

**THE ROLE OF INDIVIDUALIST AND  
COLLECTIVIST ORIENTATIONS ON  
SELF-DETERMINED MOTIVATION:  
INTEGRATING SELF-DETERMINATION  
THEORY AND GROUP PROCESSES**

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**Panagiotis Rentzelas**

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I dedicate this thesis to the memory of my beloved brother Christophoros D.  
Rentzelas (1981-1997).

## **ABSTRACT**

The main aim of this thesis was to examine the role of individualism and collectivism as situational group norms on intrinsic motivation. A further aim was to examine the effect of individual differences in individualist and collectivist orientations on the effect of autonomous motivation on intention and behaviour. This research integrated the concept of self-determined and intrinsic motivation as postulated in Self-Determination Theory (Deci & Ryan, 1985a, 2000, 2002), individualism and collectivism as group norms from a Social Identity Theory perspective (Tajfel 1974, 1978; Tajfel & Turner, 1979; McAuliffe et al, 2003), independence and interdependence as individual differences in self-construals from Self-Systems Theory (Markus & Kitayama, 1991b), and constructs from the Theory of Planned Behaviour (Ajzen, 1985). After reviewing the literature in Chapter 1, it was hypothesised that individualist and collectivist group norms could be situationally-induced and would interact with the environmental contingencies that support intrinsic motivation in predicting people's levels of intrinsic motivation. It was also hypothesised that individualist and collectivist orientations at an individual difference level would change the relationship between autonomous motivation and intentional behaviour. Chapter 2 presents the development of a methodological tool to manipulate individualist and collectivist group norms. Two studies employing a minimal group paradigm investigated the effect of individualist or collectivist group norms on evaluation of employees behaviour, group tolerance, relatedness, and identification in group members from individualist (British) or collectivist (Chinese and Greeks) cultural backgrounds. Chapters 3 and 4 tackle the main aim of this thesis and the results of three studies provide evidence that when the group norm is individualist group members experience higher levels of intrinsic motivation when

they exercise personal choice over a target activity, whereas when the group norm is collectivist group members experience higher intrinsic motivation when a significant other makes a choice for them or provides personal choice. Chapter 5 brings the level of analysis from the group to the individual. This is achieved in a study investigating the moderating effects of independent (individualist) and interdependent (collectivist) self-construals on the effect of autonomous motivation on intentions and actual physical activity behaviour. In the concluding chapter, Chapter 6, the theoretical and practical implications of the research are discussed and directions for future research provided.



## ACKNOWLEDGEMENTS

“Consciousness is... from the very beginning a social product, and remains so as long as humans exist at all. Consciousness is at first, of course, merely consciousness concerning the immediate sensuous environment and consciousness of the limited connection with other persons and things outside the individual who is growing self-conscious.”

-Marx and Engels, 1978 (1846), *The German Ideology*.

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# CHAPTER 1

## Theoretical Overview

### 1.1 Human motivation: A self-determination theory approach

Self-Determination Theory (SDT) is a general theory of human motivation, psychological needs, and human personality concerned with human development in social contexts and focuses on the degree to which human behaviour is self-determined. The theory is an organismic dialectic theory based on the postulation that humans are active, growth-oriented organisms motivated to engage in interesting activities and to exercise their full potential. The theory also proposes that social contexts can either support or thwart self-determined motivation and behaviour. Thus behavioural engagement is determined through the dialectic relationship between the organismic human tendency for growth and self-determination (tendencies within the person) and the social context (contingencies in the environment).

The concept of intrinsic motivation is central to SDT. When a person is intrinsically motivated toward a particular task or activity, he or she engages in the activity for the satisfaction inherently associated with the activity (Ryan & Deci, 2000a). When people are intrinsically motivated, behavioural causation is internal to the organism and they engage in the activity for the sense of satisfaction, enjoyment, and challenge they gain from it. Intrinsic motivation is considered innate and is critical for people's cognitive, social, and physical development (Ryan & Deci, 2000a). The qualities associated with intrinsically-motivated activities, like the inclination to engage in new and novel activities or the application of newly-learned



skills, is an important predictor of psychological well-being in adults (Csikszentmihalyi & Rathunde, 1993; Ryan, 1995).

The above constitute the psychological characteristics of intrinsic motivation. In order to empirically investigate intrinsic motivation there is the need for operational definitions. Behavioural observation of intrinsic motivation constitutes the first and primary paradigm to empirically measure and manipulate intrinsic motivation. It is described as the free-choice activity where an individual engages on a particular task or activity in the absence of a reward contingency or control (Deci & Ryan, 1985). In order to avoid over-simplification and validity of the measurement, psychological contexts as task or activity satisfaction should be taken under consideration (Ryan, 1982). This type of intrinsic motivation measurement paradigm is being employed in Chapters 3 and 4. The second operational definition of intrinsic motivation utilises the use of questionnaires, such as the Intrinsic Motivation Inventory. The instrument among other scales includes an interest/enjoyment subscale measuring the self-reported intrinsic motivation a participant is experiencing over a target activity. The intrinsic motivation inventory holds strong support of its validity (Duncan & Mcauley, 1987) and it has been used in Chapter 5. Finally, intrinsic motivation can be measured as the quality of performance or the outcomes of an activity, since creativity, flexibility and spontaneity (Deci & Ryan, 1985).

From the SDT perspective, the construct of intrinsic motivation is an evolved propensity to engage in behaviours for reasons of personal causation rather than for external contingencies or reinforcement (Ryan, Kuhl, & Deci, 1997). As such, SDT is centred on the assumption that humans are active organisms, holding innate tendencies towards psychological growth, striving to approach challenges in their environments and integrating these challenges into a coherent sense of self. This



tendency arises from the dialectical relationship between the active organism (i.e., the person) and the social context (i.e., the environment) (Deci & Ryan, 2000; Ryan & Deci, 2000b). The nutrients for human healthy development and experience of intrinsically-motivated behaviours are the basic psychological needs for competence, relatedness, and autonomy (Deci & Ryan, 2000). These basic psychological needs are common to all people regardless of gender and cultural background and, similar to biological needs, they are considered innate. Social contexts can support the satisfaction of the basic psychological needs resulting in effective functioning and adaptive outcomes. In contrast, the thwarting of these needs results in sub-optimal development and maladaptive outcomes (Deci & Ryan, 2000).

SDT is a general meta-theory composed of four mini theories. Each mini theory provides an account of the specific personal and environmental determinants of human motivation and the processes that lead to self-determined motivation and optimal functioning (Deci & Ryan, 2000; Ryan & Deci, 2000c). Cognitive evaluation theory (Deci, 1971; Deci & Ryan, 2000) outlines the situations and environments that foster intrinsic motivation. Organismic integration theory (Deci & Ryan, 1985a) outlines the interpersonal factors involved in the regulation of self-determined form of motivation and behaviour. Causality orientations theory (Deci & Ryan, 1985b, 2002) describes the effects of individual differences in self-determined behaviour on motivation and behaviour. Finally, basic psychological needs theory (Deci & Ryan, 2000) outlines how the concept of the psychological needs affects motivation and behaviour.

## **1.2 SDT's mini- theories**

### **1.2.1 Cognitive evaluation theory**

Cognitive evaluation theory examines how social contexts and environments can either support or thwart intrinsic motivation (Deci & Ryan, 1987). The theory proposes that social factors or events and the person's interpretation of them are the direct determinants of intrinsically-motivated behaviours. Social events can affect motivation based on the functional significance (i.e., psychological meaning) that these social external factors have to the individual.

Deci and Ryan (1980), elaborating on the ideas of deCharms (1968) and Heider (1958), suggested that intrinsic motivation is characterised by an internal direction of the organism's locus of causality, meaning that a person perceives him/herself to the origin of their behaviour, that they have chosen to engage in the behaviour, that they perform the behaviour out of a sense of personal ownership of their actions, and that there is no external reason or contingency for engaging in the behaviour other than the satisfaction and enjoyment gained from the behaviour itself. In contrast, social factors that are external to the individual result in extrinsic motivation and the person is unlikely to view him/herself as the initiator of their behaviour and instead feels controlled by external agents in their environment such as significant others and rewards (Deci & Ryan, 1980).

#### **Controlling social factors: The role of rewards**

Deci (1971) was interested in the effect of rewards, an extrinsic contingency, on intrinsic motivation. His experiments required the provision of external rewards to people and the behavioural measurement of motivation. In his experiments, the reward manipulation was achieved by giving experimental participants a monetary

payment for the time spent on the task. More specifically, participants had to work on a puzzle for a set period of time. After this the experimenter made an excuse and left the laboratory for eight minutes leaving the participant alone with the option of continuing on the task or engaging in a selection of alternative tasks (e.g., reading magazines). During this period the amount of time that the participant spent on the target activity was the behavioural measure of intrinsic motivation. This method of measuring intrinsic motivation is referred to as the 'free-choice' paradigm.

The study results suggested that participants that did not receive any reward for the target activity spent significantly more of their free time engaged with the activity compared to those who have received a reward. Thus participants in the reward condition exhibited lower levels of intrinsic motivation than participants in the no reward condition. This suggests that when people receive rewards for engaging with an interesting activity they tend to display less intrinsic motivation than those that do not receive a reward. This is described as the *undermining* effect (Deci & Ryan, 1980) and demonstrates the negative effects of *controlling* social factors on intrinsic motivation.

The mechanism behind the undermining effect proposed by Deci and Ryan (1980) can be traced in a shift of a person's *perceived locus of causality* of their behaviour. The locus of causality reflects a person's perception of the origin or cause of their behaviour. An internal locus reflects personal agency and ownership of the action and is akin to intrinsic motivation. An external locus reflects the control of the behaviour by external contingencies and environmental agents and reflects low intrinsic motivation. Rewards cause a shift in the perceived locus from internal (person controls the behaviour) to external (significant other or environmental contingency controls the behaviour) and therefore undermine intrinsic motivation. It



is important to note that people that have low intrinsic motivation will still persist in the task as long as the reward contingency remains, they only desist when the reward contingency is removed. This removes the perceived cause of their behaviour i.e. to gain the reward based and results in behavioural desistance.

However, the effects that rewards have on intrinsic motivation can be a function of the way that rewards' are presented. Cognitive evaluation theory takes into account whether rewards are expected or not. For example, if a reward is not expected when a participant is working on a task it will not undermine the participant's intrinsic motivation (Deci, Koestner, & Ryan, 1999a). In order to better understand and account for the effects of rewards on intrinsic motivation a taxonomy of reward contingencies is presented (Ryan, Mims, & Koestner, 1983). *Task-noncontingent rewards* are given for engaging in an activity or behaviour that is unrelated to the target activity (e.g., a reward given for just taking part in an activity); *task-contingent rewards* are specifically given for participation in and completion of the target task; *performance-contingent rewards* are given when the target activity has been performed but depends on the participant reaching a normative standard; *completion-contingent rewards* are given when the participant has successfully completed the target activity; and *engagement-contingent rewards* are given for participating or engaging in the task in the first place. There is a considerable body of research that has examined the effects of these different types of reward contingency on intrinsic motivation (Deci, et al., 1999a).

A seminal meta-analysis conducted by Deci and colleagues (1999a) reviewed 128 studies on the area of intrinsic motivation and found consistent support across the literature that tangible rewards undermine intrinsic motivation. More specifically, it was found that task-contingent, completion-contingent, and engagement-contingent

rewards undermine intrinsic motivation. The effects of performance-contingent rewards were found to be more complicated. This is attributed to the potential for these types of rewards to provide positive feedback on performance. However, when they are compared with experimental conditions where positive feedback does not include any type of reward they are found to decrease intrinsic motivation (Harackiewicz, Manderlink, & Sansone, 1984).

It seems that the informational aspect of rewards can have a significant effect on intrinsic motivation. Rewards presented when the informational aspect is made salient do not necessarily undermine intrinsic motivation. However, this is only the case when the information attached with the reward is not controlling (Ryan, et al., 1983). Such information should minimise authoritarian style, acknowledge good performance, and emphasize the interesting aspects of the task (Deci, Egharri, Patrick, & Leone, 1994; Deci, Nezlek, & Sheinman, 1981; Koestner, Ryan, Bernieri, & Holt, 1984).

However, it is not only tangible rewards that undermine intrinsic motivation, but also any kind of environmental and social factors that shift a person's perception of the origin of their behaviour towards an external perceived locus of causality. For example, awards in educational settings (Lepper & Greene, 1975), surveillance (Pittman, Davey, Alafat, Wetherill, & Kramer, 1980), deadlines (Amabile, Dejong, & Lepper, 1976), evaluation (Amabile, 1979), goal imposition (Mossholder, 1980), and competition (Deci, Betley, Kahle, Abrams, & Porac, 1981) can all cause a shift in the perceived locus of causality for the behaviour from internal to external and therefore undermine intrinsic motivation.

**Social factors that support intrinsic motivation: The role of choice**



Just as rewards undermine intrinsic motivation, there are also environmental factors that enhance intrinsic motivation. The provision of choice over different target activities has been hypothesised to be an environmental factor that promotes intrinsic motivation. To test this premise Zuckerman et al (1978) used an experimental set up like that used by Deci (1971). This time participants, rather than being provided with rewards, were assigned to experimental conditions with either personal choice over the type of the puzzle to work on in the initial task or no choice. In the no choice condition the target activity was assigned by the experimenter. Intrinsic motivation was measured as the amount of free time participants spent on the target activity after the completion of the initial task. Results revealed that participants in the choice condition indicated higher levels of intrinsic motivation than participants in the no choice condition. The provision of choice resulted in an increase of intrinsic motivation. According to cognitive evaluation theory, choice is an environmental factor that shifts the locus of causality from the environment to the person and gives to a person a sense of self-determination over the cause of the behaviour.

Further, studies have reported that personal choice enhances intrinsic motivation for children in educational settings (Cordova & Lepper, 1996; Swann & Pittman, 1977). Indeed, choice has been found to have a positive effect on a number of adaptive psychological outcomes, like personal control (Rotter, 1966), effort, and task performance (Kernan, Heimann, & Hanges, 1991). Furthermore, it seems that exercising choice increases confidence and risk-taking (Langer, 1975). However, there is a line of research suggesting that choice might have some disadvantages (Schwartz, 2000, 2004). There are a number of studies where choice had no effect on intrinsic motivation or had very little positive effects (Flowerday & Schraw, 2003;

Flowerday, Schraw, & Stevens, 2004; Overskeid & Svartdal, 1996; Reeve, Nix, & Hamm, 2003).

Notwithstanding these null findings, a recent meta-analysis conducted on 41 studies examining the role of choice on intrinsic motivation, effort, and task performance found support for the positive effect of choice on intrinsic motivation (Patall, Cooper, & Robinson, 2008). Overall, the exercise of personal choice is viewed as an environmental factor that supports intrinsic motivation. It should also be noted that choice is positively related to behavioural satisfaction and intrinsic motivation when it helps the individual reflect on his/her personal values, goals, and interests and when it is presented with a self-determined functional significance where the individual feels that he or she is initiator of their actions.

Positive feedback is another environmental factor that can enhance intrinsic motivation. Again an array of studies has indicated that when feedback provides positive informational content it can increase intrinsic motivation (Blanck, Reis, & Jackson, 1984; Boggiano & Ruble, 1979; Vallerand & Reid, 1984). It should be noted that positive feedback promotes intrinsic motivation only when it does not hold a form of interpersonal control. In such cases, controlling contextual feedback can undermine intrinsic motivation (Deci & Ryan, 1985a; Ryan, 1982).

In summary, cognitive evaluation theory is a sub-theory of SDT outlining the environmental factors that promote or undermine intrinsic motivation. Factors like rewards and controlling feedback tend to shift people's perceived locus of causality to outside the individual and undermine intrinsic motivation. Social events like choice and informational feedback promote an internal perceived locus of causality and tend to increase intrinsic motivation.



### **1.2.2. Organismic integration theory**

Organismic integration theory, the second sub-theory of SDT, outlines the different forms of motivational regulation and contextual factors that promote or thwart the internalisation and integration of behavioural regulatory processes. Deci and Ryan (1985a) suggested that people's motives for engaging in behaviour could be characterised on a continuum from extrinsic to intrinsic motivation, rather than a dichotomous distinction between intrinsic and extrinsic motivation. This was based on the recognition that individuals acting for extrinsic reasons might differ in the degree of perceived self-determination of their motives (Deci & Ryan, 1985a).

SDT recognises that individuals have a tendency to internalise and integrate behaviours that serve self-determined goals or outcomes and satisfy basic psychological needs (Deci & Flaste, 1995). Thus, people tend to internalise external regulation and environmental factors into a unified aspect of the self. For example, an individual might be initially engaged in an activity not out of personal interest but by peer or family pressure. Over time the individual might internalise the regulatory process (i.e., peer pressure) for the behaviour because he/she perceives the outcome of that behaviour as self-determined or autonomous. This results in the behaviour being integrated into a repertoire of behaviours that serve self-determined goals or outcomes and satisfy psychological needs. This process of *internalisation* refers to the change in the perceived locus of causality of the activities from being externally controlled, thus having an external perceived locus of causality with low internalisation, to becoming internally regulated, thus having an internal perceived locus of causality and having high internalisation (Ryan & Connell, 1989).

#### **The self-determination continuum**

Within organismic integration theory, extrinsically-motivated behaviours can vary in the degree of self-determination as a function of their internalisation (Deci & Ryan, 1985a). Deci and Ryan (1985a) proposed that the dichotomy between extrinsic and intrinsic motivation cannot fully describe the different levels of self-determination and amotivation that people experience. Instead, they suggested a more differentiated *perceived locus of causality*. They differentiated motivation into different subtypes on a continuum ranging from amotivation (external locus) to intrinsic motivation (internal locus). The differentiated continuum included the following graded conceptualisations of motivational regulation ranging from external to internal: amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic motivation.

*Amotivation* technically lies outside the perceived locus of causality and it relates to the absence of motivational regulation. It is related to the construct of learned helplessness (Seligman, 1972). Amotivation is described as a state where the individual lacks intentionality and personal causation (Ryan & Deci, 2000b). *External regulation* refers to behavioural engagement due to external reinforcements and is considered the prototypical form of extrinsic motivation (Ryan & Deci, 2000b). Individuals typically experience extrinsically regulated-behaviours as controlled and actions have an external perceived locus of causality. *Introjected regulation* is another form of extrinsic motivation where an individual engages in a behaviour to avoid feelings of guilt or shame (Ryan & Deci, 2000b). Introjected-regulated behaviours tend to be affectively driven and characterised as externally-referenced in terms of the perceived locus of causality continuum as they are not really experienced as part of the self. Both external regulation and introjected regulation are considered forms of controlled or less self-determined motivation as they describe reasons of motives for



performing a behaviour that is not autonomous or self-determined (Williams, Grow, Freedman, Ryan, & Deci, 1996). *Identified regulation* is a form of extrinsic motivation but this type of motivation is more autonomous and self-determined than external and introjected regulation (Ryan & Deci, 2000b). Identified regulation is characterised by engaging in behaviours for self-determined reasons and values that are important to the individual. *Integrated regulation* is the most autonomous form of extrinsic motivation as the individual engages in the behaviour for self-determined reasons and the behaviour has been completely internalised as part of the individual's true sense of self. Even if integrated regulation is very similar to intrinsic motivation, the focus of the behaviour is still on the outcome and not engagement in the behaviour for its own sake.

Ryan and Connell (1989) provided the initial empirical test of the perceived locus of causality continuum. They investigated classroom motives among school children. Their results suggested a simplex-ordered pattern of relationships between the perceived locus of causality continuum variables. A simplex-ordered pattern of relations implies that proximal constructs are more strongly correlated than more distal constructs. This is an indication supporting the internalisation and a graduated conceptualisation of different forms of behavioural regulation rather than dichotomy between intrinsic and extrinsic motivation.

Finally, a wide range of empirical findings support that autonomous forms of motivation are associated with better educational outcomes such as better performance (Miserandino, 1996) and lower dropout (Vallerand & Bissonnette, 1992). Moreover, it has been shown that greater internalisation is associated with maintenance of weight loss (Williams, et al., 1996), physical exercise (Chatzisarantis,



Biddle, & Meek, 1997), and intimate relationships (Blais, Boucher, Sabourin, & Vallerand, 1990).

In summary, organismic integration theory suggests a graduated conceptualisation of motivational regulations on a self-determination continuum ranging from high to low self-determination. The continuum reflects the extent to which goals and behaviours are internalised by an individual as serving autonomous goals and outcomes. People who demonstrate a high degree of internalisation of behaviours have higher levels of personal well being, behavioural persistence, and effectiveness to individual assimilation within a group (Ryan & Deci, 2000b; Ryan, et al., 1997).

### **1.2.3 Causality orientations theory**

The third sub-theory of SDT, causality orientations theory, deals with the stable individual difference factors that affect an individual's motivation across many contexts (Deci & Ryan, 2002). SDT suggests that an individual's motivation and behaviour is a function of the immediate social contexts and the person's individual differences that have developed over time through interaction with the social world. Causality orientations theory examines the role of these stable individual differences on motivational processes.

Causality orientations theory proposes three personality orientations that reflect generalised tendencies in the way in which people experience motivation in their environment across many contexts (Deci & Ryan, 2002). The first is *autonomy orientation*, which reflects a generalised tendency to be oriented toward self-determined forms of motivation, and involves the regulation of behaviour on the basis of interest, choice, and personal agency. The second is *controlled orientation*, which reflects an orientation toward to controlling forms of motivation and a tendency to

behave in response to external controls and contingencies. Finally, *impersonal orientation* is related to amotivation and reflects an orientation toward non-intentionality and absence of motivation.

Deci and Ryan (1985b) developed the General Causality Orientations Scale as an individual difference measure of the above-mentioned dimensions. They found that autonomy orientation was associated with self-esteem, ego-development, and psychological indicators of well-being. Controlled orientation was related with public self-consciousness and pressure. Finally, impersonal orientation was related with low self-esteem and depression. Koestner, Bernieri, and Zuckerman (1992) created two groups of autonomy-oriented and controlled-oriented individuals based on their score on General Causality Orientation Scale and examined participant's consistency among behaviours and attitudes. Results indicated that autonomy-oriented individuals had a positive relationship between behaviours and attitudes whereas controlled-oriented individuals exhibited a weak or even negative relationship between behaviour and attitudes. In summary, causality orientations theory provides a basis for individual differences in motivational orientations which reflect generalised tendencies to act in an autonomous, controlled, or impersonal fashion across many behavioural domains.

#### **1.2.4 Basic psychological needs theory**

Self-Determination Theory postulates that a thorough understanding of intrinsic motivation requires a consideration of the innate psychological needs for competence, autonomy, and relatedness is required (Deci & Ryan, 2000). The introduction of basic needs is not new in theory and research in human motivation. Hull (1943) described the role of innate physiological needs in producing drive states that made an organism to act as to satisfy these needs. However, the Hullian drive



reduction theory for motivation cannot provide a meaningful account for exploratory and spontaneous human behaviours such as play (Deci & Ryan, 2000). Murray (1938) represents a second tradition and suggests that some needs are psychological rather than physiological and that such needs are acquired rather than innate. Murray gave a very broad and loose definition of needs suggesting that anything that lead to action could be classified as a need (Deci & Ryan, 2000).

Within SDT, the nature and definition of needs follow the Hullian tradition, in that the existence of needs are innate and organismic necessities and follow the Murray tradition insofar as the needs are defined as psychological than physiological. In SDT, needs are viewed as essential motivating forces directly linked with adaptive outcomes like psychological well-being when nurtured and lead to negative consequences and maladaptive outcomes when thwarted (Ryan & Deci, 2000b; Ryan & Frederick, 1997; Waterman, 1993). Empirical research identifies a positive relationship between basic need satisfaction and well-being at both the between-person and within-person level (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000; Sheldon, Ryan, & Reis, 1996).

The basic psychological needs for competence, relatedness, and autonomy exist at a global level, are trait like, and hold cross-cultural validity (Sheldon, Elliot, Kim, & Kasser, 2001). However, the means by which these needs can be satisfied can vary as a function of age, gender, and culture but the basic concept implying that basic need satisfaction is required for human well-being remains a constant for all the above factors. Furthermore, the cross-cultural validity of the basic psychological needs has been supported (Chirkov, Ryan, & Willness, 2005). Deci and Ryan (2002) suggested that it is irrelevant as to whether people hold a conscious and explicit

awareness for need satisfaction or not, but they will strive towards situations that are need supportive.

Comparing and contrasting the psychological needs with the biological ones, both are essential for human organisms to survive, develop and thrive. Withholding a need element results to the descent of growth, where as environments that make available need satisfaction will lead to organism maintenance or development. Furthermore, a characteristic that both biological and psychological needs are sharing is that organisms are constructed for the satisfaction of such needs. Finally, the key difference between the two types of human needs is that biological needs reach a point of fulfilment satiation, where as psychological needs are not.

### **The basic psychological need for Competence**

The need of competence is the perceived ability to produce outcomes and be effective in altering the environment. The need originates from the work of White (1959) on effectance motivation where he proposed that people hold a need for effective interaction with the environment that leads to actions such curiosity and investigation leading to attempts to master the environment. In SDT discourse, the need for competence is described as a feeling of confidence and effectance with environmental interactions that will help develop a repertoire of skills and abilities for future environmental manipulations (Deci & Ryan, 2002). Intrinsic motivation and competence are related because competence is an important aspect of personal agency i.e. the ability to produce outcomes and part of intrinsic motivation is to have personal effectance and agency (Elliot, McGregor, & Thrash, 2002). Indeed, there is empirical evidence support the relationship between competence and intrinsic motivation (Biddle, Soos, & Chatzisarantis, 1999; Reeve & Deci, 1996; Vallerand & Reid, 1984).

