Deci & Porac, 1979). Some evidence was found to support this in that bonus level, but not merit pay level, predicts increased external motivation, thereby indicating a shift towards a more external locus of causality. I suggested that this is because this is a more salient form of reward. This was not, however, explicitly tested. I would suggest that explicitly testing perceived reward salience may be one way of examining the impact of different forms of reward on perceived locus of causality. Despite the theory (Taylor & Fiske, 1978), and some limited experimental research (Kruglanski, 1979; Ross, 1975), I am not aware of any research which has examined salience as a characteristic of reward in the field. In the next chapter, the diary study, I therefore explicitly test the role of perceived reward salience.

Secondly, although this study does make use of panel data across two time points, it could be considerably strengthened with further time points. Longitudinal studies of three or more waves allow more complex modelling of relationships across time and the use of more sophisticated longitudinal analysis, such as latent growth modelling (Newsom, Jones, & Hofer, 2011). In addition, although I have examined change through

the panel analysis, the design of the survey still implies that the constructs are relatively stable attitudes. As attribution (perceived locus of causality) is so central to SDT it would seem more intuitive to suggest that these attributions are made on a task-by-task basis, not an aggregate of many tasks across many days (Fiske, Kenny, & Taylor, 1982). There is a growing body of research which questions whether these phenomena should be treated in general terms, or would be better considered with respect to day-to-day experience. In line with this there have been calls for more research to examine motivation, and in particular self-determination theory, as a day-to-day phenomena (Beal & Weiss, 2012; Weiss & Rupp, 2011). This therefore influenced the diary design of the next study, which focuses on reward and motivation as daily phenomena.

6.7. Summary

On the one hand, this study broadly supports the theory that more contingent rewards (high bonus) lead individuals to attribute their behaviour to external forces. However, it contradicted SDT's theoretical explanation for this; that contingent rewards are controlling because they undermine need satisfaction. In fact, high bonuses were *positively* related to satisfaction of the needs for autonomy and competence and subsequently higher intrinsic motivation. This therefore suggests that high bonuses do impact on attributions but not through the process that SDT would suggest. Basic psychological need satisfaction did, however, explain the impact of a needs-supportive context on motivation broadly as expected. The exception to this is the need for relatedness, which predicted all forms of extrinsic motivation, not just those that are more autonomous, which raises questions about its theoretical position in relation to

motivation. With respect to motivational outcomes, intrinsic motivation predicts positive psychological outcomes over and above the other forms of motivation. This therefore raises questions about what value autonomous extrinsic motivation adds over intrinsic motivation as an explanation of workplace behaviours. Finally, the study highlights some concerns with using a relative autonomy index of motivation to conceptualise the SDT motivation continuum as it appears to mask some distinctions.

This study, therefore, supports some aspects of SDT with respect to the context-needs-motivation relationship but highlights concerns about the theoretical reward-motivation relationship. In particular, about the mechanism through which higher bonuses relate to controlled forms of motivation, if not through need thwarting.

Chapter 7: Daily diary study examining the motivational impact of salient everyday rewards

7.1. Introduction

This chapter presents a two-week diary study of daily motivational experience and related reward. The primary aim of the study was to examine the relationship between the salience of informal, everyday rewards and motivation as proposed by SDT. Secondly, it considers the importance of the context in which informal, everyday rewards are given. Thirdly, it examines the relationship between task-focused motivation as proposed by SDT and subjective wellbeing, engagement and productivity on a day-to-day basis. Finally, I build on the findings from the longitudinal survey to examine whether the use of a relative autonomy index of motivation masks the distinctiveness of the motivation types.

The following section provides an introduction to diary methods by way of justification for using the method, including research in an organisational setting and that which specifically examines motivation. There follows an overview of the theoretical framework before reporting the study itself.

7.2. Introduction to diary research

Diary studies refer to a group of methods which are concerned with 'real-time' experiences in 'real-life' contexts and commonly focus either on dynamic phenomena or

on specific events. Methods to capture daily or momentary experiences are relatively widely used in social and medical studies but are much less prevalent in organisational studies (Beal & Weiss, 2003; Weiss & Rupp, 2011), although they are increasing in popularity. Research utilising diaries in organisational psychology includes studies into the psychological contract (Conway & Briner, 2002), work engagement (Xanthopoulou et al., 2009, 2008), thriving at work (Niessen, Sonnentag, & Sach, 2012), job demands and wellbeing (Daniels, Wimalasiri, Beesley, & Cheyne, 2012), job insecurity (Schreurs, van Emmerik, Günter, & Germeys, 2012) and the experience of project teams (Amabile & Kramer, 2011a, 2011b; Amabile & Kramer, 2007; Amabile et al., 2010). Diary studies have particular merit for organisational researchers because they enable often observable psychological constructs to be examined on a task-by-task or day-by-day basis.

The most prominent example of research into daily motivational experience is from Mihalyi Csikszentmihalyi (1975), who is interested in the experience of intrinsic motivation (which he refers to as *Flow*) in a number of life domains, including work. Diary studies have also been used by Woike (1995) and, McAdams and Constantian (1983) to explore achievement and affiliation motives. Despite this, there are lots of unanswered questions in relation to motivational experience, for example how motivation is experienced for non-intrinsically motivating activities (Weiss & Rupp, 2011). Diary studies have been used by SDT researchers to examine day-level need satisfaction as proposed by SDT in relation to university students (Levesque & Brown, 2007; Reis et al., 2000; Sheldon, Ryan, & Reis, 1996) and adolescent gymnasts (Gagné, Ryan, & Bargmann, 2003). However I am not aware of any studies which have utilised

this within-person approach to understanding different types of motivational experience within work organisations.

Diaries are commonly distinguished by their sampling method; signal-contingent, event-contingent or interval-contingent (Bolger, Davis, & Rafaeli, 2003).

Csikszentmihalyi's experience sampling method (ESM; Csikszentmihalyi and Csikszentmihalyi, 1992) was the first example of signal-contingent diary studies in which respondents complete a diary entry every time a pager signals them to do so, at random intervals during pre-defined time slots. Entries are made in event-contingent diaries when certain pre-defined events occur (e.g. social interaction) and interval-contingent diaries are completed at pre-defined time intervals (e.g. at the end of every day) (Reis & Gable, 2000). Interval contingent recording will be utilised for this research whereby respondents will be asked to record, at the end of each working day, an episode of highly motivated behaviour from that day. By focusing on critical incidents in this way the quality of examples is likely to be higher than if utilising signal contingent recording which relies on the quality of the sampled experienced. Although this method introduces an element of recall bias, in that respondents must think back to earlier in the day, this is significantly less than when capturing general attitudes through surveys or interviews (Bolger, Davis, & Rafaeli, 2003). In the pilot study (chapter 5), critical incidents were found to tap specific episodes of motivation from the working day and this influenced the design of this study.

7.2.1. Rationale for method

There are a number of reasons why diary methods have been employed for this study in line with the benefits of this method outlined by Reis and Gable (2000). Firstly, diary studies are ideal for understanding the conditions under which specific processes operate, which applies to this study in which I am specifically interested in the context of different forms of motivation as it occurs in the working day. Secondly, diary studies are advantageous to identifying within-person processes over and above between-person processes. This therefore addresses the aim of this research in isolating within-person variation in situational motivation over and above between-person variation in general work motivation. Thirdly, diary methods are beneficial to extending phenomena examined in the lab into the field. As discussed in chapters 2 and 3, extensive research has examined the relationship between reward and motivation in the lab but we are currently unable to say whether these findings can be translated into the work environment where reward is such a critical element.

Research by Beal, Weiss and colleagues (e.g. Beal et al., 2005; Dalal, Lam, Weiss, Welch, & Hulin, 2009) has shown that there is a difference between general attitudes and behaviour, which is temporally dynamic. Motivation as theorised by SDT is said to manifest in reasons for behaviour (Ryan & Connell, 1989) and, as such, could be said to be more appropriately understood at the temporal level than at a more general attitudinal level (as is the case with surveys). In that sense, the use of diary methods brings this research closer to the early experimental research which established SDT as a theory of motivation (Deci & Ryan, 1985a; Deci, 1971) than many studies which utilise surveys to access attitudinal motivation.

An additional benefit of diary studies is that they can be concerned with relatively minor events, which individuals would not normally remember for long after the event (Reis & Gable, 2000). Diary studies are specifically designed to understand experience as close to the event as possible (Bolger et al., 2003) and are therefore well placed to examine workplace reward and motivation as it is focused on specific tasks in the working day. This study is concerned with activities in which the individual put particular effort and therefore might be relatively major on that day but in the grander scheme of work could be quite minor. A traditional survey would not identify the motivational experience in relation to these more routine events.

7.2.2. Challenges of diary studies

Diary studies bring particular challenges in that participants are required to dedicate much more time and commitment than single time surveys. Bolger et al (2003) discuss the fact that little is known of the impact of diary completion on the content of responses. It seems likely that responses will be affected by concerns such as habituation, fatigue and an increased awareness of the constructs being measured through repeated completion of measures. This can be partly alleviated by randomising items where possible (e.g. if one question has six related items, the items should be randomised) and, at analysis stage, by including day of completion as a control variable to identify any response patterns across time. Fatigue can be reduced by limiting the number of constructs within a diary and shortening scales relative to traditional surveys. Amabile and Kramer (2011) discuss the challenge in keeping diary participants interested, thereby reducing attrition and emphasise the importance of keeping in touch

with participants throughout the diary completion period to keep completion rates up. This, therefore, influenced the frequency with which I contacted participants throughout the period.

7.3. Conceptual framework

7.3.1. Introduction to theoretical framework

This study links to four of the research questions guiding this thesis, as set out in chapter 4;

RQ1b: What is the relationship between reward salience and the motivation types, in relation to informal everyday rewards.

RQ2b: To what extent does the task context (task autonomy, task heuristic and feedback from the task itself) moderate the relationship between informal everyday rewards and task-focused motivation?

RQ4b: How do the different types of motivation relate to behavioural (productivity) and psychological (subjective wellbeing and engagement) outcomes at specific task-level?

RQ5: Does the conceptualisation of relative autonomy mask the distinctiveness of the individual motivation types as proposed by SDT?

This study builds on one conclusion from the longitudinal survey; that the salience of reward might explain the extent to which it is experienced as more controlling. Where

the survey was interested in formal, financial reward, the diary examines informal, everyday rewards. As outlined in chapter 4, informal rewards are those not defined by organisational policy or procedures, which are therefore much more likely on a day-to-day basis. This is because reward salience is assumed to be more momentary than a general perception of reward. In addition, this study offers triangulation of some of the key questions examined in the survey. Firstly, it considers the impact of task context on the reward-motivation relationship; secondly, it examines the relationship between the motivation types and behavioural and psychological outcomes; thirdly, it explores the impact of the use of a relative autonomy index on our understanding of motivation as proposed by SDT. The following section sets out the hypotheses to be tested by this diary study and the theoretical background to these. The theoretical model is depicted in figure 7.1.

7.3.2. Hypotheses

In relation to first research question, which aims to understand the relationship between the salience of informal, everyday rewards and the different forms of motivation as proposed by SDT, there are two components of this to be considered; firstly, the nature of informal, everyday rewards and secondly, the role of reward salience. Considering first the nature of everyday rewards; as outlined in chapter four, rewards can be seen as formal, financial rewards but also as informal, psychological rewards such as praise or recognition (Byron & Khazanchi, 2012; De Gieter et al., 2006). Adopting the view that daily life is structured around episodes, which are self-imposed structures that individuals use to understand the constant stream of experience (Beal &

Weiss, 2012), I allowed respondents in this study to identify their own reward episodes. I expected that rewards in daily working life would be less likely to be governed by formal reward structures (e.g. bonuses) than by informal, psychological, day-to-day rewards (e.g. verbal recognition) and this was found to be the case, as outlined later in this chapter. The focus of this diary study is therefore on psychological rewards, which are defined as “supportive and positively evaluated outcomes of the professional interpersonal relationships an employee develops with his/her supervisor, colleagues and/or clients” (De Gieter, De Cooman, Peppermans, & Jegers, 2008, p. 99).

Turning now to reward salience; one of the central propositions in relation to the ‘undermining’ effect of reward on intrinsic or autonomous motivation is that reward is likely to be experienced as controlling or crowd out autonomous motivation only when it is particularly salient (Deci et al., 1999a; Lepper & Greene, 1979). Through a review of experimental research which has manipulated salience (e.g. Eisenberger & Selbst, 1994; Lepper et al., 1973; Ross, 1975), the following three characteristics of reward salience are proposed; 1) proximity, 2) expectation and 3) conspicuousness. The proximity of reward is often manipulated in experimental conditions by promising and/or delivering the reward contingency before, during or after the event at various time intervals (e.g. Eisenberger & Selbst, 1994). Expectation involves a straightforward manipulation of either informing, or not informing the participants that they will receive a reward. Lepper and Greene (1979), for example, showed children in the experimental group a promised ‘good player’ certificate before the task to emphasise the expectation of reward. Finally, conspicuousness has been controlled by, for example, placing reward in the form of coins (Eisenberger & Selbst, 1994) or a box containing an unnamed prize

(Ross, 1975) in front of children as they perform a task. Experimental research, which has commonly manipulated one of these characteristics, has found that more salient reward is, on the whole, detrimental to intrinsic motivation, or associated outcomes (e.g. Deci et al., 1999a; Eisenberger & Selbst, 1994; Lepper et al., 1973; Ross, 1975). Eisenberger and Selbst (1994, p. 1119) propose that this is because “salient rewards would create a strong generalized expectancy of future reward, [and therefore] draw attention away from the intrinsic task properties.”

In psychological research, the salience of stimuli has been found to influence perceptions of causality (Taylor & Fiske, 1978). This has been applied, in a small number of studies, to understand the impact of rewards on behaviour (Eisenberger & Selbst, 1994; Kruglanski et al., 1975; Ross, 1975). The findings suggest that reward salience impacts on the extent to which individuals attribute the causality for their actions to the reward. Taylor and Fiske (1978) propose that causality is attributed based on ‘top of the head’ assessments of salient aspects of one’s environment, which are therefore situation specific. Previous studies have recognised this by controlling the salience of stimuli in experimental conditions, and I am not aware of any studies that have attempted to examine salience in the field. It is not possible to say, therefore, whether this theory can be applied to rewards as they occur ‘naturally’ in the field, when there are many salient stimuli.

There has been very little research to test this proposition in relation to psychological rewards; a study by Pittman (1980) suggests that verbal rewards (which can be seen as a form of psychological reward) can be experienced as controlling when combined with high levels of surveillance. Although surveillance is not measured here, one of the

outcomes of surveillance is to make the contingency particularly salient. In addition, Deci, Koestner and Ryan (1999a) propose that, although verbal rewards have been shown not to be detrimental to intrinsic motivation, *expected* verbal rewards will be negatively related to intrinsic motivation. As expectation is one aspect of salience, it is on this basis that I hypothesise that reward salience will be related to more controlled motivation, regardless of the type of reward expected:

H1a: Reward salience is negatively related to more autonomous forms of motivation (intrinsic, integrated and identified motivation).

H1b: Reward salience is positively related to more controlled forms of motivation (introjected and external motivation).

The second guiding research question is concerned with the context in which reward is given. As explained in the previous chapter, the extent to which the reward context is needs supportive is theorised to impact the extent to which the controlling aspects of reward are salient. There are three aims in addressing this research question again in the diary study. Firstly, the data collected across two studies offers some triangulation of results to examine whether there is consistency in the relationship between the motivation types and, specifically, job/task autonomy and job/task heuristic (J. Greene et al., 1989). The second aim is to understand more about the role of context at task level, as opposed to general work attitudes as was the case in the longitudinal survey. Thirdly, to examine the hypothesised moderation with respect to reward salience.

There are two differences in how I approach this question from the longitudinal survey. Firstly, manager support for autonomy is not included on the basis that managers may

not be involved in many tasks within the working day, particularly for more senior jobs, so this represents a more general attitude than task-related attribute. Secondly, I am examining, for the first time, feedback from the task itself, which is “the degree to which the job provides direct and clear information about the effectiveness of task performance” (Morgeson & Humphrey, 2006, p. 1323). Feedback from the task itself provides individuals with clear information about their own performance on a task (Hackman & Oldham, 1975; Sansone, 1986) which therefore has the potential to satisfy the need for competence as well as enhance autonomy because individuals can self-assess their performance, and therefore result in more autonomous motivation. Task autonomy and task heuristic are included as the job level equivalents were in the survey. Through the combination of these two studies I hope to be able to offer some insight about the consistency of any moderation effects of these two variables. This also, then, brings together the previous experimental research (which is largely task focused) and field-based research (which is primarily focused on general attitudes). Based on the previous research cited above, and in chapter 6, I first make the following hypotheses regarding the direct relationship between a needs-supportive context and motivation:

H2: A needs-supportive task context, in the form of a) task autonomy, b) task heuristic and c) feedback from the task itself is positively related to more autonomous forms of task level motivation (intrinsic, integrated and identified)

H3: A needs-supportive task context, in the form of a) task autonomy, b) task heuristic and c) feedback from the task itself is negatively with more controlled forms of motivation (introjected and external).

Secondly, and again on the same basis as outlined in the previous chapter, I make hypotheses about the moderating role of context on the relationship between reward salience and motivation. I hypothesise that:

H4: The relationship between reward salience and the motivation types is moderated by a needs-supportive context characterised by a) task autonomy and b) feedback from the task itself; the more needs-supportive the context, the weaker the relationship between reward salience and motivation.

Again, in line with the hypothesis stated in the survey, I make a slightly different hypothesis in relation to the extent to which the task requires heuristic thought:

H5: The relationship between reward salience and the motivation types is moderated by the extent to which the task requires more heuristic thought; reward salience will be a) negatively related to autonomous motivation and b) positively related to controlled motivation for tasks requiring more heuristic thought.

Turning then to the third research question, which examines the relationship between each motivation type as proposed by SDT and behavioural and affective outcomes; subjective wellbeing, engagement and productivity. The following hypotheses are based on the theory, outlined in the previous chapter, that more autonomous forms of motivation are more conducive to optimal functioning and therefore more positive outcomes (e.g. Mouratidis et al., 2008; Nix et al., 1999; Sheldon et al., 2004). Once again, this question offers some triangulation with the longitudinal survey in relation to engagement and subjective wellbeing. In this study, because I am examining specific tasks, productivity is used as a proxy for performance based on the assumption that respondents will find it easier to assess their task productivity. I am not aware of any research which has examined the link between motivation and outcomes at the day or task level but Beal and Weiss (2012, pp. 14–15) “...view the interface of the work motivation literature and episodic performance to be one of the more fruitful areas of possible integration”. Based on the theory and previous research, I hypothesise that:

H6: More autonomous forms of task-level motivation (intrinsic, integrated and identified) are positively related to positive behavioural (productivity) and psychological (subjective wellbeing and engagement) outcomes.