### **The basic psychological need for Relatedness**



The need for relatedness involves the innate human need for a sense of connectedness with others (Deci & Ryan, 2002). Secure attachments and interaction with peers are key outcomes of relatedness satisfaction. In an initial study in the area it was revealed that the presence of an adult who was not interacting with children doing an activity resulted to diminished levels of intrinsic motivation (Anderson, Manoogian, & Reznick, 1976). Furthermore, children of autonomy supportive but securely attached caregivers tend to spend longer periods in independent motivated exploratory behaviours (Frodi, Bridges, & Grolnick, 1985). Relatedness is therefore important for intrinsic motivation. Research indicates that caring and supportive teaching environments enable greater intrinsic motivation in students (Ryan & Grolnick, 1986). Relatedness-supportive environments provide the necessary background in which other psychological needs can flourish (Deci & Ryan, 2000).

### **The basic psychological need for Autonomy**

The need for autonomy concerns all the actions and processes in which an individual engages that are perceived to be initiated by the self and are consistent with his or her true sense of self (Ryan, et al., 1997). Autonomously-motivated behaviours represent the true expression of the self, as the individual perceives he or she is the initiator of the action and the origin of his or her own behaviour.

Environments that support the need of autonomy can have a positive effect on intrinsic motivation (Chatzisarantis, Hagger, Smith, & Phoenix, 2004; Hagger, Chatzisarantis, Culverhouse, & Biddle, 2003). Autonomy-supportive environments can result in a shift in the locus of causality towards autonomous forms of motivation. Autonomy-supportive social determinants are characterised by behaviours in significant others such as providing choice, acknowledging experience, and confidence (Deci, et al., 1994). The opposite is controlling environments and

behaviours and contingencies such as threats, surveillance, evaluations, and deadlines characterise these kinds of environment (Deci & Ryan, 2000).

Autonomy is an important developmental process since it is a salient factor for the experience of prototypical expressions of intrinsic motivation manifested as play, exploration, and curiosity-oriented behaviours (Ryan, et al., 1997) from a very early stage of the human development (Deci & Ryan, 1985a). Also, autonomy-supportive teaching environments (Deci, Schwartz, Sheinman, & Ryan, 1981; Ryan & Grolnick, 1986), work environments (Deci, Connell, & Ryan, 1989), and health and activity contexts (Chatzisarantis, Hagger, Biddle, & Karageorghis, 2002) are associated with greater intrinsic motivation.

In summary, the basic psychological needs for competence, relatedness, and autonomy are innate and stable trait-like constructs across age, gender, and culture. The satisfaction of all three needs is considered important for human well-being and intrinsic motivation. Indeed, Ntoumanis (2001) found that the satisfaction of all needs can predict motivation towards physical education classes. People's motivation and satisfaction of work environment can be a function of psychological needs satisfaction (Deci, et al., 2001). Also, the lack of support for psychological need satisfaction from an early stage of the life can result to poor internalization processes leading to lack of socialisation and behavioural regulation (Deci & Flaste, 1995; Ryan, 1995; Ryan, et al., 1997).

### **1.3 Autonomy and culture**

Out of all the psychological needs postulated in SDT, the need for autonomy is the one that is the focus of most debate as to whether it is an actual need or a culture-specific construct prevalent to some cultural groups. Usually, this controversy is caused by the misinterpretation of autonomy as akin to independence or the



methodological deduction of the psychological and discursive qualities of autonomy in comparison with competence and relatedness (Ryan & Deci, 2000c). The direction of the debate is positioned whether autonomy is a need that is confined only for people of Europe and North America (Oishi, 2000). This argument stems from the area of psychological differences among cultures.

Individualism and collectivism are the cultural constructs which are most commonly cited in cross-cultural social psychological research and are highly salient to the understanding of cultural variations in motivation and behaviour (Schimmack, Oishi, & Diener, 2005). Examples of individualist orientated cultures are those of Western Europe, North America, and Australia. Members of these societies tend to endorse personal goals over collective and try to distinguish themselves from the group, individuality is considered a virtue (Triandis, 1989; Triandis, Bontempo, Villareal, Asai, & Lucca, 1988). Collectivism tends to prevail in cultures in Asia, Latin America, Eastern Europe, and rural communities of South Europe (Hofstede, 1991). Members of collectivist cultures tend to indicate greater value to group harmony, and respect for social and family hierarchy. They tend to sacrifice personal satisfaction and choice over the group goals and indications of uniqueness over group goals and social harmony is considered deviant (Kim & Markus, 1999; Triandis, 1989, 1995; Triandis, et al., 1988).

Markus and Kitayama (1991b) put forward the concept of independent and interdependent self-construals in order to account for the differences in cognitive, emotional, and motivational experiences that members of individualist or collectivist cultures exhibit. More specifically, people holding an independent view of the self tend to comply with the cultural norm of individualism and express the self as distinct from others. On the contrary, interdependent individuals adhere the cultural norm of



collectivism by maintaining connection and interdependence with others. Independent individuals are analytic in terms of cognitive style; they tend to focus on objects and people and are less sensitive to the context (Nisbett, Peng, Choi, & Norenzayan, 2001), whereas interdependent individuals hold a more holistic cognitive style where they are more attuned to contextual information (Kitayama, Duffy, Kawamura, & Larsen, 2003; Nisbett, et al., 2001). Finally, the different self-construals explain the differences in emotion feeling and expression between members of different cultural backgrounds. Ego-focused emotions such as anger frustration or pride are a characteristic of the independent self, as these emotions have an individual's attributes as the point of reference (Markus & Kitayama, 1991b). On the other hand, other-focused emotions such as sympathy and shame are characteristics of the interdependent self as these emotions tend to be the result of taking others' perspectives.

From the above description of the psychological differences between individualist and collectivist cultures, one could arrive at the conclusion that the need of autonomy shares characteristics identified with individualist cultures. Even if the dictionary definitions of autonomy and independence are very similar (Carver & Scheier, 2000), these two psychological constructs are theoretically and empirically treated differently in SDT. Cross-cultural research on autonomy (Chirkov & Ryan, 2001; Chirkov, Ryan, Kim, & Kaplan, 2003) suggests that any cultural practice can be engaged in autonomously manner and can predict human well-being irrespective of having an individualist or collectivist orientation. Furthermore, it seems that the internalisation of the cultural norm can manifest in different social determinants of autonomy satisfaction and intrinsic motivation (Iyengar & Lepper, 1999, 2002).

Indeed, research by Chirkov, Ryan, Kim, and Kaplan (2003) provides evidence for the effect of the internalisation of cultural norms on intrinsic motivation and psychological well being. Results suggested that the internalisation of cultural norms predicted intrinsic motivation and well-being irrespective of participants' individualist or collectivist orientation. This suggests that autonomy and individualism are different constructs. Individualism means acting alone or independently but not necessarily autonomously from an SDT point of view. Autonomy reflects acting in accordance with a sense of personal causation independent of external contingencies but it does not necessarily mean acting alone. If a person has internalised a collectivist cultural norm they may autonomously choose to become volitionally dependent on significant others. In such cases, apparently controlling contingencies provided by agents in the environment may be experienced as autonomous because the individual has freely chosen to be under the auspices of the agent.

Iyengar and Lepper (1999) examined the role of personal choice and choice made by a significant other on intrinsic motivation among children from different cultural backgrounds. In this study choice was manipulated by providing different types of choice between different versions of a word puzzle. There were three choice conditions: personal choice for the child, choice made by the experimenter, or choice made by a significant other or caregiver, who, in this instance, was the child's mother. The free choice paradigm was used to measure intrinsic motivation. Participants were children from an Anglo-American background, thought to have an individualist cultural orientation, and children from a Chinese-American background, thought to have a collectivist cultural orientation. Results indicated that children with an individualist cultural orientation experienced higher levels of intrinsic motivation



when they exercised personal choice. Children from a collectivist cultural background experienced higher levels of intrinsic motivation when a significant other exercised choice.

Although they may appear incongruent, Iyengar and Lepper's results are in agreement with SDT (Deci & Ryan, 2000; Ryan & Deci, 2000c). For children from a collectivist cultural background, choice by a significant other is the correct social determinant for intrinsic motivation since autonomy was supported by an environmental factor that was consistent with their cultural background. Children were likely to have internalised the needs of the significant other due to their cultural background and were more likely to feel more intrinsically motivated when they made the choice for the individual. This is because they had volitionally and autonomously chosen to be dependent upon the significant other and their judgements were viewed to be consistent with psychological needs for autonomy. The autonomy-supportive social determinant for intrinsic motivation congruent with orientation of children with an individualist cultural background was personal choice. It seems that in both groups the internalisation of the cultural norm has an effect on which is the optimal social determinant on respect of choice for autonomy and intrinsic motivation.

## **1.4 Theoretical overview and plan of thesis**

The research on the effects of individualist and collectivist cultural norms on intrinsic motivation specifies the role that different social structures (i.e., culture) can have on the way that intrinsic motivation is experienced. In SDT, individuals are viewed as active in their environment and in a constant organismic relationship with their social structures (Deci & Ryan, 1985a). The integration and internalisation of social norms can determine the optimal environmental factors for psychological need



satisfaction and intrinsic motivation. It is therefore predicted that the internalisation of cultural norms can affect people's interpretation of environmental factors that support or thwart psychological needs and intrinsic motivation (Ryan, 1995). The interplay between environmental contingencies (e.g., group norms), interpersonal orientations (e.g., cultural norms), the interpretation of need-satisfying events (e.g., choice), and self-determined forms of motivation is the cornerstone of this thesis.

The results from the cross-cultural studies on autonomy and intrinsic motivation (Chirkov, et al., 2003; Iyengar & Lepper, 1999) provide evidence for the cross-cultural validity of autonomy as psychological need. However, these studies investigate autonomy and intrinsic motivation only at the cultural level. Recent research developments can provide means for the investigation of individualism and collectivism as situational norms. McAuliffe and colleagues (2003) have developed an experimental method where the manipulation of individualist and collectivist group in the group level is possible.

The aim of this thesis is to examine the effect of individualist and collectivist group environments and situational contingencies that support autonomy on levels of intrinsic motivation. Specifically, the research reported in this thesis will examine whether individualist and collectivist orientations at the situational and individual difference levels rather than the cultural level will influence the effect of choice on intrinsic motivation and the effect of autonomous motivation on behaviour. Consistent with cross-cultural studies on SDT, the group norms of individualism and collectivism and the situational contingency of choice will be the focus of the experimental studies in this thesis. This is to achieve direct methodological and theoretical comparison with the cross-cultural studies of Chirkov et al (2003) and Iyengar and Lepper (1999). In addition, individualism and collectivism will be

examined as individual difference constructs and the moderating role that they can play in the relationship between intrinsic motivation and intentional behaviour.

*Chapter 2* will establish the necessary methodology for the empirical investigation of effect of the sources of choice on intrinsic motivation under conditions of individualist and collectivist group norms. This will be achieved through the development of a group norm manipulation from the perspective of Social Identity Theory. Social identity theory (Tajfel, 1974, 1978; Tajfel & Turner, 1979) is the dominant theory examining the social psychological mechanisms that underpin individuals' actions as a result of their membership of groups, real or implied. More specifically, research in the area (McAuliffe et al, 2003) provides initial indications that individualism and collectivism can function as a group norm affecting the behavioural judgements of group members. However, the validity of the effect was not cross-culturally validated and was not examined in people from a collectivist cultural background. The studies described in Chapter 2 further develop McAuliffe et al.'s methodology to situationally-manipulate individualist and collectivist norms and validate it in members from individualist and collectivist cultural backgrounds. This will help ascertain whether the manipulation will be effective independent cultural-level norms.

*Chapter 3* utilises the methodology developed in Chapter 2 with the choice manipulation methodology (Iyengar & Lepper, 1999; Zuckerman, et al., 1978) and investigates the effect of group norms and choice conditions on intrinsic motivation. Two experimental studies will investigate the effect of situationally-manipulated individualist and collectivist group norms and perceived source of choice on intrinsic motivation. Methods developed in Chapter 2 will be used in the manipulation of individualist and collectivist group norms. It is expected that people presented with an



individualist group norm will indicate higher levels of intrinsic motivation when provided with personal choice. In contrast, people provided with a collectivist group norm will indicate higher levels of intrinsic motivation when a significant other makes a choice for them. The aim is to replicate and extend the findings of Iyengar and Lepper (1999) in a situational context.

The aim of the study presented in *Chapter 4* is to replicate the findings from the studies presented in Chapter 3 and to extend the findings by providing an additional condition. The study will include a condition in which a significant other provides choice for the individual. This will demonstrate whether it is the significant other or the choice per se driving the increased intrinsic motivation in individuals presented with a collectivist group norm. In other words, personal choice given by an experimenter to an individual in a collectivist condition is will have less meaning than personal choice offered by a significant other.

In order to further investigate for the socio-cognitive factors that can be responsible for autonomous motivation in cultural and group situations, individualism and collectivism will be conceptualised as individual difference constructs and their role as predictors and moderators of the relationship between autonomous motivation and intentional behaviour investigated in *Chapter 5*. The aim of this study is to examine the role of individual differences in culturally-defined aspects of the self, based on individualist and collectivist orientations, in moderating effects of autonomous motivation on intentions and behaviour.

## **Summary**

The overall aims of this thesis is to investigate the situational effects of individualism and collectivism as group norms and perceived source of choice on intrinsic motivation and to examine the effect of individual differences in



individualism and collectivism on the relationship between autonomous motivation and intentional behaviour. Individualism and collectivism will therefore be expressed as a group norm and as an individual difference variable rather than a variable determined by membership of a specific cultural group as in previous research. In order to address this aim the following studies were conducted:

*Studies 1 and 2.* Two studies will be developed to cross-culturally validate a method to manipulate individualist and collectivist group norms. Building on the methodology of McAuliffe et al (2003), the study will examine the introduction of an individualist and collectivist group norms on perception of group members' behaviours, group tolerance, and group members relatedness. It is hypothesised that although people will tend to prefer collectivist behaviour in most normative situations as such behaviour is considered virtuous, that preference will be attenuated when the group norms favour individualism. These effects are expected to be consistent in participants from individualist (British) and collectivist (Chinese) cultural backgrounds.

*Studies 3 and 4.* The method for the manipulation of group norms will be adopted to examine the effect of different choice conditions on intrinsic motivation. It is hypothesised that people operating in an individualist-oriented group norm will exhibit higher levels of intrinsic motivation in a problem-solving task when they exercise personal choice. In contrast, people operating in a collectivist group norm will demonstrate higher levels of intrinsic motivation when a significant other makes the choice of task for them, in accordance with the cross-cultural research (Iyengar & Lepper, 1999, Chirkov et al, 2003).

*Study 5.* Extending the findings of Studies 3 and 4, this investigation aims to further establish whether the choice or provider of the choice is responsible for

increased intrinsic motivation among people operating in a collectivist group norm. If, as predicted, people in a collectivist group norm report higher levels of intrinsic motivation when a significant other makes a choice of task for them, rather than personal choice or experimenter choice, then it suggests that it is the perception that the significant other supports psychological needs and the autonomous interests of the group when making the choice. The person in the collectivist group norm has become volitionally dependent on the significant other. However, there is a possibility that the increased intrinsic motivation may be out of obligation to the significant other rather than true intrinsic motivation. In this study, an additional condition will be added in which the significant other will provide choice for participants in a collectivist norm. It is hypothesised that this condition should also result in significantly higher intrinsic motivation than personal and experimenter choice. This will rule out the possibility that the increased time spent on the task is out of obligation and demonstrate that the effect the norm on intrinsic motivation is due to construal of the significant other as supporting psychological needs rather than a sense of conformity.

Finally, the effects of individualism vs. collectivism as self-constructs are examined in an integrated model of behavioural prediction and autonomous motivation. It is hypothesised that such individual differences will have independent effects on intentions and behaviour and moderate the autonomy-behaviour relationship. This will provide evidence to suggest that individual differences in collectivist and individualist norms change the effect of autonomous motivation on behaviour. An alternative hypothesis is that autonomous motivation is a consistent predictor of intentional behaviour regardless of individual differences in cultural orientation, congruent with findings by Chirkov et al. (2003) and other self-determination theorist who demonstrate that self-determined motivation is universal

across cultures. To date, no study has examined these effects from the perspective of individual differences in cultural orientations, studies have solely focused on cultural differences defined by national groups (Blanchard, Kupperman, Sparling, Nehl Rhodes, Courneya, & Baker, 2009; Bagozzi, Lee, & Van Loo, 2001).



## **CHAPTER 2**

### **Establishing the methodology: Individualism and collectivism as group norms (Studies 1 and 2)**

#### **2.1 Introduction**

The primary aim of the present studies is to develop a valid and reliable method to manipulate individualist and collectivist group norms. This is important because the experimental manipulation of these norms is an essential method to be used in subsequent studies (see Chapters 3 and 4) to investigate the effects of individualist and collectivist group norms on intrinsic motivation. This will be achieved by developing and empirically testing a reliable method to manipulate individualist and collectivist group norms at a situational level. Chapter 1 provided an account on how individualism and collectivism as cultural norms can influence the role of choice as a determinant of intrinsic motivation. However, one of the main aims of this thesis is to investigate individualism and collectivism as group norms at a situational rather than a dispositional and cultural level and how these can affect intrinsic motivation levels among ostensible group members.

In order to investigate individualism and collectivism at the situational level, these cultural dimensions were treated as group norms operating in group situations. By employing methods from the group processes literature, two laboratory-based experiments investigated the degree to which individualism or collectivism can function as group norms. The evaluation was conducted using an experimental group processes method derived from previous studies (Jetten, McAuliffe, Hornsey, & Hogg, 2006; Jetten, Postmes, & McAuliffe, 2001; McAuliffe, Jetten, Hogg, &

Hornsey, 2001) and interpreted using a social identity theory framework (Tajfel & Turner, 1979).

### **2.1.1 Group norms and the theories of social identity/self-categorization**

Social identity theory (Tajfel, 1974, 1978; Tajfel & Turner, 1979) is a social psychological theory that aims to account for group processes and, in particular, how individuals act as a result of their membership of groups, real or implied. The theory advocates that people's self-concept is inextricably related to their group membership and helps form a psychological representation of their self as a group member, known as a social identity. This relation of self-concept and social identity results in the adaptation of specific cognitive and group strategies to maintain group harmony and integration both at the level of the self and the collective (Postmes & Jetten, 2006). In order for the above to be achieved, two major processes take place: social categorisation and self-enhancement. Social categorisation refers to the cognitive process related to the social projection and determination of in-group boundaries. Self-enhancement matches the consequences of categorisation with the dominant group norm (Hogg, et al., 2006).

Self-categorization theory examines the categorization process at a more individual level, i.e. the cognitive processes that lead a person to adopt the attitudes and characteristics of a group and behave in accordance with those characteristics. Prototypes are used as the reference points of the framework shaping up the group characteristics. Thus, when an individual becomes part of a group, the theory suggests that members become *depersonalised* at a cognitive and behavioural level with the dominant prototype acting as a set of rules. Through this processes an individual's self becomes congruent with those of the in-group members and results in a



subsequent change in the level of identity from personal to social (Hogg & Turner, 1987).

Central to the theory is people's tendency to conform to expected norms in group situations. According to Turner (1991) group norms are social group regularities that describe and define group membership. The self-categorization and depersonalization processes determine how people conform to the group norm because they adjust their attitudes and behaviour to be congruent with the pervading group norm (Abrams, Thomas, & Hogg, 1990; Hogg, Abrams, Otten, & Hinkle, 2004; Turner, 1985; Turner & Oakes, 1989)

This mechanism of norm assimilation can be briefly described as the categorisation of social and non-social stimuli which produce a perception accentuation effect where group members assign similarities or differences among stimuli in line with the group norm. This accentuation process can have attitudinal, behavioural, and emotional dimensions associated with categorisation. Perception accentuation is considered to be a direct consequence of categorisation, which, in social identity theory, is considered a basic and important human cognitive function that helps people to conform to group beliefs and attitudes (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). An empirical illustration of the self-categorisation process and a key methodological feature in the social identity tradition is the minimal group paradigm (Tajfel, 1970). In Tajfel's experiments, children were randomly assigned to groups by merely providing them with a group label. This had the consequence of group members categorising themselves as stereotypical members of the in-group resulting in discrimination toward out-group members and favouritism toward in-group members.



### **2.1.2 Individualism and collectivism as group norms**

There are links between explanations of group functioning provided by social identity theory and self-categorisation theory with the psychological attributes of individualism and collectivism. It can be argued that the discourse of social identity theory is strongly steeped in collectivist language. This is because collectivism is a universal cultural construct and shares the qualities of conformity with the norm and endorsement of group goals for common success and well-being. In contrast, individualism as a cultural psychological construct associated with independence from the group and individual uniqueness (Hofstede, 2001).

Indeed, Marques and colleagues (Marques, Abrams, Paez, & Martinez-Taboada, 1998) found that members of groups evaluated fellow in-group members displaying non-normative behaviour more negatively than out-group members. It is clear that the group formation and integration process favours group members that show characteristics that are normative, and this is congruent with collectivist tendencies and behaviours. Therefore, there is the tendency for group members to show collectivist behavioural characteristics in order to maintain a group's social identity and harmony. Individualist behaviours, on the other hand, are viewed negatively by group members because they are likely to be non-normative and therefore not optimal for group functioning. Group members displaying individualist behaviour are not considered as acting in the interest of the group and conforming to group norms by fellow group members.

Within many societal groups and cooperative organisations, individualism among group members can be perceived as a deviation from the norm. But there is a contradiction in arguing that individualism is a threat to group unity and harmony since it is a prevalent cultural characteristic for a large cluster of nations (Hofstede,

2001). A theoretical answer to the above debate can be provided by Durkheim (1984) who argued that when a society becomes more complex through the higher division of labour (hence, more individualistic), there will be greater sense of community because everybody will be dependent on somebody else in order to perform a goal and a specific task. Therefore, even if individualistic societies or groups have a looser definition of in-groups, the presence of individualist group norms for members of groups in such societies will not be problematic for social stability, since the sense of community will be boosted by the need of forming short term relations for the achievement of a goal. This suggests that people in groups can display behaviours that are more individualist in nature provided the general social networks accept such behaviours as typical or normative.

### **2.1.3 Individualism as a group norm**

Research suggests that the cultural orientations of individualism and collectivism could be studied in terms of the normative behaviours expected within cultural groups and this was moderated by the degree of identification with the group. Jetten and colleagues (Jetten, Postmes, & McAuliffe, 2002) tested whether variations in group norms that promoted individualism engender individualist attitudes and behaviour among group members. By conducting two within-culture studies, they established that people in cultures endorsing individualist norms and reporting a strong identification with the group tended to endorse individualism to a higher degree than those who scored low on the identification measurements. In a second study in which individualism and collectivism group norms were manipulated, the same pattern of results were obtained; high group identifiers were likely to self-stereotype in a manner consistent with the group norm. Thus, even if the group norm was individualist, high-identifying group members self-stereotyped themselves as



individualist in the same manner that high-identifying members of a group that endorsed a collectivist group norm self-stereotyped themselves as collectivist.

Following the same line of research, McAuliffe et al. (2003) extended the findings of Jetten et al. (2002) by examining the effect of norms prescribing individualism or collectivism on group members' evaluations. In two studies they manipulated the group norm to be either individualist or collectivist within a single national group. It was revealed that the general tendency for people in groups to display a preference for collectivist behaviour was attenuated in the presence of an individualist group norm. This was confirmed when group members operating in either an individualist or collectivist group norm were asked to evaluate group members displaying normative and non-normative behaviour. In addition, the studies showed that among high group identifiers the positive evaluation of members displaying collectivist behaviour was reversed when the norm was individualist in nature.

Summarising the above studies, it is evident that individualism can be treated at the situational level rather than as a cultural orientation. Of key importance are the findings of McAuliffe et al.'s (2003) study in which both individualism and collectivism were experimentally manipulated as situational-level group norms with different behavioural effects for group members. The present studies seek to extend the methods used by McAuliffe et al. in the experimental manipulation of individualism and collectivism at the situational group level. This will be achieved by advancing the norm manipulation methodology a further step by building on the limitations of the previous studies. Specifically, these studies aim to account for the effects of cultural orientations among people from nations that endorse either individualist or collectivist orientations as well as group members' preference for the



behaviour of other group members. In the McAuliffe et al. (2003) study the participants were members of a predominately individualist culture as all participants were students of an Australian university. Thus, the issue to be raised is whether the effect is universal and occurs among members of a collectivist culture.

The effect of individualist and collectivist cultural orientations on the attenuation of the preference for collectivist group behaviour on the introduction of an individualist group norm at a situational level will be examined in two cross-cultural comparison studies. This will be achieved by experimentally-manipulating group norms and introducing cultural background as an independent variable by including participants from individualist and collectivist backgrounds. Most important, the cross-cultural verification of the individualist-collectivist group norm manipulation over the group members' group processes functions (i.e., group member behavioural evaluation) will provide the necessary empirical validation in order to examine whether such a manipulation can have effects upon group members' intrinsic motivation in subsequent studies. This is particularly important as it will provide evidence as to whether the effect of individualist and collectivist group norms at the situational level on behavioural evaluations is universal and will answer the question whether such situational manipulations supersede or interact with generalised, dispositional, cultural orientations of individualism and collectivism.

## **2.2 Study 1**

### **2.2.1 Aims of study**

The primary aim of the present study is to develop a valid and reliable means to manipulate individualist and collectivist group norms. This is important because the manipulation of these group norms is an essential method to be used in subsequent

studies to test the effects of individualist and collectivist group norms on intrinsic motivation (Chapters 3 and 4). Importantly, a successful manipulation of group norms it will demonstrate that individualist and collectivist group norms can be manipulated at a situational level rather than as a generalised orientation determined by membership of a cultural or ethnic group such as Chinese (collectivist) or Western European (individualist). In addition, this study also aims to extend McAuliffe et al.'s (2003) design by investigating cross-cultural differences in evaluations of normative and non-normative behaviour in British (individualist cultural background) and Chinese (collectivist cultural background) students that receive a situational group norm manipulation as outlined by McAuliffe et al. The cultural group choice was based on the Hofstede's (2001) ratings in which Britain and China are classified as exemplars of individualist and collectivist orientations respectively. This is also important for subsequent studies because the situational manipulation of individualist and collectivist group norms needs to be independent of global cultural orientation. It will provide a logical extension of Iyengar and Lepper's (1999) study because it will assist in testing the effects of situational contexts that endorse a collectivist and individualist orientation on intrinsic motivation under different conditions of choice rather than the effect of generalised cultural orientations defined by cultural membership.

The method for the manipulation of group norms was based on the research pioneered by McAuliffe et al. (2003), but modified to achieve a more efficient means of manipulating group norms. The method involved participants watching two short videos of a group to which they had been assigned using a role play scenario. One group demonstrated collectivist behaviour and the other individualist behaviour. Manipulation of normative and non-normative group behaviour was assessed by



behavioural statements ostensibly made by a hypothetical member of the group to which participants had been assigned. Participants rated the hypothetical group member on a set of psychometric scales. The cultural orientation of the group of British and Chinese participants was verified using a shortened version of Triandis's (Triandis, Mccusker, & Hui, 1990) individualism and collectivism scales.

Summarising, previous research has indicated that individualism as a group norm can effect group member's behavioural evaluations of other group members indicating normative behaviour (McAuliffe et al., 2003). Thus, in a group setting endorsing an individualist group norm individualist behavioural demonstrations are tolerated and endorsed. However, the above research was conducting without accounting for the effect that cultural membership can have. Indeed, the scope of this study is to examine the empirical possibility of individualism functioning as group norm for members of a collectivist cultural background.

It is hypothesised that there will be a preference for collectivist behaviour among all participants, as shown by a main effect for behaviour. This will demonstrate that the situational manipulation of group norms is effective and can be used in subsequent studies to manipulate group norms and test their effects on the intrinsic motivation of group members. It is also expected that McAuliffe et al.'s results will be replicated for group members from a collectivist background in that the preference for collectivist behaviour will be attenuated when the group norm is individualist. This is important for subsequent studies in this thesis because it will show whether the situational manipulations are independent of the global cultural orientations of the group members and provide support for the notion that people from national groups that tend to endorse either collectivist or individualist cultural norms respond in a consistent manner to situational group norms. In other words, it speaks to



the universality of the situational manipulation of group norms irrespective of cultural orientation. In order to examine whether participants' responses on behavioural judgements are the result of assimilating the dominant group norm, measurements of group identification and group tolerance are included. More specifically, it is hypothesised that high group identifiers will evaluate behaviour consistent with the dominant group norm relative to low group identifiers. According to the social identity perspective, norms represent shared common definitions among group members of acceptable and unacceptable behaviour (Turner, 1991). This shared nature of group norm perceptions means that group members that conform to the dominant norm do so in the belief that other group members will also conform to the norm. So it is expected that participants' tolerance of other group members will be in alignment with the dominant group norm.

Finally, the effect of the group norm manipulations on the perceived relatedness of the group members will be tested. According to social identity theory group members tend to establish personal relationships and rapport with in-group members that tend to conform to the dominant group norm. Thus, it was expected that group members will exhibit higher levels of relatedness with group members that behave normatively.

### **2.2.2 Method**

#### **Participants**

Eighty Chinese (males = 36; females = 44;  $M$  age = 22.16,  $SD$  = 2.07) and eighty-one British (males = 37; females = 44;  $M$  age = 21.44,  $SD$  = 3.49) undergraduate students volunteered to participate in the study. Participants were recruited via advertisements posted on notice boards and email lists throughout the University. The advertisements asked for volunteers to participate in an

“organisational role-play study” and stated that Chinese and British nationals were eligible. Participants were initially presented with a screening questionnaire which contained questions on nationality, normal country of residence, duration of living in the normal country of residence, duration of study at the University, and first language. Chinese volunteers were eligible for the study if they reported being nationals of the People’s Republic of China and considered that country their normal place of residence, had lived in China for most of their life, had spent less than three years studying in the UK, and considered Chinese their first language. British volunteers were eligible if they were British nationals, considered the British Isles as their normal place of residence, had lived there for the majority of their life, and were native English speakers. Participants from each nationality were randomly assigned to the experimental conditions.

### **Design and procedure**

The study adopted a 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) x 2 (Nationality: Chinese versus British) fully-between-participants design and was based on the method developed by McAuliffe et al. (2003). Participants were told that they were participating in an “organizational role-play study”. In accordance with social identity theory paradigms adopted by Tajfel and Turner (1979), participants were informed that they would be assigned to one of two companies: *Tech Industries* or *Renovatech*. In reality, all participants were assigned to *Tech Industries*. Next, they were asked to watch a short video introducing them to the work philosophy of *Tech Industries*. They were also told that employees of *Tech Industries* were occasionally required to provide peer evaluations of their co-workers.

### **Group norm manipulation**



Group norms were manipulated by presenting participants with one of two short videos lasting two minutes<sup>1</sup>. Prior to watching the video, participants were told: “Please watch this video of employees of *Tech Industries*, the company to which you have been assigned, designing a new logo for the company. The way they work and interact in this video reflects the general work philosophy of the company. As a member of *Tech Industries* you will, from time to time, be asked to evaluate other company employees”.

The videos lasted 2.5 minutes. Both videos were filmed in the same studio which resembled a cooperation meeting room. The same three actors (2 male and 1 female) were used and acted as employees of *Tech Industries*. The actors were ostensibly working on a new logo for the company. One video aimed to evoke an individualist group norm and depicted the actors interacting at a minimum level and with a minimal amount of verbal and non-verbal communication. A second video aimed to produce a collectivist group norm and presented the actors interacting both verbally and non-verbally throughout. Both videos were muted. Following the video presentations, participants were asked to write down behaviours that they would expect to observe in company employees in accordance with the company’s work philosophy. Participants were then presented with a single item asking them to rate

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<sup>1</sup> The validity of the videos used to produce the group norm manipulation was supported by a pilot study (N = 10). Five Chinese and British participants were asked to rate the general group dynamic operating among the actors in the videos on two items with 9-point scales. One scale asked whether the group dynamic was individualist and the other whether the pervading group norm was collectivist. Participants’ ratings on the individualism and collectivism scales were polarised toward the group norm depicted in the video, such that participants rated the video depicting an individualist group norm as significantly higher in individualism than collectivism, and participants rated the collectivist group norm video significantly higher in collectivism than individualism.



the general group dynamic in the video on a nine-point scale as individualist (1) or collectivist (9) (see Appendix 1). This scale was used as a manipulation check for group norm (McAuliffe, et al., 2003).

### **Group member behaviour manipulation**

The group member behaviour manipulation was identical to that used by McAuliffe et al. (2003). After watching a video depicting either a collectivist or individualist group norm, participants were presented with a profile of a hypothetical employee of *Tech Industries* along with three statements that the employee ostensibly made during a selection interview. Participants in the individualist group member behaviour condition were presented with statements reflecting individualist behaviours (i.e., “I concentrate on achieving my personal goals”; “I think it is important to give priority to personal interests as much as possible”; “When making a decision, I tend to trust my own judgement”) (see Appendix 1). Participants in the collectivist group member behaviour condition were presented with statements reflecting collectivist actions (i.e. “I concentrate on achieving my group’s goals”; “I think it is important to give priority to group interests as much as possible”; “When making a decision, I take the advice of others into consideration”) (see Appendix 1). After reading these statements, group member behaviour manipulation was checked by a single item asking participants to rate the hypothetical employee’s behaviour on a nine-point scale as individualist (1) or collectivist (9) (see Appendix 1).

### **Dependent measures**

*Group member evaluation.* Four items were used to measure group member evaluation with responses made on nine-point scales ranging from “strongly agree” (1) to “strongly disagree” (9) (McAuliffe, et al., 2003). The items were: “I have a positive attitude toward this Tech Industries employee”; “This Tech Industries

employee's behaviour is acceptable"; "This employee is a good member of Tech Industries"; "This Tech Industries employee seems likeable." The reliability of this questionnaire was satisfactory (Cronbach's  $\alpha = .91$ ) (see Appendix 2).

*Group tolerance.* Participants' perception of whether other employees of the company would positively evaluate the behaviour of the group member was rated on four nine-point scales ranging from "not at all" (1) to "very much" (9). Participants were asked the extent to which other employees would "tolerate", "stand for", "endorse", and "punish" the hypothetical employee's behaviour. The final item was reverse scored and internal reliability for this scale was satisfactory ( $\alpha = .86$ ) (see Appendix 3).

*Relatedness.* Participants' perceived sense of relatedness to the group member was measured using the eight-item relatedness scale from the Interpersonal Relatedness Questionnaire (IRQ, Deci & Ryan, 2005). Participants were asked rate their degree of relatedness to the group member (e.g., "I felt like I could really trust this person"; "I'd like the chance to interact with this person more often"; "I feel that this person and I could become friends if we interacted a lot"). Responses were made on nine-point scales ranging from "not at all true" (1) to "very true" (9). This scale exhibited adequate internal reliability ( $\alpha = .88$ ) (see Appendix 4).

*Group identification.* A situational measure of group identification was administered to evaluate the extent to which the participants identified with the in-group because of the minimal nature of the group norm manipulation. Participants were asked the extent to which they identified with *Tech Industries* on three items: "Being an employee of *Tech Industries* is important to me"; "I identify with being an employee of *Tech Industries*"; "I feel a sense of belonging with the group of *Tech Industries* employees". Responses were made on nine-point scales ranging from



“strongly disagree” (1) to “strongly agree” (9). The internal consistency of this scale was satisfactory ( $\alpha = .90$ ) (see Appendix 5).

### **Cultural orientation**

A brief measure of the overall cultural orientation of the participants was administered after the study once participants had completed an unrelated filler task. Triandis et al.’s (1990) abbreviated individualism and collectivism scales contains four items measuring individualism (e.g., “I would rather make an important decision by myself than discuss it with my friends”, “One should be as independent of others as much as possible”) and collectivism (e.g., “I feel it is all right to depend on family and friends for many important things”, “I can count on my relatives for help if I find myself in any kind of trouble”). Responses were made on seven-point scales ranging from “not at all” (1) to “very much” (7). Both the individualism ( $\alpha = .81$ ) and collectivism ( $\alpha = .87$ ) scales exhibited acceptable internal reliability (see Appendix 6).

## **2.2.3 Results**

### **Manipulation checks**

A series of 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) x 2 (Nationality: Chinese versus British) fully-between participants ANOVAs were conducted on the manipulation check items for group norm and group member behaviour and on the individualist and collectivist components from Triandis’ et al (1990) abbreviated individualism and collectivism scale. Results of the ANOVA for the group norm manipulation check revealed a significant main effect for group norm only,  $F(1, 153) = 848.38, p < .01, \eta_p^2 = .85$ . As expected, participants receiving the collectivist group norm manipulation rated the group as more collectivist ( $M = 7.51, SD = 0.91$ ) compared to those given the individualist group norm manipulation ( $M = 2.77, SD = 0.91$ ). This demonstrates that



the experimental method developed to manipulate group member behaviour was successful and resulted in participants rating the group norm scenarios as individualist or collectivist according to expectations. This supports the use of this method to manipulate individualist and collectivist group norms in subsequent studies.

Turning to the group member behaviour manipulation check, the ANOVA revealed a significant main effect for group member behaviour ( $F(1, 153) = 1052.38$ ,  $p < .01$ ,  $\eta_p^2 = .87$ ) with no other significant effects. This suggests that the manipulation was successful; the individualist group member behaviour was perceived more individualist ( $M = 2.51$ ,  $SD = 1.09$ ) than the collectivist behaviour ( $M = 7.50$ ,  $SD = 0.95$ ).

The ANOVA with the individualist component from the Triandis scale as the dependent variable yielded a significant main effect for nationality,  $F(1, 151) = 51.50$ ,  $p < .01$ ,  $\eta_p^2 = .25$ . British participants rated the individualist component higher ( $M = 4.84$ ,  $SD = 1.01$ ) compared to Chinese participants ( $M = 3.53$ ,  $SD = 1.25$ ). There was also significant main effect of nationality in the ANOVA for the collectivist component,  $F(1, 146) = 135.61$ ,  $p < .01$ ,  $\eta_p^2 = .48$ , suggesting that the Chinese participants rated the collectivist component significantly higher ( $M = 5.07$ ,  $SD = 1.25$ ) than the British participants ( $M = 3.24$ ,  $SD = 0.66$ ). An examination of participants' scores on the individualist and collectivist scales revealed that 75.00% of the Chinese participants scored higher on the collectivism scale while 87.84% of the British participants rated individualism higher, a difference that was significant ( $\chi^2 = 61.38$ ,  $df = 1$ ,  $p < .01$ ).

### **Group member evaluation**

In order to test the main hypothesis that participants from both collectivist and individualist cultural backgrounds would attenuate their preference for collectivist

behaviour when an individualist group norm is introduced, a 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) x 2 (Nationality: Chinese versus British) ANOVA was conducted on group member evaluation scores. Not surprisingly there was a significant main effect of group norm,  $F(1, 153) = 4.56$ ,  $p < .05$ ,  $\eta_p^2 = .03$ , suggesting that there was an overall tendency for participants to favour collectivist ( $M = 4.93$ ,  $SD = 1.78$ ) rather than individualist ( $M = 3.98$ ,  $SD = 1.55$ ) behaviour. There was also a significant main effect for nationality,  $F(1, 153) = 32.50$ ,  $p < .01$ ,  $\eta_p^2 = .18$ , with Chinese ( $M = 5.00$ ,  $SD = 1.97$ ) participants rating collectivist behaviour more positively than British ( $M = 3.94$ ,  $SD = 1.26$ ) participants. However, these differences were qualified by the presence of a significant three-way interaction for group norm, behaviour, and nationality,  $F(1, 153) = 33.64$ ,  $p < .01$ ,  $\eta_p^2 = .18$ .

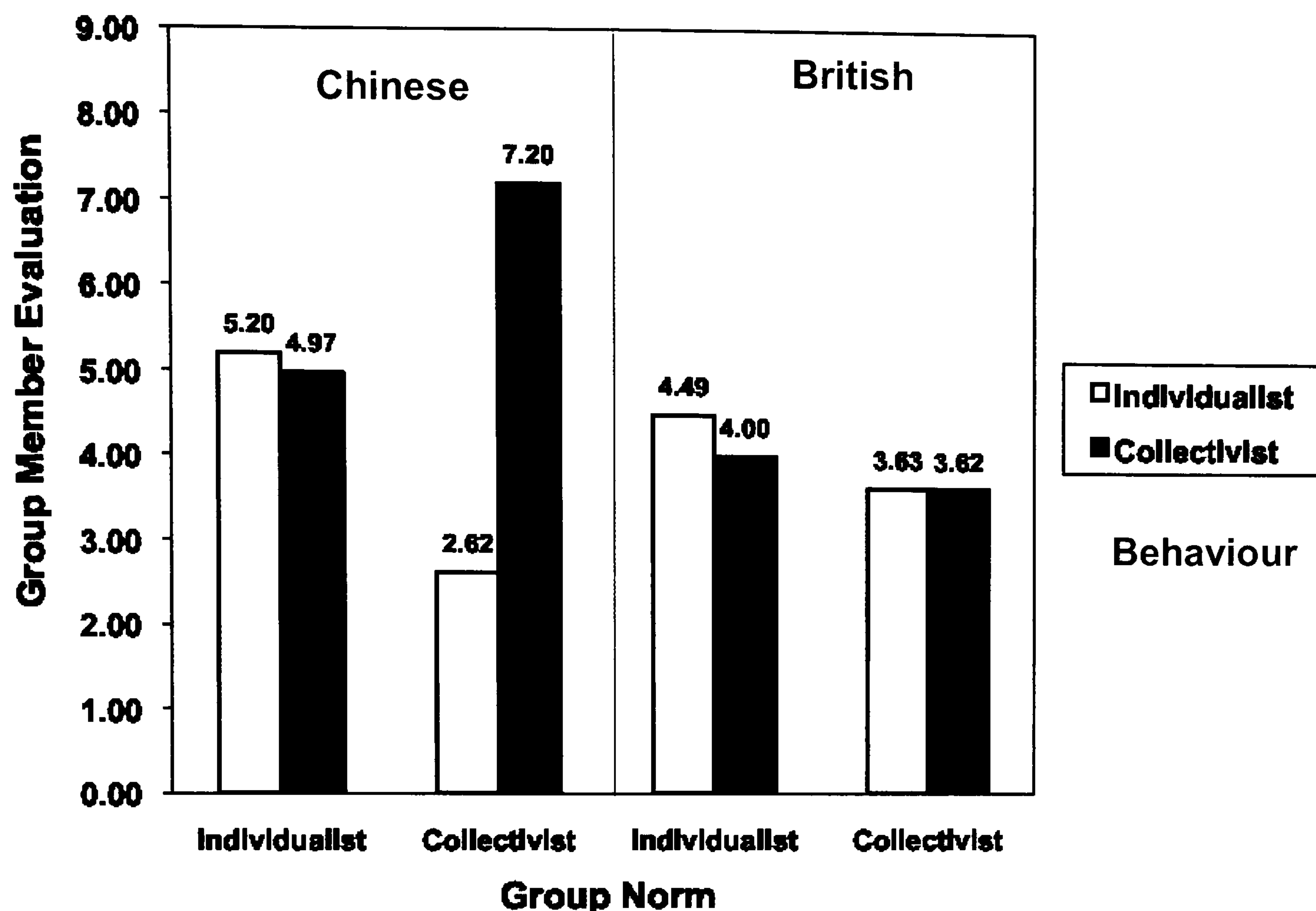
In order to further explore the three-way interaction, 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) ANOVAs were conducted for each nationality (see Figure 2.1). For Chinese participants, there was a significant main effect for behaviour  $F(1, 76) = 74.52$ ,  $p < .01$ ,  $\eta_p^2 = .50$ , indicating that group members showing collectivist behaviour were more positively evaluated ( $M = 6.09$ ,  $SD = 1.68$ ) than members showing individualist behaviour ( $M = 3.91$ ,  $SD = 1.62$ ). Importantly, there was also a significant two-way interaction,  $F(1, 76) = 91.11$ ,  $p < .01$ ,  $\eta_p^2 = .55$ . Simple main effects analyses revealed that under a collectivist group norm, group members demonstrating collectivist behaviour were more positively evaluated ( $M = 7.20$ ,  $SD = 0.83$ ) than the members displaying individualist behaviour ( $M = 2.62$ ,  $SD = 0.81$ ),  $F(1, 76) = 165.21$ ,  $p < .01$ ,  $\eta_p^2 = .50$ . However, there was no difference in the rating of the behaviour within the individualist group norm condition. Group members exhibiting collectivist behaviour

were rated significantly higher when participants were presented with an collectivist group norm ( $M = 7.20$ ,  $SD = 0.83$ ) compared with an individualist group norm ( $M = 4.97$ ,  $SD = 1.57$ ),  $F(1, 76) = 39.17$ ,  $p < .01$ ,  $\eta_p^2 = .19$ . Analogously, group members demonstrating individualist behaviour were rated significantly higher under an individualist group norm ( $M = 5.20$ ,  $SD = 1.11$ ) relative to participants under a collectivist group norm, ( $M = 2.62$ ,  $SD = 0.81$ ),  $F(1, 76) = 52.43$ ,  $p < .01$ ,  $\eta_p^2 = .24$ .

For the British participants there was a significant main effect for group norm,  $F(1, 77) = 5.11$ ,  $p < .05$ ,  $\eta_p^2 = .62$ . British participants therefore tended to evaluate group members behaviour higher when given an individualist group norm ( $M = 4.24$ ,  $SD = 1.51$ ) than when the norm was collectivist ( $M = 3.62$ ,  $SD = 0.86$ ). There was neither a significant main effect for group member behaviour nor a significant interaction.



**Figure 2.1 Group member evaluation as a function of nationality, group norm, and behaviour in Study 1.**

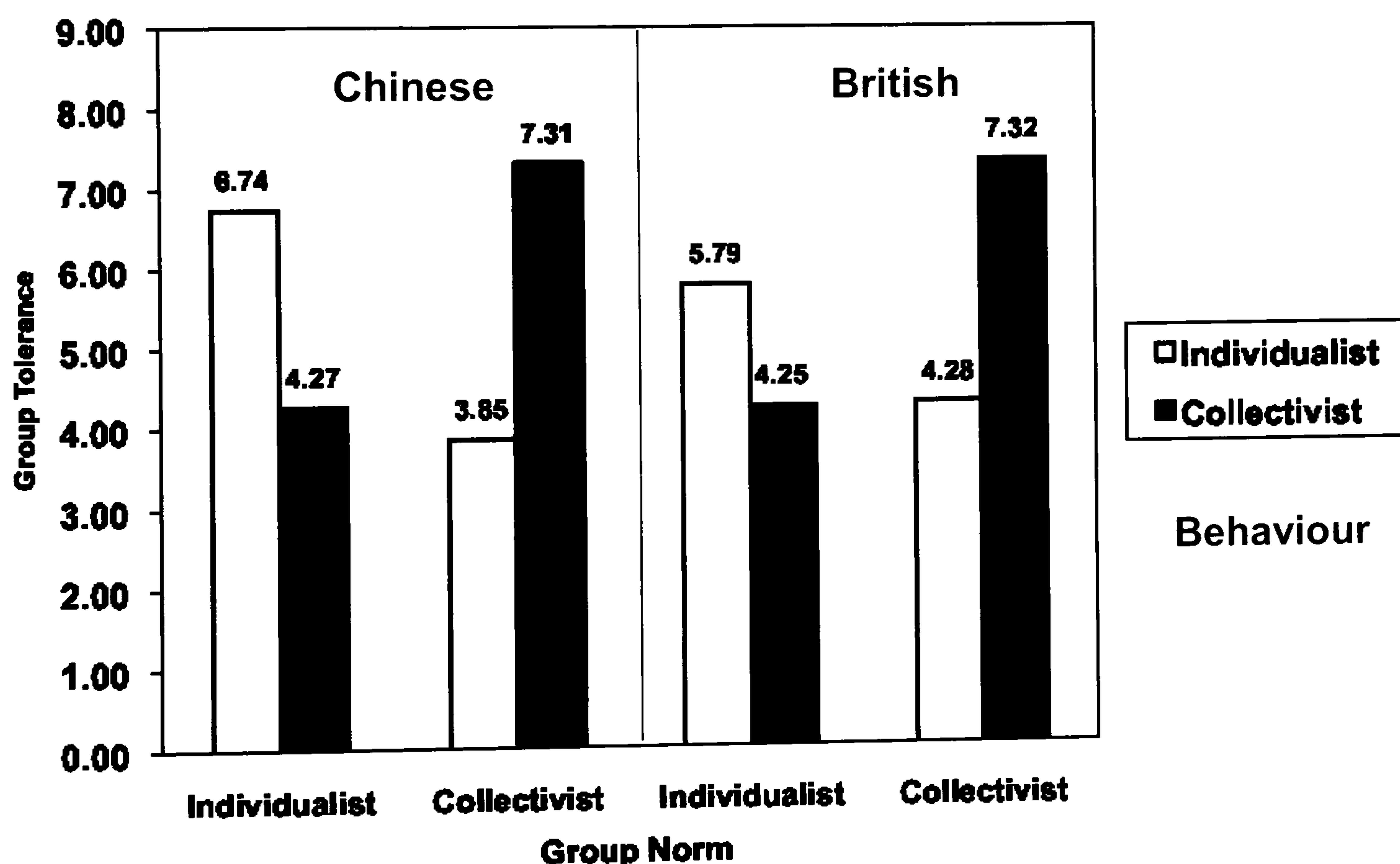


### Group tolerance

Results of a 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) x 2 (Nationality: Chinese versus British) ANOVA with group tolerance as the dependent variable revealed significant main effects for group norm,  $F(1, 153) = 7.16, p < .01, \eta_p^2 = .05$  and group member behaviour,  $F(1, 153) = 15.13, p < .01, \eta_p^2 = .09$ , and a significant two-way interaction between group norm and behaviour  $F(1, 153) = 267.35, p < .01, \eta_p^2 = .64$ . There was also a significant two-way interaction between nationality and group norm,  $F(1, 153) = 4.82, p < .05, \eta_p^2 = .03$ , and a significant three-way interaction,  $F(1, 153) = 4.30, p < .05, \eta_p^2 = .03$ . Examining the interactions within each nationality (see Figure 2.2), 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus

individualist) ANOVAs on group tolerance revealed significant interaction effects for both the Chinese, ( $F(1, 76) = 169.36, p < .01, \eta_p^2 = .69$ ) and British ( $F(1, 77) = 102.15, p < .01, \eta_p^2 = .57$ ) samples. Although there were also significant main effects for behaviour in both samples (Chinese:  $F(1, 76) = 4.79, p < .05, \eta_p^2 = .06$ ; British ( $F(1, 77) = 10.98, p < .01, \eta_p^2 = .12$ ), the effects were generally small in comparison. Examining the simple effects illustrated that the pattern of the interaction was the same in each national sample. Within each group norm, participants expressed significantly greater tolerance for the behaviour consistent with the norm.