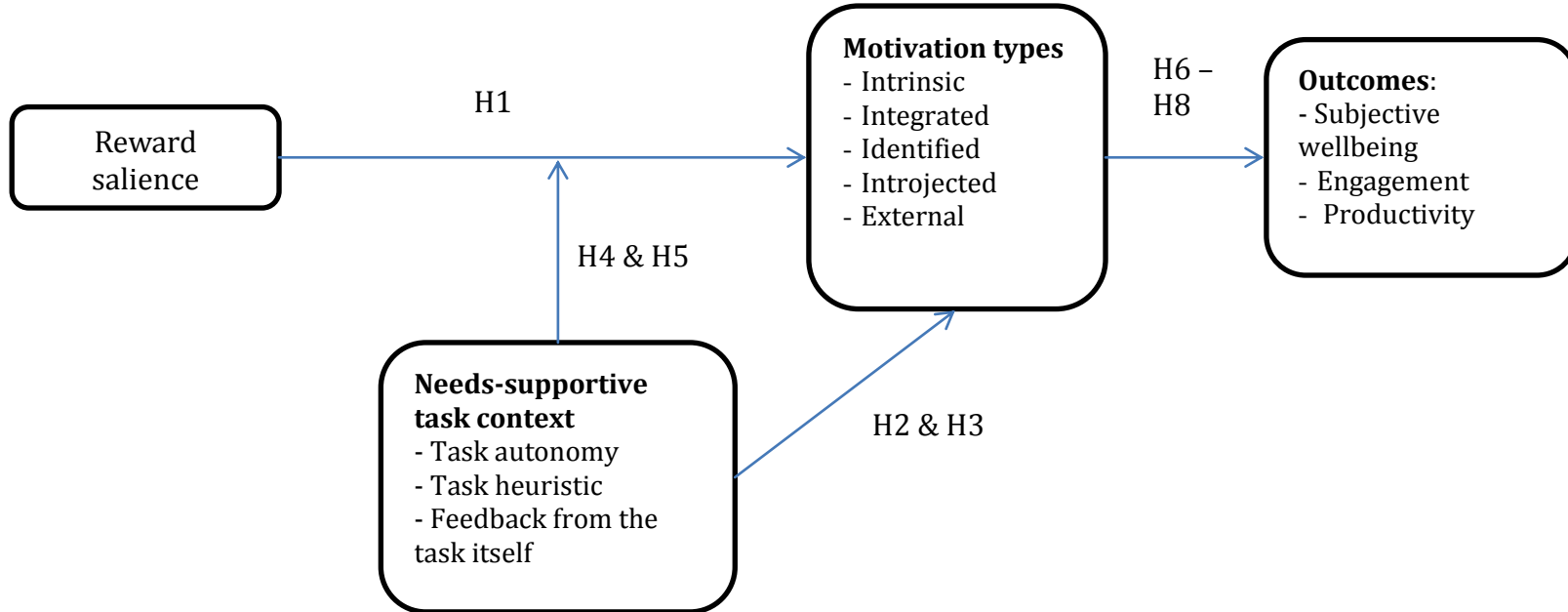
H7: Introjected motivation has a weak, negative relationship with a) subjective wellbeing, b) engagement and c) productivity.

H8: External motivation is negatively related to a) subjective wellbeing, b) engagement and c) productivity.

As outlined in the previous chapter, the RAI is one of the most common methods for measuring the SDT motivation scales. Research question 5 aims to triangulate the findings from the survey study to build up a picture of whether the RAI obscures potentially important results related to the specific motivation types. Once again, I do not make any specific hypotheses but this is treated as explorative.

The above hypotheses can be summarised in the theoretical model in figure 7.1.

Figure 7.1: Theoretical model



7.4. Method

7.4.1. Sample

Following the survey administered to all staff six months earlier (chapter 6), 145 participants volunteered to take part in the diary. Due to the time lapse between the previous survey and the diary, some had left the organisation or withdrew before the diary started (due mainly to changing work demands) so the final sample consisted of 101. Of these, 26 respondents completed less than 3 entries so were removed because multi-level modelling requires at least 3 cases per group (person). This resulted in 75 respondents (462 diary entries).

The retained respondents are representative of the whole sample so no bias is indicated as a result of the removal of these responses. The average number of diary entries for the retained group was 6.89, out of a possible 10. Respondents gave the following reasons for missing daily diaries; because they were not working that day (e.g. they work part-time, had holiday booked or were off sick) or because they forgotten or ran out of time that day. The relatively high drop-out rate and high level of missing diary entries seems anecdotally to be explained by the fact that it was administered in the two weeks before Christmas, so more people were taking holiday than normal.

Of the 75 valid respondents, 33.1% were female. Ages ranged from 23 to 63 (mean = 43.74, $SD = 10.09$). The organisation has five job levels across which respondents were spread, from most junior to most senior; 7.8% were grade 1 (Administrative or Technical), 28.8% grade 2, 36.3% grade 3, 15% grade 4 and 12% grade 5 (Senior

Manager). Average tenure was 9.87 years (SD = 8.62). This is representative of the structure of the organisation with the exception of gender, which is more evenly spread across males and females than this diary study would suggest.

7.4.2. Procedure

Data were collected in two stages; firstly, a pre-survey was administered to all participants who had volunteered following the survey six months beforehand. This collected demographic data and included a measure of general work motivation, as outlined below. They were given three working days to complete the pre-survey. The survey was administered electronically by email using the surveymonkey online tool. Detailed instructions as well as a confidentiality statement were issued along with the survey.

Secondly, the two-week diary study was administered to all of the original volunteers (including those who had not completed the pre-survey to maximise the sample of diary responses). Participants were sent an email with detailed instructions for the diary completion. The instructions included a broad context for the research, details of the rating scales for the quantitative questions and examples for the qualitative questions (see appendix III). On each subsequent day the instructions and confidentiality statement were made available to participants on the daily email via a link to a restricted website (access was only through the weblink provided). Data were again collected using the surveymonkey online survey tool. Daily diaries were administered to participants via an email link at around 3pm each day. They were instructed to

complete the diary at a convenient time towards the end of their working day (for most participants this was between 5 and 6pm).

Reminder emails were sent to participants at the end of the first week and then half way through the second week. At the end of the two week period, a 'thank you' email was sent to all participants. Amabile and Kramer (Amabile & Kramer, 2011a, 2011b) reported that individuals were motivated to continue responding to diaries because of the "expected insight into the self" (2011b, p. 119) so the final email asked participants if they would like to receive a summary report of their diary entries and the findings of the diary study. 26 respondents requested, and were provided with, a summary report.

7.4.3. Measures

Pre-diary survey measures

The survey measured demographic variables (age, gender, grade, tenure) as well as general work-level motivation, using the same scale as the survey study (MWMS; Gagné et al., 2012). The Cronbach's alphas for the motivation subscales were; external (8 items) = .85, introjection (4 items) = .75, identification (3 items) = .78, integration (3 items) = .83, intrinsic (7 items) = .90. Details of the items included in the MWMS can be found in appendix II.

Daily diary measures

Established scales were used where they existed or adapted for use in reference to specific tasks (rather than general work attitudes) based on previous diary research wherever possible. The diary included qualitative items exploring the nature of the task,

motivation and reward. Quantitative measures examined the type of motivation (as proposed by SDT), salience of reward, subjective wellbeing, engagement and productivity. Quantitative scales were also included to tap task context variables; task heuristic, task autonomy and task feedback. Reliability of the two-item scales in the diary was tested using the Spearman-Brown split-half prediction test as this has been shown to be more appropriate to two-item measures than the more commonly used Cronbach's Alpha (Eisinga, Te Grotenhuis, & Pelzer, 2012). As many of the scales in the diary are only two items some of the reliability scores are lower than one would normally expect with longer scales (Eisinga et al., 2012). Details of all diary scales and items are included in appendix III.

Day of completion variables

Day of the week that the diary completed (Monday, Tuesday etc.) and the diary day (i.e. 1st, 2nd, 3rd...up to 10th possible diary entry) were also included as control variables. This controls for diary fatigue (Bolger et al., 2003) and the impact of day of the week, which has been shown to have an impact on affective experience (Ryan, Bernstein, & Brown, 2010).

Critical incident

Participants were first asked an open ended question in order to get them to focus on a specific incident of motivated behaviour from that day; "describe an activity or task that you have spent a significant amount of time or effort on at work today". In the instructions they were given further guidance about the kind of tasks that they might consider and told that; "The example that you choose is up to you and the kind of work

you do. The experience can be positive or negative but you should choose something that took up a significant portion of time or effort today". They were further directed to think about "what you did, who you were with, how you felt about it, what the outcome was and any other useful information" with some examples, such as:

"I prepared for a project meeting that we have tomorrow. This included reading the papers that had been distributed and preparing some questions. I also wrote a summary of progress for my part of the project which I discussed with Jane and emailed to Bob for information. I'm glad I did it because it has been on my to do list all week."

Weiss and Rupp (2011) discuss the lack of organisational research into how individuals segment their working days. Beal et al (2005) examine "performance episodes" and describe them as "naturally segmented, relatively short episodes thematically organized around work-relevant immediate goals or desired end states" (p. 1055). By asking individuals to self-select episodes of behaviour I gave them the opportunity to identify the boundaries in how they view their working day, rather than these being imposed upon them. In addition, focusing on critical incidents of motivated behaviour captures significant motivated episodes within the working day, enables the respondent to "hook" their experiences to tangible examples in a context developed by themselves and bring the feelings and context of the task to the front of their mind before proceeding with the more detailed questions (Chell, 2004).

Task-focused motivation

The limited diary studies that have been done with SDT as the theoretical basis use adapted items from the family of scales developed after Ryan and Connell's (1989), which focus on reasons for behaviour. For example, Gagné et al (2003) used a 6-item scale adapted for the sport domain and Levesque and Brown (2007) a 5-item non-domain specific scale. In both of the above examples, the scales used asked participants to record their reasons for performing the activity. For the purposes of this research, I am interested in why people *put effort* into an activity, not just why they perform the task, in order to capture highly motivated behaviour. The items in this diary study are adapted from those used in the survey (taken from the MWMS; Gagné et al., 2012), for example "To get recognised or rewarded by others for the effort that I put in" (external), "Because I would have felt bad about myself if I didn't" (introjected), "Because I considered it personally important" (identified), "Because this task was a chance for me to express my personal values" (integrated) and "Because the task itself was interesting" (intrinsic). The integration items were adapted from those items developed for the longitudinal survey (chapter 6). There were 10 items in total, two for each of the motivation types. All items were scored on a 7-point Likert scale in response to the question "to what extent do the following statements reflect reasons that you put particular time or effort into the task or activity?" from 1 (not at all) to 7 (a great deal). Spearman-Brown reliability coefficients for the subscales are; .66 (external), .63 (introjected), .78 (identified), .74 (integrated) and .87 (intrinsic). Due to the low alphas of the external and introjected subscales, the models in this study were also tested with single items for both of these scales. These models showed consistent results so both

items were retained for these subscales. The Relative Autonomy Index (RAI) examined in research question 5 was calculated using the same formula as the survey study; $2 \times \text{intrinsic} + 1 \times \text{integrated} + 1 \times \text{identified} - 1 \times \text{introjected} - 2 \times \text{external}$ (Lonsdale et al., 2009).

Feedback, recognition or reward description

As with the incident of motivated behaviour, respondents were asked to describe in their own words any feedback, recognition or reward that they received or expected to receive in relation to the task. They were given the following instructions: “This could be, for example, positive verbal feedback, visual feedback or recognition in the form of body language, or a material reward such as a gift or management reward⁷” as well as some examples:

My manager spoke to me afterwards and told me that the email that I had sent was really clear and well laid out. It was nice to get some positive feedback

My manager hinted that if I can deliver this project on time, I might be given a management reward for it. I really need the money so I want my manager to know that I put in extra effort.

Respondents were also asked to code their description of reward according to its content with several dichotomous (yes/no) items. These focused on the content of the reward (positive, negative or neutral) and the type of reward (financial, verbal, written and non-verbal). These items were used to categorise the reward. The qualitative data

⁷ A “management reward” is a one-off cash payment made in recognition of exceptional performance on a specific piece of work. This can be given at any time and is nominated by the employee’s manager or project manager.

were examined but revealed very little about the nature of reward above what could be gleaned from the quantitative items so was not analysed any further.

Reward salience

Based on a review of the literature, reward salience is defined according to three characteristics; 1) expectation, 2) conspicuousness, and 3) proximity. I am not aware of any research which examines self-report reward salience; the vast majority manipulates salience through experimental methods (e.g. Ross, 1975). Based on previous experimental research, which has manipulated the expectation of reward (e.g. Lepper & Greene, 1979) this research tried to capture expectation through two statements, which participants rated from 1 (not at all) to 5 (a great deal), in response to the question: "Please rate the following statements according to how you felt *while you were performing the task*". The statements are: "I was expecting the performance of the task to lead to the feedback, recognition or reward" and "I expected to receive feedback, recognition or reward in relation to the task". Conspicuousness has been manipulated in experimental research by making the reward more or less physically visible (e.g. Eisenberger & Selbst, 1994; Ross, 1975) and, based on this, was tapped in this research through two statements, rated in response to the above question: "I was conscious of the feedback, recognition or reward" and "I was thinking about the feedback, recognition or reward".

In relation to proximity, the vast majority of experimental studies present a reward during or immediately after the task or activity. I am not aware of any research which has manipulated proximity of reward as a variable in its own right. For example,

Eisenberger and Selbst (1994) say that salience is a product of the size, quality and proximity of reward but they only manipulate the size of reward. In order to examine the proximity of the reward to the event respondents were asked “When did you receive/expect to receive the feedback, recognition or reward?” with possible responses: During the task; Today, after the task; I expect to receive it in the next week; I expect to receive it in more than a week’s time. A proximity score was created by weighting the response according to how soon the reward was expected during or after the reward on the following scale; During the task = 4, Later that day = 3, Later that week = 2 and, In more than 1 week = 1. A composite salience score was created for the three dimensions. Aggregates were first calculated for the expectation ($\alpha = .86$) and conspicuousness ($\alpha = .89$) scales then all three measures were standardised before calculating a mean salience composite score. The alpha coefficient for the composite scale was .76.

Task autonomy

Task autonomy is a commonly measured task characteristic and has been included in diary studies (e.g. Amabile & Kramer, 2011b). This research includes two items, adapted from the survey scale which came from the well established Work Design Questionnaire (WDQ; Morgeson & Humphrey, 2006); “I had freedom in how I did the task” and “I had significant autonomy in relation to the task”. Spearman-Brown coefficient for these items is .88.

Extent to which task required heuristic thought

I am not aware of any research which measured the level of heuristic thought required to complete a task through self-report. The closest proxies are task difficulty or complexity (e.g. Clarke & Haworth, 1994; Fisher & Noble, 2004) A single item was used to measure heuristic, adapted from the earlier longitudinal survey; “The task involved solving problems that had no obvious correct answer” scored on a 7-point Likert scale according to agreement from 1 (strongly disagree) to 7 (strongly agree).

Feedback from the task itself

To measure the extent to which the task itself provided feedback on performance a single item was adapted from the WDQ (Morgeson & Humphrey, 2006): “The task itself provided me with direct and clear information about the effectiveness (e.g., quality and quantity) of my performance”.

Subjective wellbeing

As with the longitudinal survey, Warr’s (1990) scale of positive and negative affect was used to measure subjective wellbeing. The question was adapted to tap momentary emotions in line with other affect research (Watson, Clark, & Tellegen, 1988).

Respondents were asked “in relation to the task or activity, to what extent did you feel each of the following” in relation to 12 items. This included 6 for positive affect (e.g. Optimistic, Cheerful) and 6 for negative affect (e.g. Gloomy, Worried) scored from 1 (not at all) to 5 (a great deal). As in the survey, an overall subjective wellbeing score was calculated by reverse coding all negative affect items and calculating a mean score for each diary entry. Coefficient alpha was .91.

Task engagement

The Utrecht Work Engagement Scale (UWES; Bakker & Bal, 2010) is the most commonly used measure of work engagement, and was used in the longitudinal survey. It has been adapted a number of times for use in diary studies (e.g. Bledow, Schmitt, Frese, & Kühnel, 2011; Xanthopoulou, Bakker, Demerouti, & Schaufeli, 2009; Xanthopoulou, Bakker, Heuven, Demerouti, & Schaufeli, 2008). The research above uses the UWES to examine *daily* engagement so the language needed adapting to refer to tasks and some of the items are not appropriate for task-level engagement (e.g. “when I got up in the morning I felt like going to work” is not task focused). Six items were included altogether, two for each of the subscales; dedication (e.g. “The task inspired me”), absorption (e.g. “I was completely absorbed in the task”) and vigour (e.g. “I felt bursting with energy”). Participants were asked “Please read each statement carefully and indicate the extent to which you felt that way in relation to this task or activity from 1 (not at all) to 7 (a great deal)”. Coefficient alpha for the combined engagement scale was .89.

Productivity

Productivity was measured using a single-item scale from Schwab, DeVitt, & Cummings (1971) which asks respondents to rate their productivity from 1 (very unproductive) to 7 (very productive) with descriptive anchors at each point.

7.4.4. Analytic Strategy

Multi-level modelling (MLM) is a form of multiple regression which allows the researcher to acknowledge that the data are structured such that individual responses can be 'nested' within higher level units and therefore not independent of one another (Singer & Willett, 2003). In this case, individual day responses are nested within the higher level unit of individuals. It enables the researcher to examine the relationships between variables both between individuals and also within individuals (i.e. how they change on a day-to-day basis) (Snijders & Bosker, 1999). MLM was performed using the SPSS MIXED v.21 (SPSS, 2005) computer programme.