**Figure 2.2 Group Tolerance as a function of nationality, group norm, and behaviour in Study 1.**



### Relatedness

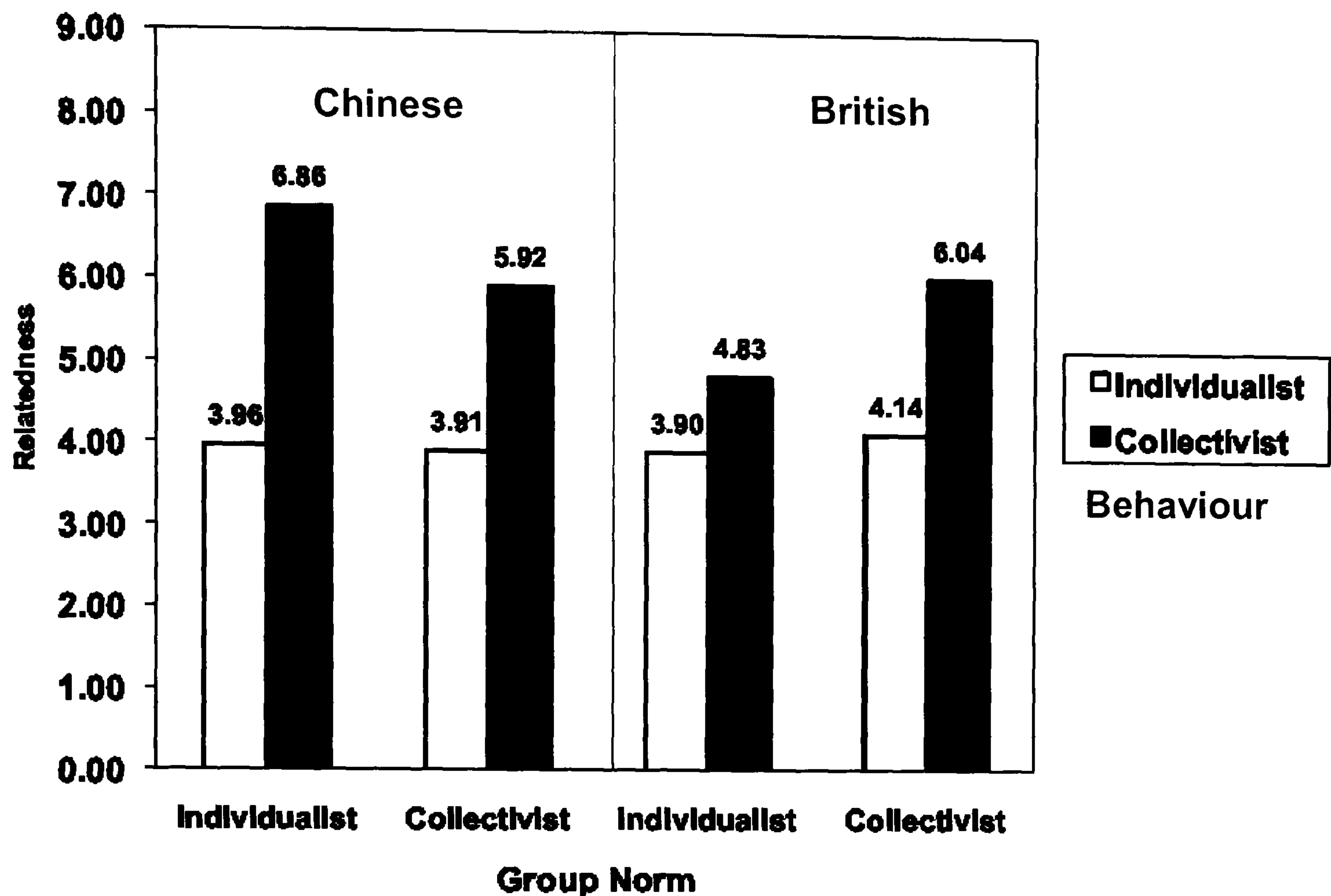
A 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) x 2 (Nationality: Chinese versus British) ANOVA for relatedness revealed significant main effects for behaviour ( $F(1, 153) = 179.39, p < .01, \eta_p^2 =$

.54) and nationality ( $F(1, 153) = 8.88, p < .01, \eta_p^2 = .06$ ), significant two-way interactions for group norm x nationality ( $F(1, 153) = 17.74, p < .01, \eta_p^2 = .10$ ) and behaviour x nationality ( $F(1, 153) = 13.05, p < .01, \eta_p^2 = .08$ ), and a significant three-way interaction ( $F(1, 153) = 10.25, p < .01, \eta_p^2 = .06$ ).

Examining the interactions within nationality (see Figure 2.3), a 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) ANOVA for the Chinese participants revealed a main effects on relatedness for behaviour only ( $F(1, 76) = 97.67, p < .01, \eta_p^2 = .56$ ). Group members expressing collectivist behaviour reported higher levels of relatedness ( $M = 6.39, SD = 1.13$ ) than for those participants expressing individualist behaviour ( $M = 3.93, SD = 1.16$ ) regardless of the group norm. By contrast, the 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) ANOVA for the British participants revealed significant main effects for norm ( $F(1, 77) = 23.59, p < .01, \eta_p^2 = .24$ ) and behaviour ( $F(1, 77) = 90.61, p < .01, \eta_p^2 = .54$ ), and a significant interaction ( $F(1, 77) = 10.43, p < .01, \eta_p^2 = .12$ ). Simple effects analyses revealed that participants rated their relatedness higher for group members expressing collectivist behaviour relative to individualist behaviour in both the individualist ( $F(1, 77) = 8.89, p < .01, \eta_p^2 = .14$ ) and collectivist group norm ( $F(1, 76) = 79.94, p < .01, \eta_p^2 = .39$ ) conditions. Participants rated their relatedness higher for group members expressing collectivist behaviour in the collectivist group norm condition ( $M = 6.03, SD = 0.55$ ) relative to the individualist group norm ( $M = 4.14, SD = 0.86$ ),  $F(1, 77) = 33.10, p < .01, \eta_p^2 = .21$ , but there was no difference in the levels of relatedness for group members expressing individualist behaviour across the group norm conditions.



**Figure 2.3 Relatedness as a function of nationality, group norm, and behaviour in Study 1.**



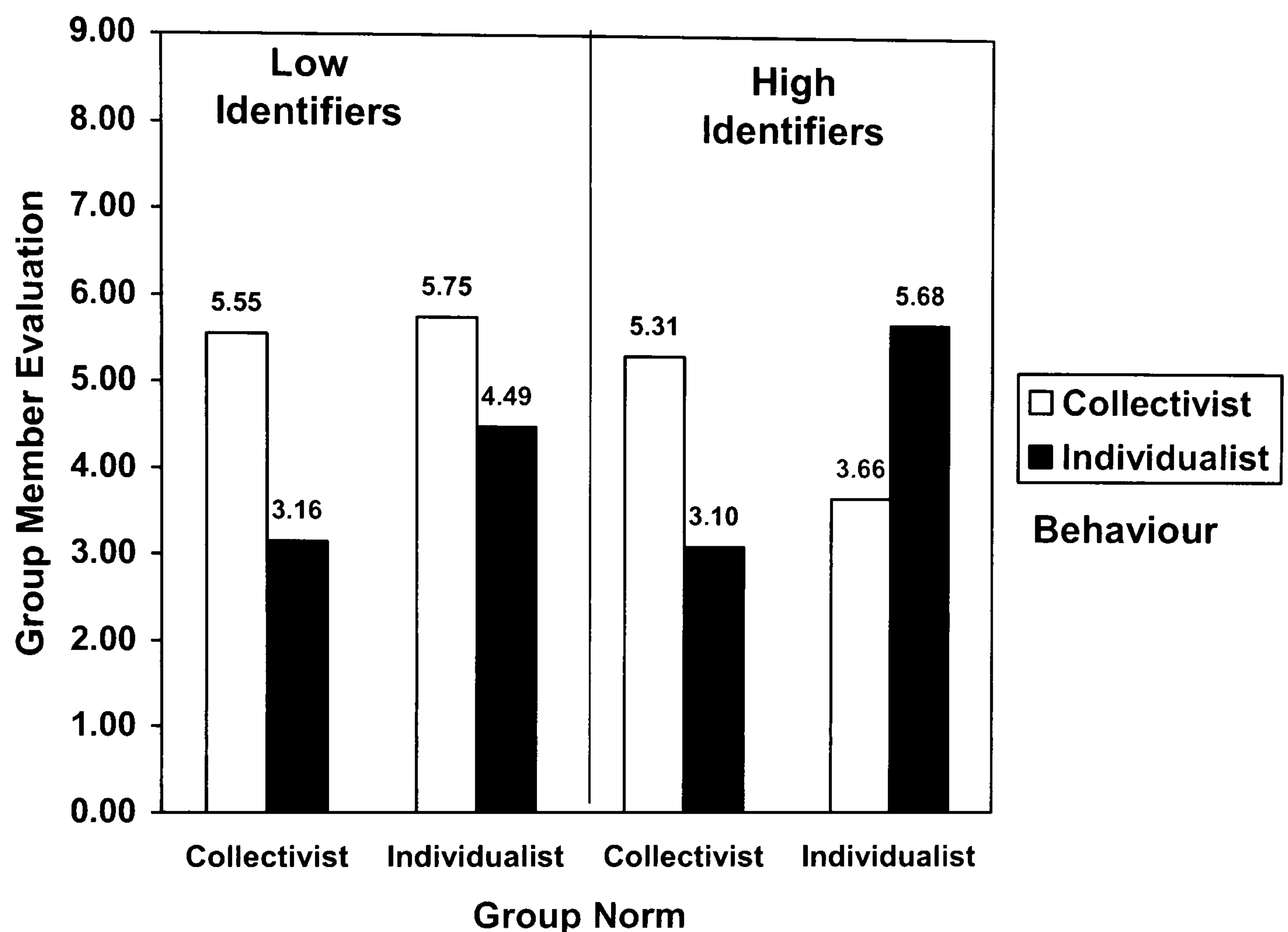
### Group identification

Finally, the effect of group identification was examined as a moderator of the effects in the present study in accordance with McAuliffe et al. (2003). Therefore, the sample was segregated according to their scores on the group identification scale using a median split<sup>2</sup>. Thereafter, a 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) x 2 (Nationality: Chinese versus British) x 2 (Group identification: high versus low) fully-between participants ANOVA was conducted. The analysis revealed no four-way interaction. However, there was a significant three-way interaction between norm, behaviour, and identification,  $F(1, 145) = 24.65, p < .01, \eta_p^2 = .15$ . This effect was decomposed into two-way

<sup>2</sup> A hierarchical linear regression for identification, nationality and group norm on group behaviour was as well performed producing an identical pattern of results.

interactions between group norm and behaviour for each level of group identification across the entire sample (Figure 2.4).

**Figure 2.4 Group member behaviour as a function of nationality and group norm for high and low group identifiers in Study 1.**



A 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) ANOVA for low identifiers revealed main effects for group norm ( $F(1, 71) = 4.93, p < .05, \eta_p^2 = .07$ ) and behaviour ( $F(1, 71) = 28.29, p < .01, \eta_p^2 = .29$ ) but no interaction (Figure 2.4). Group member evaluations were significantly higher in the individualist group norm ( $M = 4.95, SD = 1.46$ ) compared with the collectivist group norm ( $M = 4.39, SD = 1.97$ ), but collectivist behaviour tended to be more positively evaluated ( $M = 5.65, SD = 1.44$ ) relative to individualist behaviour ( $M = 4.02, SD = 1.55$ ). For high identifiers, there were no main effects but a significant interaction,  $F(1, 82) = 43.80, p < .01, \eta_p^2 = .35$ . Simple main effect

analyses revealed that collectivist behaviour ( $M = 5.31, SD = 2.10$ ) was evaluated more positively than individualist behaviour ( $M = 3.10, SD = 0.89$ ) if the group norm prescribed collectivism ( $F(1, 82) = 29.97, p < .01, \eta_p^2 = .39$ ) while individualist behaviour ( $M = 5.68, SD = 1.27$ ) was evaluated more positively than collectivist ( $M = 3.66, SD = 1.05$ ) when the group norm was individualist in nature ( $F(1, 82) = 16.63, p < .01, \eta_p^2 = .26$ ). Further, individualist behaviour was evaluated more positively when the group norm prescribed individualism ( $M = 5.68, SD = 1.27$ ) than when the group norm prescribed collectivism ( $M = 3.10, SD = 0.89$ ),  $F(1, 82) = 26.96, p < .01, \eta_p^2 = .63$ . Collectivist behaviour was preferred when the group norm prescribed collectivism ( $M = 5.32, SD = 2.10$ ) compared to when the norm was individualist ( $M = 3.66, SD = 1.04$ ),  $F(1, 82) = 16.85, p < .01, \eta_p^2 = .26$ .

#### **2.2.4 Discussion**

This study examined whether situational group norms of individualism and collectivism could be manipulated in a laboratory setting and the effects of the group norms on evaluations of the behaviour of members showing normative and non-normative behaviour. The pilot study and main study in conjunction with similar studies (McAuliffe et al, 2003) provide empirical justification for such a conclusion. More specifically, the manipulation videos that were created in the pilot study developed the necessary methodology for such a manipulation in future studies since both videos were perceived by participants as evoking the appropriate norms. However, the evidence suggests that manipulation group norms in people with a predominantly collectivist culture (Chinese) and among people in an individualist culture (British) results in different patterns of evaluations when hypothetical group members display normative and non-normative behaviour. Specifically, it seems that participants from a collectivist culture tend to evaluate individualist behaviour more



positively when the group norm endorses individualism but this pattern of effects does not happen among people from an individualist culture who generally tend to evaluate individualist behaviour more positively regardless of group norm, a finding that is in contrast to those of McAuliffe et al. However, the inclusion of group identification seemed to resolve the inconsistencies with the same pattern of results as those found for McAuliffe et al. such that high identifiers rated normative behaviour more positively in each group norm regardless of nationality while collectivist behaviour was viewed more positively among low identifiers regardless of norm and nationality.

### **Group member evaluation and identification**

Overall there were cultural differences in the perception of behaviour between the British and Chinese group members. More specifically, a three-way interaction suggested the presence of a culturally different pattern of in-group responses. In line with the prediction for the Chinese sample, there was an overall preference for collectivist behaviour, which was attenuated when an individualist group norm was introduced. The same results were not found for the participants from an individualist cultural background. British group members tended to evaluate behaviour more positively if the group norm was individualist, irrespective as to whether the behaviour displayed by the group member was individualist or collectivist.

However, when group identification was taken into account there were no differences between cultures. For high group identifiers there was no overall preference for collectivist behaviour per se, but the in-group preference for behaviour was consistent with the manipulated norm. So when the group norm was individualist, group members indicated a preference for individualist behaviour and when the group norm was collectivist participants preferred group members showing collectivist

behaviour irrespective of cultural background. This finding demonstrates that the observed cultural differences were not present among high group identifiers.

### **Group tolerance and relatedness**

In agreement with social identity theory, findings indicated that people tended to perceive the group to be more tolerant of group members displaying behaviours according to the group norm. This pattern of results was similar between the two cultures. Both Chinese and British participants indicated greater perceived tolerance for collectivist behaviour when the norm was collectivist, but a reversal was observed when the group norm was individualist. Relatedness seemed to reflect the perceived benefits of collectivist behaviour. Again a cross-cultural difference was observed. The Chinese participants expressed higher levels of relatedness when the in-group behaviour was in agreement with their cultural background. This was unaffected by the introduction of an individualist group norm. The British participants reported a higher relatedness response for collectivist behaviour but this was attenuated when norm was individualist.

### **Conclusion**

Overall, the present study demonstrated that a modified and simplified version of McAuliffe et al.'s procedure for manipulating situational individualist and collectivist group norms was effective in inducing the group norms and changing people's perceptions of hypothetical group members displaying normative and non-normative behaviour. The study also demonstrated that the norms were more effective in changing perceptions of people behaving normatively and non-normatively among people from a predominantly collectivist background (China). Finally, the manipulation also affected perceptions of tolerance and relatedness with the group member displaying normative and non-normative behaviour.



## **2.3 Study 2**

### **2.3.1 Aims of study**

The findings of Study 1 provided preliminary evidence in support of an experimental method to effectively manipulate group norms and associated perceptions since it was clear that participants from both cultural groups rated the predominant norm as collectivist or individualist consistent with the manipulation, participants identified with the group norms, and the norms had the effect of attenuating the preference for collectivist behaviour among people from a collectivist background. However, it should be noted that the Chinese participants showed a pattern of polarised results since they tended to lavish excessive praise on behaviour that was congruent with their cultural background and severely reprimand group members displaying non-normative individualist behaviour. This suggests that an individual that behaves both non-normatively and in violation of cultural norms tends to lead to an exacerbation of negative evaluations among collectivists. This was not the case for individualists, suggesting that perhaps collectivist behaviours are more tolerated in these cultures, which makes sense as people often work for companies and organisations within individual cultures that have collectivist group norms.

One limitation of the study was that the participants from the collectivist background were living in a society with a predominantly individualist cultural orientation and may have assimilated some of the cultural orientations. Study 2 aimed to replicate the findings of Study 1 and address this limitation by using participants from collectivist and individualist cultures operating in their own culture. It also aimed to introduce additional ecological validity by examining these effects within a real company setting. The study is similar to Study 1 with the exception that



participants from an individualist or collectivist cultural group will be tested within their countries. Participants from a collectivist cultural background (Greece) and participants from an individualist cultural background (Britain) were tested within their own cultures. An additional variation was that participants were not students but employees from bone fide businesses and tested in their natural work environment raising the ecological validity of the experiment. The hypotheses were identical to those of Study1.

### **2.3.2 Method**

#### **Participants**

Participants were Greek ( $n = 80$ ; males = 50, females = 30;  $M$  age = 33.02,  $SD = 8.79$ ) and British ( $n = 80$ ; males = 54, females = 26;  $M$  age = 38.86,  $SD = 11.61$ ) company employees working for supermarkets, city councils, and small businesses located in towns in Greece and Britain respectively. Participants were recruited via a letter of invitation to local company or city council directors by the research team asking for participants in their company to volunteer to participate in an “organizational role play study”. As an incentive, directors were told that they would receive generalized feedback on organizational practices based on the data from the experiment, but were told that information from individuals or separate organizations would not be given. Participants were initially screened via a questionnaire which asked them their occupation and job title, the number of years they had been working for the organization, their nationality, and their date of birth. Participants in both samples were eligible if they were a permanent employee of the organization, had worked for the organization for the minimum of 1 year, and were a national of the country in which the study was being conducted. Participants from each nationality were randomly assigned to the experimental conditions.

## Design

The present study adopted an identical design, method, and procedure to Study 1. We used a 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) x 2 (Nationality: Greek versus British) fully-between participants design based on the methods of McAuliffe et al. (2003). For the Greek sample, all study materials and measures were translated into Greek using accepted back-translation procedures suggested by Brislin (1986) and Bracken and Barona (1991) (see Appendix 7).

## Procedure

Participants were told that they had been assigned to one of two companies: *Tech Industries* or *Renovatech*, but in reality were all were assigned to *Tech Industries*. They then watched the videos introducing them to the work philosophy of *Tech Industries* to manipulate group norms and completed the group norm manipulation check item and the measure of group identification. Thereafter they were presented with the hypothetical employee and asked to complete the group member behaviour manipulation check item. They were the asked to provide ratings of the group member's behaviour, the group tolerance measures, their sense of relatedness to the group member, and, after a filler task, Triandis' abbreviated individualism and collectivism scales.

## Measures

Study measures were identical to those used in Study 1. Internal consistency statistics were satisfactory for the group identification (Cronbach's  $\alpha = .79$ ), group member evaluation ( $\alpha = .86$ ), group tolerance ( $\alpha = .82$ ), relatedness ( $\alpha = .82$ ), individualism ( $\alpha = .70$ ), and collectivism ( $\alpha = .68$ ) scales.

### 2.3.3 Results

#### Manipulation checks

All manipulation check measures and cultural orientation measures from Triandis' (1990) abbreviated individualism-collectivism scale were evaluated using 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) x 2 (Nationality: Greek versus British) ANOVAs. The analysis of the single item used to check participants' group norm manipulation revealed a significant main effect for group norm,  $F(1, 152) = 261.78, p < .01, \eta_p^2 = .63$ . Participants presented with the collectivist group norm perceived the group to be more collectivist ( $M = 7.19, SD = 1.47$ ) than those presented with the individualist group norm ( $M = 2.99, SD = 1.81$ ). No other main or interaction effects were significant. Analysis of the group member behaviour manipulation check revealed a significant main effect for behaviour,  $F(1, 152) = 255.97, p < .01, \eta_p^2 = .63$ . Participants perceived collectivist behaviour to be more collectivist ( $M = 6.77, SD = 1.72$ ) than individualist behaviour ( $M = 2.70, SD = 1.51$ ). There were no other main or interaction effects.

For the ANOVA with the individualist component from Triandis' scale as the dependent variable, there was a significant main effect for nationality,  $F(1, 152) = 35.51, p < .01, \eta_p^2 = .19$ . British participants rated the individualist component higher ( $M = 4.88, SD = 0.95$ ) relative to Greek participants ( $M = 3.82, SD = 1.29$ ). There was also a significant main effect for nationality in the analysis with the collectivist scale as the dependent variable,  $F(1, 152) = 23.15, p < .01, \eta_p^2 = .13$ , such that Greek participants rated the collectivist component significantly higher ( $M = 4.39, SD = 1.26$ ) than the British participants ( $M = 3.54, SD = 0.96$ ). Overall, the majority of the Greek participants (63.80%) rated the collectivist component higher than the

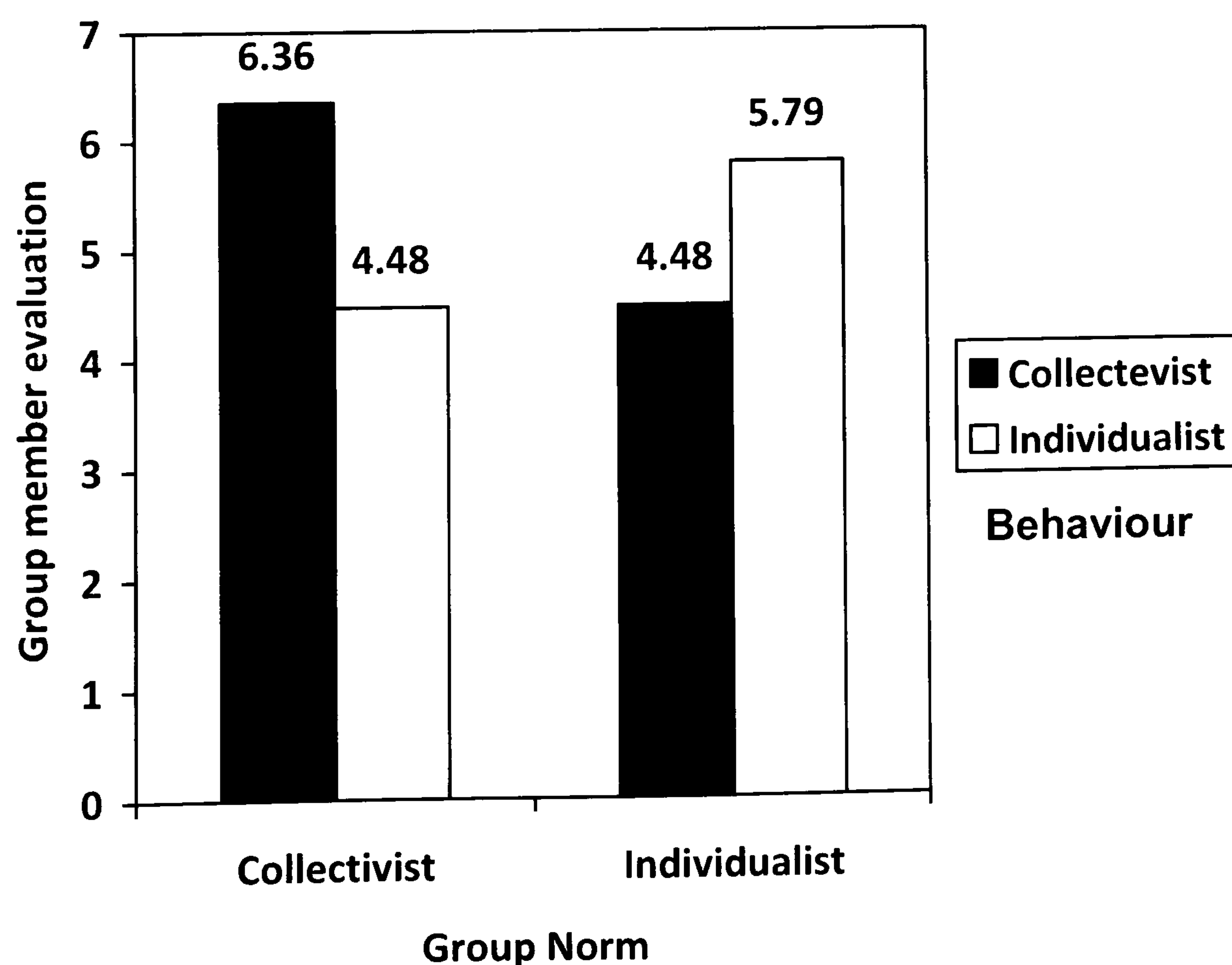


individualist scale compared with the British participants, the majority (81.30%) of whom rated the individualism scale higher; a comparison that was significant ( $\chi^2 = 33.42$ ,  $df = 1$ ,  $p < .01$ ).

### Group member evaluation

A 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) x 2 (Nationality: Greek versus British) fully-between participants ANOVA on group member evaluation found no significant main effects or three-way interaction. There was, however, significant two-way interaction between group norm and behaviour,  $F(1, 152) = 51.36$ ,  $p < .01$ ,  $\eta_p^2 = .25$ .

**Figure 2.5 Group member evaluation as a function of group norm and behaviour in Study 2.**



Simple effects analysis for the two-way interaction between group norm and behaviour yielded findings consistent with the interaction. When the group norm was collectivist, group members displaying collectivist behaviour were more positively evaluated ( $M = 6.36$ ,  $SD = 1.49$ ) than group members showing individualist behaviour ( $M = 4.20$ ,  $SD = 1.65$ ),  $F(1, 156) = 39.45$ ,  $p < .01$ ,  $\eta_p^2 = .42$ . When the group norm was individualist group members displaying individualist behaviour were more positively evaluated ( $M = 5.79$ ,  $SD = 1.55$ ) than group members demonstrating collectivist behaviour ( $M = 4.48$ ,  $SD = 1.45$ ),  $F(1, 156) = 14.45$ ,  $p < .01$ ,  $\eta_p^2 = .10$ . Not surprisingly, group members displaying individualist behaviour were appraised more positively when the norm was individualist ( $M = 5.79$ ,  $SD = 1.55$ ) relative to a collectivist group norm ( $M = 4.20$ ,  $SD = 1.65$ ),  $F(1, 156) = 21.33$ ,  $p < .01$ ,  $\eta_p^2 = .28$ , and group members displaying collectivist behaviour were more positively evaluated when participants were presented with a collectivist group norm ( $M = 5.83$ ,  $SD = 1.44$ ) compared with an individualist group norm ( $M = 4.34$ ,  $SD = 1.30$ ),  $F(1, 156) = 29.85$ ,  $p < .01$ ,  $\eta_p^2 = .28$ .

### **Group tolerance**

A 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) x 2 (Nationality: Greek versus British) fully-between participants ANOVA with group tolerance as the dependent variable found no significant main effects or three-way interaction. There was, however, significant two-way interactions between group norm and behaviour,  $F(1, 152) = 85.79$ ,  $p < .01$ ,  $\eta_p^2 = .36$ , and between nationality and behaviour,  $F(1, 152) = 11.58$ ,  $p < .01$ ,  $\eta_p^2 = .07$ .

These interactions were further probed by examining the simple effects for each interaction in turn. Simple effects analyses for the group norm x behaviour interaction revealed effects consistent with a ‘perfect’ interaction for these variables.

Specifically, under a collectivist group norm, group members displaying collectivist behaviour were more tolerated ( $M = 6.17$ ,  $SD = 1.22$ ) than group members showing individualist behaviour ( $M = 3.80$ ,  $SD = 1.34$ ),  $F(1, 156) = 58.01$ ,  $p < .01$ ,  $\eta_p^2 = .41$ . Analogously, when the group norm was individualist, the group members displaying individualist behaviour were rated as more tolerable ( $M = 5.83$ ,  $SD = 1.57$ ) than group members demonstrating collectivist behaviour ( $M = 4.25$ ,  $SD = 1.42$ ),  $F(1, 156) = 25.78$ ,  $p < .01$ ,  $\eta_p^2 = .24$ . In addition, participants reported higher tolerance levels for group members displaying individualist behaviour when the norm was individualist ( $M = 5.83$ ,  $SD = 1.57$ ) relative to a collectivist group norm ( $M = 3.80$ ,  $SD = 1.34$ ),  $F(1, 156) = 42.45$ ,  $p < .01$ ,  $\eta_p^2 = .34$ , and group tolerance levels were appraised higher for group members displaying collectivist behaviour and when participants were presented with a collectivist group norm ( $M = 6.18$ ,  $SD = 1.22$ ) compared with an individualist group norm ( $M = 4.25$ ,  $SD = 1.42$ ),  $F(1, 156) = 38.18$ ,  $p < .01$ ,  $\eta_p^2 = .31$ .

Simple effects analyses for the nationality x behaviour interaction found that Greek participants tended to be more tolerant of group members displaying collectivist behaviour ( $M = 5.69$ ,  $SD = 1.61$ ) relative to individualist behaviour ( $M = 4.57$ ,  $SD = 1.66$ ),  $F(1, 159) = 9.01$ ,  $p < .01$ ,  $\eta_p^2 = .46$ . Furthermore, British participants reported less tolerance for collectivist behaviour ( $M = 4.73$ ,  $SD = 1.52$ ) than Greek participants ( $M = 5.69$ ,  $SD = 1.61$ ),  $F(1, 159) = 6.59$ ,  $p < .01$ ,  $\eta_p^2 = .38$ . There were no other significant effects.

## **Relatedness**

A 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) x 2 (Nationality: Greek versus British) ANOVA with relatedness as the dependent variable revealed significant main effects for behaviour ( $F(1, 152) =$



32.11,  $p < .01$ ,  $\eta_p^2 = .17$ ) and nationality ( $F(1, 152) = 8.95$ ,  $p < .01$ ,  $\eta_p^2 = .06$ ), and significant two-way interactions for group norm x behaviour ( $F(1, 152) = 13.57$ ,  $p < .01$ ,  $\eta_p^2 = .08$ ) and behaviour x nationality ( $F(1, 152) = 9.16$ ,  $p < .01$ ,  $\eta_p^2 = .04$ ).

There was no significant three-way interaction.

Examining the simple effects for the group norm x behaviour interaction, participants rated their relatedness to group members expressing collectivist behaviour higher if the group norm was collectivist ( $M = 6.34$ ,  $SD = 1.33$ ) relative to an individualist group norm ( $M = 5.41$ ,  $SD = 1.46$ ),  $F(1, 156) = 10.71$ ,  $p < .01$ ,  $\eta_p^2 = .20$ . In addition, participants presented with a collectivist group norm reported higher levels of relatedness to the group member displaying collectivist behaviour ( $M = 6.34$ ,  $SD = 1.33$ ) than when they expressed individualist behaviour ( $M = 4.53$ ,  $SD = 1.17$ ),  $F(1, 156) = 40.43$ ,  $p < .01$ ,  $\eta_p^2 = .48$ . There were no other significant effects, suggesting that participants felt equally related to the group member in the individualist condition regardless of the behaviour they expressed. Similarly, there were no differences in the levels of relatedness for group members expressing individualist behaviour across the two group norm conditions.

Simple effects analyses for the behaviour x nationality interaction revealed that Greek participants rated their relatedness to the group member higher if the group member expressed collectivist behaviour ( $M = 6.40$ ,  $SD = 1.09$ ) rather than individualist behaviour ( $M = 4.82$ ,  $SD = 1.21$ ),  $F(1, 156) = 30.60$ ,  $p < .01$ ,  $\eta_p^2 = .41$ . Similarly, British participants also reported higher levels of relatedness to the group member if the group member expressed collectivist behaviour ( $M = 5.34$ ,  $SD = 1.61$ ) rather than individualist behaviour ( $M = 4.72$ ,  $SD = 1.13$ ),  $F(1, 156) = 4.75$ ,  $p < .05$ ,  $\eta_p^2 = .10$ . However, when the group member expressed collectivist behaviour, Greek participants rated their relatedness to the group member significantly higher ( $M =$

6.40,  $SD = 1.09$ ) relative to the British participants ( $M = 5.34$ ,  $SD = 1.61$ ),  $F(1, 156) = 13.78$ ,  $p < .01$ ,  $\eta_p^2 = .24$ . However, there was no difference in the levels of relatedness for group members expressing individualist behaviour across the group norm conditions.

### **Group identification**

As in Study 1, we also examined the effects of group identification as an additional factor. The sample was divided into high and low group identifiers using a median split of the group identity scale<sup>3</sup>. A 2 (Norm: collectivist versus individualist) x 2 (Behaviour: collectivist versus individualist) x 2 (Nationality: Greek versus British) x 2 (Group Identification: high versus low) ANOVA revealed no significant four- or three-way interaction effects. The pattern of results was therefore identical in the high and low group identifiers.

### **2.3.4 Discussion**

In line with predictions, no cross-cultural differences were found between the Greek and British sample over the behavioural evaluations. When the group norm was collectivist participants positively evaluated collectivist behaviour, however this preference was not just attenuated but completely reversed in a similar pattern as the high group identifiers in McAuliffe et al (2003) study. However, no differences were observed when the level of identification was accounted for. Again, in line with Study 1, group members were more tolerated when they displayed behaviour consistent with the group norm. Higher levels of relatedness were expressed for the group members

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<sup>3</sup> A hierarchical linear regression for identification, nationality and group norm on group behaviour was as well performed producing an identical pattern of results.

indicating collectivist behaviour, but the introduction of a collectivist group norm attenuated this difference.

## **Conclusion**

This study provided further evidence in support of the measure to manipulate individualist and collectivist norms. It also demonstrated that the measure evoked similar (but not identical) patterns of perceptions among participants from collectivist and individualist backgrounds within their own culture and in an ecologically-valid context.

## **2.4 General Discussion**

Two lab-based studies examined the viability of a method to manipulate individualism and collectivism as group norms at a situational level. This was achieved by using a role play scenario to induce individualist and collectivist group norms. The participants individualist or collectivist cultural backgrounds was included in order to examine whether the effects of these situational group norms were universal regardless of the generalised, dispositional orientations of individualism and collectivism afforded by cultural background. In line with previous research it was suggested that the introduction of an individualist group norm would attenuate the preference for a hypothetical group member displaying collectivist behaviour over individualist (McAuliffe et al., 2003). It was further hypothesised that tolerance and relatedness ratings of hypothetical group members will be consistent with the manipulated group norm and group identification will moderate the behavioural evaluations.

Integrating the findings from both studies it can be concluded that support was found on the functionality of manipulating individualist and collectivist group norms even to members of a collectivist background. For both collectivist cultural groups



(Chinese and Greeks), the introduction of an individualist group attenuated the preference for collectivist group behaviour. The same was observed for individualist cultural group (British) but only in Study 2. In Study 1 the British participants did not indicate any preference for collectivist behaviour and the introduction of an individualist group norm resulted in more positive evaluations of all group behaviours irrespective of orientation. This however changed when group identification was included in the analysis. Both cultural groups rated collectivist group behaviour more positively when the group norm was collectivist, but this preference was completely reversed when the group norm was individualist among high identifiers while low identifiers merely expressed a preference for collectivist behaviour.

The moderation effect of identification was inconsistent across the two studies. In Study 1, identification eliminated the cross-cultural differences in behavioural evaluation, where in the second study identification did not moderate these evaluations. The role of identification is highly important as it indicates that the behavioural responses are not just the result of norm compliance but a result of the self-categorisation process (Turner, 1991). The background literature indicates that high group identifiers are more likely to conform with group norms (Fielding & Hogg, 2000; Hogg, Turner, & Davidson, 1990; Hornsey, Spears, Cremers, & Hogg, 2003; Jetten, Spears, & Manstead, 1997; McAuliffe, et al., 2003). However this postulation has not been without criticism. The positive relationship between group identification and intergroup differentiation has not received consistent empirical support. Field and laboratory studies (Brown, Condor, Mathews, Wade, & Williams, 1986; Brown & Williams, 1984; Hinkle & Brown, 1990; Oaker & Brown, 1986) have indicated no relationship or even a negative relation between levels of group identification and in-group bias. This inconsistency between identification and in-

group bias has been attributed the complexity of the relationship between these two constructs (Jetten et al, 1997) and is currently a heated debate in the area (Brown, 2000). If such a discrepancy is created because of a similar complexity between individualism-collectivism as group norms and behavioural group evaluations it is an issue for further investigation.

The present research further demonstrates that the introduction of an individualist group norm fostered the acceptance of individualist behaviour even for group members of a collectivist cultural background. Across the two studies and among people from two cultural backgrounds it was found that people expressed tolerance of behaviour when it was consistent with the group norm. This does not mean that overall collectivist behaviour is not highly appreciated by group members. The relatedness measurement results demonstrate that group members generally tend to show affective proximity to the in-group showing collectivist behaviour. Again, for the first study a cross-cultural difference was found. The Chinese participants irrespective of group norm indicated stable relatedness responses for collectivist group behaviour. For the British participants, this preference was attenuated when an individualist group norm was introduced. In Study 2, Greek and British participants also expressed higher levels of relatedness when the ostensible in-group member displayed collectivist behaviour. The only cross-cultural difference was that Greek participants rated levels of relatedness higher for collectivist behaviour. However, this preference was attenuated when an individualist group norm was introduced.

In sum, the studies presented here provide empirical support for the successful laboratory manipulation of individualism and collectivism as group norms. Two cross-cultural studies extended the research in the area (McAuliffe et al, 2003) and established the validity of the use of individualism and collectivism as situational

group norms. In the first study, cross-cultural differences were observed over behavioural evaluations and ratings of in-group relatedness, a possible limitation was that the Chinese nationals were tested in Britain and with materials in English. In Study 2 both cultural groups were tested in Greece and Britain with materials and questionnaires in the respective languages. In this case no cross-cultural differences occurred on the pattern of the responses. Interestingly, both cultural groups responded in a similar pattern. The methods for the manipulation of situational individualist and collectivist group norms will be used in subsequent studies. Similar situational group scenarios will be created, the source of choice over target activities manipulated, and intrinsic motivation measured.



## **CHAPTER 3**

### **The effect of group norms and perceived source of choice on intrinsic motivation (Studies 3 and 4)**

#### **3.1 Introduction**

Intrinsically-motivated behaviours are those that are: (1) performed out of a sense of personal choice in a spontaneous manner, (2) done for the sake of the task itself and not in anticipation of an external reward, and (3) characterised by a sense of volition and enjoyment. Intrinsically-motivated behaviours are usually considered to be the dialectic opposite to extrinsically-motivated behaviours as the person views the causality of their actions to originate from within (Deci & Ryan, 1985b, 2000).

Self-Determination Theory (SDT), as postulated by Deci and Ryan (1985b), provides an empirically-supported explanatory system for the effects of intrinsic motivation on human behaviour and the origins of intrinsic motivation. It comprises of four sub theories; cognitive evaluation theory, causality orientation theory, organismic integration theory, and basic needs theory. SDT posits that the three psychological needs for autonomy, competence, and relatedness are cross-cultural, essential, and innate and form the psychological basis for human behaviour and motivation (Deci & Ryan, 2000).

The development of Cognitive Evaluation Theory originated in the initial research carried out by Deci (1971, 1972; Deci, Cascio, & Krusell, 1975) which examined the effects of monetary rewards on intrinsic motivation. In these studies, participants were assigned to one of two different conditions, in one condition participants received monetary rewards for solving a popular puzzle and in the other

they did not. After an initial period of engagement with the target activity the experimenter left the lab and the participants were told they could choose to carry on with the target activity or read a magazine provided. Intrinsic motivation was measured using this ‘free-choice’ paradigm where the amount of free time the participant spent on the puzzle activity constituted the observed measure of intrinsic motivation. Comparisons between the two groups indicated that the monetary reward served to reduce or *undermine* intrinsic motivation for the target activity as participants in the rewarded (extrinsically-motivated) group displayed significantly lower levels of intrinsic motivation than participants in the group which received no external reward.

The above experiment is an example on how environmental factors can influence human motivation by undermining intrinsic motivation. The mechanism behind the effect of the environmental factor, namely the presence or absence of a monetary reward, is that the reward changes the individual’s perceived locus of causality from intrinsic (performing the puzzle out of interest for no external contingency) to extrinsic (performing the puzzle for gaining the reward). The presence of rewards and controls affect people’s experience of autonomy, a basic psychological need according to SDT. So such environmental factors shift the perceived locus of causality for being internal to external resulting to low levels of intrinsic motivation for the target behaviour.

### **3.1.1 The role of choice**

Tangible rewards are not the only factors that affect intrinsic motivation by shifting the internal locus of causality. Zuckerman et al (1978) suggested that choice over a target activity can function as an environmental factor affecting intrinsic motivation because a sense of personal agency and volition over behaviour is central

to self-determined action. Therefore, providing choice over a target activity is likely to result in an internal perceived causality agency and support intrinsic motivation. Conversely, the absence of choice has a similar effect as an environmental control resulting in a shift in perceived locus of causality toward external events and lower intrinsic motivation.

Zuckerman et al. (1978) used a table game activity in a laboratory setting fitted with a two-way mirror observational room to study the effects of choice on intrinsic motivation. Participants were assigned to a condition in which they could exercise personal choice over different configurations of a target activity or a condition in which the experimenter assigned a version of the task to the participant. Intrinsic motivation was measured by covert observation of the participants engaging in the task alone using a free choice paradigm. Intrinsic motivation was measured by calculating how much time participants spent on the target activity. As expected, results indicated that the participants assigned to the provision of choice condition demonstrated significantly higher levels of intrinsic motivation than the control group. The validity of the effect was extended to children in educational settings (Swann & Pittman, 1977). In summary, environmental support for autonomy such as provision of choice promotes intrinsic motivation while environmental controls such as rewards tend to thwart intrinsic motivation.

### **3.1.2 Choice, autonomy and culture**

The extent to which the provision of choice can function as a cross-culturally valid environmental factor that can facilitate or undermine levels of intrinsic motivation has been an issue of some debate. This is because the psychological need satisfied by the provision of choice, autonomy, is considered by some theorists to be culture specific (Carver & Reicher, 1999; Carver & Scheir, 1999; Iyengar & Lepper,



2002). Iyengar & Lepper (1999) have suggested the provision of personal choice over target activity is culture-specific with respect to its effects on intrinsic motivation. For example, members of cultures that have a predominantly individualist cultural orientation like those from North America and Europe, exercising personal choice will have an effect on intrinsic motivation as predicted by SDT. However, for members of cultures with a predominantly collectivist cultural orientation, like those from Asia or South America, other social factors such as choice provided by a member of the family or a important group members (i.e., significant other) can result in higher intrinsic motivation than personal choice.

The theoretical basis for these postulations stems from the cultural analysis provided by the self-systems theory (Markus & Kitayama, 1991a, 1991b). People who share an individualist cultural background tend to hold independent self-constructs. Such models of self are characterised by individuals holding a desire to establish autonomous personalities and exercise control over the environment (Iyengar & Lepper, 1999; Markus & Kitayama, 1991a, 1991b). On the contrary, members of collectivist cultures are characterised by an interdependent model of self expressed as the individual need for group belongingness and seeking harmony by being motivated to maintain the wishes of in-groups (De Vos, 1985; Hsu, 1985; Miller, 1988; Triandis, 1995; Triandis, et al., 1990).

Iyengar and Lepper (1999) provided empirical support for the above assumption. They compared the level of intrinsic motivation of school children of Anglo-American (individualist) and Asian-American (collectivist) backgrounds in an anagram task under either a personal, significant other, or control (experimenter) choice condition. In the personal choice condition the participant could freely choose between various versions of the anagram task, in the significant other condition the

mother of the pupil provided the choice, and in the control condition the experimenter assigned the anagram task to the child. Results indicated a significant interaction effect for cultural background and the experimental choice conditions on the children's levels of intrinsic motivation. Participants from a collectivist background indicated higher levels of intrinsic motivation when the choice was provided by a significant other compared with the control and personal choice condition. Participants from an individualist cultural background exhibited higher levels of intrinsic motivation when personal choice was exercised compared to the significant other and control conditions.

### **3.1.3 The present studies**

However, Iyengar and Lepper's (1999) studies do not necessarily contradict SDT's predictions and the cross-cultural validity for the need for autonomy. According to Deci and Ryan (2000), Iyengar and Lepper's (1999) findings do not suggest that autonomy is not an innate psychological need for members of a collectivist cultural background. Instead, they describe the cross-culturally different ways that autonomy can be expressed. Anglo-Americans and people with an individualist cultural orientation tend to feel more autonomous when decisions are initiated by the self. But, Asian-Americans and people with a collectivist cultural orientation people feel more autonomous when they act in accordance with the cultural, societal, and family values of those around them. Thus in SDT's discourse autonomy is expressed as a need that is defined by the social context as well as personal perceptions of how that need is satisfied. People can still view their actions and decisions as autonomous, even if they do not make personal choices. People can wilfully and volitionally choose to become dependent upon another and accept the choices they make on their behalf if the social context endorses such a view. In



collectivist cultures, this may very well be the case as people strongly identify with their cultural group and, in particular, the people on whom they depend such as the mothers of the children in Iyengar and Lepper's experiment. They therefore choose to be dependent on others and feel a sense of intrinsic motivation because they view significant others as making choices that are consistent with the group, and therefore, their own interest which supports their psychological need for autonomy.

It is important to note that people in collectivist cultures may have relinquished their independence, but they have not become 'controlled'. This is because independence should not be confused with a lack of autonomy or choice. According to SDT the opposite of autonomy is not dependence but heteronomy. Heteronomy refers to the individual perception of actions of somebody guided from forces external to the self or to behave in ways incongruent with values and interests (Chirkov, et al., 2003). Recent empirical evidence supports the above SDT postulations. It has been shown that autonomy positively-predicts individual's motivation in participants of different cultural backgrounds who internalize and identify with either individualist or collectivist cultural dimensions (Chirkov, et al., 2003). These findings suggest that autonomy is a cross-cultural innate psychological need and that the agents responsible for the fulfilment of this need satisfaction can be culture specific.

The scope of the studies presented in this chapter is to further investigate the different environmental instruments that can enhance intrinsic motivation in situational group contexts. This line of investigation can reveal the situation-specific environmental agents enhancing autonomy and intrinsic motivation. This parallelism is based upon two recent theorisations of the effects of culture upon the individual.



Firstly, individualism and collectivism are not merely cultural orientations but can also operate at the situational level (Oyserman & Lee, 2008; Oyserman & Sorensen, in press). A number of studies provide empirical evidence that the effects of culture can be understood as situation-specific orientation. Empirical support for the above stems from studies where individualism and collectivism were manipulated in a laboratory setting producing similar effects as culture on values (i.e., social beliefs, other value judgements) (Briley & Wyer, 2001; Gardner, Gabriel, & Dean, 2004; Gardner, Gabriel, & Lee, 1999; A. Y. Lee, Aaker, & Gardner, 2000), self-concept (Kuhnen, Hannover, & Schubert, 2001; Levine, et al., 2003; Trafimow, Triandis, & Goto, 1991), well-being (Marian & Kaushanskaya, 2004; Oishi, Wyer, & Colcombe, 2000; Vohs & Heatherton, 2001), and cognition (Aaker & Lee, 2001; Kuhnen & Haberstroh, 2004; Kuhnen & Oyserman, 2002; Ybarra & Trafimow, 1998). Finally, support for individualism and collectivism as situational orientations stems from a meta-analysis conducted by Oyserman and Lee (2008) where priming individualism or collectivism has significant effects on cognition and self-concept.

Secondly, people in any cultural environment encounter situations or groups that can have different normative orientations sometimes even contradicting the cultural framework on a daily basis. For example, Brian Clough, one of the most successful English league football managers, was famous for his autocratic and highly controlling coaching style, but this did not prevent his players showing commitment and hard work, the hallmarks of intrinsic motivation (Hagger & Chatzisarantis, 2005b). On the surface, this example contradicts the predictions of SDT since the significant other clearly employed an autocratic, controlling interpersonal style which has been negatively related to intrinsic motivation. However, it is likely that a collectivist norm operated within the football team and Clough's players had

volitionally internalised their coach's desires and chosen to become dependent upon his judgement and orders. As a result they viewed Clough as supporting their psychological needs and were therefore intrinsically motivated when carrying out his orders and commands because they perceived them as being supportive of their needs. The scope of the present investigation will shed light on the effects of situational norms and the choices made by corresponding agents on intrinsic motivation.

In summary, previous research has suggested that according to the participant's cultural background there are different environmental factors that fulfil the need for autonomy and result to intrinsically motivated behaviours (Iyengar & Lepper, 1999; Markus & Kitayama, 1991a, 1991b). More specific it seems that personal choice holds a environmental functional significance for intrinsic for members of individualist cultural background where as for members of a collectivist cultural background choice by a significant other. Bulding up on the above studies and the experimental methodology of group norms manipulations developed in the studies described in Chapter 2, the scope the studies described here is to investigate which environmental factors for choice will hold functional significance for intrinsic motivation in situational group conditions than advocate individualism or collectivism.

## **3.2 Study 3**

### **3.2.1 Aims of study**

A group context scenario stemming from the methodology developed and validated in Studies 1 and 2 (Chapter 2) including a choice manipulation over target activities and measurement of intrinsic motivation was used to investigate the situational effects of group-level individualist and collectivist orientations and choice



on intrinsic motivation. Participants took part in a role-playing experiment in which group norms were manipulated to be either individualist or collectivist. Since the group context scenario was in the form of an occupational setting the role of a group significant other was assigned to a fictional group manager. It is well established in the cross-cultural research area that a significant other can be any person that holds a significance for the assignment of cultural, group and family norms (Markus & Kitayama, 1991; Triandis, 1995). However, taking into consideration the virtual substance of the experimentally created occupational group and in order to increase the levels of significance that the group manager holds, participants had to indicate behaviours that the group manager should indicate in accordance with the generic group norm.

Participants were then introduced to a problem-solving target activity, which had six different thematic categories. Depending on condition, participants were asked to exercise personal choice over which problem solving task they wished to solve (personal choice condition), were told that the experimenter would choose the task for them (control condition), or were told that the group manager would choose the task for them (significant-other-choice condition). The dependent variable of intrinsic motivation was measured as the amount of time participants engaged with the target activity during the free choice paradigm.

It was hypothesised that when the group norm was individualist, participants would indicate higher levels of intrinsic motivation in the personal choice condition than the control or significant other conditions. In contrast, it was expected that when a collectivist group norm was introduced, participants would indicate significantly higher levels of intrinsic motivation in the significant other condition than participants in the personal choice and control condition.



### 3.2.2 Method

#### Design and Procedure

The present study adopted a 2 (group norm: individualist vs. collectivist) x 3 (choice condition: personal choice vs. choice by a significant other vs. control) fully between-participants design with the key dependent variable of intrinsic motivation measured as time spent on solving anagrams in a free choice paradigm. Participants were 117 undergraduate students (37 males and 80 females) with a mean age of 21.91 years ( $SD = 7.42$  years).