As with standard regression, one needs to select the method of estimating the parameters in the model. For the purposes of this research, I used Maximum Likelihood (ML) estimation, rather than Residual Maximum Likelihood (REML). With a sample of this size, the different estimation methods are unlikely to make much of a difference to the estimated parameters (Snijders & Bosker, 1999). I tested this with a sample of models by estimating them using ML and then REML and found little difference. ML was chosen because it enables model fit to be compared by examining the change in $-2 \times \text{Log Likelihood}$ ($-2LL$), also known as the deviance, between models when new predictor variables are added. The amount of change in the $-2LL$ relative to the change in degrees of freedom between models is compared against a chi-square significance table to ascertain the significance of the change in fit (Tabachnick & Fidell, 2005). The variance explained at each level is examined by calculating the pseudo R^2 (Singer & Willett, 2003). This is calculated by dividing the difference between the variance component of the earlier model and that of the later model by the variance component of the earlier

growth model (e.g. $(.43-.35)/.35 = .23$ or 23% of variance explained). One limitation of this method is that it is possible for the *pseudo R²* to be negative. In this study, a negative *pseudo R²* is reported as no change.

I have hypothesised a number of moderation effects. As with standard regression analysis, moderation is examined by regressing the dependent variable onto the interaction between the independent and moderating variable, whilst controlling for the direct effects of the independent and moderating variables (Singer & Willett, 2003). Zhang and colleagues (Zhang, Zyphur, & Preacher, 2009) discuss the challenges of moderation analysis specific to multi-level analysis. In particular, they show through a simulation study that traditional methods can confound the effect of variables at within- and between-group, which might therefore hide the true nature of the interaction. They therefore propose the use of a method referred to as “centred within context with reintroduction of the subtracted means” (CWC(M); Kreft & de Leeuw, 1998). CWC(M) separates the within- and between-person effects of the predictor and moderator variables. By separating out these elements of the variables, it is possible to examine the unique variance explained at each level and therefore avoid the confounding effect. This is done by including two versions of each variable. Firstly, aggregated to the group (person) mean thereby including only cross-sectional between-person variance. Secondly, centred around the group-mean (by subtracting the group mean from the individual observation) in order to examine only within-person variance, removing stable between-person effects. Both between- and within-person variables were added to the multi-level models but only within-person variance is reported in the multi-level analysis. This is for brevity and reduced complexity and for two reasons; firstly, the

between-person variance represents only general between-person attitudes and assumes that constructs measured on a daily level can be aggregated to the attitudinal level, which I would argue is not always the case here. Secondly, the sample size for the between-person analysis is small ($N = 64$ or 75 depending on the question being tested) and therefore may reduce the reliability and generalisability of results.

Each of the variables was standardised at both levels by centring around the grand mean. This aids computation and reduces multi-collinearity (Tabachnick & Fidell, 2005). The results for the MLM are reported in regression tables; individual coefficients are reported for each model and change statistics ($\Delta -2LL$ and pseudo- R^2) are also reported between models.

7.5. Results

7.5.1. The presence of everyday rewards

Data were initially screened to identify whether a reward incident was reported at all. Some cases included a comment which made screening simple (e.g. "I don't expect to receive any reward/feedback", "n/a"), resulting in 132 cases of no reward. The quantitative data were also examined and a further 35 cases did not include any response to the reward characteristic questions nor any qualitative reward data so were also assumed to indicate no reward. This resulted in the removal of 167 cases. Of the remaining 295 cases, 8 were from respondents with only a single diary entry so were also removed. 287 cases (64 respondents) were therefore retained for further analysis with respect to the 'reward salience' hypotheses.

Before removing these cases, an exploratory multi-level model was run including a dummy variable (1 = reward, 0 = no reward) and this did not significantly predict variance in any of the motivation variables. This therefore suggests that simply the presence of reward in itself does not have motivational impact, and also supports the removal of these cases. The analyses reported below therefore include 287 cases (65 respondents), unless otherwise stated.

Dummy variables representing verbal, written, nonverbal and financial reward were created derived from the quantitative items. Of 287 reported reward incidents, only 6 were financial reward. The majority were verbal (N = 264), 109 written and 35 non-verbal recognition⁸. Although the qualitative data were not as rich as was hoped, and therefore not fully analysed, examples of qualitative diary entries provide insight into the kind of rewards⁹:

Financial: *I hope the project is successful and implemented on time, as that will result in my getting a bigger bonus this year. I also expect this to be reflected strongly in my appraisal.*

Verbal: *I believe I will receive a verbal recognition for completing the task in such a short time frame. I absorbed myself in the task and was well prepared and I believe this was noticed and will be recognised.*

⁸ The total number of reward episodes (264+109+35) is greater than the sample size of 287 because there is some overlap, e.g. some episodes spoken verbally combined with email confirmation (written).

⁹ There were no adequate examples of 'non-verbal' reward, all of which were coded alongside verbal or written rewards (e.g. the reward was seen as both verbal and non-verbal) indicating that this behaviour is supported by clearer written or verbal feedback or recognition

Written: *I'd expect to receive an email from the project manager either saying my input was helpful (if it was), or asking me to explain what I meant a bit more (if it wasn't). I'd also expect the senior economist to respond either agreeing or disagreeing with my position.*

Dummy variables were also coded for positive (N = 166), negative (19) and neutral (41) reward. All dummy variables were included in the initial multi-levels models, but no significant relationships were found so these were omitted in the final analysis.

There are therefore two important points to note about this preliminary analysis; firstly, the presence of reward in itself does not appear to have any impact on motivation towards specific tasks in the working day. Secondly, it is interesting to note how few examples there were of financial rewards. This, therefore, supports my assumption that day-to-day rewards are of a more informal, psychological nature and not necessarily connected to formal reward structures. This might suggest that the formal approaches to rewards present in this case (merit pay increases and bonuses) are not salient on a day-to-day basis.

7.5.2. Correlational analysis

Table 7.1 presents the means, standard deviations, scale reliability statistics and zero-order correlations between the variables at within-person level. Following Spence et al (2011), within-person correlations use person-centred variables (thereby excluding between-person variance).

Beginning with the inter-correlations between the individual motivation types; the simplex-like pattern of the motivation continuum is largely supported in that adjacent motivation types on the continuum are more highly, positively correlated than distal types. The exception to this is introjected motivation which is positively correlated to a similar magnitude with all autonomous motivation types ($r_s = .46, .44$ and $.41$) but more weakly with external motivation ($r = .26$).

Reward salience has a significant positive relationship with introjected and external motivation, thereby supporting the theory that higher salience relates to more controlled motivation.

The three task context variables (task autonomy, task heuristic and feedback from the task itself) are positively related to all motivation types apart from external motivation. These would therefore support the hypothesis with the exception of introjection. The positive correlations with introjected motivation are surprising and suggests that introjection follows the same pattern as autonomous forms of motivation, rather than external motivation which it is often combined with to form a 'controlled motivation' variable. Also in support of the hypotheses, external motivation is negatively related to task autonomy but, counter to this, *positively* related to feedback from the task itself. This latter relationship is surprising and warrants further exploration in the MLM.

With regard to the relationship between the motivation types and outcome variables (subjective wellbeing, engagement and productivity): There is a positive relationship between all motivation types, apart from external, with all three outcomes. These correlations therefore broadly support the hypotheses that more autonomous

motivation is related to more positive outcomes. It is interesting that, again, introjected motivation follows a similar pattern to autonomous rather than external motivation. External motivation is negatively related to subjective wellbeing within-person but positively with engagement, which is surprising and therefore needs further investigation.

Finally, the correlations with the RAI would all support the theory but do mask some of the nuances highlighted above, which will be explored in more detail later.

In summary, the correlation analysis supports most of the hypothesised within-person relationships.

Table 7.1: Correlations between variables, descriptive statistics and reliability coefficients

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1 Day of response	-	-	-										
2 Day of week	-	-	.45***	-									
3 Intrinsic motivation	3.15	1.12	-.15*	-.14*	(.88)								
4 Integrated motivation	2.80	1.17	-.18**	-.07	.50***	(.77)							
5 Identified motivation	3.27	1.13	-.04	-.01	.52***	.56***	(.80)						
6 Introjected motivation	3.35	1.00	-.16**	-.05	.46***	.44***	.41***	(.63)					
7 External motivation	2.64	0.98	-.11	-.07	-.04	-.01	-.08	.24***	(.66)				
8 Relative Autonomy Index	3.74	3.93	-.01	-.03	.71***	.66***	.69***	.12*	-.59***	-			
9 Reward salience	0.04	0.73	.02	.05	.01	.06	.03	.20**	.32***	-.14*	(.76)		
10 Task autonomy	3.88	0.94	-.05	-.05	.36***	.30***	.26***	.15*	-.12*	.33***	.00	(.88)	
11 Task heuristic	2.80	0.98	-.06	-.05	.23***	.14*	.16**	.16**	.04	.16*	.05	.30***	(.47)
12 Feedback from the task	3.66	0.83	-.10	-.05	.31***	.25***	.24***	.33***	.12*	.14*	.23***	.29***	.25***
13 Subjective wellbeing	3.84	0.70	.06	-.02	.52***	.31***	.32***	.20**	-.22***	.51***	-.15*	.35***	.01
14 Engagement	3.13	0.82	-.03	-.11	.60***	.39***	.39***	.29***	.12*	.44***	.09	.29***	.31***
15 Productivity	5.72	1.18	.02	-.02	.16**	.17**	.21***	.17**	.00	.16**	.04	.15*	.12*
16 Gender	1.68	0.53	-	-	-.26***	-.05	-.08	-.07	.07	.25**	-.10	-.09	-.16**
17 Job level	2.96	1.06	-	-	.06	.11	.03	-.18**	-.11	.18**	.30***	.12*	.43***
18 Age (years)	43.74	10.09	-	-	.05	.21**	-.02	.01	-.24**	.21**	.17**	.24***	.23***
19 Tenure (years)	9.87	8.62	-	-	.20**	.27**	.18**	.09	.09	.20**	.01	-.20**	-.12

Table 7.1: Correlations between variables, descriptive statistics and reliability coefficients (cont.)

	Mean	SD	12	13	14	15	16	17	18	19
12 Feedback from the task	3.66	0.83	(.67)							
13 Subjective wellbeing	3.84	0.70	.19**	(.92)						
14 Engagement	3.13	0.82	.35***	.36***	(.89)					
15 Productivity	5.72	1.18	.26***	.26***	.40**	-				
16 Gender	1.68	0.53	.12	-.32***	-.27***	-.26***	-			
17 Job level	2.96	1.06	-.03	.18**	.24***	.05	-.01	-		
18 Age (years)	43.74	10.09	.05	.28***	.38***	.31***	-.24***	.28***	-	
19 Tenure (years)	9.87	8.62	-.01	.09	.17**	.11	-.19**	-.05	.43***	

Notes:

N = 287

*** p < .001 ** p < .01 * p < .05

Correlations were computed by running group centred single-predictor equations, with standardized variables (Spence et al, 2011). Spearman-Brown split-half predictive test for reliability is reported on the diagonal (with the exception of subjective wellbeing and engagement which are Cronbach's Alpha coefficients).

7.5.3. Preliminary analysis

The following section presents the multi-level analysis by research question and hypothesis. A summary of support for hypotheses is included at the end of this section.

Before the individual hypotheses were examined, the appropriateness of MLM was confirmed by examining the amount of variance accounted for by within-person effects.

This is done by calculating the intraclass correlation (ICC(1)) for each dependent variable. The ICC(1) is calculated as between group variance / (within group + between group variance) and therefore indicates the amount of variance accounted for at between-person level. The remaining proportion is therefore within-person variance.

This is based on the 'unconditional model', which is modelled as the random intercept of the dependent variable with no predictor variables. Table 7.2 summarises the model comparison statistics and for each motivation type in turn. The ICC(1) for each model confirms that a substantial amount of variance is accounted for by within-person differences (ranging from 45% to 68%) which support the use of multi-level modelling (Hox, 2010). Table 7.2 also reports the change in model fit ($\Delta -2LL$) between the 'null model' (which contains no predictors or random effects) and the unconditional model.

All models represented a significant change, indicating improved model fit and confirming the appropriateness of allowing random intercepts in the MLM.

Table 7.2: Model improvement and variance attributable to between-person differences (ICC(1))

	Null model -2LL	Unconditional -2LL	Δ -2LL ¹	ICC(1)
Intrinsic	827.71	780.01	47.7	0.32
Integrated	824.59	697.76	126.83	0.55
Identified	819.88	708.08	111.8	0.49
Introjected	797.29	740.15	57.14	0.38
External	785.45	742.45	43	0.36

Notes:

¹ Significance of change in -2LL < .001 based on 1 degree of freedom derived from chi-square significance table (Tabachnick & Fidell, 2005).

N = 287 (64).

Control variables

Multi-level models were estimated for each motivation type and were built iteratively. The first stage in each model included only the control variables. The control variables include demographics (gender, age, job level and tenure) in order to control for the impact of stable individual characteristics on reward perceptions and motivation. Two variables were also included indicating the day of diary completion. The first (“day of completion”) is coded from 1-10 for the 10 days of the diary completion period. The second (“day of the week”) is coded 1-5 for the five working days in the week (1 = Monday, 2 = Tuesday etc.) and each number can therefore occur twice for each respondent across the 2 week period. These are included to control for the impact of fatigue and priming (Bolger et al., 2003) and the known impact of day of the week on affective outcomes (Ryan et al., 2010). The control models also included general work-level motivation measured through the pre-survey as an additional control to try to

partial out the stable effects. Work-level motivation (as measured through the pre-survey) predicts a substantial amount of variance in the corresponding task-focused motivation types in the models reported below therefore supporting its inclusion.

7.5.4. Results by research question and hypothesis

RQ1b. What is the relationship between reward salience and the motivation types, in relation to informal everyday rewards.

H1a: Reward salience is negatively related to more autonomous forms of motivation (intrinsic, integrated and identified motivation).

H1b: Reward salience is positively with more controlled forms of motivation (introjected and external motivation).

The multi-level models were built in two stages; firstly, including only control variables, secondly the hypothesised direct effects. Only the final model is reported. Reward salience was entered into the model partitioned into within- and between- person variance for the reasons outlined above.

Reward salience was not significantly related to any of the autonomous motivation types. Hypothesis 1a was therefore not supported. In relation to hypothesis 1b, reward salience had a moderate positive relationship with introjection ($\gamma_{03} = .15, p < .01$) and with external motivation ($\gamma_{03} = .23, p < .001$) at the within-person level. Hypothesis 1b was therefore supported.

Table 7.3: Multi-level model results for reward salience predicting each motivation type (including control variables)

	Intrinsic	Integrated	Identified	Introjected	External
<i>Level 1: within-person (n = 287)</i>					
Intercept γ_{00}	2.95***	3.06***	3.05***	3.45***	2.93***
Day of week ¹ γ_{01}	0.44*	0.06	0.08	0.08	0.08
Day of completion ² γ_{02}	-0.04	-0.04	-0.01	-0.05	-0.04
Salience γ_{03}	-0.01	0.02	0.01	0.15**	0.23***
<i>Model summary³</i>					
-2LL	700.33	624.37	666.57	620.93	700.18
Δ -2LL (Δ df = 2)	0.02	1.46	1.58	10.13**	27.75***
Level 1 intercept	0.77	0.50	0.62	0.561	0.56
Pseudo R^2 for change	0.00	0.00	0.01	0.04	0.10
Level 2 intercept	0.24	0.41	0.35	0.186	0.22
Pseudo R^2 for change	0.00	0.02	0.07	0.02	0.02

Notes:

Entries are unstandardised coefficients.

Significance of change in -2LL based on change in degrees of freedom derived from chi-square significance table (Tabachnick & Fidell, 2005).

¹ Monday, Tuesday etc. ² Days 1 - 10 of diary period.

³ Model summary refers to final model: addition of perceived reward salience at both levels.

*** p<.001 **p<.01 *p<.05.

Table 7.4: Summary of support for hypotheses relating to research question 1b

Hypothesis	Support
<i>H1a: Reward salience is negatively related to more autonomous forms of motivation (intrinsic, integrated and identified motivation).</i>	Unsupported
<i>H1b: Reward salience is positively with more controlled forms of motivation (introjected and external motivation).</i>	Supported

RQ2b: To what extent does the task context (task autonomy, task heuristic, feedback from the task itself and manager support for autonomy) moderate the relationship between informal everyday rewards and task-focused motivation?

As outlined above, before the expected moderation is examined, the direct relationship between the task context variables and motivation types is considered.

H2: A needs-supportive task context, in the form of a) task autonomy, b) task heuristic and c) feedback from the task itself is positively related to more autonomous forms of task level motivation (intrinsic, integrated and identified)

Once again, the models were estimated in two stages; control variables then direct effects. Task autonomy, task heuristic and feedback from the task were entered at both levels of the model simultaneously on the basis that these are not independent of one another. The significant coefficients therefore represent the unique variance in the motivation types explained by each context variable. The coefficients are presented in table 7.5.

Task autonomy was positively related to intrinsic ($\gamma_{03} = .22, p < .001$), integrated ($\gamma_{03} = .12, p < .05$), and identified ($\gamma_{03} = .14, p < .01$) motivation, as hypothesised. Feedback from the task itself was also positively related to intrinsic ($\gamma_{04} = .15, p < .01$), integrated ($\gamma_{04} = .11, p < .05$) and identified motivation ($\gamma_{04} = .10, p < .05$). These relationships were stronger with intrinsic motivation than integrated and identified motivation, which were virtually the same. There was no significant relationship between the extent to which the task requires heuristic thought and any of the autonomous motivation types. These results, therefore, partly supported hypothesis 2, in that changes in task autonomy and feedback from the task positively predicted change in autonomous motivation.

H3: A needs-supportive task context, in the form of a) task autonomy, b) task heuristic and c) feedback from the task itself is negatively with more controlled forms of motivation (introjected and external).

With regard to the controlled forms of motivation, there was only one significant relationship. In line with the hypothesis, task autonomy negatively predicted external motivation ($\gamma_{03} = -.13, p < .05$). Hypothesis 3a was therefore supported, in that task autonomy negatively predicted external motivation. Hypothesis 3b and 3c were not supported.

In summary, these results support the suggestion that a more needs-supportive context, characterised by task autonomy and feedback from the task itself, is conducive to autonomous motivation (intrinsic, integrated and identified) and task autonomy

negatively predicts external motivation, which is controlled. The extent to which the task requires heuristic thought does not significantly predict any of the motivation.

Table 7.5: Multi-level model results for task context predicting each motivation type (including control variables)

	Intrinsic	Integrated	Identified	Introjected	External
<i>Level 1: within-person (n = 287)</i>					
Intercept γ_{00}	2.79***	2.85***	2.93***	3.36***	2.98***
Day of week ¹ γ_{01}	0.46*	0.08	0.10	0.09	0.01
Day of completion ² γ_{02}	-0.03	-0.04*	0.00	-0.04*	-0.04*
Task autonomy γ_{03}	0.22***	0.12*	0.14**	0.03	-0.13*
Task feedback γ_{04}	0.15**	0.11*	0.10*	0.22	0.09
Task heuristic γ_{05}	0.07	0.01	0.05	0.03	0.03
<i>Model summary³</i>					
-2LL	656.90	597.16	646.91	602.12	711.48
Δ -2LL (Δ df = 6)	43.45***	28.67***	21.24**	28.94***	16.45*
Level 1 intercept	0.64	0.45	0.57	0.51	0.61
Pseudo R^2 for change	0.18	0.09	0.09	0.13	0.03
Level 2 intercept	0.24	0.35	0.35	0.20	0.17
Pseudo R^2 for change	0.00	0.16	0.03	-0.03	0.22

Notes:

Entries are unstandardised coefficients.

Significance of change in -2LL based on change in degrees of freedom derived from chi-square significance table (Tabachnick & Fidell, 2005).

¹ Monday, Tuesday etc. ² Days 1 - 10 of diary period.

³ Model summary refers to final model: addition of context variables at both levels.

*** p<.001 **p<.01 *p<.05.

Table 7.6: Multi-level model results for interactions between task context and reward salience predicting each motivation type (controlling for direct effects)

	Intrinsic	Integrated	Identified	Introjected	External
<i>Level 1 : within-person (n = 287)</i>					
Intercept γ_{00}	2.81***	2.82***	2.94***	3.35***	2.93***
Day of week ¹ γ_{01}	0.43*	0.07	0.10	0.10	0.02
Day of completion ² γ_{02}	-0.02	-0.03*	0.00	-0.04*	-0.04*
Salience γ_{03}	-0.07	-0.01	-0.02	0.09	0.21***
Task autonomy γ_{04}	0.22***	0.12**	0.15**	0.04	-0.13*
Task feedback γ_{05}	0.18**	0.13**	0.11*	0.21***	0.06
Task heuristic γ_{06}	0.07	0.01	0.04	0.03	0.04
Salience * Task autonomy γ_{07}	-0.04	0.05	0.07	0.04	0.09
Salience * Task feedback γ_{08}	-0.12	-0.12	-0.02	-0.13	-0.17*
Salience * Task heuristic γ_{09}	-0.03	-0.03	-0.22*	-0.06	0.27**
<i>Model summary³</i>					
-2LL	640.75	585.95	628.74	592.32	668.74
Δ -2LL (Δ df = 6)	14.46*	10.08	15.95*	5.23	18.64*
Level 1 intercept	0.63	0.45	0.57	0.50	0.53
Pseudo R^2 for change ⁴	0.00	0.00	0.00	0.01	0.03
Level 2 intercept	0.15	0.27	0.22	0.17	0.13
Pseudo R^2 for change ⁴	0.39	0.21	0.34	0.08	0.25

Notes:

Entries are unstandardised coefficients. For brevity, only the interactions are reported at level 2. Significance of change in -2LL based on change in degrees of freedom derived from chi-square significance table (Tabachnick & Fidell, 2005).

¹ Monday, Tuesday etc. ² Days 1 - 10 of diary period.

³ Model summary refers to final model: addition of interaction effects at both levels

*** p<.001 **p<.01 *p<.05.

In order to examine the hypothesised moderation effects, all potential interaction terms (e.g. reward salience x task autonomy) were added to the models predicting each motivation type at both within- and between-person level. The model was estimated in three stages; control variables, direct effects of both reward salience and the context variables then the interactions between these. The final multi-level models are reported in table 7.6. Each moderator is discussed in turn, below.

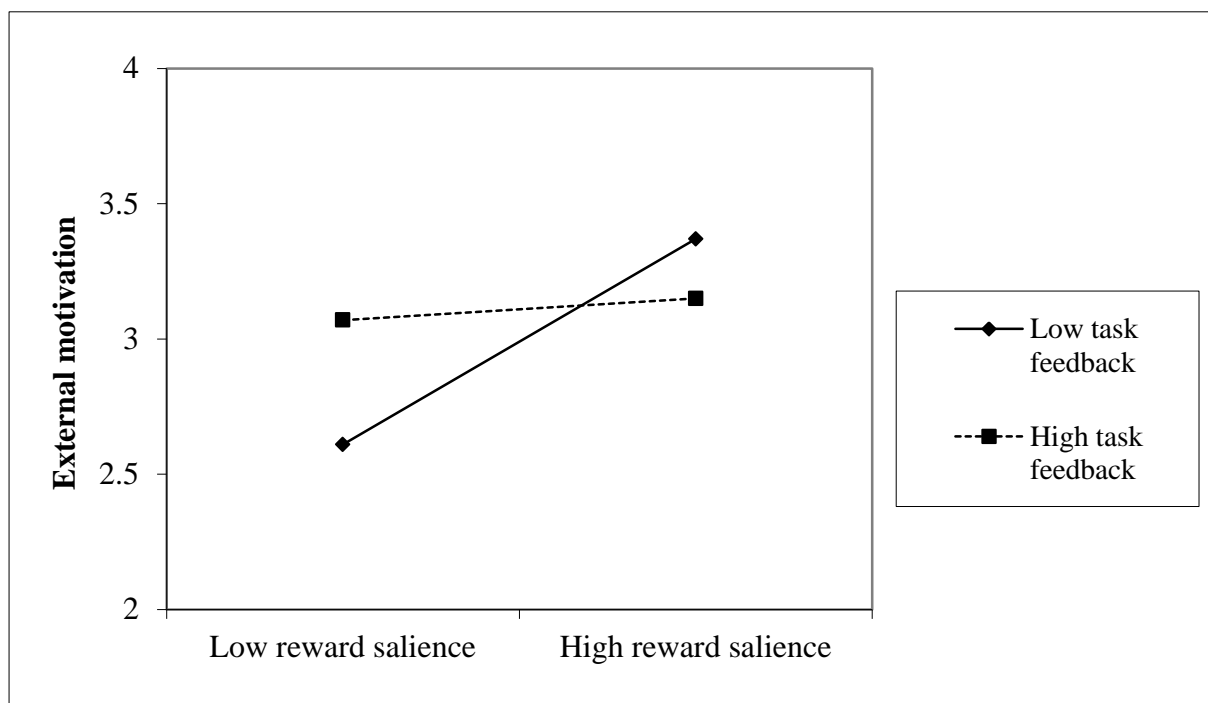
H4: The relationship between reward salience and the motivation types is moderated by a needs-supportive context characterised by a) task autonomy and b) feedback from the task itself; the more needs-supportive the context, the weaker the relationship between reward salience and motivation.

Firstly, task autonomy did not significantly moderate any of the relationships between dimensions of reward salience and any of the motivation types thereby failing to support hypothesis 4a.

With respect to feedback from the task itself (hypothesis 4b) there was only one significant interaction; the interaction between salience and feedback significantly related to external motivation ($\gamma_{08} = -.17, p < .05$). The slopes for this relationship are depicted in figure 7.2. Reward salience is related to increased external motivation only for tasks low in inherent feedback. Where feedback from the task is present, there is virtually no impact of salience on external motivation. This would therefore support the hypothesis that greater feedback from the task reduces the controlling nature of reward salience.

In summary, hypothesis 4a is not supported because task autonomy does not significantly moderate the relationship between reward salience and any of the motivation types. Hypothesis 4b is partly supported in that feedback from the task interacts with reward salience such that it weakens the positive relationship between reward salience and external motivation. The moderation was not supported in relation to any other motivation types.

Figure 7.2: The moderating role of feedback from the task itself, between reward salience and external motivation at within-person level



H5: The relationship between reward salience and the motivation types is moderated by the extent to which the task requires more heuristic thought; reward salience will be a) negatively related to autonomous motivation and b) positively related to controlled motivation for tasks requiring more heuristic thought.

Only one significant interaction was found between reward salience and task heuristic; on external motivation ($\gamma_{09} = .27, p < .01$). The slopes for this relationship are reported in figure 7.3. In line with hypothesis 5b reward salience predicts increased external motivation for tasks high in heuristic thought but has virtually no impact on external motivation for tasks low in heuristic thought.

There is no support for hypothesis 5a, with respect to autonomous motivation (table 7.6).

Figure 7.3: The moderating role of task heuristic, between reward salience and external motivation at within-person level

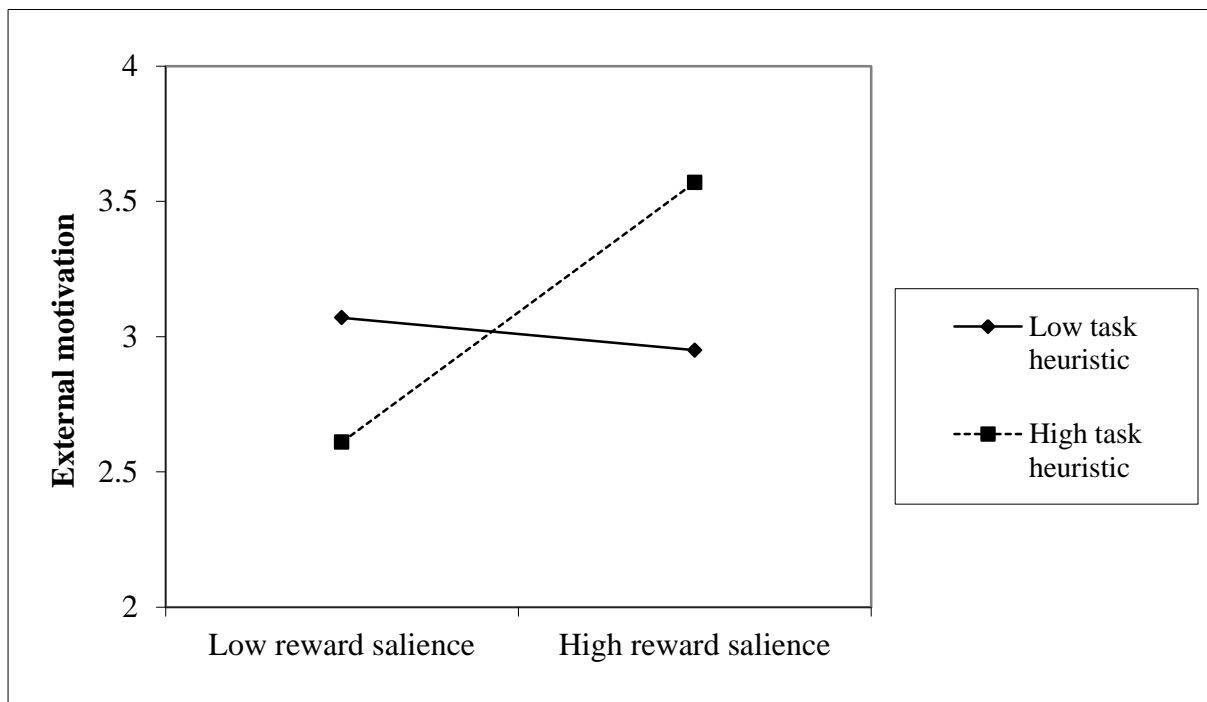


Table 7.7: Summary of support for hypotheses relating to research question 2b

Hypothesis	Support
<i>H2: A needs-supportive task context, in the form of a) task autonomy, b) task heuristic and c) feedback from the task itself is positively related to more autonomous forms of task level motivation (intrinsic, integrated and identified)</i>	Partially supported Support with respect to a) task autonomy and b) feedback from the task but not c) task heuristic.
<i>H3: A needs-supportive task context, in the form of a) task autonomy, b) task heuristic and c) feedback from the task itself is negatively with more controlled forms of motivation (introjected and external).</i>	Partially supported a) Task autonomy negatively predicted external motivation as predicted. b) No significant relationships c) No significant relationships
<i>H4: The relationship between reward salience and the motivation types is moderated by a needs-supportive context characterised by a) task autonomy and b) feedback from the task itself; the more needs-supportive the context, the weaker the relationship between reward salience and motivation.</i>	Partially supported a) No significant interactions b) Feedback from the task itself moderated between reward salience and external motivation as predicted. No other significant interactions.
<i>H5: The relationship between reward salience and the motivation types is moderated by the extent to which the task requires more heuristic thought; reward salience will be a) negatively related to autonomous motivation and b) positively related to controlled motivation for tasks requiring more heuristic thought.</i>	Partially supported a) No significant relationships b) Moderated salience -> external motivation relationship at within-person level as expected.

RQ4b: How do the different types of motivation relate to behavioural (productivity) and affective (subjective wellbeing and engagement) outcomes at specific task-level?

H6: More autonomous forms of task-level motivation (intrinsic, integrated and identified) are positively related to a) subjective wellbeing, b) engagement and c) productivity.

In order to examine the unique variance accounted for by each motivation type in relation to each outcome variable (subjective wellbeing, task engagement and productivity), multi-level models were estimated for each outcome regressed onto all of the motivation types simultaneously. This recognises that the motivation types are theorised to overlap on the continuum, and therefore not operate in isolation of one another (Gagné & Deci, 2005). The models were estimated in two stages; firstly, including the same control variables as in the reward model and secondly, adding the motivation types as predictors. The final models are presented in table 7.8. The following analyses include more cases than the other hypotheses because it was not necessary to exclude cases where no reward was present or expected. The motivation->outcome analyses presented below therefore include 462 diary entries across 75 respondents.

In support of hypothesis 6, intrinsic motivation is positively related to a) subjective wellbeing ($\gamma_{04} = .19, p < .001$), to b) engagement ($\gamma_{04} = .28, p < .001$) and c) productivity ($\gamma_{04} = .14, p < .05$). Integrated motivation predicted no unique variance of any of the outcome variables. This was further examined by iteratively building the models and this revealed that integrated motivation *does* significantly predict all three outcomes but

this is cancelled out whether either intrinsic or identified motivation are added to the model due to covariance between motivation types. Identified motivation a) has no significant relationship with subjective wellbeing; b) positively predicts engagement ($\gamma_{06} = .13, p < .001$); and c) positively predicts productivity ($\gamma_{06} = .21, p < .01$).

Interestingly, the identified->productivity relationship was stronger than the intrinsic->productivity relationship. These relationships therefore support hypothesis 6 with respect to intrinsic and identified motivation (apart from subjective wellbeing for the latter) but not integrated motivation.

H7: Introjected motivation has a weak, negative with a) subjective wellbeing, b) engagement and c) productivity.

Hypothesis 7 was not supported. Although integrated motivation correlated with subjective wellbeing there was no unique effect once the other types are included in the analysis.

H8: External motivation is negatively related to a) subjective wellbeing, b) engagement and c) productivity.

Finally, hypothesis 8 was supported only in relation to a) subjective wellbeing ($\gamma_{08} = -.09, p < .001$). However, contrary to the hypothesis, external motivation is positively related to engagement ($\gamma_{08} = .07, p < .01$). These results therefore only support hypothesis 8 in relation to subjective wellbeing and the finding with respect to engagement contradicts the hypothesis. The results relating to this question are summarised in table 7.9.

Table 7.8: Multi-level model predicting each outcome variable from motivation types

	Subjective wellbeing	Engagement	Productivity
<i>Level 1: within-person (N = 462)</i>			
Intercept γ_{01}	3.39***	2.63***	6.62***
Day of week γ_{02}	0.24	0.08	-1.18
Day of completion γ_{03}	0.02*	0.01	0.03
Intrinsic γ_{04}	0.19***	0.28***	0.14*
Integrated γ_{05}	0.00	0.02	-0.01
Identified γ_{06}	0.05	0.13***	0.21**
Introjected γ_{07}	0.01	0.00	0.06
External γ_{08}	-0.09***	0.07**	0.05
<i>Model summary³</i>			
-2LL	604.25	739.29	1355.11
Δ -2LL (Δ df = 10)	143.75***	250.78***	52.15***
Level 1 intercept	0.17	0.23	1.16
Pseudo R^2 for change	0.27	0.43	0.11
Level 2 intercept	0.13	0.16	0.17
Pseudo R^2 for change	0.22	0.41	0.20

Notes:

N is higher than other analyses because diary entries with no reward were also included
 Entries are unstandardised coefficients.

Significance of change in -2LL based on change in degrees of freedom derived from chi-square significance table (Tabachnick & Fidell, 2005).

¹ Monday, Tuesday etc. ² Days 1 - 10 of diary period.

³ Model summary refers to final model: addition of motivation variables at both levels

*** p<.001 **p<.01 *p<.05.

Table 7.9: Summary of support for hypotheses relating to research question 4b

Hypothesis	Support
<p><i>H6: More autonomous forms of task-level motivation (intrinsic, integrated and identified) are positively related to a) subjective wellbeing, b) engagement and c) productivity.</i></p>	<p>Partially supported.</p> <ul style="list-style-type: none"> - Intrinsic motivation positively predicts all outcomes. - Integrated motivation doesn't predict any unique variance in outcomes. - Identified predicts all but wellbeing.
<p><i>H7: Introjected motivation has a weak, negative with a) subjective wellbeing, b) engagement and c) productivity.</i></p>	<p>Unsupported.</p> <ul style="list-style-type: none"> - No significant relationships within-person.
<p><i>H8: External motivation is negatively related to a) subjective wellbeing, b) engagement and c) productivity.</i></p>	<p>Partially supported.</p> <ul style="list-style-type: none"> - Negatively predicts wellbeing as expected - <i>Positively</i> predicts engagement.

RQ5: Does the conceptualisation of relative autonomy mask the distinctiveness of the individual motivation types as proposed by SDT?

Following the same procedure as the survey study, the above analysis was repeated by replacing the individual motivation types with the relative autonomy index (RAI). The results are presented and compared to the hypotheses and I then discuss the implications of this with respect to research question 5. Table 7.10 presents the model with RAI as an outcome of reward salience. The task context predictors are presented in table 7.11 and the interaction between salience and context in table 7.12. Finally, table

7.13 presents the relationship between RAI and engagement, wellbeing and productivity outcomes.

The first model (table 7.10) supports the hypothesis (H1a and 1b) that reward salience has a negative relationship with change in RAI ($\gamma_{02} = -.63, p < .01$). In partial support of hypothesis 2, change in RAI is positively predicted by task autonomy (table 7.11; $\gamma_{02} = .83, p < .001$) although none of the other contextual variables. Turning to the predicted moderation effects predicted by hypothesis 4 (task autonomy and feedback from the task itself); none of these interactions are significant (table 7.12). In relation to hypothesis 5, about the interaction between reward salience and task heuristic, no significant relationship was found at within-person level.