Participants were tested individually in a laboratory fitted with a covert observation camera concealed in a wall-mounted clock. The camera was connected to a computer in a room outside the lab where a second experimenter recorded the time participants spent on the study tasks as the measure of intrinsic motivation. The experimenter showed the participant into the laboratory and asked them to take a seat at a desk. The experimenter sat opposite the participant. On the table was a computer used to administer the experimental conditions of group norm (see Chapter 2) and choice manipulations using videos with a presenter providing instructions for each of the six experimental conditions and six piles of word search tasks clearly marked with the categories *nature*, *education*, *space*, *sport*, *occupations*, and *entertainment*<sup>4</sup> (see Appendix 8). There were also four latest editions of popular magazines and four different coloured pens.

In line with the with the social identity theory experimental paradigms adopted by Tajfel and Turner (1979) and the methodological developments reported in Chapter 2, participants were told that they will be assigned in one of two hypothetical

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<sup>4</sup> The word search tasks were developed in a pilot study in which undergraduate students were asked to report as many words as possible in six different categories. Furthermore the tasks were piloted for equality in level of difficulty.

companies, although all were actually assigned to a single company; *Tech Industries*. The group norm manipulation was achieved using two descriptive vignettes and two short videos showing employees completing a product logo either working in a collectivist or individualist manner. Then participants were presented with two group norm manipulation check items asking to rate the company ethos and the orientation of the working group on a 9-point scale ranging from individualist (1) to collectivist (9).

Following the methodology of Zuckerman's (1978) study on motivation and choice, a yoked design was used. Participants were grouped in triads within the group norm condition. The first participant in each triad was assigned to the personal choice condition and could choose the category of the word search task. The following two participants were randomly assigned to the control or choice by a significant other condition and were asked to work on the same category of word search task chosen by the first participant.

After being given an introduction to the study by the experimenter, participants were provided with the relevant group norm manipulation and then asked to complete two tasks. In the first task participants were presented with a photo of a hypothetical manager of *Tech Industries* (see Appendix 9) and asked to write down all the behaviours that they felt the manager should exhibit in order to be in accordance with the company's group ethos. In the second group identification task participants were told that they have to contribute to the workload of a company's group by sketching a draft logo which was going to be used for a new product (see Appendix 9). Then, participants' levels of group identification were measured using three items: "Being an employee at *Tech Industries* is important to me", "I identify with being an employee at *Tech Industries*", and "I feel a sense of belonging with the group of *Tech*



*Industries* employees”. Responses were made on 9-point scales ranging from strongly disagree (1) to strongly agree (9).

### **Experimental conditions**

*Personal choice condition.* In this condition, the experimenter explained to the participant that part of working for *Tech Industries* involved working on problem-solving tasks and that today’s task involved completing word search tasks.

Participants were given the following instructions: “Here are six envelopes containing instructions and six word search tasks. [The experimenter points to the six envelopes labelled ‘space task’, ‘sports task’, ‘occupations task’, ‘nature task’, ‘university task’, and ‘entertainment task’]. Which one would you like to do? It’s your choice”. The experimenter pointed out the four coloured pens and provided the following instructions: “You can pick any pen to highlight your answers. Go ahead and choose the one you would like to use.”

Each participant had 5 minutes to complete the word search task. Around 15 seconds before the end of the 5 minutes participants were given notice of the expiry of the allotted time and were told that the experiment was over. The experimenter then excused himself from the laboratory by saying “I shall be gone only a few minutes in order to evaluate your task performance. You may do whatever you like while I am gone, you can read magazines, carry on with the task or do whatever you want”. As the experimenter left the lab the second experimenter activated the concealed observation camera and measured the amount of time the participant spent on the word search task for the 5 minutes that the experimenter was absent from the laboratory.

*Control condition.* The procedure for the experimenter choice condition was identical to the personal choice condition with the exception that the experimenter



made the choice of the word search tasks to be solved by the participant. Therefore, the experimenter introduced the word search using the following script: “Here are six envelopes containing instructions and six word-search tasks. I would like you to do [word search task completed by the previous participant in the personal choice condition]. Here are some coloured pens to be used to highlight your answers, I would like you to use the green pen”.

*Significant-other-choice condition.* The procedure for the significant-other-choice was identical to the procedure as the personal choice condition. However the choice of category of the word search task to be solved by the participant was made by an ostensible manager of the company. This was achieved by six different videos corresponding to the six different categories of word search categories. The experimenter activated the relevant video showing the manager of *Tech Industries* explaining the reasons why and stating, “Here are six envelopes containing instructions and six word-search tasks. I would like you to do [word search task completed by the previous participant in the personal choice condition]. Here are some coloured pens to be used to highlight your answers, I would like you to use the green pen”.

*Closing procedure.* After the free time the experimenter entered the lab, indicated that the study was now actually over, and revealed the true nature of the experiment. In order to safeguard that the methodology was not revealed to other potential participants the experimenter showed the participants a jar full of rice and asked the participant to estimate the amount of grains contained therein and that a successful answer will result in a prize of £5. The actual number of rice grains was given as 568 and unlikely to be guessed by the participant. Hence, if a participant guessed the exact amount of rice grains it could be assumed that they had received

prior information about the study and could be disqualified on these grounds. No participant was excluded on this basis.

### **Measure**

The dependent variable of observed intrinsic motivation was obtained by abstracting the time participants spent engaged with the target activity out of a total of 300 seconds (5 minutes), corresponding to the total free time available. Participants were considered to be engaged in the target activity when they were occupied in solving or studying the word-search task.

### **3.2.3 Results**

#### **Manipulation check**

Before any main analysis commenced it was important to check that the manipulation of the individualist and collectivist group norms was successful in inducing collectivist and individualist perceptions. Thus a 2 (group norm: individualist vs. collectivist) x 3 (condition: personal choice vs. experimenter's choice vs. choice by a significant other) fully between-participants ANOVA was performed. The dependent variable was the average score obtained from the two group norm manipulation check items. When the group norm manipulation was individualist in content, participants perceived the ethos of the company and the working group to be individualist ( $M = 3.35$ ,  $SD = 1.66$ ) and when the group norm manipulation was collectivist, again participants perceived the company ethos and the working group to be collectivist ( $M = 7.13$ ,  $SD = 1.27$ ). The above were justified by main effect for group norm only,  $F(1, 109) = 181.15$ ,  $p < .01$ ,  $\eta_p^2 = .63$ . There were no other significant main or interaction effects.

#### **Main analysis**

In order to test the main hypothesis, a 2 (group norm: individualist vs. collectivist) x 3 (condition: personal choice vs. experimenter's choice vs. choice by a significant other) fully between-participants ANOVA was conducted. The dependent variable was the total number of seconds, out of a possible 300, that each participant spent engaging in the target activity in the free-choice period. A significant main effect for choice condition was found ( $F(2, 111) = 5.47, p < .05, \eta_p^2 = .09$ ) and a significant interaction for group norm and choice condition ( $F(2, 111) = 8.95, p < .001, \eta_p^2 = .14$ ).

Simple main effects analysis revealed that in the personal choice condition group members receiving an individualist group norm indicated significantly higher levels of intrinsic motivation ( $M = 222.95, SD = 116.55$ ) than group members that received a collectivist group norm ( $M = 103.7, SD = 133.09$ ),  $F(1, 111) = 9.09, p < .05, \eta_p^2 = .08$ . In the control choice condition participants with the collectivist group context scored significantly higher on the intrinsic motivation measurement ( $M = 150.9, SD = 140.79$ ) than those in the individualist group norm condition ( $M = 35.48, SD = 71.3$ ),  $F(1, 111) = 8.72, p < .05, \eta_p^2 = .08$ . Finally, there was no statistical difference between the two group norm conditions for the significant other choice condition,  $F(1, 111) = .14, p = .712, \eta_p^2 = .00$ .

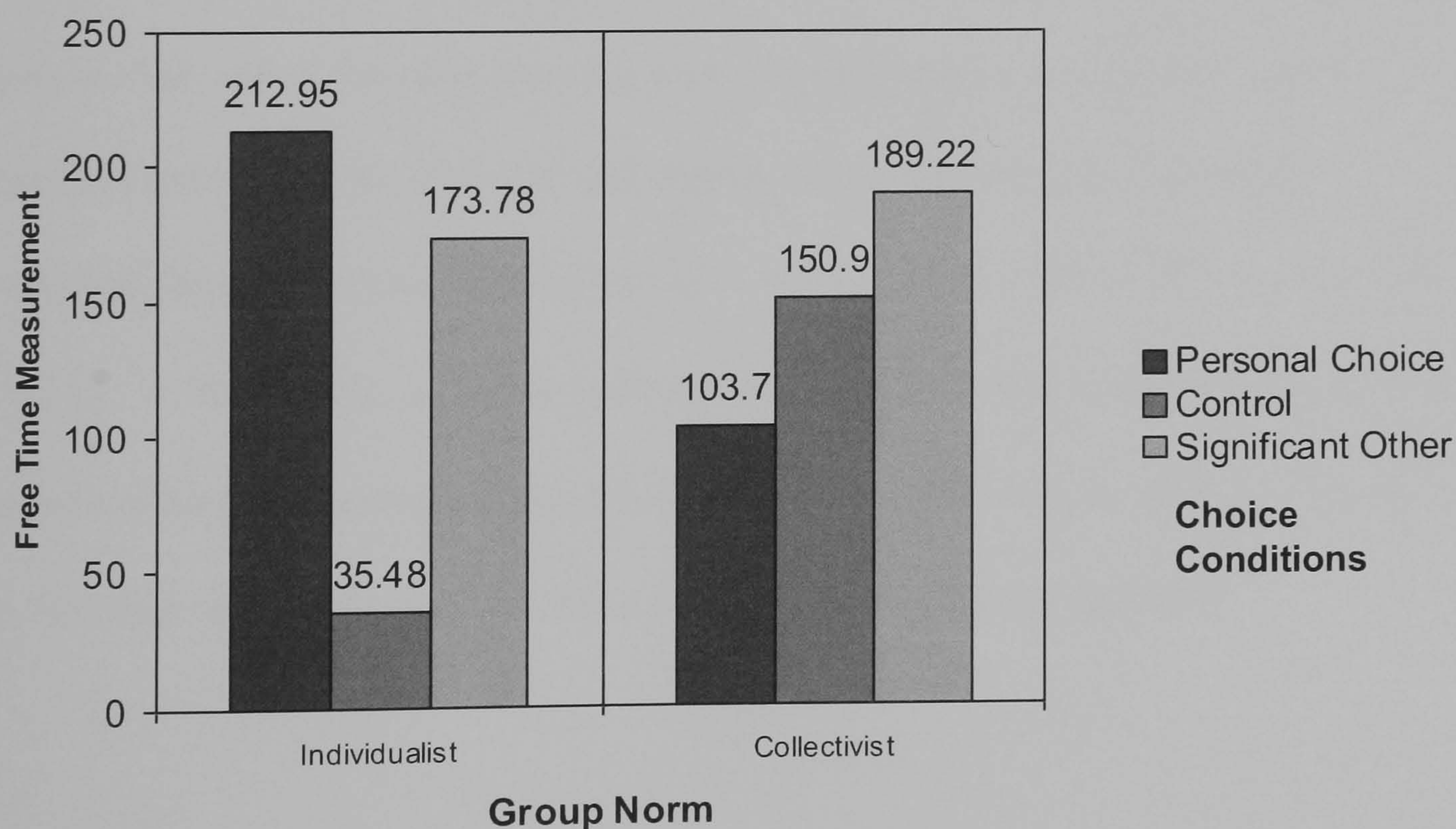
Furthermore, simple main effects analysis revealed that when the group norm was individualist there was a significant difference between the three different choice conditions,  $F(2, 111) = 12.38, p < .001, \eta_p^2 = .18$ . Post-hoc analysis exploring the significant simple main effect with in individualist group norm revealed that participants had significantly higher levels of intrinsic motivation in the personal choice condition ( $M = 222.95, SD = 116.54$ ) than the control ( $M = 35.48, SD = 71.30$ )



$F(1, 40) = 39.04, p < .05, \eta_p^2 = .05$ , but not when the significant other was exercising choice ( $M = 173.78, SD = 139.73$ ),  $F(1, 37) = 1.46, p = .25, \eta_p^2 = .04$ .

Finally, simple main effects analysis revealed that when the group norm was collectivist there was no significant difference between the three choice conditions,  $F(2, 111) = 2.23, p = .11, \eta_p^2 = .04$ . However, conducting post-hoc analysis within collectivism revealed a marginally significant difference in time spent on the target activity when the choice was made by the significant other ( $M = 189.22, SD = 139.93$ ) compared to when personal choice was exercised ( $M = 133.7, SD = 133.09$ ),  $F(1, 37) = 3.73, p = .06, \eta_p^2 = .1$ . The control condition ( $M = 150.9, SD = 140.79$ ) was not significantly different to either personal choice or significant other choice conditions. These results are illustrated in Figure 3.1.

**Figure 3.1 Graph depicting the interaction effect of group norm and choice condition on intrinsic motivation in Study 3.**



**Group identification analysis**



In order to investigate whether group identification levels among group members accounted for the above findings a further analysis was conducted this time including identification levels as an independent variable. The analysis was conducted using a 2 (group norm: individualist vs. collectivist) x 3 (condition: personal choice vs. experimenter's choice vs. choice by a significant other) x 2 (identification: low vs. high) design with intrinsic motivation as the dependent variable. Participants were categorised as low and high on the basis of a median split on the group identification scale (McAuliffe & Jetten, 1999)<sup>5</sup>.

The analysis showed a main effect for identification,  $F(1, 105) = 6.37, p < .05, \eta_p^2 = .06$ , such that low group identifiers experienced higher levels of intrinsic motivation ( $M = 178.15, SD = 138.68$ ) than high group identifiers ( $M = 110.12, SD = 128.95$ ). Furthermore, there was a significant main effect for choice condition ( $F(2, 105) = 5.73, p < .05, \eta_p^2 = .1$ ) and a significant interaction between group norm and identification ( $F(2, 105) = 9.40, p < .01, \eta_p^2 = 0.15$ ). Exploring the interaction further, a simple main effect for identification was revealed suggesting that low group identifiers ( $M = 178.16, SD = 138.68$ ) experienced higher levels of intrinsic motivation than high group identifiers ( $M = 110.11, SD = 128.95$ ),  $F(3, 113) = 7.39, p < .05, \eta_p^2 = .06$ . Finally, as it was expected from the previous analysis, a significant interaction for group norm and condition was found,  $F(2, 105) = 3.23, p < .05, \eta_p^2 = .06$ . No other main effects or the three-way interaction were significant.

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<sup>5</sup> A hierarchical linear regression for identification, personal choice and group norm on group behaviour was as well performed producing an identical pattern of results.

### 3.2.4 Discussion

Results of the study produced an interesting pattern of findings with respect to the effects of individualist and collectivist group norms and perceived source of choice on intrinsic motivation. When the group norm was individualist it was hypothesised that participants would indicate higher levels of intrinsic motivation in the personal choice condition. However, the results point out that participants in the personal and significant-other choice conditions that received an individualist group norm exhibited no significant differences in intrinsic motivation. The findings for participants receiving a collectivist group norm were in agreement with hypotheses. Participants receiving a collectivist group norm had higher levels of intrinsic motivation in the significant-other choice condition compared to the personal choice condition. Nevertheless, this was not fully justified since levels of intrinsic motivation for participants in the control condition did not differ significantly to levels in the personal and significant other choice conditions.

The above findings provide some initial insight into the situational effects of group norm, individualism or collectivism, and choice, individual or external agent, on intrinsic motivation. Consistent with previous research on the effects of individualism and collectivism as cultural orientations on intrinsic motivation (Chirkov, et al., 2003; Iyengar & Lepper, 1999, 2002), the introduction of the individualist group norm resulted in higher levels of intrinsic motivation in the personal choice condition whereas when the group norm was collectivist choice by a significant other fostered higher levels of intrinsic motivation. However, it must be noted that although the findings were in the direction of the experimental hypotheses there are some inconsistencies. For example, in the individualist group norm condition intrinsic motivation was not significantly higher in the personal choice



condition relative to the significant other condition. A possible explanation for this result is that since the experimental method is in a group occupational situation the opinion of the group manager can still positively affect intrinsic motivation when the norm is individualist. This is consistent with some group research that shows that both collectivist and individualist behaviour is acceptable when the group norm is individualist, probably because collectivist behaviour is still considered virtuous in individualist group environments (Jetten et al, 2002). Furthermore, when the analysis was conducted including the levels of group identification, low group identifiers expressed higher levels of intrinsic motivation irrespective of group norm or choice condition. This finding might suggest that the group identification has the overall effect of promoting intrinsic motivation. This is probably because identifying with the group is an important prerequisite for any behaviour to be valued as supporting psychological needs. Low identification means that the behaviour is unlikely to have any relevance or consequence, and therefore is unlikely to service any psychological need regardless of choice.

### **3.3 Study 4**

#### **3.3.1 Aims of study**

The findings from Study 3 provide some initial support for the postulation that intrinsic motivation varies depending on the group norm (individualist vs. collectivist) and the source of choice (personal or other agent). However, the results for participants receiving an individualist group norm were inconclusive. In particular, levels intrinsic motivation were identical in the individualist group norm condition for both personal and significant other choice conditions. One possible reason for this was that individuals in this condition felt their needs were supported whether they

made choice or a significant other related to the group context (the company) made the choice for them. However, this may also have been due to methodological limitations such as a lack of variance in dependent measure of intrinsic motivation. The methodology employed for the present study was almost identical to that used in Study 3. However, some alterations were made to the target activity and measurement of the dependent variable in order to improve the experimental design. The aim of this study was to replicate and further investigate the effect of the individualist and collectivist group norms and different choice provision on intrinsic motivation.

### **3.3.2 Method**

#### **Design and procedure**

As in Study 1, the present experiment implemented a 2 (Group norm: individualist vs. collectivist) x 3 (Choice condition: personal choice vs. choice by a significant other vs. control) fully between-participants design. Participants were 90 undergraduate students (43 males and 47 females) with a mean age of 21.29 years ( $SD = 1.56$  years). Participants were excluded if they were dyslexic or suffered from any form of learning disability due to the target activity being dependent on reading ability. On these grounds eight participants were excluded.

The procedure used in Study 2 was almost identical to that in Study 1. Changes were made in terms of the target activity and the duration of the free time participants spent alone in the testing lab. Thus, the target activity used was a 'jumble' word task which had six different categories: education, nature, occupation, space, sport, and entertainment<sup>6</sup> (see Appendix 10). 'Jumbles' is a type of word task

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<sup>6</sup> The 'jumble' tasks were developed in a pilot study in which undergraduate students were asked to report as many words as possible in six different categories. Furthermore the tasks were piloted for equality in level of difficulty.

similar to an word search task in which participants are required to unscramble 40 non-words to real words. Furthermore, the free time that participants spent on the tasks during the free-choice paradigm was raised to 8 minutes in line with the relevant literature (Iyengar & Lepper, 1999; Zuckerman et al, 1978). All the other aspects of the experiment were identical to Study 1 including measures and the group norm (individualist, collectivist) and choice condition (personal choice, significant-other-choice and control) manipulations.

### **3.3.3 Results**

#### **Manipulation check**

The manipulation check items indicated that the group norm manipulation was successful. When the group norm was individualist, participants perceived the group ethos of the company to be individualist ( $M = 2.78$ ,  $SD = 1.15$ ) and when participants were presented with a collectivist group norm they perceived the working ethos of the company to be collectivist ( $M = 7.62$ ,  $SD = 2.90$ ). The above was qualified by significant main effect for group norm,  $F(2, 84) = 471.37$ ,  $p < .001$ ,  $\eta_p^2 = .85$ . Neither the main effect for choice condition nor the interaction effect for group norm and choice condition were significant.

#### **Main analysis**

The main hypothesis was examined by conducting a 2 (group norm: individualist vs. collectivist) x 3 (condition: personal choice vs. experimenter's choice vs. choice by a significant other) fully between-participants ANOVA with intrinsic motivation from the free choice period<sup>7</sup> as the dependent variable. There were no

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<sup>7</sup> In order to increase the validity of the time measurement of intrinsic motivation, participants had to indicate in a scale the degree of enjoyment they experience over the target activity. It was found that the experienced enjoyment positively correlated with free time indicating the latter to be a sound measurement for intrinsic motivation.



significant main effects, but there was a significant interaction for group norm and choice,  $F(2, 84) = 5.30, p < .05, \eta_p^2 = .11$ .

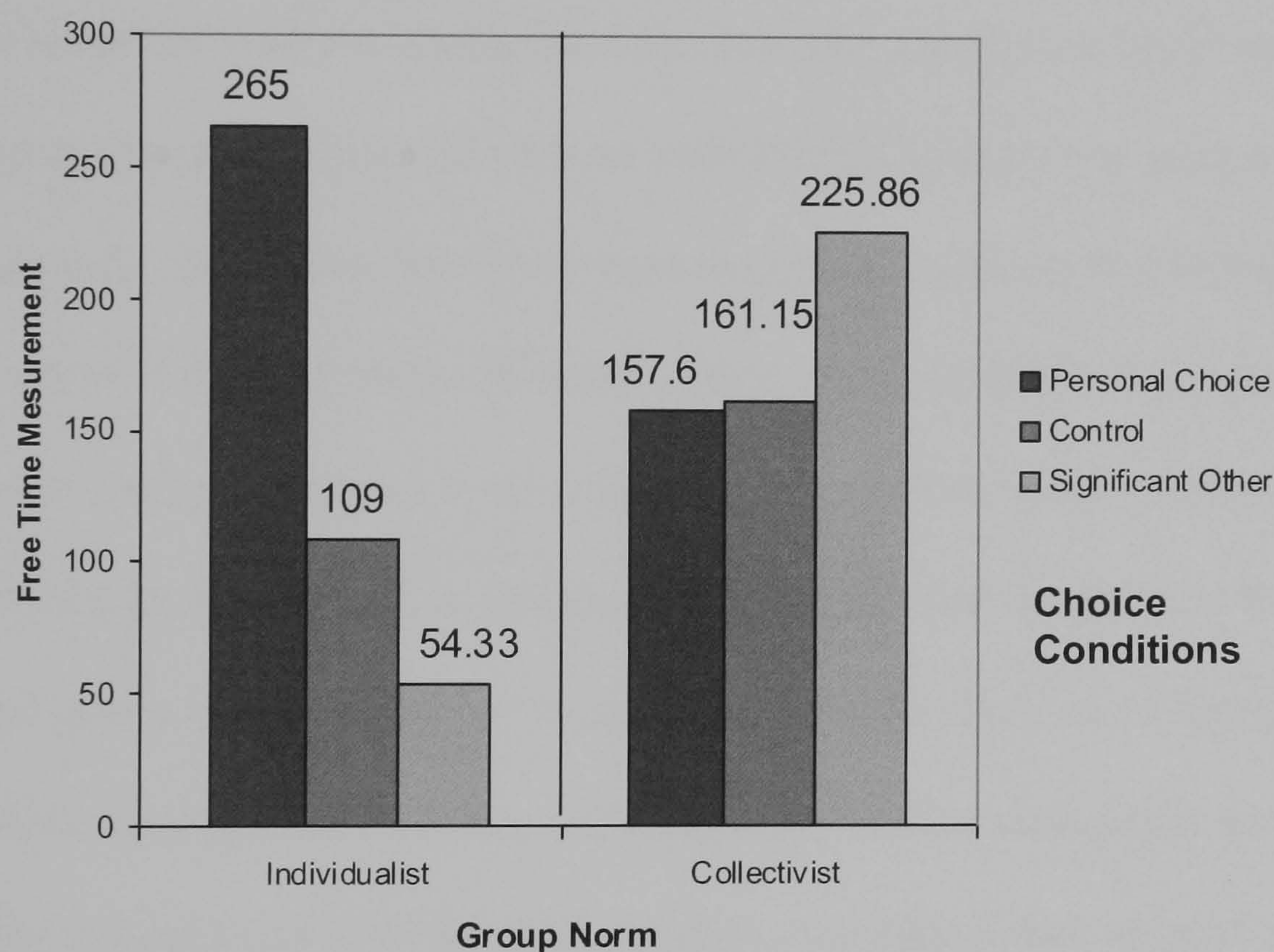
A clear picture emerges when the simple main effects are examined under the different choice conditions. When group members exercised personal choice over the target activity, higher levels of intrinsic motivation are observed in the individualist ( $M = 265, SD = 198.03$ ) than the collectivist ( $M = 157.60, SD = 161.15$ ) group norm, this difference was marginally significant ( $F(1, 84) = 3.09, p = .08, \eta_p^2 = .08$ ). Again, when the significant other exercised choice over the task, group members indicated significantly higher levels of intrinsic motivation when the group norm was collectivist ( $M = 225.87, SD = 181.71$ ) than individualist ( $M = 54.33, SD = 96.22$ ),  $F(1, 84) = 7.9, p < .05, \eta_p^2 = .09$ . Finally, no statistically significant difference was found for the control choice condition between the individualist ( $M = 109.67, SD = 165.78$ ) and collectivist ( $M = 171.93, SD = 181.87$ ) group norms, ( $F(1, 84) = 1.04, p = .31, \eta_p^2 = .02$ ).