Turning now to RAI as a predictor of outcomes (table 7.13); RAI positively predicted subjective wellbeing ($\gamma_{04} = .22, p < .001$), engagement ($\gamma_{04} = .26, p < .001$) and productivity ($\gamma_{04} = .21, p < .001$). These relationships all support the hypotheses (H6, 7 and 8).

These relationships broadly show the same pattern as the individual motivation types, as one would expect, but mask several findings. Firstly, the RAI analysis would lead one to conclude that more salient psychological rewards do undermine relatively more autonomous motivation. However, when examining the individual motivation types reward salience is only significantly related to introjected and external motivation so this is rather indicating that reward salience is controlling but not 'undermining'. Secondly, it obscures the positive relationship between feedback from the task and intrinsic, integrated, identified and introjected motivation as this was not revealed in

the RAI analysis. Finally, with respect to RAI and outcomes, the most important point to note here is that this analysis would suggest that 'relatively more autonomous' motivation is related to increased task engagement. While intrinsic motivation was found to be the strongest predictor of task engagement external motivation is also *positively* related to engagement, which the RAI masks. This, therefore, does suggest that, although the use of the RAI has some benefits, it masks some of the distinct relationships. The implications of this are considered further in the discussion section of this chapter and in chapter 8.

Table 7.10: Multi-level model results for reward salience predicting Relative Autonomy Index (including control variables)

RAI	
<i>Level 1: within-person (n = 287)</i>	
Intercept γ_{00}	2.62**
Day of week ¹ γ_{01}	0.87
Day of completion ² γ_{02}	0.01
Saliency (composite) γ_{03}	-0.63**
<i>Model summary³</i>	
-2LL	1344.85
Δ -2LL (Δ df = 2)	9.30**
Level 1 intercept	9.65
Pseudo R^2 for change	0.04
Level 2 intercept	3.63
Pseudo R^2 for change	-0.01

Notes:

Entries are unstandardised coefficients. Significance of change in -2LL based on change in degrees of freedom derived from chi-square significance table (Tabachnick & Fidell, 2005).

¹ Monday, Tuesday etc. ² Days 1 - 10 of diary period.

³ Model summary refers to final model: addition of perceived reward salience at both levels

*** p<.001 **p<.01 *p<.05.

Table 7.11: Multi-level model results for task context predicting the Relative Autonomy Index (including control variables)

	RAI
Level 1: within-person (n = 287)	
Intercept γ_{00}	2.22*
Day of week ¹ γ_{01}	0.92
Day of completion ² γ_{02}	0.02
Task autonomy γ_{03}	0.97***
Task feedback γ_{04}	0.08
Task heuristic γ_{05}	0.05
Model summary³	
-2LL	1326.12
Δ -2LL (Δ df = 6)	28.03***
Level 1 intercept	8.80
Pseudo R^2 for change	0.13
Level 2 intercept	3.77
Pseudo R^2 for change	-0.05

Notes:

Entries are unstandardised coefficients. Significance of change in -2LL based on change in degrees of freedom derived from chi-square significance table (Tabachnick & Fidell, 2005).

¹ Monday, Tuesday etc. ² Days 1 - 10 of diary period.

³ Model summary refers to final model: addition of context variables at both levels
*** p<.001 **p<.01 *p<.05.

Table 7.12: Multi-level model results for reward salience predicting Relative Autonomy Index (including control variables)

	RAI
<i>Level 1: within-person (n = 287)</i>	
Intercept γ_{00}	2.24*
Day of week ¹ γ_{01}	0.92
Day of completion ² γ_{02}	0.03
Salience (composite) γ_{03}	-0.72***
Task autonomy γ_{04}	0.98***
Task feedback γ_{05}	0.26
Task heuristic γ_{06}	0.04
Salience * Task autonomy γ_{07}	-0.05
Salience * Task feedback γ_{08}	0.02
Salience * Task heuristic γ_{09}	-0.67
<i>Model summary³</i>	
-2LL	1303.40
Δ -2LL (Δ df = 6)	8.65
Level 1 intercept	8.25
Pseudo R^2 for change	0.00
Level 2 intercept	2.93
Pseudo R^2 for change	0.24

Notes:

Entries are unstandardised coefficients. Significance of change in -2LL based on change in degrees of freedom derived from chi-square significance table (Tabachnick & Fidell, 2005).

¹ Monday, Tuesday etc. ² Days 1 - 10 of diary period.

³ Model summary refers to final model: addition of interaction effects at both levels
*** $p < .001$ ** $p < .01$ * $p < .05$.

Table 7.13: Multi-level model predicting each outcome variable from Relative Autonomy Index

	Subjective wellbeing	Engagement	Productivity
<i>Level 1 : within-person (N = 462)</i>			
Intercept γ_{01}	3.29***	2.72***	6.19***
Day of week γ_{02}	0.39	0.43	-0.66
Day of completion γ_{03}	0.01	-0.01	0.01
RAI γ_{04}	0.22***	0.26***	0.21***
<i>Model summary³</i>			
-2LL	634.86	898.18	1389.45
Δ -2LL (Δ df = 2)	113.14***	91.89***	17.81***
Level 1 intercept	0.18	0.32	1.24
Pseudo R^2 for change	0.22	0.20	0.05
Level 2 intercept	0.16	0.25	0.21
Pseudo R^2 for change	0.06	0.11	0.00

Notes:

Entries are unstandardised coefficients.

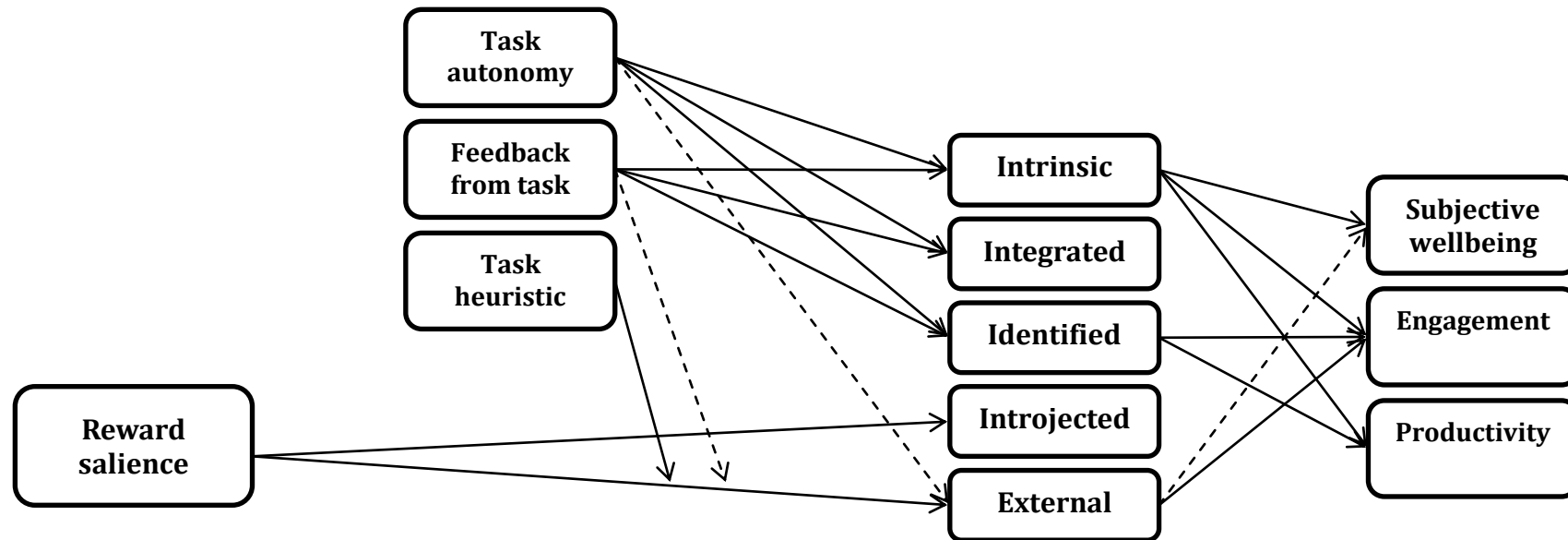
Significance of change in -2LL based on change in degrees of freedom derived from chi-square significance table (Tabachnick & Fidell, 2005).

¹ Monday, Tuesday etc. ² Days 1 - 10 of diary period.

³ Model summary refers to final model: addition of RAI at both levels

*** p<.001 **p<.01 *p<.05.

Figure 7.4: Summary of significant within-person relationships from diary study (excluding RAI)



Notes: Solid line = positive relationship; dashed line = negative relationship.

7.6. Discussion of results

Traditionally, research has treated motivation either as task-focused, in experimental studies, or a general attitude, in field-based studies and there is little which examines task-level motivation in the field, despite calls to do so (e.g. Beal & Weiss, 2012). In particular, I am not aware of any other research which explores the important relationship between reward and motivation at the situation or task level.

The central proposition of SDT with respect to reward is that individuals' locus of causality will be shifted from internal to external in the presence of a particularly salient (expected, conspicuous, proximal) reward contingency (Deci, 1971). There have been suggestions that this theory is supported not just in relation to formal, financial rewards but also informal, psychological rewards of the kind one would expect to observe in day-to-day work (Deci et al., 1999a). Despite experimental research which broadly supports this theory from social psychology (Kruglanski, 1979; Taylor & Fiske, 1978) I am not aware of any research which has attempted to explicitly test this in the field, where salience is arguably influenced by a diverse range of factors.

The purpose of this diary study was therefore threefold, linking to the research questions guiding this thesis; firstly, and primarily, to examine the relationship between the salience of everyday informal rewards and motivation as proposed by SDT, as it occurs on a day-to-day basis at work (RQ1b). Secondly, to consider the direct effect of task context on task motivation and also how this moderates the relationship between reward salience and motivation towards specific tasks (RQ2b). It then examined the relationship between task-focused motivation as proposed by SDT and subjective

wellbeing, engagement and productivity on a day-to-day basis (RQ4b). Finally, I reflect on the use of a relative autonomy index to measure motivation as proposed by SDT and whether this masks any differences in the motivation types (RQ5).

The results of the diary study are discussed below, under each research question. The significant relationships (apart from those relating to the RAI) are depicted in figure 7.4. Before that, I present a brief discussion about the nature of the reward uncovered in the study.

7.6.1. The presence and nature of reward in daily work

Of 462 diary entries completed by 75 respondents, 295 examples were given of reward received or expected in relation to specific tasks in the working day. The first important point to note is that the presence of reward in itself had no significant effect on motivation. That is, whether individuals indicated that they expected some form of reward or not did not predict any variation in any of the motivation types. Secondly, rewards in the diary were not formal, tangible workplace rewards, but were rather verbal and written feedback or recognition from others within the work environment. These points could be connected. It could be that informal, psychological rewards do not, in themselves, direct behaviour as is the intention with formal workplace rewards (Locke & Latham, 1990).

It is also interesting that, despite the fact that this work setting includes a number of different elements of financial reward (performance related pay increases, annual bonuses and ad hoc financial rewards) these do not seem to be particularly salient for

individuals on a day-to-day basis. It is important, therefore, to note that the rewards examined in this study are in the large part intangible, psychological rewards (e.g. expected recognition, saying “thank you”) and not formal, tangible rewards (e.g. pay increase or bonus payment) (De Gieter et al., 2006). This study, therefore, supports the theory that more salient reward will be related to more controlled motivation regardless of whether the reward is tangible or not (Deci et al., 1999a).

7.6.2. RQ1b. What is the relationship between reward salience and the motivation types, in relation to informal everyday rewards.

This study found that more salient psychological reward related to higher levels of external motivation. This, therefore, supports previous experimental research which has indicated that salient reward leads individuals to attribute their behaviour to the external contingency (Kruglanski et al., 1975; Ross, 1975; Taylor & Fiske, 1978).

However, reward salience had no negative relationship with autonomous forms of motivation. As with the longitudinal survey, it is therefore not possible to conclude that salience can explain any ‘undermining’ effect of reward on autonomous motivation (Lepper & Greene, 1979). This will be discussed further in the next chapter.

7.6.3. RQ2b: To what extent does the task context (task autonomy, task heuristic and feedback from the task itself) moderate the relationship between everyday rewards and task-focused motivation?

Before examining the moderation effects, I firstly explored the direct relationship between a needs-supportive task context (task autonomy, feedback from the task itself and the extent to which the task required heuristic thought) and motivation. As hypothesised, both task autonomy and feedback from the task itself positively predicted intrinsic, integrated and identified motivation. Task autonomy also negatively predicted external motivation.

In line with SDT I would propose that the theoretical explanation for this is that these elements of the task context satisfy their basic psychological needs for competence (assessing their own performance through feedback from the task itself) and autonomy (through having task autonomy) (Gagné & Forest, 2008; Gagné et al., 1997). The extent to which the task requires heuristic thought predicted no variance in any of the motivation types. This, perhaps, indicates that it should not be seen as a characteristic of needs- supportive environment.

Turning now to the moderating effect of these variables; very few significant relationships were found. Task autonomy did not significantly moderate the reward salience->motivation relationship. Feedback from the task itself moderated only the salience->external motivation relationship such that reward salience related to higher levels of external motivation only for tasks low in inherent feedback. Task heuristic also

moderated the salience->external motivation relationship, such that reward salience predicted increased external motivation for tasks high in heuristic thought but has virtually no impact on external motivation for tasks low in heuristic thought. Both of these relationships were in line with the hypotheses; reward salience is therefore controlling for more complex tasks which do not provide inherent performance feedback. However, the general findings suggest that the task context has little bearing on the impact of reward salience on autonomous motivation.

7.6.4. RQ4b: How do the different types of motivation relate to behavioural (productivity) and psychological (subjective wellbeing and engagement) outcomes at specific task-level?

This study broadly supports the hypothesis that more autonomous forms of motivation are more predictive of positive outcomes in the form of subjective wellbeing, engagement and productivity. However, there are several important discussion points which I highlight below and discuss further in chapter 8.

Firstly, despite covariance between the motivation types, both intrinsic and identified motivation uniquely predicted positive outcomes. This may suggest that a combination of these motivation types is optimal for increased productivity (Koestner et al., 1996; Koestner & Losier, 2002). The second point relates to the relationship between the motivation types and engagement; all of the motivation types positively predicted engagement (although the effects explained by integration and introjection were cancelled out by covariance with their neighbouring types). Although the pattern of relationships does support the continuum in that intrinsic has a much stronger positive

relationship than external, it is somewhat surprising that external motivation is positively related to task engagement. This seems to suggest that increased motivation relates to increased engagement, regardless of the 'quality' of motivation. It would contradict the theory that, with respect to engagement, more controlled motivation is related to negative outcomes. Finally; as hypothesised, external motivation predicted a reduction in wellbeing. Considered alongside the finding that more salient reward relates to more controlled motivation this supports the basic tenets of SDT (Deci & Ryan, 1985a) and related theories about a "hidden cost" of reward (Lepper & Greene, 1979) and is not necessarily recognised by dominant theories of motivation, which focus only on performance outcomes (Gerhart et al., 2009; Locke & Latham, 1990).

7.6.5. RQ5: Does the conceptualisation of relative autonomy mask the distinctiveness of the individual motivation types as proposed by SDT?

As in the survey study, some findings derived from the use of the RAI might lead to incorrect conclusions. Most significantly for this research, the RAI analysis would suggest that more salient reward is negatively related to RAI, which might lead one to conclude that reward salience undermines autonomous motivation. When, in fact, the only conclusion this research does support is that reward salience relates to greater external motivation. The second important finding is that this analysis masks the *positive* relationship between external motivation and engagement, which has not been reported in previous research which has focused on an aggregate of the motivation scale (Gillet, Huart, Colombat, & Fouquereau, 2013; Parker et al., 2010).

It is also worth reflecting here that the correlations between the motivation types would also raise some concerns about the use of the RAI. In particular, introjected motivation was more strongly correlated with the autonomous motivation types than external motivation within-person. This would raise questions about whether it is appropriate to negatively weight introjected motivation relative the other motivation types.

Further discussion on the use of the RAI, in light of the results from the survey and diary studies, is included in the next chapter.

7.7. Limitations of this study

There are several limitations of this study which it is important to recognise. Firstly, the quality and depth of the qualitative descriptions of reward were not as good as was hoped. This means that it was not possible to glean further information about the nature of these everyday rewards. In particular it would have been valuable to identify the extent to which they include informational vs. controlling aspects (Pittman, 1980) which are theorised to be important to understand the motivational outcome of rewards (Ryan et al., 1983).

Secondly, as all of the items in the diary were self-report there is a risk of common method bias (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Steps were taken to try to reduce this by ensuring anonymity of responses (to reduce social desirability bias), randomising the order of scales as much as possible (to reduce day-to-day priming) and piloting the diary to ensure comprehension. In addition, partitioning the within- and between-person effects in the analysis controlled for stable effects as much as possible.

Thirdly, although every care was taken to ensure that diaries were completed as close to the event as possible, there is a small risk of recall bias. Respondents completed their diaries at the end of the working day so there was a potential time lag of several hours after the reported task. This is considerably less than with traditional survey methods, and the critical incident design aimed to bring the recent example to the forefront of the respondents mind (Chell, 2004).

Fourth, many of the scales utilised in this study consisted only of one or two items. This was to reduce the length of the daily diary thereby reducing respondent fatigue to minimise drop-outs. The downside of this is that the reported scale reliabilities are low in some cases and there could be issues with the validity of scales. Established measures were adapted for use here wherever possible in an attempt to ensure the validity of measures.

7.8. Summary

This study set out to examine the motivational impact of the salience of everyday rewards, to examine the moderating role of a needs-supportive task context and the outcomes of motivation. It is novel in that these relationships are examined in relation to day-to-day tasks in the workplace, rather than generalised attitudes towards work. The study found that more salient psychological rewards were related to more controlled motivation, which in turn contributes to poorer wellbeing. However, salient reward did not undermine autonomous motivation as the theory would suggest. More autonomous motivation types were related to positive outcomes in the form of wellbeing, engagement and productivity day-to-day. The study also revealed that both

intrinsic and identified motivation have unique contributions to engagement and productivity towards everyday tasks. Further, in revealing significant within-person variance on a day-to-day basis, this supports the value of utilising diary studies for field-based motivation research. The following chapter brings together the findings from the three empirical studies and discusses the implications of these in the light of the aims of the thesis.

Chapter 8: Discussion and conclusions

8.1. Introduction

This thesis was guided by three aims. Firstly, and primarily, it aimed to examine the relationship between rewards and motivation as proposed by SDT. Although both the survey and diary studies supported the suggestion that highly salient rewards predicted an external perceived locus of causality, they failed to support the theory that rewards undermine autonomous motivation. In fact, high bonuses were found to predict increased intrinsic motivation due to satisfaction of the basic psychological needs for autonomy and competence. In response to aim 1, I also introduced the concept of perceived salience of reward in the diary study and found that this does influence the extent to which rewards direct behaviour.

The second aim of the thesis was to examine the relationship between the five motivation types proposed by SDT and behavioural and psychological outcomes. The thesis broadly supports the distinction between these motivation types and the suggestion that more autonomous motivation is related to more positive outcomes.

The final aim of the thesis was to test SDT as a theory of work motivation. Aims 1 and 2 partly contribute to this aim in testing the theory with respect to reward antecedents and behavioural and psychological outcomes. Aim 3 specifically examined two additional aspects of SDT. Firstly, the longitudinal survey supported the hypothesis that satisfaction of three basic psychological needs can explain the positive impact of needs-supportive job characteristics on autonomous motivation. Secondly, it found that using

the RAI scoring protocol instead of the individual motivation types does influence conclusions about the antecedents and outcomes of motivation.

In this chapter, I begin by briefly summarising the issues that arose from the literature review which shaped the later empirical research. The main section of this chapter is then structured around the three aims of this thesis. I discuss the important theoretical contributions made by this thesis under each aim. I then highlight the methodological contributions of the three studies, the implications for practice, and recommendations for further research arising from the thesis aims. Following this, I reflect on some of the limitations of the thesis as a whole. I finish with concluding remarks relevant to the whole thesis.

8.2. Key findings and implications in relation to each aim

In this section, I summarise the key findings from all three empirical studies and consider the theoretical contributions with respect to the three aims of this thesis. Each empirical chapter (chapters 5, 6 and 7) included a complete discussion of findings so I will focus here on those which have the most important implications. Figure 8.1 provides an overview of the significant relationships from the survey and diary studies with respect to antecedents and outcomes of the motivation types (need satisfaction is not included here but is discussed later in the chapter, see figure 8.2).

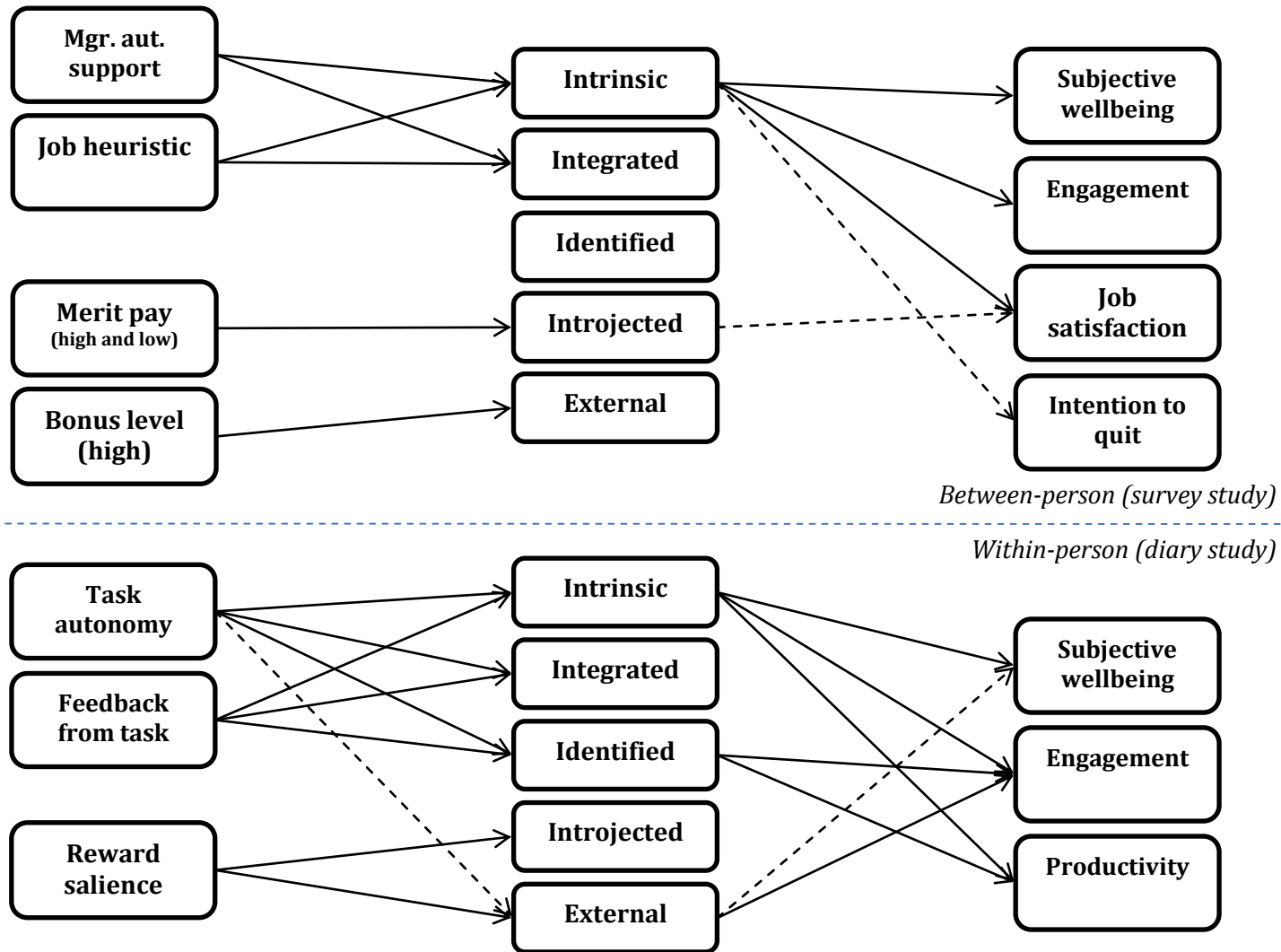


Figure 8.1: Summary of significant regression relationships of antecedents and outcomes of motivation types from survey (chapter 6) and diary (chapter 7) studies (solid line = positive relationship, dashed line = negative relationship)

8.2.1. Aim 1: The relationship between reward and motivation, taking into account the reward context

The reward–motivation relationship was primarily examined through the longitudinal survey (chapter 6) and the diary study (chapter 7). The survey focused on the relationship between formal, financial rewards in the form of merit pay and bonuses for individual performance, and the motivation types. The diary study then tested the theory that the reward–motivation relationship can be understood through the extent to which the reward is perceived to be salient in relation to informal, psychological rewards on a day-to-day basis. Both studies examined the moderating role of the context in which the reward is administered.

Aim one makes two major theoretical contributions. The first relates to the finding that the undermining theory was not supported in either study, and in fact there was an indirect positive relationship between high bonus and intrinsic motivation through need satisfaction in the survey. These findings challenge one of the basic tenets of SDT (the undermining theory) and support some of the criticisms of SDT. This thesis suggests in particular that performance-related bonuses are not only motivational but can increase intrinsic motivation, which is related to desirable outcomes. There has been limited empirical research testing the motivational impact of performance-related bonuses (Gupta & Shaw, 2014) so this thesis makes an important contribution to the reward and motivation fields. The second important theoretical contribution is in testing the motivational impact of perceived reward salience with respect to informal, everyday rewards. The diary indicates that this is an important characteristic of

subjective reward perceptions in understanding the motivational impact of rewards. In addition, in proposing an operational definition and self-report scale of perceived reward salience it opens avenues for future research in this area. These contributions are considered in more detail below.

The validity of the undermining theory in organisational research

The undermining theory of rewards on autonomous (or intrinsic) motivation is one of the most controversial but central propositions of SDT (Deci, 1971) and related motivation theories (Lepper & Greene, 1979). Despite significant interest from practitioners (Pink, 2010) the theory has been criticised by organisational researchers (Rynes et al., 2005) for the lack of empirical research from the work environment where rewards are the norm (Staw et al, 1980).

There are two theoretical propositions underlying the undermining theory as set out by SDT. The first, which is included in a number of psychological theories (Lepper & Greene, 1979 for an overview), is that highly salient rewards will lead individuals to attribute the cause for their behaviour to the external reward and that this will undermine the extent to which they attribute it to an internal perceived locus of causality (deCharms, 1968). In other words, the reward will lead to increased controlled and reduced autonomous motivation because these are negatively interactive. The first aspect of this theory was partially supported in that high bonuses (in the survey) and highly salient psychological rewards (in the diary) both directly predicted higher external motivation indicating therefore that individuals have attributed the reason for their motivation to the external contingency. This finding, that these forms of reward

direct causal attribution, is important not just for SDT research but also supports dominant thinking in organisational research that higher levels of performance-related rewards are motivational (e.g. Gerhart et al., 2009; R. Heneman, Ledford, & Gresham, 2002). However, in neither study did high bonuses or perceived reward salience predict a reduction in more autonomous motivation (internal perceived locus of causality). This therefore fails to support the central proposition of SDT; that highly salient rewards undermine autonomous motivation. This links to the second proposition, which is unique to SDT; that the undermining effect is due to the fact that highly salient rewards thwart the satisfaction of individuals' basic psychological need for autonomy (Deci & Porac, 1979). This was contradicted by the survey study in that high bonuses indirectly predicted an *increase* in intrinsic motivation to the extent that they satisfied individuals' basic psychological needs for both competence and autonomy. The only other study which I am aware of to explicitly test the mediating role of need satisfaction between reward and intrinsic motivation is from Fang and Gerhart (2012) who found that, at between-organisation level, the same was true. One important implication of these findings is that it contradicts the theory that intrinsic and external motivation are negatively interactive. Firstly, in the survey, high bonuses predicted *both* increased external (directly) and intrinsic (indirectly) motivation thereby suggesting that these can both increase simultaneously. In addition, both quantitative studies found that intrinsic and external motivation are positively, rather than negatively, correlated. This is particularly important because this proposition is one aspect which stands SDT out against other dominant work motivation theories, in particular expectancy theory (Porter & Lawler, 1968). Expectancy theory would predict the findings from this thesis;

that contingent reward would increase external motivation *on top of* intrinsic motivation and that this overall increase in the amount of motivation is desirable. The undermining prediction of SDT has come under criticism from management scholars for having a lack of validity and empirical support in the work environment (Fang & Gerhart, 2012; Rynes et al., 2005) and this thesis suggests that this concern is well founded.

The lack of support for the undermining theory may be because this theory is based almost exclusively on studies with children or adolescents (see meta-analyses from Cameron & Pierce, 1994; Deci et al 1999a, 2001a; Tang & Hall, 1995). As suggested by Fang and Gerhart (2012), perhaps the undermining theory can be seen as more geared towards children where a norm for reward has not been established. For example, very young children (as in the studies from Kruglanski et al, 1971, and Ross, 1975) undertake activities purely for play until they learn that it is “normal” for some activities (e.g. schoolwork) to be rewarded. With working adults a norm for reward has been established across many years in education and work and the reward is therefore not experienced as undermining (Staw et al, 1980). This does not, however, explain why high bonuses had a *positive* impact on intrinsic motivation towards the job through autonomy need satisfaction. I would suggest that this is because workplace rewards hold symbolic value which leads to satisfaction of the needs for autonomy and competence. For example, high bonuses provide information not just about job competence (as one would expect) but individuals also feel a sense of volition in striving to achieve the bonus in an environment where bonuses are the norm.

Finally, although it was expected that a needs-supportive context would moderate the reward–motivation relationship, this was largely not the case. The only significant moderation occurred with respect to the relationship between perceived salience and external motivation in the diary study. Only where feedback from the task itself was low or where the task required high levels of heuristic thought did perceived reward salience predict higher levels of external motivation. The fact that this was only found at the day-to-day level (rather than domain level in the survey) supports the suggestion that job characteristics might be better understood as dynamic rather than static attitudes, as set out by Daniels and colleagues (Daniels, Boocock, Glover, Hartley, & Holland, 2009; Daniels, 2012).

The role of perceived reward salience in understanding the motivational impact of rewards

The concept of reward salience originates from attribution theory (Heider, 1958; Kelley, 1973) which states that individuals make causal inference for their behaviour based on stimuli from their environment, which could be seen as reasons for acting (Kelley, 1973). In psychological research, the salience of these stimuli (e.g. rewards) has been found to influence perceptions of causality (Taylor & Fiske, 1978). Reward salience is an ill-defined concept so based on a review of experimental studies I suggested that it can be conceptualised as the expectation, conspicuousness and temporal proximity of the reward while the task is being performed. . The findings with respect to reward salience make important contributions in three areas; firstly to motivation theory, secondly to reward theory and thirdly in opening up the possibility for future research in this area. I discuss these in turn below.

Firstly, in line with the contributions discussed in the previous section, the finding that reward salience can influence causal attribution (increase external and introjected motivation) without reducing autonomous motivation has important implications for work motivation theory. On the one hand, in line with expectancy theory, this finding suggests that salient rewards predict increased overall motivation. However, without taking into account SDT's differentiation of motivation we know little about how salient rewards affect the type of motivation experienced. This is particularly important because the thesis suggests that motivation which is directed towards the external contingency (external motivation) is related to mixed outcomes; lower wellbeing but higher engagement.

Connected to this, the finding that perceived salience influences motivational reactions to reward has implications for reward research. It is widely acknowledged that the impact of objective reward characteristics on behaviour is mediated by subjective perceptions (e.g. Cohen-Charash & Spector, 2001; Greenberg, 1987). Research on subjective perceptions of reward has tended to focus on comparisons with significant others (e.g. equity, distributive and procedural justice, fairness; Trevor & Wazeter, 2006), which is clearly an important factor, but neglects the perceptions which do not rely on comparison. This thesis would suggest that the subjective perception of salience, which is not reliant on comparison, is also an important factor in understanding the behavioural impact of reward. It is important to note that this thesis only examined perceived salience with respect to informal, psychological rewards and not formal, financial rewards which tend to be the focus in organisational research. These everyday, informal rewards are, however, an important part of working life and have been found

to direct behaviour (e.g. Ellingsen & Johannesson, 2008). I would also predict some consistency of results with respect to financial rewards although this would clearly warrant further research.

The final contribution with respect to reward salience is in paving the way for further research through my proposal of an operational definition of perceived reward salience and development of the self-report scale to examine perceptions of salience. This is important because, despite the fact that reward salience is inherent to the undermining theory (e.g. Ross, 1975), the motivational impact of reward salience has only been examined in the lab (e.g. Lepper et al, 1973; Ross, 1975). This lab-based research has inferred the impact of reward salience on causal attribution based on observations of low task persistence or a reduction in inherent task interest (Deci et al, 1999a). These methods assume that external causal attribution is evidenced through a reduction in intrinsic motivation (the undermining theory) when this thesis would suggest otherwise. The implication of this is that it would be valuable to explicitly test the impact of perceived reward salience on both intrinsic and external motivation, as I did in the diary study. Through this study I concluded that perceived salience does influence attribution such that it increases external perceived locus of causality demonstrating that this approach is valuable.

8.2.2. Aim 2: Explore the experience of the different motivation types in relation to behavioural and psychological outcomes

The purpose of this aim was primarily to establish whether it is meaningful to differentiate between different types of motivation as proposed by SDT with respect to

the outcomes of motivation. The relationships between the motivation types and behavioural and psychological outcomes were examined in all three studies; the pilot interview study (chapter 5), longitudinal survey (chapter 6) and diary study (chapter 7). The findings from the survey and diary studies are summarised in figure 8.1. There are two important theoretical contributions with respect to aim 2. Firstly, it adds to a limited body of knowledge about the outcomes of the individual motivation types proposed by SDT. The thesis broadly supports the theory that more autonomous motivation predicts more positive outcomes. In doing so, it supports the criticism levelled at some process theories of motivation (e.g. goal-setting theory) which treat motivation as a unitary concept (Deci, 1992). The second important contribution relates to the level at which motivational experience is studied. This thesis examined motivation and related outcomes both at the general attitudinal level (survey) and with respect to specific tasks in the working day (diary study). The findings (figure 8.1) suggest that the motivation types reveal more about everyday experience than they do about general attitudes. This therefore supports the call for further research into everyday motivation (Beal & Weiss, 2012). These are discussed further below.

The distinction between motivation types with respect to behavioural and psychological outcomes

All three studies broadly supported the theory that more autonomous motivation types are predictive of more positive behavioural and psychological outcomes. Intrinsic motivation, in particular, predicted increased wellbeing, work engagement, job satisfaction and lower intention to quit in the survey and greater wellbeing, task engagement and task productivity in the diary study. Integrated and identified

motivation also consistently predicted positive outcomes although these were partly cancelled out by covariance with intrinsic motivation. On the controlled end of the motivation continuum (introjected and external motivation) there were few significant outcomes although there are some important points to note. Firstly, introjected motivation, which is partially controlled on the continuum, was negatively related to job satisfaction in the survey study. However, a closer examination revealed that introjected motivation also predicts a number of positive outcomes but these are cancelled out by covariance with identified motivation. These relationships support the positioning of introjection on the continuum, because the outcomes are less positive than its autonomous neighbours, but the value of grouping introjected and external motivation together as 'controlled' motivation (e.g. Parker et al, 2010) is not empirically supported. Finally, external motivation significantly predicted two outcomes in the diary study. On the one hand, it was negatively related to wellbeing as expected. However, it positively predicted task engagement (albeit to a lesser extent than the other motivation types). This supports the suggestion that external motivation is the least desirable form of the motivation on the continuum but that it cannot be considered to have an entirely negative impact on work behaviour.

Comparing motivation and outcomes as a general attitude and motivation for everyday work tasks

The pattern of findings with respect to motivation and outcomes (figure 8.1) highlights an important distinction between motivation as a general attitude towards work (in the survey) and motivation directed towards specific tasks in the working day (in the diary). At the general attitudinal level only the relationships between intrinsic

motivation and outcomes were significant (with one exception with respect to introjection and job satisfaction). However, at daily task level a fuller range of motivation types were represented (intrinsic, identified and external). This might suggest that the internalisation of extrinsic motivation adds to our understanding of the experience of specific task motivation but not motivation as a general attitude. This has important implications for future research. Field-based studies in SDT and other motivation theories have almost exclusively focused on motivation as a general attitude. As suggested by Beal and Weiss (2012), research into the type of motivation (as defined by SDT) for specific tasks would develop our understanding of the experience of individual episodes within the working day and the diary study has done just that.