Furthermore post-hoc comparisons were performed for the different choice conditions when the group norm was individualist justified by a significant simple effect,  $F(2, 84) = 6.39, p < .05, \eta_p^2 = .13$ . When the group norm was individualist group members reported significantly higher levels of intrinsic motivation in the personal choice condition ( $M = 265, SD = 198.03$ ) than the control ( $M = 109.67, SD = 165.78$ ),  $F(1, 29) = 5.43, p < .05, \eta_p^2 = .16$ , and the significant other choice condition ( $M = 54.33, SD = 96.21$ ),  $F(1, 29) = 13.73, p < .01, \eta_p^2 = .33$ . There was no statistically significant difference in intrinsic motivation between the control and the significant other choice conditions. When the group norm was collectivist, group members tended to indicate higher levels of intrinsic motivation in the significant other choice condition ( $M = 225.87, SD = 181.87$ ) than the control ( $M = 171.93, SD =$



181.87),  $F(1, 29) = 1.19, p = .27, \eta_p^2 = .04$ , and personal choice ( $M = 157.6, SD = 161.15$ ),  $F(1, 29) = .05, p = .82, \eta_p^2 = 0$  conditions. However, these differences were trends since simple main effect for collectivism was not statistically significant ( $F(2, 84) = .69, p = .50, \eta_p^2 = .09$ ). An illustration of the results is provided in Figure 3.2.

**Figure 3.2 Graph depicting the interaction effect of group norm and choice condition on intrinsic motivation in Study 4.**



**Group identification analysis**

A further analysis was conducted including group identification as an independent variable. The analysis was conducted using a 2 (group norm: individualist vs. collectivist) x 3 (condition: personal choice vs. experimenter’s choice vs. choice by a significant other) x 2 (identification: low vs. high) design with intrinsic motivation as the dependent variable. However, the analysis revealed no significant main or main interaction effects for group identification, suggesting that



low vs. high identification did not account for any effect. Not surprisingly the interaction for group norm and condition was marginally significant,  $F(2, 78) = 2.89$ ,  $p = .06$ ,  $\eta_p^2 = .07$ .

### **3.3.4 Discussion**

The results of this study provide further support for the hypothesised effect of group norm (individualist vs. collectivist) and source of choice (personal or other agent) on intrinsic motivation. When the group norm was individualist participants indicated significantly higher levels of intrinsic motivation in the personal choice condition. Consistent with the background literature for members of individualist cultures, group members presented with an individualist group norm indicated increased intrinsic motivation consistent with the prevailing norm that highlights the self as the origin of the behaviour. However, when the group norm was collectivist group members indicated higher levels of intrinsic motivation when significant other made the choice on their behalf, in this case by a hypothetical manager of an occupational group. Again this result is consistent with the research of Iyengar and Lepper (1999). Similar to the children of Asian origin, collectivist group members tend to prefer a significant other to make the choice on their behalf because in such group contexts people have likely wilfully chosen to be dependent on significant others because they view the others' choices as supporting their own psychological needs and the needs of others in the group.

## **3.4 General Discussion**

Two lab-based studies examined the effect of a situationally-manipulated group norms and the role of choice on intrinsic motivation. Building upon the methodology developed in Chapter 2, different group norm situations were created



through the manipulation of individualist and collectivist group norms and different conditions of choice manipulated within the group norm experimental method. It was expected that when the group norm was individualist participants would indicate higher levels of intrinsic motivation in the personal choice condition, whereas when the group norm was collectivist intrinsic motivation would be highest when choice was made by a significant other.

Integrating the findings from both studies it can be concluded that general support was found on the situation-specific role of different kinds of choice. The robust methodology of Study 4 supported the hypothesis and when the group norm was individualist, participants indicated higher levels of intrinsic motivation in the personal choice condition. In contrast, participants receiving a collectivist group norm tended to have higher levels of intrinsic motivation when the choice was made by a significant other.

These findings are consistent with the previous research examining the cross-cultural differences on intrinsic motivation and autonomy (Chen, Dong, & Zhou, 1997; Chirkov, et al., 2003; Iyengar & Lepper, 1999, 2002). Group members in an individualist group norm condition experience higher levels of intrinsic motivation in the personal choice condition consistent with the pattern of effects for individuals from an individualist cultural background like the Anglo-American children in Iyengar and Lepper's (1999) study. Personal choice is the optimal environmental agent to promote intrinsic motivation as the context highlights the individual as the causal agent in the environment. However, when the group norm is collectivist the choice made by a significant other leads to individuals reporting higher levels of intrinsic motivation. This is consistent with the pattern of effects found in Chinese-American children in Iyengar and Lepper's study. In such a context the role of the

group is made salient and people in such contexts wilfully and volitionally choose to be dependent on significant others because they view the significant other as supporting their autonomy and making choices that are for the benefit of others in the group. As a consequence, individuals are more likely to be intrinsically motivated when the significant other makes a choice on their behalf.

The interaction between situational group norms (individualist vs. collectivist) and source of choice (personal or other agent) on intrinsic motivation is the unique contribution this study makes to the literature. It suggests that intrinsic motivation varies in terms of personal or significant other choice depending on the situationally-induced group norm rather than individual differences in cultural orientations (Deci & Ryan, 2000). Personal choice is not the only determinant of intrinsic motivation. A person that has assimilated and fully endorses a specific context, and in this case the group norm, can experience intrinsic motivation in conditions in absence of personal choice. For example, parents sometimes autonomously forego their personal needs in favour of those of their offspring not because they feel controlled but because they choose to support the needs of significant others and, in so doing, experience their actions as self-determined (Ryan, 1993).

Identification did not provide a cohesive pattern of results, thus any theoretical conclusions for this variable are hard to make. To speculate, it may be that the measurement of identification does accurately account for the attachment that group members feel for significant others in the group environment. Recent research has suggested that a good indication on the effect of a significant other on intrinsic motivation can be conducted through measures of affect (Bao & Lam, 2008). In addition, it is important to note that individuals generally strongly identified with the group, as the group norm manipulation was designed to do just that through the rating

of the manager and logo design activities. There may not have been sufficient variance in the group identification to evoke effects. In other words, most participants identified strongly with the group, as expected.



## CHAPTER 4

### **Further investigation of the role of group norms and perceived source of choice on intrinsic motivation (Study 5)**

#### **4.1 Introduction**

The findings from Studies 3 and 4 (Chapter 3) provide empirical support for the effect of different situational group norms (individualist and collectivist) and environmental factors (perceived source of choice: personal choice and social agents' choices) have on intrinsic motivation. Findings indicate that individuals were more intrinsically motivated when offered personal choice of a target task and the group norm was individualist while participants were more intrinsically motivated when task choice was made by a significant other and the group norm was collectivist.

In Iyengar and Lepper's (1999) studies and in the studies reported in Chapter 3 the role of choice was manipulated in a trichotomous fashion, expressed as the ability of the participants to exercise personal choice or choice provided by the significant other over the target activity. The present study aims to provide pilot results on whether a more autonomy-supportive choice by a significant other can affect intrinsic motivation. This was achieved by including an additional version of the choice condition in which the groups' significant other provided participants with personal choice over the target activity. This will help rule out the alternative possibility that the higher levels of intrinsic motivation were merely compliant with the desires of significant others (thereby ruling out an SDT interpretation because this would be controlling) or whether it was due to the internalisation of the desires of the significant other. If it was the latter then, consistent with SDT, both significant other

choice and the significant other providing personal choice would result in equal levels of intrinsic motivation compared to conditions where personal choice was given by the experimenter or the experimenter makes the choice. This would mean that the group norm creates circumstances in which autonomy is supported by the significant other regardless as to whether they make choices on behalf of the individual or they provide the individual with the opportunity to exert personal choice.

The methodology adopted was similar to that described in previous chapters. Individualist and collectivist group norms were manipulated using the role-playing method developed in Chapter 2. The role of a group-relevant significant other was introduced in the form of a manager in the role-playing tasks as in Chapter 3. However, this time the significant other either provided choice to the participants or made the choice for them. Participants were then introduced to a table game and, depending on condition, were asked to exercise personal choice over which problem solving task they wished to solve (personal choice condition), were told that the experimenter would choose the task for them (control condition), were told that the group manager would choose the task for them (significant-other-choice condition), or asked to exercise personal choice over the target activity by the significant other (significant-other-providing choice condition). As before, the dependent variable of intrinsic motivation was measured as the amount of free time participants voluntarily engaged with the target activity thereafter.

It was hypothesised that when the group norm was individualist, participants would indicate higher levels of intrinsic motivation in the personal choice condition. However when a collectivist group norm was introduced participants would exhibit higher levels of intrinsic motivation when the significant other relinquished choice to the group members or when the significant other made the choice for them compared

to the personal and experimenter choice conditions. These results would indicate that intrinsic motivation in the collectivist condition is a function of the significant other's influence on the perceived locus of causality rather than participants responding to the controlling function of the significant other.

## **4.2 Method**

### **Design and procedure**

The present study adopted a 2 (group norm: individualist vs. collectivist) x 4 (choice condition: personal choice vs. choice by a significant other vs. significant-other-providing-choice vs. control) fully between-participants design with the key dependent variable of intrinsic motivation measured as time spent solving the table game problem-solving task in a free choice paradigm. Participants were 39 undergraduate students (15 males and 24 females) with a mean age of 29.68 years ( $SD = 8.84$  years).

The experimental procedure was similar to Studies 3 and 4 (Chapter 3). Participants were individually tested in a laboratory fitted with a secret observation camera. A small closed-circuit observation camera was attached in a wall-mounted clock and a second experimenter observed the amount of time participants spent engaged with the target activity during the free-choice period. The target activity was in the form of table game called Number Rumba similar to the Tower of Hanoi task. The game comprised a small stack of four vertical axes and nine coloured and numbered small blocks and participants had to reproduce a pattern of blocks provided by a game card. Restrictions in the block movements were applied and when the block pattern was reproduced a new card was given.

The experimenter showed the participant into the laboratory and asked him/her to take a seat at a desk. The experimenter sat opposite the participant. On the table



was a computer used to administer the experimental conditions of group norm (see Chapter 2) and choice manipulations using videos with a presenter providing instructions for each of the six experimental conditions. Six sets of table game cards clearly marked with the numbers 1, 2, 3, 4, 5, and 6. There were also four latest editions of popular magazines and four different coloured pens.

In line with the with the social identity theory paradigms adopted by Tajfel and Turner (1979) and the methodological adaptation derived from Chapter 2, participants were told that they will be assigned to one of two hypothetical companies, although all were actually assigned to a single company, *Tech Industries*. The group norm manipulation was achieved using two descriptive vignettes and two short videos showing employees completing a product logo either working in a collectivist or individualist manner. Then participants were presented with two group norm manipulation check items asking to rate the company ethos and the orientation of the working group on a nine-point scale ranging from individualist (1) to collectivist (9).

After being given an introduction to the study by the experimenter, participants were provided with the relevant group norm manipulation and then asked to complete two tasks. In the first task participants were presented with a photo of a hypothetical manager of *Tech Industries* and asked to write down all the behaviours that they felt the manager should exhibit in order to be in accordance with the company's group ethos. In the second task participants were told that they had to contribute to the workload of a company's group by sketching a draft logo, which was going to be used for a new product. This manipulation was designed to promote increased identification with the group and the manager as the leader of the group.

### **Experimental condition**

*Personal choice condition.* In this condition, the experimenter explained to the participant that part of working for *Tech Industries* involved working on problem-solving tasks and that today's task involved completing a table game problem-solving task. Participants were given the following instructions: "Here are six envelopes containing instructions for six different table games. [The experimenter points to the six envelopes labelled '1', '2', '3', '4', '5' and '6']. Which one would you like to do? It's your choice". The experimenter pointed out the four coloured pens and provided the following instructions: "You can pick any pen to highlight your answers. Go ahead and choose the one you would like to use."

Each participant had 5 minutes to complete the task. Around 15 seconds before the end of the 5 minutes participants were given notice of the expiry of the allotted time and were told that the experiment was over. The experimenter then excused himself from the laboratory by saying "I shall be gone only a few minutes in order to evaluate your task performance. You may do whatever you like while I am gone, you can read magazines, carry on with the task or do whatever you want". As the experimenter left the lab the second experimenter activated the concealed observation camera and measured the amount of time the participant spent on the anagram task for the 5 minutes that the experimenter was absent from the laboratory.

*Control condition.* The procedure for the experimenter choice condition was identical to the personal choice condition with the exception that the experimenter made the choice of the word search tasks to be solved by the participant. The choice of the task by the experimenter was the target activity version chosen by the earlier participant in the free choice condition following the yoked design described in Chapter 3. Therefore, the experimenter introduced the word search using the following script: "Here are six envelopes containing instructions for six different table



games. I would like you to do [the envelope chosen by the previous participant in the personal choice condition]. Here are some coloured pens to be used to highlight your answers, I would like you to use the green pen”.

*Significant-other-choice condition.* The procedure for the significant-other-choice was identical to the procedure as the personal choice condition. However the choice of category of the word search task to be solved by the participant was made by the ostensible manager of the company. This was achieved by six different videos corresponding to the six different categories of word search categories. The experimenter activated the relevant video showing the manager of *Tech Industries* explaining the reasons why and stating “Here are six envelopes containing instructions for six different table games. I would like you to do [the envelope chosen by the previous participant in the personal choice condition]. Here are some coloured pens to be used to highlight your answers, I would like you to use the green pen”.

*Significant-other-providing-choice condition.* In this condition the experimenter activated a video in which the Tech Industries manager provided the instructions identical to the personal choice condition, “Here are six envelopes containing instructions for six different table games. [The experimenter points to the six envelopes labelled ‘1’, ‘2’, ‘3’, ‘4’, ‘5’ and ‘6’]. Which one would you like to do? It’s your choice”. The experimenter pointed out the four coloured pens and provided the following instructions: “You can pick any pen to highlight your answers. Go ahead and choose the one you would like to use.”

*Closing procedure.* After the free time period the experimenter entered the lab, indicated that the study was now actually over, and revealed the true nature of the experiment. In order to safeguard that the methodology was not revealed to other potential participants the experimenter showed the participant a jar full of rice and



asked the participant to estimate the amount of grains contained therein and that a successful answer will result in a prize of £5. The actual number of rice grains was given as 568 and unlikely to be guessed by the participant. Hence, if a participant guessed the exact amount of rice grains it could be assumed that they had received prior information about the study and could be disqualified on these grounds. No participant was excluded on this basis.

## **Measures**

The dependent variable of observed intrinsic motivation was obtained by abstracting the time participants spent engaged with the target activity out of a total of 300 seconds (5 minutes), corresponding to the total free time available. Participants were considered to be engaged in the target activity when they were solving or studying the word-search task.

## **4.3 Results**

### **Manipulation check**

The manipulation check items indicated that the for the group norm manipulation was successful. When the group norm was individualist, participants perceived the group ethos of the company to be individualist ( $M = 3.10$ ,  $SD = 1.63$ ) and when participants were presented with a collectivist group norm they perceived the working ethos of the company to be collectivist ( $M = 7.50$ ,  $SD = 1.61$ ). The above was qualified by significant main effect for group norm,  $F(1, 31) = 62.22$ ,  $p < .001$ ,  $\eta_p^2 = .68$ . Neither the main effect for choice condition nor the interaction effect for group norm and choice condition were significant.

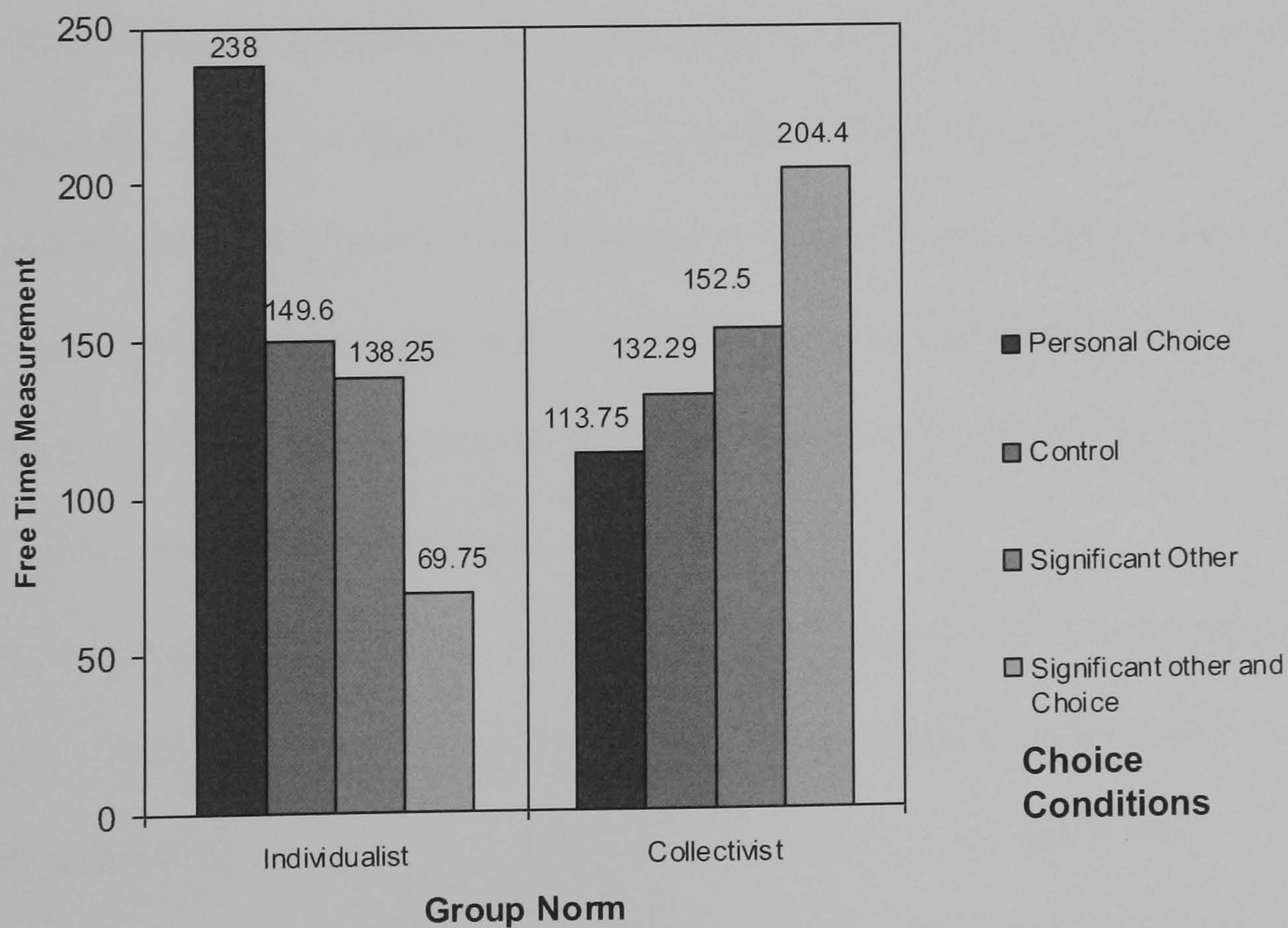
### **Main analysis**

In order to test the main hypothesis, a 2 (group norm: individualist vs. collectivist) x 4 (condition: personal choice vs. experimenter's choice vs. choice by a



significant other vs. significant other providing choice) fully between-participants ANOVA was conducted. The dependent variable was the total number of seconds, out of a possible 300, that each participant spent engaged with the target activity in the free-choice period. Results indicated that neither of the main effects of group norm and choice condition nor the interaction was significant. This was not unexpected since the sample size was small. However, the effect size estimates indicated that the interaction between group norm and choice conditions had sufficient power to yield significant effects in the presence of a much larger sample,  $F(3, 30) = 6.39, p = .25, \eta_p^2 = .13$ . This is not the case for main effects of group norm ( $F(1, 30) = .00, p = .98, \eta_p^2 = .00$ ) or choice condition ( $F(1, 30) = 6.39, p = .92, \eta_p^2 = .02$ ). The graphical representation in Figure 4.1 indicates the trends in the means.

**Figure 4.1 Graph depicting the interaction effect of group norm and choice condition on intrinsic motivation in Study 5.**





In order to further investigate the main hypothesis in the absence of a large sample, a non-parametric analytic strategy was adopted. In line with the above trends of means, the levels of intrinsic motivation when the significant other provided choice was found to be significant at the .10 level between the two group norm conditions, Mann-Whitney  $U = -1.73, p = .086$ . Suggesting that participants assigned to the choice-by-a-significant other condition experienced higher levels of intrinsic motivation over the target activity when the group norm was collectivist than when the group norm was individualist.

#### **4.4 Discussion**

Since this was a supplementary study the small sample size did not produce any significant results. However the preliminary trends observed in conjunction with the findings from Chapter 3 suggest promising preliminary results in support of hypotheses. The trends observed indicate that when the group norm was individualist group members indicated higher levels of intrinsic motivation in the personal choice condition, than the control or significant other conditions. However, a different picture occurred when participants were presented with a collectivist group norm. Higher levels of intrinsic motivation were observed when the significant other provided choice for the group members than the personal choice, choice by the significant other, and experimenter choice conditions.

The above results indicate that the environmental factors that support intrinsic motivation in collectivist conditions are a function of the significant other rather than participants responding to controlling language or function of the task. In the individualist group norm condition personal choice was the salient factor that enhanced intrinsic motivation. This is entirely consistent with self-determination theory and has been shown on many occasions (Patall et al., 2008) and in the previous



studies in this thesis (see Chapter 3). The dominant group norm of individualism makes personal choice salient as it is consistent with the norm and makes perceptions that the actor is the origin of their behaviour and fosters an internal perceived locus of causality.

In contrast, the collectivist condition makes perceptions at the group level salient and therefore the prevailing norm is that the context provides and nurtures the satisfaction of psychological needs. In such a context, the desires of significant others is more salient and consistent with the group norm. In such contexts people freely choose to be autonomously dependent and to be reliant on significant others. The perceived locus of causality is likely to be internal if behaviours are congruent with the social setting, that is, if the social agents that the person has chosen to be dependent upon either makes choices on their behalf or allows them to make choices themselves. This is why the significant other choice and significant other provides choice conditions resulted in increased intrinsic motivation in the collectivist group norm. Importantly, these conditions resulted in increased intrinsic motivation relative to the experimenter choice condition, as, in the latter condition, a social agent that is not congruent with the group norm and not a person on whom the person has opted to become autonomously dependent. This does not support an internal perceived locus of causality and the need of autonomy, hence the lower levels of intrinsic motivation.

The unique contribution of this study, in conjunction with findings from Chapter 3, is the provision of initial empirical support that when the group norm is collectivist and the choice condition supports autonomy (i.e., the significant other provides choice), intrinsic motivation is enhanced even more so than the significant other choice condition. This suggests that under a collectivist situational group norm the significant other is responsible for evoking an internal perceived locus of causality

and increased intrinsic motivation compared to personal and experimenter choice. It rules out the non-SDT explanation that the changes in intrinsic motivation are due to participants responding to controlling function of the significant other. Instead, consistent with SDT, it suggests that increased motivation among people acting under collectivist norms was because they choose to autonomously become dependent on the significant other and the choices of the significant other supported psychological needs regardless of whether the choice was made for the individual or choice was offered to the individual. However, it also seems that the significant other providing personal choice provides a more complete satisfaction of psychological needs, perhaps by satisfying needs for autonomy and relatedness simultaneously. Future research needs to confirm the psychological mediators of these effects, including need satisfaction.

## **CHAPTER 5**

### **The effects of individual differences in collectivist and individualist orientations on the relationship between autonomous motivation and behavioural intentions (Study 6)**

#### **5.1 Introduction**

The primary aim of this chapter is to investigate the effects of individualism and collectivism as individual difference constructs on the relationship between autonomous motivation and intentional behaviour. In the previous chapters individualism and collectivism were examined as group norms. It was established that under both individualist and collectivist group norms participants could facilitate intrinsically motivated behaviours depending on the condition of autonomy support (i.e., choice) that closely corresponds with the norm. The present study aims to extend these results by examining the effects of individual differences in collectivist and individualist group norms on self-determined motivation, intentions, and behaviour. This will provide additional evidence to support the notion that collectivist and individualist orientations affect self-determined motivation and behaviour at the situational and individual difference levels. This is in contrast to previous studies that have focused on the effect of individualism and collectivism from the perspective of cultural differences across national groups (Chirkov, et al., 2003; Iyengar & Lepper, 1999, 2002).

In order to further investigate for the socio-cognitive factors that are be responsible for intrinsic motivation in cultural and group situations, individualism and



collectivism were examined as individual difference factors. This was achieved by measuring the levels of independence or interdependence self that a person holds using validated individual difference measures. Self-determined or autonomous motivation was measured using validated measure of the perceived locus of causality regulation types (for a detailed review, see Chapter 1) in the context of the Theory of Planned Behaviour (Ajzen, 1991) with physical exercise as the target behaviour.

### **5.1.1 The Theory of Planned Behaviour and Self-Determination Theory**

The Theory of Planned Behaviour (TPB) provides a social cognitive account of intentional behaviour in a number of domains (Ajzen, 1991; Fishbein & Ajzen, 1975). The theory postulates that intentions to engage to target behaviour constitute the most proximal antecedent of behaviour. Intention is a motivational construct and reflects the extent of an individual's readiness, planning, and effort toward engaging in a behaviour. Furthermore, intentions in the TPB are conceptualised as a function of attitudes, perceived behavioural control (PBC), and subjective norms. Attitudes refer to the personal beliefs that the individual holds over the target behaviour and the degree that targeted behaviour is evaluated positively or negatively. Perceived behavioural control (PBC) reflects perceptions regarding the ability to perform a given behaviour and accounts for control-related beliefs with respect to the behaviour. The PBC construct predicts intentions but is also hypothesised to have a direct link with behaviour. This direct relationship between PBC and behaviour is dependent on the extent to which PBC reflects actual and realistic perceptions of control (Ajzen, 1985). Finally, subjective norms represent the perceived social pressure from significant others regarding the participation in the target behaviour.