In summary, there are meaningful differences with respect to the motivation types which suggest that this it is worthwhile making these distinctions. This has important implications for work motivation research, which is primarily concerned with the quantity of motivation. Where SDT differs from other motivation theories is in not just distinguishing between intrinsic and extrinsic motivation but taking a more nuanced view of what constitutes extrinsic motivation. While this additional distinction does not seem to offer much to our understanding of motivation as a general work attitude, it does with respect to specific tasks in the working day.

8.2.3. Aim 3: Evaluation of Self-determination Theory as a theory of work motivation

In addition to the theoretical contributions discussed under the first two aims, aim 3 is explicitly focused on the question of whether SDT is valuable as a theory of work

motivation. In this section I discuss two important theoretical contributions. Firstly, the longitudinal survey supported the theory that satisfaction of the basic psychological needs for autonomy, competence and relatedness explains the relationship between environmental factors, including reward, and the types of motivation. This therefore contributes to our knowledge of motivational processes and offers opportunities for combining the concept of need satisfaction with other motivational theories, which are discussed below. Secondly, the survey and diary studies examined the impact of using a Relative Autonomy Index to measure motivation as opposed to the individual motivation types and highlighted some issues about the treatment of the motivation constructs in empirical studies. This is important because it suggests that the individual motivation types do add to our understanding of motivational experience over and above the use of the composite scale.

The value of the psychological need satisfaction construct

Firstly, the direct relationships between the need satisfaction variables and motivation types in the survey partly supported the predictions (figure 8.2). Increased autonomy need satisfaction did, as expected, predict increases in the most autonomous motivation types but the effect of competence need satisfaction was cancelled out due to covariance with autonomy. As expected, relatedness need satisfaction did not significantly predict intrinsic motivation (which could occur in relation to lone activities) but did predict all other motivation types.

The most surprising finding in this respect was that increased relatedness need satisfaction predicted increased external motivation more than any other motivation

type. In other words, when individuals experience a sense of belonging or interpersonal connection, but not autonomy or competence, from their job they are more likely to attribute their motivation to an external contingency. In some ways this finding should not be surprising as relatedness without associated autonomy or competence could be social approval which is therefore a form of external contingency. From a theoretical perspective, however, SDT research has tended to assume that satisfaction of all three needs is conducive to more autonomous motivation. This thesis would suggest that a more nuanced account of this relationship is required.

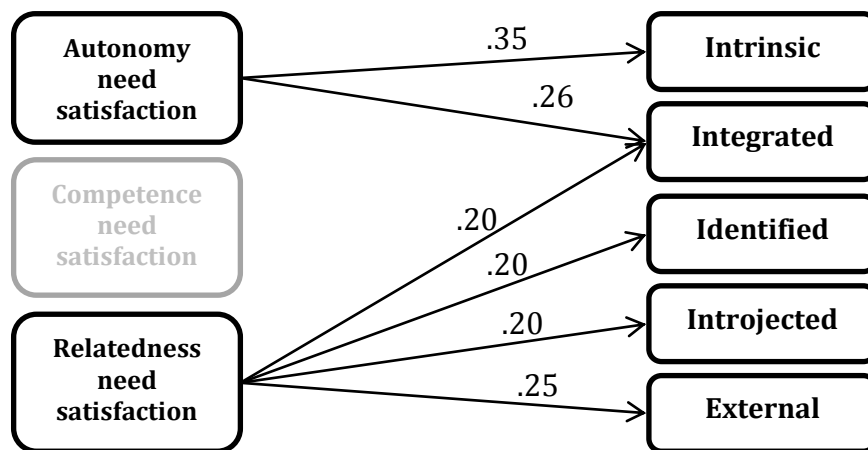


Figure 8.2: Summary of significant regression relationships between need satisfaction and motivation types from survey study (all coefficients are standardised).

The survey study supported the prediction that satisfaction of the basic psychological needs partly explains the relationship between characteristics of a needs-supportive environment and more autonomous motivation. Need satisfaction fully or partly mediated the relationship between job autonomy, job heuristic and manager support for autonomy with intrinsic, integrated and identified motivation. This was not true for

introjected and external motivation. This, therefore, supports the theory that job or task characteristics which are conducive to need satisfaction will result in more autonomous, not controlled, motivation. As outlined under aim 1, need satisfaction also unexpectedly mediated a positive relationship between high bonus and intrinsic motivation. Taken alongside the findings with respect to job characteristics, this might suggest that high bonus can be considered a needs-supportive job characteristic. This is contrary to the theory and to empirical research from other domains, in particular education psychology.

These findings have implications for the work motivation field. In particular, I would suggest that need satisfaction could be effectively combined with other motivation theories to better understand behaviour. For example, goal setting theory is a popular theory of work motivation but considers only the quantity of motivation (Locke, 1993). As discussed above, the distinction between motivation types is valuable in that more autonomous motivation is related to more positive outcomes. While some previous research has examined the relationship between goal-setting and intrinsic motivation (e.g. Chang & Lorenzi, 1983; Shalley, Oldham & Porac, 1987) there does not appear to be any which examines the impact of goals on the internalisation of motivation. It would therefore be valuable to test the conditions under which goal-setting might satisfy individuals' basic psychological needs, therefore predicting more internalised (autonomous) motivation, and related positive outcomes. This combined theory would provide a more complete picture of the motivational impact of goal-setting, particularly for important but non-interesting tasks.

Measurement and the use of the RAI

A number of the issues with respect to SDT come from the inconsistent manner in which the motivation types are measured. Both the survey and diary studies found that the five motivation types are intercorrelated as the simplex-like structure of the motivation continuum would expect (Ryan & Connell, 1989). This brings practical methodological challenges which are commonly dealt with by aggregating the motivation types (e.g. as autonomous and controlled motivation), or calculating an index such as the RAI. There are strong theoretical reasons for using the RAI to measure the motivation types. It recognises that individuals are not simply motivated by one reason for acting but are likely to experience multiple motivating forces (Ryan, Plant, & O'Malley, 1995) and also the theoretical ordering of the motivation types along a continuum (Gagné & Deci, 2005). The practical benefit of using the RAI is that it is far more parsimonious than building models including each of the individual motivation types (McLachlan & Hagger, 2011). However, the findings from the survey and diary studies would suggest that using the RAI masks some of the antecedents and outcomes of the individual motivation types which are discussed in chapters 6 and 7.

This thesis would therefore support Koestner and Losier (2002, pp. 117–118) who suggest that; “Although the RAI can provide useful information about the ‘big picture’, important distinctions concerning the relative contribution of each type of motivation may be overlooked.” In addition, as has been highlighted in several theoretical papers (Deci & Ryan, 2000; Gagné & Deci, 2005; Vansteenkiste et al., 2010), intrinsic motivation and internalised extrinsic motivation (identified or integrated) are not the same motivational processes. Although, of course, it is likely that someone who truly values

the task is also likely to enjoy it, it is not necessarily the case for important but uninteresting tasks. If it is desirable to combine the subscales for the sake of parsimony, I would therefore recommend that it is preferable to treat the motivation types as three subscales; intrinsic, internalised and external. The 'internalised' scale incorporates integrated, identified and introjected motivation. This would deal with two issues. Firstly, it recognises the theoretical and experiential differences between intrinsic and integrated/identified motivation. Secondly, it reflects the important distinction between external and introjected motivation, the latter of which shares more characteristics with identified than it does external motivation, as outlined earlier in this chapter.

8.3. Methodological contribution of empirical studies

Here I briefly consider the methodological contributions made by each empirical study. Firstly, the interview study focused on exploring the experience of each of the motivation types set out by SDT. Despite the popularity of SDT as a psychological theory, there seems to be very little research which has explored these types in depth. This study therefore applied some of the principles adopted by Csikszentmihalyi (1975) to establish the experience of Flow. Utilising qualitative methods, and focusing on critical incidents of motivated behaviour, highlighted a richness of experience which is not accessible through the quantitative methods which dominate the field. Although only a pilot study, by identifying some of the characteristics of each motivation type I was able to expand our knowledge of how they can be understood and studied.

In the second study, a longitudinal survey, I primarily focused on the reward-motivation relationship relating to bonuses and merit pay increases. This study has two

particular strengths. Firstly, objective reward and performance data were obtained from organisational records, which therefore reduces the risk of common method bias and improves the validity of the results. This is particularly noteworthy because many reward studies rely on self-report reward data, due to problems with access. Secondly, by collecting data across two time periods with a reward intervention between, I could use panel analysis to examine the relationship between changes in the variables, rather than a stable cross-sectional relationship. Both of these considerably improved the methodological strength of this research.

Finally, the diary study adds to a very limited body of research that explores the day-to-day experience of motivation (aside from Flow theory). SDT diary studies to date have focused primarily on need satisfaction so this study is novel in examining motivation day-to-day, the value of which has been recognised by other scholars (Beal & Weiss, 2012). I am also not aware of any diary studies which have examined day-to-day rewards, although this is clearly an important aspect of working life.

8.4. Implications for practice

The conclusions of this thesis have a number of implications for practitioners. Firstly, the undermining theory has gained considerable interest with management practitioners in recent years; for example Dan Pink's (2010) book based on SDT and particularly the undermining theory, was a best seller in the US and Europe and his Royal Society of Arts lecture on the subject gained over 11.5 million views on YouTube between April 2010 and December 2013 (*RSA Animate - Drive*, 2010). Influenced in part by this popularity of SDT, the value of performance-related reward has been subjected

to continuous debate in practitioner publications with strong proponents and opponents (e.g. Pfeffer, 1998). The findings of this thesis would suggest that the undermining effect does not hold in the work environment. Instead this thesis would actually support the benefits of performance-related bonuses for encouraging increased motivation, including intrinsic motivation, and therefore related positive outcomes. It would question, however, whether merit pay has an impact on individual motivation. This would suggest that organisations would be better to direct budget towards bonuses than merit pay increases to direct individuals' motivation (Gerhart et al, 2009).

Secondly, the findings with respect to reward salience have implications for the way in which reward is communicated in organisations, both through central, HR communications and also by managers. Increased communication about reward, particularly before an event such as the annual pay review or bonus round, is likely to increase the conspicuousness and perhaps expectation of the reward. While reward salience does seem to influence the extent to which reward directs behaviour, the resulting motivation is likely to be external. The diary study suggests that external motivation predicts increased engagement but also lower subjective wellbeing. Increasing reward salience could therefore be a double edged sword with respect to motivational outcomes. It seems likely that there may be additional factors which could moderate the extent to which the reward salience indirectly predicts lower wellbeing (e.g. fairness perceptions) which organisations should also take into account when communicating about rewards.

Finally, the findings with respect to need satisfaction suggest that job characteristics (manager autonomy support and job heuristic), as well as task characteristics (task

autonomy and feedback from the task itself) are conducive to need satisfaction and therefore more autonomous motivation and positive behavioural and psychological outcomes. It would therefore be beneficial for practitioners to incorporate these principles into job design.

8.5. Recommendations for future research arising from thesis aims

This thesis opens up a number of possibilities for future research. Here I focus on recommendations for further research on the concept of perceived reward salience and on developing SDT as a theory of work motivation.

8.5.1. Developing the concept of reward salience

One important contribution of this thesis is in developing the concept of reward salience but there are many ways in which this could be extended, in particular in testing further the three dimensions of salience that I have proposed in this thesis. I propose two further ways in which I think perceived reward salience could be developed further.

Firstly, I believe that attribution theory, which states that individuals make causal inference about their own or others' behaviour based on salient aspects of their environment (Taylor & Fiske, 1978), could be further utilised. Attribution theory forms the basis of the theory about reward salience but has been relatively neglected in organisational research of late (Martinko et al., 2011). However, the work of Bowen and Ostroff (Bowen & Ostroff, 2004) on HR system strength seems to have potential

application here. Bowen and Ostroff propose that it is possible to understand the impact of HRM practices on behaviour by understanding the strength of the HR system. Briefly, they define a strong HR system by three meta-features based on Kelley's (1973) attribution process; distinctiveness, consistency and consensus. The presence of these features indicates that HR practices will affect behaviour (Guest & Conway, 2011). Using a concept such as system strength it may be possible for future research to identify some of the meta-characteristics of workplace reward systems which make them particularly 'strong' (salient) and therefore direct behaviour. This would be particularly beneficial because meta-features would allow the motivational impact of reward to be tested on a variety of reward systems in different organisations, which seems to have been a barrier to reward research in the past. Although this concept would run counter to the undermining theory, it would support the findings of this thesis in suggesting that salient rewards can be motivational.

Secondly, the hypotheses with respect to reward salience were only examined with respect to informal, psychological rewards. Although I would expect that this can be translated to tangible, financial rewards this has not yet been tested. There is a particular question about whether or not perceived reward salience can be seen as a general attitude towards reward, or whether it can only apply at the situational level as Taylor and Fiske (1978) seem to indicate. This presents methodological challenges in that a field-based study would need to be in an organisation which includes more than the periodic rewards considered in this thesis (annual merit pay and bonus). For example, an organisation which pays piece rates or spot bonuses might be valuable. Longitudinal research which combines both objective records of financial reward with

subjective perceptions would also make for a strong research design. Much of the challenge is in gaining access to organisational records so I would suggest that more collaboration with practitioners would therefore help this and would have the additional benefit of embedding research into practice.

8.5.2. Developing SDT as a theory of work motivation

This thesis also suggests a number of avenues for further development of SDT as a theory of work motivation. Although intrinsic motivation was found to be the most consistent predictor of positive outcomes of all the motivation types, there is already a substantial body of research into intrinsic motivation. As a result, I focus my recommendations on other under developed areas of the theory.

Firstly, future research could test my recommendation that the motivation types could be conceptualised as intrinsic / internalised / external. In particular, it would be valuable to understand more about the antecedents of internalised extrinsic motivation. This is on the basis of the theory that the internalisation of motivation can be beneficial for tasks which are not necessarily inherently interesting but are important (Koestner and Losier, 2002) so encouraging this might be valuable for many work tasks. In addition, there seems to be little research or theory about internalisation as a process. For example; how is the reason for motivation internalised? What environmental factors encourage internalisation? At what rate do individuals' internalise motivation? Understanding more about this process would shed light on which antecedents could encourage internalisation to take place.

Secondly, I suggested above that the concept of need satisfaction could be combined with other work motivation theories to shed more light on established motivation processes. As well as the example of combining goal-setting and need satisfaction that I mentioned above, need satisfaction might also be combined with flow theory (Csikszentmihalyi, 1975; 1978) to examine whether need satisfaction predicts flow, which is an extreme or pure form of intrinsic motivation. In addition, it would be interesting to examine the relationship between equity perceptions, which play a part in theories such as expectancy theory (Porter & Lawler, 1968), and need satisfaction. Although Deci (1972) found that inequity was detrimental to intrinsic motivation I am not aware that the relationship between equity and need satisfaction has been explored. The merit of these combined models is in that need satisfaction offers an explanation for the motivational impact of antecedents (e.g. goals, perceived equity), whilst recognising that motivation can take many forms as this thesis has supported.

8.6. Limitations and related recommendations relating to the whole thesis

In addition to the limitations highlighted in each empirical study, there are a number which relate to the thesis in its entirety which lead to recommendations for future research.

Limitation 1: SDT would suggest that salient rewards (e.g. high bonuses) will undermine basic psychological need satisfaction but the findings of this thesis might suggest otherwise. However, in this thesis, the *perceived* salience of reward and need

satisfaction were not tested in the same study so it was not possible to examine the relationship between the two.

Recommendation 1: Future research should test hypotheses relating to need satisfaction from SDT and reward salience from attribution theory side by side. To do this, it will be necessary to examine both salience and need satisfaction in one study. This would be advantageous in developing the theory relating to the reward–motivation relationship because both perceived salience and need satisfaction were found to be important factors in explaining the motivational impact of rewards.

Limitation 2: Insufficient data were collected about the nature of the financial and psychological rewards to examine, firstly, the type of reward contingency and secondly, the extent to which more informational or controlling aspects of the reward are more salient. These factors have been found to impact on the extent to which reward is experienced as more controlling (Deci et al., 1999a; Ryan, 1982).

Recommendation 2: Future research should examine the motivational impact of the extent to which workplace rewards are based on a certain level of performance, completion of a task or simply engagement in a task, which have been found to have differential effects on motivational outcomes in experimental conditions (Ryan et al., 1983). In addition, as well as simply understanding the salience of the reward, it would be valuable to test the theory that rewards have informational and controlling aspects; if more controlling aspects are salient, the resulting motivation is likely to be more controlled (Ryan, 1982). This has not, as far as I am aware, been tested in relation to workplace rewards.

Limitation 3: This research did not consider any stable individual differences in motivation orientation, which may moderate the impact of reward on motivation.

Recommendation 3: It would be beneficial to examine the impact of individual differences in motivation orientation on the reward-motivation relationship. In particular, there is a body of work which suggests that individuals can be oriented towards experiencing environments as more or less autonomy supportive or intrinsically interesting (Amabile, Hill, Hennessey, & Tighe, 1994; Deci & Ryan, 1985b). I am aware of one study which has found that causality orientation does impact on the relationship between reward and motivation, in experimental conditions (Hagger & Chatzisarantis, 2011).

Limitation 4: The motivation types are treated only as consciously accessible reasons for behaviour. This research does not, therefore, recognise that there could also be subconscious drivers for behaviour.

Recommendation 4: Some limited research has tested implicitly primed intrinsic and extrinsic motivation (Levesque, Copeland, & Sutcliffe, 2008; Levesque & Brown, 2007; Levesque & Pelletier, 2003). This has not, as far as I am aware, been extended to the internalisation of motivation. It would be valuable to examine both conscious and subconscious motivation as defined by SDT as these two levels are commonly seen as different processes (Kehr, 2004). There have been calls for more organisational field-based research to examine implicit psychological constructs (Harms & Luthans, 2012) and methods are increasingly available to make this possible.

8.7. Conclusion

This thesis makes important contributions to our understanding of the motivational impact of workplace rewards. The first important point to note is that this research supports dominant thinking that rewards are motivational; both with respect to formal, financial performance-related rewards (merit pay and bonus) and also everyday psychological rewards (e.g. verbal recognition). In relation to SDT, through aim 1 this research contradicts the theory in finding that salient extrinsic rewards do not undermine autonomous motivation in the work environment but rather that basic psychological need satisfaction explains the indirect *positive* impact of high bonuses on intrinsic motivation and therefore the related positive outcomes. In light of these findings the theory that intrinsic and external motivation are negatively interactive is not supported. This is a departure from traditional SDT and would mean that SDT is not necessarily opposed to other work motivation theories (e.g. expectancy theory) as is often suggested. This thesis also adds to our knowledge of reward perceptions in developing the concept of perceived reward salience. Perceived reward salience was found to explain individuals' causal attributions for their motivated behaviour so it is therefore an important characteristic of subjective reward perceptions. By setting out an operational definition of perceived salience, this thesis offers opportunities for further expansion of this theory, which has previously been inferred but not fully tested.

In relation to aims 2 and 3, this thesis concludes that SDT does add to our understanding of work motivation, through the concepts of need satisfaction and the continuum of motivation. It further supports the theory that a distinction of the type,

not just amount, of motivation predicts differential outcomes in that more autonomous motivation predicts consistently more positive outcomes. The validity of the theory with respect to need satisfaction and the motivation continuum opens up the possibility for future research to combine SDT with other theories (e.g. goal-setting, expectancy theories) to better understand workplace motivation.

Finally, this thesis makes an important contribution to the work motivation field in examining everyday rewards and motivation in the field. Despite the fact that everyday work contains many motivational stimuli, we know relatively little about everyday work motivation. This thesis has shown the value of examining daily job characteristics, everyday rewards and individual task focused motivation to understand individual's motivation towards day-today work tasks.

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Appendices

Appendix I: Interview protocol (chapter 5)

Appendix II: Longitudinal survey question scales (chapter 6)

Appendix III: Daily diary question scales (chapter 7)

Appendix IV: Publications arising from this thesis

Appendix I – Interview Protocol

Introduction:

Thank you for agreeing to take part in this interview. I'm interested in the reasons that people do things at work so I'm going to ask you for some examples of things that you have done at work recently. It might sound as though some of the questions I ask are quite similar so do ask for clarification if you aren't sure what I mean. Some of the questions that I ask also might also seem to have really obvious answers but do bear with me and just answer in the best way you can.

As we go through the interview I will be typing notes. Is that ok with you? It might mean that there are moments when I go a bit quiet and I might need to ask for clarification. I will anonymise these for my research and no one at [charity name] will see your responses.

Could you describe an example of something that you've worked particularly hard on at work today [within the last week]? (Could you describe the situation? Who else was involved? What was your level of involvement? What was your level of responsibility in relation to the task/situation?)
How did you feel about doing [the task]? (Why do you think you felt that way?)
Have you always felt the same way about [this task]? (e.g. interesting, fun, I had to)
Why did you do [this task]? (e.g. Were you asked to do it? Did you decide it needed to be done? probe to find out what factors regulated their behaviour)
How important was the task to you/ your job/ [charity name]? (all three are important)
What made you work particularly hard on [this task]?
Did you achieve what you set out to do? (How did that feel? Why do you think you felt that way?)
How would you feel if you were asked to do [this task] again? (Would you feel the same way about it? Would you do it?)

Can you give me an example of something that you worked hard on today primarily because you enjoyed it or thought it was interesting? (What was it that you enjoyed? Have you always found it enjoyable? Is it the similar to the kind of thing that you find enjoyable outside of work?)

Can you give me an example of something that you worked hard on today primarily because it felt personally important to you? Or ...it connected with your personal values? (Why was it important/valuable? Has this always been important to you? What did you hope to get out of doing the task?)

Can you give me an example of something that you worked hard on today primarily because it would help you to further your career or wider life goals? (How did it contribute to your goals? Have these goals always been important to you? Is it something that you think is more important to someone else than to you?)

Can you give me an example of something that you worked hard on today primarily because it made you feel good about yourself for doing it? [or you would have felt bad if you didn't do it] (What was it about the task that made you feel good? Has this kind of task always made you feel this way? How did you feel when you did the task? Was it important to anyone else?)

Can you give me an example of something that you worked hard on today primarily because you knew that you would get rewarded for it? [or because you would have got in trouble for not doing it?] (What did you expect to get out of it? If you were offered this again would you do the same thing?)

Appendix II – Survey Scales and Items

MULTIDIMENSIONAL WORK MOTIVATION SCALE (MWMS)

To what extent do the following statements reflect reasons that you put particular effort in at work? Please rate each one from 1 (not at all) to 7 (very much so)

Intrinsic

1. Because the work that I do is interesting
2. My job is so interesting that it is a motivation in itself
3. Because what I do in my work is exciting
4. The tasks that I do at work themselves provide a driving force
5. Because the tasks that I do at work are enjoyable
6. Because I have fun doing my job
7. Sometimes I become so inspired by my job that I almost forget everything else around me

Integrated

1. Because my job is a large part of who I am
2. Because my work is one of the most important things in my life
3. Because my work is a chance to express my personal values

Identified

4. Because putting effort in to this job has personal significance for me
5. Because I personally consider it important to make an effort at work
6. Because putting effort in to this job aligns with my personal values

Introjected

8. Because I have to prove to myself that I can
9. Because otherwise I will feel bad about myself
10. Because it makes me feel proud of myself
11. Because otherwise I will feel ashamed of myself

External

12. Because I will get additional financial reward if I do
13. Because I am more likely to get rewarded if I do
14. Because others will reward me financially only if I put enough effort in at work
15. Because others offer me greater job security if I put enough effort in to my job
16. To get others' approval (e.g. manager, colleagues, family...)

17. To avoid being criticised by others (e.g. manager, colleagues, family...)
18. Because others will respect me more (e.g. manager, colleagues, family...)
19. Because I risk losing my job if I don't put enough effort in

BASIC PSYCHOLOGICAL NEED SATISFACTION

Please rate the following statements according to how true they are for you in your job from 1 (not at all) to 7 (very much)

Autonomy

1. The tasks I have to do at work are in line with what I really want to do
2. I feel free to do my job the way I think it could best be done
3. At work, I often feel like I have to follow other people's commands
4. If I could choose, I would do things at work differently
5. In my job, I feel forced to do things I do not want to do

Competence

1. I really master tasks at my job
2. I doubt whether I am able to execute my job properly
3. I feel competent at my job
4. I have the feeling that I can accomplish even the most difficult tasks at work
5. I am good at the things I do in my job
6. I don't really feel competent at my job

Relatedness

7. I often feel alone when I am with my colleagues
8. Some people I work with are close friends of mine
9. I feel like I can be myself at my job
10. I don't really mix with other people in my job
11. I don't really feel connected with other people in my job
12. At work, I feel part of a group
13. At work, I can talk with people about things that really matter to me

MANAGER AUTONOMY SUPPORT

Please rate the following statements according to how true they are in relation to your manager from 1 (not at all) to 7 (very much)

1. I feel that my manager provides me with choices and options
2. I feel understood by my manager
3. My manager conveys confidence in my ability to do well at my job
4. My manager listens to how I would like to do things

JOB HEURISTIC

Please read the following statements and rate them according to how much you agree with them in relation to your job from 1 (strongly disagree) to 7 (strongly agree)

1. The job involves dealing with problems that I have not met before
2. The job requires unique ideas or solutions to problems
3. The job requires me to apply my skills and knowledge to find the solution to problems
4. The job involves solving problems that have no obvious correct answer

JOB AUTONOMY

Please read the following statements and rate them according to how much you agree with them in relation to your job from 1 (strongly disagree) to 7 (strongly agree)

1. The job allows me to plan how I do my work
2. The job gives me a change to use my personal initiative or judgement in carrying out the work
3. The job provides me with significant autonomy in making decisions
4. The job gives me considerable opportunity for independence and freedom in how I do the work

ENGAGEMENT

The following questions are about how you feel at work. Please read each statement carefully and indicate how often you feel that way at work from 1 (almost never, a few times a year or less) to 7 (always, every day).

Vigour

1. At work, I feel bursting with energy
2. At my job, I feel strong and vigorous
3. I am enthusiastic about my job

Absorption

1. I feel happy when I am working intensely
2. I get carried away when I am working
3. I am immersed in my work

Dedication

4. I am proud of the work that I do
5. When I get up in the morning, I feel like going to work
6. My job inspires me

INTENTION TO QUIT

Please answer the following questions from 1 (not at all likely) to 5 (very likely)

1. I will very likely look for a new job this year
2. It is highly probable that I will leave this job in the next year or so

JOB SATISFACTION

Please indicate how satisfied you feel towards your job in general from 1 (extremely unsatisfied) to 7 (extremely satisfied)

SUBJECTIVE WELLBEING

Thinking of the past few weeks, how much of the time has your job made you feel each of the following.-" (never, occasionally, some of the time, much of the time, most of the time, all of the time)

1. Calm
2. Contented
3. Relaxed
4. Cheerful
5. Enthusiastic
6. Optimistic
7. Tense
8. Uneasy
9. Worried
10. Depressed
11. Gloomy
12. Miserable

Appendix III – Daily Diary Scales and Items

INSTRUCTIONS

Please read these instructions in full before you complete your first diary entry. A link to these instructions will then be sent to you on email each day should you wish to read them again.

Completing the diary

You will be emailed a link to your daily diary at around 3pm on Monday-Friday for 2 weeks from **Wednesday 7th to Tuesday 20th December**.

You are asked to **complete it at a convenient time towards the end of your working day**. If you are not working on a specific day (e.g. you are part-time or on holiday) you may ignore the email from that day. If you accidentally miss a day you should still continue with the diary the following day.

Answer each question as quickly and honestly as you can. Your first reaction to the questions is usually the most relevant. There is no need to spend a long time thinking about any question. If you do not finish in one go, or if you lose internet connection, your replies are not lost and you can return to finish at a later time.

Question instructions

In the diary, you are asked to describe a task or activity which you have spent particular time or effort on at work today. The experience can be positive or negative but you should choose something that took up a significant portion of time or effort that day and was active time, not passive (like sitting in a meeting if you weren't significantly contributing). The example that you choose will depend on the kind of work you do but might include something like:

- Writing a report, paper or discussion document
- Organising a meeting
- Responding to emails, dealing with phone calls or writing a letter
- Having a discussion with your manager or a colleague which involved time and/or effort

In the first question, try to describe the task or activity in as much detail as you can remember, including **what you did, who you were with, how you felt about it, what the outcome was** and any other useful information. These are some examples:

I prepared for a project meeting that we have tomorrow. This included reading the papers that had been distributed and preparing some questions. I also wrote a summary of progress for my part of the project which I discussed with Jane and

emailed to Bob for information. I'm glad I did it because it has been on my to do list all week.

I responded to a complex query from a member of the public which involved speaking to my colleague about the answer, looking up some information on the [organisation] website and drafting the email to send back to them. I think the email was clear but I won't know for sure until the consumer responds.

The rest of the questions are designed to capture more about your motivation and general experience in relation to the task or activity that you described in question 1 so try to keep it in your mind as you work through the diary. In most of the questions you will need to respond to a short statement on a scale of 1-7.

In the final section you are asked whether you received or expect to receive any feedback, recognition or reward in relation to the task or activity. This could be, for example, positive or negative verbal feedback, visual feedback or recognition in the form of body language, or a material reward such as a gift or management reward.

If you did not, or do not expect to, receive any feedback, recognition or reward in relation to the task or activity then the diary will end after question 7. If you did, you will be asked a few further questions about it.

In question 8 you are to describe, in as much detail as possible, the nature of the feedback, recognition or reward and how you feel about it. Please include as much detail as you can. For example:

I have had a good response from the email that I sent out. I was trying to explain a complex technical problem and it seems that people have understood because they are answering my questions so I feel like it was a job well done.

Jane told me that I should try to speak up more in meetings because I'm as quiet as a mouse. She might be right but she shouldn't have told me that in front of my colleagues in such a patronising way, it was really embarrassing

My manager hinted that if I can deliver this project on time, I might be given a management reward for it. I really want to get the money so I want my manager to know that I put in extra effort.

After the research

A summary of your completed diaries will be made available early in 2012. After the final diary has been completed, I will be contacting all colleagues who have taken part to ask if you would like to receive a copy.

All diary study participants will also receive a summary of the findings from the study once the analysis is complete during 2012.

Thank you again for your time.

QUALITATIVE DESCRIPTION OF TASK

Please describe an activity or task that you have spent a significant amount effort on at work today including what you were doing, who you were with, how you felt about it, what the outcome was and any other useful information.

[narrative response]

MOTIVATION (ADAPTED FROM MULTI-DIMENSIONAL WORK MOTIVATION SCALE)

To what extent do the following statements reflect reasons that you put particular effort into the task or activity? Please rate each one from 1 (not at all) to 7 (a great deal)

Intrinsic

1. Because the task itself was interesting
2. Because I got enjoyment from doing the task/activity

Integrated

1. Because this task was a chance for me to express my personal values
2. Because the work represents part of who I am

Identified

1. Because I considered it personally important
2. Because the task or activity was of personal significance to me

Introjected

1. Because putting the effort in made me feel good about myself
2. Because I would have felt bad about myself if I didn't

External

1. To avoid being criticised by others (e.g., manager, colleagues)
2. To get recognised or rewarded by others for the effort that I put in

TASK HEURISTIC, AUTONOMY AND FEEDBACK FROM THE TASK

Please read the following statements and rate them according to how much you agree with them in relation to this task or activity from 1 (strongly disagree) to 7 (strongly agree)

Task heuristic

1. The task required me to apply my skills and knowledge to complete it
2. The task involved solving problems that had no obvious correct answer

Task autonomy

1. I had freedom in how I did the task
2. I had significant autonomy in relation to the task

Feedback from the task itself

1. The task itself provided me with direct and clear information about the effectiveness (e.g., quality and quantity) of my performance
2. The task itself provided me with information about my performance.

PRODUCTIVITY

Please indicate, on the following scale, how productive you were in performing this task or activity:

1. Extremely unproductive
2. Quite unproductive
3. Slightly unproductive
4. Neither one nor the other
5. Slightly productive
6. Quite productive
7. Extremely productive

SUBJECTIVE WELLBEING

In relation to the task or activity, to what extent did you feel each of the following (1 = not at all, 7 = a great deal)

- | | |
|------------------|---------------|
| 13. Calm | 19. Tense |
| 14. Contented | 20. Uneasy |
| 15. Relaxed | 21. Worried |
| 16. Cheerful | 22. Depressed |
| 17. Enthusiastic | 23. Gloomy |
| 18. Optimistic | 24. Miserable |

ENGAGEMENT

The following questions are about how you felt while you were performing the task or activity. Please read each statement carefully and indicate the extent to which you felt that way in relation to this task or activity from 1 (not at all) to 7 (a great deal).

Vigour

1. I felt bursting with energy (VI)
2. I felt strong and vigorous (VI)

Dedication

1. I felt enthusiastic about the task (DE)
2. The task inspired me (DE)

Absorption

1. I was completely absorbed in the task (AB)
2. I was working intensely on the task (AB)

QUALITATIVE DESCRIPTION OF TASK

These final questions are about the feedback, recognition or reward that you received or expect to receive in relation to the task or activity:

Please describe, in as much detail as possible, the nature of any feedback, recognition or reward that you received or expect to receive and how you feel about it.

[narrative response]

NATURE OF THE REWARD

What was the nature of the reward, recognition or feedback that you received or expected to receive? (Tick all that apply)

1. Verbal feedback
2. Written feedback
3. Financial or other material reward
4. Positive
5. Negative
6. Neutral
7. Other (please state)

PROXIMITY (CHARACTERISTIC OF SALIENCE)

When did you receive/do you expect to receive the feedback, recognition or reward?

(Tick all that apply)

1. Before today;
2. Today, before the task;
3. During the task;
4. Today, after the task;
5. I expect to receive it in the next week;
6. I expect to receive it in more than a week's time

EXPECTATION AND CONSPICUOSNESS (CHARACTERISTICS OF SALIENCE)

Please rate the following statements according to how you felt WHILE YOU WERE PERFORMING THE TASK

Expectation

1. I was expecting the performance of the task to lead to the feedback, recognition or reward
2. I expected to receive feedback, recognition or reward in relation to the task

Conspicuousness

1. I was conscious of the feedback, recognition or reward whilst I was performing the task
2. I was thinking about the feedback, recognition or reward whilst doing the task

Appendix IV – Publications Arising From This Thesis

Hewett, R. (2014) "Reward salience and motivation attribution in everyday work; a self-determination theory perspective" *Institute of Work Psychology International Conference*; Sheffield, UK; June 2014.

Hewett, R. (2014) "Bonuses reduce autonomous motivation, but not due to need thwarting" *The 29th Annual Conference of the Society of Industrial and Organizational Psychology*; Honolulu, HI, USA; May 2014

Hewett, R. (2013) "A Longitudinal Exploration of the Impact of Performance-related Reward on Happiness at Work" *Academy of Management Annual Meeting*; Orlando, FL, USA; August 2013.

Hewett, R. (2013) "Context matters: The impact of salient rewards on motivation during the working day" *International Self-Determination Theory Conference*; Rochester, NY, USA; June 2013. Poster presentation.

Hewett, R. (2013) "By day and by disposition: The effects of autonomous motivation on wellbeing, engagement and performance at two levels" *European Association of Work and Organizational Psychology conference*; Munster, Germany; May 2013.

Hewett, R. (2013) "The salience of everyday rewards and motivation: A workplace diary study based on Self-determination Theory" *European Association of Work and Organizational Psychology conference*; Munster, Germany; May 2013.

Hewett, R. (2012) "Daily rewards and motivation at work" *European Association of Work and Organizational Psychology - Third Early Career Researcher Summer School*; Morschach, Switzerland; August 2012. Poster presentation. *Runner up in poster competition.*

Hewett, R. (2012) "A diary study of daily rewards and motivation as proposed by Self-determination Theory" *European Association of Work and Organizational Psychology - Third Early Career Researcher Summer School*; Morschach, Switzerland; August 2012.

Hewett, R. (2012) "The relationship between reward and intrinsic, identified and external motivation at work; a self-determination theory perspective" *Institute of Work Psychology International Conference*; Sheffield, UK; June 2012.

Hewett, R. (2012) "Performance-related reward and motivation: Self-Determination Theory in an organisational setting" *Workshop on Research Advances in Organizational Behavior and Human Resources Management*; Paris, France; May 2012.

Hewett, R. (2011) "Workers' experiences of the regulation of highly motivated behaviour – self-determination theory in the work context" *European Association of Work and Organizational Psychology conference*; Maastricht, Netherlands; May 2011. Interactive poster presentation.

Hewett, R. (2011) "Self-determination theory in the workplace – a qualitative study of motivational experience and agenda for future research" *Workshop on Research Advances in Organizational Behavior and Human Resources Management*; Paris, France; May 2011.

Hewett, R. (2010) "Exploring workers' experiences of behaviour regulation" *International Self-Determination Theory Conference*; Ghent, Belgium; May 2010. Poster presentation.