A large amount of research has supported the TPB model and the intention-behaviour predictive relationship. More specifically, the theory's predictive validity

holds considerable support in a number of behaviours ranging from physical activity (Hagger, Chatzisarantis, & Biddle, 2002a) to diet and health (Armitage & Conner, 2001a). Meta-analytic results (Armitage & Conner, 2001b; Hagger, et al., 2002a; Symons Downs & Hausenblas, 2005) report that the TPB can explain up to 40% of the variance in intention and up to 30% of the variance in behaviour. Finally, TPB constructs have been employed in the development of behavioural interventions across health behaviours and have shown to be effective in changing behaviour (Chatzisarantis & Hagger, 2005; Hardeman, et al., 2002).

While the TPB examines the social cognitive constructs that account for the prediction of intentional behaviour, self-determination theory (SDT) identifies the environmental and individual difference determinants of human behaviour (Deci & Ryan, 1985b; Ryan & Connell, 1989). SDT proposes that people's motivation towards a given behaviour in a given context can be located on a continuum, known as the perceived locus of causality (PLOC), ranging from self-determined or *autonomous* to non-self-determined or *controlled* types. This continuum reflects the quality of motivation experienced by an individual with respect to behaviours. SDT proposes four types of motivational orientations that lie along the PLOC continuum and each reflects a different degree of autonomous or controlling behaviour. Intrinsic motivation and identified regulation are adjacent to each other at one pole on the continuum and reflect autonomous forms of regulation while external and introjected regulation lie adjacent to each other at the controlling pole of the continuum and reflect more controlling forms of motivation (Ryan & Connell, 1989).

Intrinsic motivation refers to the engagement with the behaviour for intrinsic personal satisfaction and for the sake of the behaviour itself. It represents the prototypical form of autonomous motivation. Identified regulation is an extrinsic form



of motivation but is located on the autonomous end of the continuum because it reflects performing a behaviour to obtain personally-valued outcomes rather than participating in the behaviour for its own sake. Introjected regulation refers to performing behaviour to avoid feelings of guilt or shame or to obtain contingent self-worth. External regulation is a prototypical form of extrinsic motivation and refers to engaging in behaviour to obtain tangible rewards or avoid punishment (for a detailed review, see Chapter 1). Finally, research utilising the PLOC has indicated that autonomous forms of motivation are robust predictors of behaviour such as physical activity and dieting (Chatzisarantis, et al., 1997; Chatzisarantis, Hagger, Biddle, Smith, & Wang, 2003; Vansteenkiste, Simons, Soenens, & Lens, 2004).

### **5.1.2 Integrating the two theories**

The integration of TPB and SDT theories is a recent research development based on the ability of the combination of the two theories to provide complementary explanations of human behaviour (Hagger, Chatzisarantis, & Harris, 2006a). One of the limitations of TPB is that it does not provide details of the origins of the antecedents of intentions and behaviour, whereas SDT may provide information on the origins of these social cognitive constructs. Research utilising constructs from SDT and the TPB model has suggested that autonomous motives predict intentions and behaviour in health and physical activity contexts (Chatzisarantis, et al., 2002; Hagger, Chatzisarantis, & Biddle, 2002b; Standage, Duda, & Ntoumanis, 2003a, 2003b; Wilson & Rodgers, 2004). Furthermore, Hagger and colleagues' (Hagger, et al., 2003) trans-contextual model establishes a mediation model in which constructs from the TPB mediate the effects of autonomous motivation on intentions and behaviour.

The integration of the SDT motivational processes framework with the TPB socio-cognitive model of intentions is justified upon the premises that the relationship between autonomous motivation and self-determination with the TPB constructs is formative and that both theories constructs share a certain degree of generality (Hagger, Chatzisarantis, & Harris, 2006b). This formative relationship between the autonomous motivation and TPB variables is expressed as the empirically-observed tendency for people that indicate high levels of autonomous motivation in a range of target activities being more likely to experience the behaviour valued in accordance with their psychological needs (Sheldon, 2002). Furthermore, individuals experiencing high levels of autonomous motivation over a target behaviour tend to feel more confident in reaching their goals and engage with subsequent behaviour because by doing so they satisfy their need for competence (Williams, Gagne, Ryan, & Deci, 2002; Williams, et al., 2006). Based upon the above, SDT autonomous motivation and needs relationship the integration of TPB has indicated that autonomous motives influence the engagement with a target behaviour in the future is the under the control of the individuals PBC (Hagger, et al., 2006b).

The second premise for the theoretical justification for the integration of SDT and TPB is based on the generality of the constructs employed by both theories. The PLOC measures reflect an individual's motivational state across a variety of behaviours in a contextual level. The motives on the PLOC can be considered motivational constructs that lie at the contextual level (Vallerand, 2000), which is a form of motivation that has an effect on behaviours in a given context. Intentions from TPB tend to reflect behaviour-guiding perceptions at the situational level. Research has suggested that contextual-level motives such as those from the PLOC predict situational-level antecedents such as attitudes, PBC, and intentions from the



TPB in a top down pattern of influence in accordance with Vallerand's (2000) hierarchical model (Hagger, et al., 2006a, 2006b). This pattern of effects has been further supported by a recent meta-analysis of 42 studies integrating the TPB and SDT which found strong effects for autonomous motives on attitudes, PBC, intentions, and, indirectly, health behaviour (Hagger & Chatzisarantis, 2009).

### **5.1.3 The present study and hypotheses**

The studies described in Chapters 3 and 4 suggest that people can experience intrinsic motivation in both individualist and collectivist group environments and that motivation varies depending on whether a significant other or the actor is perceived as the origin of the behaviour. Importantly, the findings indicate that the situation (individualist and collectivist group norms) moderates the effect of type of environmental support for autonomy on intrinsic motivation. The scope of this study is to examine the role of individual differences in culturally-defined aspects of the self, self-construals, based on individualist and collectivist orientations, as moderators of the effect of autonomous motivation on intentions and physical activity behaviour.

These self-construals are adopted from self-systems theory (Markus & Kitayama, 1991b). The theory proposes that different aspects of the self, independent and interdependent self-construals, correspond to the individualist and collectivist cultural dimensions. People who share an individualist cultural background tend to hold independent self-constructs. Such models of the self are characterised by individuals holding a desire to establish independent personalities and exercise control over the environment (Markus & Kitayama, 1991a, 1991b). On the contrary, members of collectivist cultures are characterised by interdependent self-construals, expressed as the individual's need for group belongingness and seeking harmony by

being motivated to maintain the wishes of the group (De Vos, 1985; Hsu, 1985; Miller, 1988; Triandis, 1995).

Independent and interdependent self-construals are not self-analogies of different cultural levels but individual differences in dual self-perception. Individuals are able to hold a degree of both self-construals at any given time. Triandis (1989) suggests that each person holds aspects of a collective (i.e., interdependent) and private (i.e., independent) self. Singelis (1994) developed an individual differences scale to measure the two aspects of the self. Empirical support stems from ability of experimentally manipulate the different self-construals (Oyserman & Lee, 2008), the ability of people to shift between individualist and collectivist cultural models (Bhawuk & Brislin, 1992), and the existence of the two self-construals in a bicultural self-system pattern among East Asian and American college students (Cross & Markus, 1991).

In the present study, independent and interdependent self-construals will be tested as moderators of the effect of autonomous motivation on physical activity intentions and behaviour. In addition, it will also be studied as a moderator of the effect of the TPB constructs of subjective norms, perceived behavioural control, and attitudes on intentions and physical activity behaviour. In line with the research on the TPB and autonomous motivation it was hypothesised that autonomous motivation will predict intentions and behaviour. However, the effect of autonomous motivation on intentions will be mediated by subjective norms, attitudes, and PBC and the effect of subjective norms, attitudes, and PBC on behaviour will be mediated by intentions.

There were proposed two competing hypotheses with respect to the moderation of the autonomous motivation-intention behaviour relationship by independent and interdependent self-construals. If autonomous motivation is



consistent in both individualist and collectivist cultural groups, as proposed by others (Chirkov, et al., 2003), the effect of autonomous motivation on intentions and behaviour would be expected to be consistent across moderator groups i.e. no moderation effect. This would provide some support for the premise in SDT that autonomous motivation is universal to cultures and cultural orientations at the individual difference level. However, an alternative hypothesis would be that independent and interdependent self-construals moderate the relationship between autonomous motivation and intentions/behaviour. According to Ryan et al. (1999) collectivist and individualist cultures both value intrinsic motivation. However, individualist nations appear to value intrinsic motivation more than collectivist cultures. This is perhaps because intrinsic motivation is typically measured with respect to personal choice and agency and it is possible that such measures neglect choice based on the decisions of significant others whose needs are internalised. Data from Studies 3, 4, and 5 (Chapters 3 and 4) of this thesis support this premise. It is therefore hypothesised that independent-interdependent self-construals will moderate the autonomous motivation-intention/behaviour relationship such that high levels of independence will lead to a stronger effect of autonomous motivation on intentions and behaviour relative to people with lower levels of independence.

It is important to note that this moderation effect is expected to vary by degree or magnitude rather than the absence or presence of effects. In other words, the moderation is not expected to be complete and people with low levels of independent self-construals will still have significant effects of autonomous motivation on intentions and behaviour, just not as strong as the same effect for those with high independence. This would be consistent with Ryan et al.'s (1999) research which

found that autonomous motivation is important in both individualist and collectivist cultures, only ratings were higher in individualist cultures.

Finally, the moderation effect of independent and interdependent self-construals on the effect of the theory of planned behaviour variables of attitudes, PBC, and subjective norms on intentions and the effect of intentions on behaviour will also be tested. Research has suggested that ethnic and cultural orientation moderates the effects of personal variables like attitudes and PBC on intentions, social variables like subjective norms on intentions, and intentions on behaviour (Bagozzi, Lee, & Van Loo, 2001; Blanchard, et al., 2008; Hagger, Asci, et al., 2007; Walker, Courneya, & Deng, 2006). In particular, research has found some evidence that members of collectivist national and ethnic groups tend to have stronger effects (and therefore base their intentions) on normative-beliefs i.e. subjective norms than personal beliefs i.e. attitudes and PBC. The theory behind these effects is that people from collectivist and therefore highly interdependent communities tend to make decisions based on the expectations of others because such individuals are motivated to conform to social norms and the perceptions of the collective. In contrast, those from individualist societies are more likely to base their decisions on personally-held beliefs because they are motivated to act for personal development and growth. These effects, however, have not been studied with respect to individual differences in self-construals and will therefore support and extend previous research by demonstrating the importance of self-construals on decision-making.

In summary, the aim of this study is to investigate the role of individualism and collectivism as individual differences constructs on intrinsically motivated behaviours. This will be achieved by examining the moderating role of the independence-interdependence self-construals (Markus & Kitayama, 1991b) in an



integrated behavioural prediction model of TPB and SDT. In this model the correlation between motivation and behaviour functions will be treated as the measurement of intrinsic motivation, enabling comparisons with the behavioural observation method of intrinsic motivation used in the studies presented previously in this PhD.

The specific hypotheses for the present study are summarised as follows:

(H1) Autonomous motivation will have a significant effect on physical activity behaviour.

(H2) The effect of autonomous motivation on physical activity behaviour will be mediated by the TPB variables.

(H3) Intentions will mediate the effects of the TPB variables on behaviour.

(H4) Self-construals will moderate the effect of autonomous motivation on physical activity behaviour such that the effect will be stronger among participants with higher levels of independent self-construal relative to participants with higher levels of interdependent self-construals reflecting the differences found in previous research (Ryan et al., 1999) (H4a). An alternative hypothesis is that no moderation of the effect of autonomous motivation on physical activity behaviour will occur, reflecting the universality hypothesis in SDT (H4b).

(H5) Autonomous motivation will predict intentions to engage in physical activity.

(H6) Subjective norms, PBC, and attitudes will mediate the effect of autonomous motivation on intentions.

(H7) Independent and interdependent self-construals will moderate the effect of subjective norms, attitudes, and PBC on intention. More specifically, it is hypothesised that participants with higher levels of interdependent self-construals will

have stronger effects of subjective norms on intentions than participants with higher levels of independent self-construals (H7a) Furthermore, the effect of attitude and PBC on intentions is predicted to be significantly stronger among participants with higher levels of independent self-construals relative to participants with higher levels of interdependent self-construals (H7b).

(H8) The effect of autonomous motivation on intentions will be moderated by independent and interdependent self-construals. Specifically, participants with higher independent self-construals will have a stronger autonomous motivation-intention relationship compared to participants with higher interdependent self-construals (H8a). Alternatively, as in H4b, an alternative hypothesis is that the self-construals will not moderate the relationship between autonomous motivation and physical activity behaviour, reflecting the universality hypothesis in SDT (H8b).

## **5.2 Method**

### **Participants and design**

The sample consisted of undergraduate and postgraduate students of the University of Nottingham and residents of the city of Nottingham, UK ( $N = 189$ ,  $M_{age} = 21.92$ ,  $SD = 3.86$ ). Written consent from participants was obtained prior to data collection. A prospective correlational design was employed with self-reported psychological variables collected across two time points the time interval was of five weeks. The target behaviour was leisure time physical activity which was described to the participants as “all vigorous sports and physical activities that increase your heart rate and makes you out of breath for at least 20 minutes at a time, 3 days per week”. In the first wave of data collection participants were asked to complete a questionnaire containing measures of independence-interdependence, TPB components, Perceived Locus of Causality (PLOC) constructs. In the second wave,



participants completed self report measures of physical activity. For the study materials please refer to Appendix 11.

### **5.2.1 Measures**

#### **Demographic variables**

Participants were asked to report their age in years and gender. Their initials and date of birth were also reported and used to match first wave questionnaires with the second wave questionnaires. Participants tested in student accommodation and in residences in Nottingham had their questionnaires mailed to their home address.

#### **Self-construals**

The Self-Construal Scale (SCS) developed by Singelis (1994) was used to measure participants' independent and interdependent self-construals. Respondents were asked to indicate their preference on seven-point Likert-type scales with end points ranging from (1) "strongly disagree" to (7) "strongly agree". Independent self-construals were measured by 12 items (e.g., "I feel comfortable using someone's name soon after I meet them, even when they are much older than me", "My personal identity independent of others, is very important to me"). Independent self-construals were measured using a further 12 items (e.g., "I often have the feeling that my relationship with others are more important than my own accomplishments", "It is important to me to respect decisions made by the group"). Individuals were classified as possessing predominately high-independent or high-interdependent self-construals according to their scores on these scales. High-independence participants were those whose scores on the independence scale were greater than their scores on the interdependence scale. Analogously, high-interdependence participants were those whose scores on the interdependence scale were greater than their scores on the independence scale. A dummy-coded variable was the result of this classification with

high-interdependence participants coded (1) and high-independence participants coded (0).

### **Theory of Planned Behaviour**

The development of the theory of planned behaviour questionnaire was based on standardised guidelines (Ajzen, 2002). Behavioural intentions were measured by three items (e.g., “I intend to do active sport and/or vigorous exercise, for at least 20 minutes, 3 days per week during my free time, over the next 5 weeks”) on seven-point Likert-type scales with end points (1) “strongly disagree” to (7) “strongly agree”. Subjective norms were measured by three items (e.g., “Most people who are important to me would want me to do active sports and/or vigorous exercise for at least 20 minutes, 2 days per week during my free time over the next 5 weeks”) on seven-point Likert-type scales with end points (1) “strongly disagree” to (7) “strongly agree”. Perceived behavioural control was assessed on three items (e.g., “How much control do you have over doing active sports and/or vigorous exercise for at least 20 minutes, 3 days per week during your free time in the next 5 weeks”) on seven-point Likert-type scales with end points (1) “low control” to (7) “high control”. Four items measured attitudes in response to a common stem (“Doing active sports and/or vigorous exercise, for at least 20 minutes, 3 days per week over the next 5 weeks during my free time is ...”). The attitude items were measured on seven-point semantic differential scales using bipolar adjectives (Ajzen & Driver, 1991; Ajzen & Fishbein, 1980). One set of adjectives measured moral evaluations (*bad-good*), two sets of adjectives reflected instrumental evaluations (*useless-useful*, *harmful-beneficial*), and another set reflected affective evaluation (*unenjoyable-enjoyable*).

### **Perceived Locus of Causality**



An adapted version of the Ryan and Connell's (1989) perceived locus of causality (PLOC) inventory was used to measure the motivational regulations from SDT. Participants were initially presented with a common stem ("I exercise during my free time ...") and then asked to rate their reasons from the four regulation styles on five-point Likert-type scales ranging from (1) "not true for me" to (5) "very true for me". Four items measured each regulation style: intrinsic motivation (e.g., "because I enjoy my exercise session"), identified regulation (e.g., "because I value the benefits of exercise"), introjected regulation (e.g., "because I feel guilty when I don't exercise"), and external regulation (e.g., "because other people will not be pleased with me if I do not exercise"). Based on Ryan and Connell's (1989) formula, a single relative autonomy index for autonomous motivation was calculated. The formula was as follows:  $(-2) \times \text{external regulation} + (-1) \times \text{introjection} + (1) \times \text{identification} + (2) \times \text{intrinsic motivation}$ . Higher scores on the index represent greater levels of autonomous motivation.

### **Self-reported behaviour**

Physical activity behaviour was measured at time 2 using two items (e.g., "In the course of the past five weeks, how often have you participated in active sports and/or vigorous exercise?") measured on a six point Likert-type scales ranging from (1) not at all" to (6) "most of the days of the week". The criterion validity of these scales has been confirmed in previous studies (Hagger & Chatzisarantis, 2005a; Hagger, et al., 2006b).

## **5.3 Results**

### **5.3.1 Behaviour**

Moderated hierarchical regression analysis was utilised to examine the relative contribution of independent-interdependent self-construals and relative autonomous

motivation to the prediction of physical activity participation (see Table 5.1). In the first instance, variables were centred by subtracting the mean from each of the participants' scores on the independent variables to be included in the analysis (Aiken & West, 1992). In the first step of the regression analysis, autonomous motivation was entered ( $R^2 = .24$ ,  $F(1, 163) = 4.99$ ,  $p < .05$ ) and it was a significant predictor of physical activity ( $\beta = .17$ ,  $p < .05$ ), supporting hypotheses (H1). In the second step of the analysis, the TPB variables of attitudes, subjective norms, and perceived behavioural control were entered and resulted in a significant increase in variance predicted ( $\Delta R^2 = .049$ ,  $F(4, 160) = 3.21$ ,  $p < .05$ ). In this step attitudes significantly predicted physical activity ( $\beta = .25$ ,  $p < .05$ ) but autonomous motivation no longer significantly predicted physical activity. This suggests that the direct effect of autonomous motivation on intentions was mediated by the TPB variables (H2). Intentions were entered in the third step of the analysis and resulted in a significant increase in variance explained in physical activity ( $\Delta R^2 = .083$ ,  $F(6, 158) = 3.46$ ,  $p < .05$ ). As expected (H3), intentions were the only significant predictor of physical activity ( $\beta = .29$ ,  $p < .05$ ). In the final step, the moderating effects of independent-interdependent self-constructs on the TPB and autonomous motivation on physical activity behaviour were examined. This involved including the main effect of the moderator variable, namely the independent-interdependent self-construal dummy-coded variable, followed by the interaction terms comprising the moderator with the independent variables of intentions, attitudes, subjective norms, PBC, and autonomous motivation. These were computed using multiplicative composites of the centred TPB and autonomous motivation variables with the moderator variable, self-constructs. The analysis produced a significant increase in the variance accounted for in behaviour ( $\Delta R^2 = .11$ ,  $F(11, 153) = 2.89$ ,  $p < .05$ ). Intentions remained a significant



predictor in the model ( $\beta = .26, p < .05$ ). Furthermore, there was a significant interaction effect for subjective norm and self-construals ( $\beta = .19, p < .05$ ), an unexpected effect, and a borderline-significant interaction effect for self-construals and autonomous motivation ( $\beta = .09, p = .09$ ), congruent with H4a and leading to the rejection of H4b.

**Table 5.1. Moderated multiple regression analysis for the prediction of physical activity behaviour.**

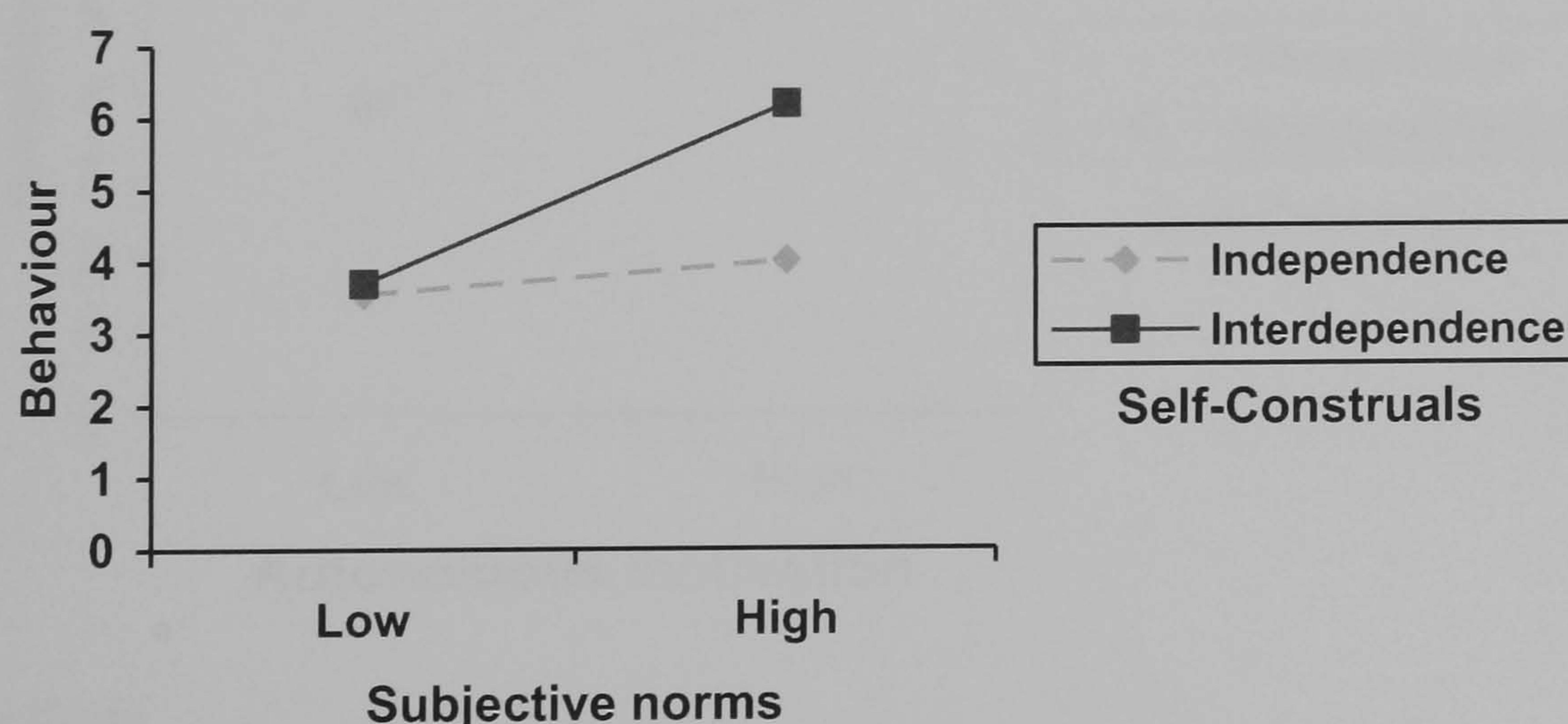
Step		$R^2$	$\Delta R^2$	$\beta$	$t$	$p$
1	Autonomous motivation	.030*	.030*	.172*	2.24	.027
2	Autonomous motivation	.072*	.043	.022	.230	.819
	Attitudes			.250**	2.61	.010
	Perceived behavioural control (PBC)			.053	.65	.514
	Subjective norms			-.024	-.29	.766
3	Autonomous motivation	.116*	.044*	.004	.04	.970
	Attitudes			.066	.58	.566
	Perceived behavioural control (PBC)			-.034	-.39	.694
	Subjective norms			-.243	-.24	.808
	Intentions			.292*	2.74	.007
	Self-construals			-.061	-.77	.44
4	Autonomous motivation	.172*	.056*	-.016	-.17	.866
	Attitudes			.548	.55	.585
	Perceived behavioural control (PBC)			-.185	-.19	.854
	Subjective norms			-.359	-.36	.720
	Intentions			.259*	2.42	.017
	Self-construals			-.083	-1.0	.295
	Intentions x self-construals			.150	1.42	.157
	Attitudes x self-construals			-.181	-1.6	.101
	Subjective norm x self-construals			.191*	2.38	.018
	PBC x self-construals			-.051	-.58	.561
	Autonomous motivation x self-construals			.153	1.68	.094

*Note.* \*  $p < .05$ , \*\*  $p < .005$ .



Following Aiken and West (1992) the interaction of self-construals with subjective norms and autonomous motivation were examined by simple slopes analysis. The slopes for the regression of physical activity behaviour on subjective norms and autonomous motivation for high (coded 1) and low (coded 0) levels of the self-construal moderator were plotted. The slopes for the regression of behaviour on subjective norms for different levels of independent and interdependent self-construals are shown in Figure 5.1. The unstandardised regression coefficient ( $B$ ) was not significantly different from zero for low levels of self-construals ( $B = .077, t = .646, p = .51$ ), but was significant for high levels of self-construals ( $B = .417, t = 2.475, p < .05$ ). This suggests that people with high self-construal scores, representing interdependent self-construals, were more likely to have a strong effect of subjective norms on their behaviour, which was not the case for people holding low levels of self-construals, representing independent self-construals.

**Figure 5.1. The moderating effect of self-construals on the relationship between subjective norms and physical activity behaviour.**

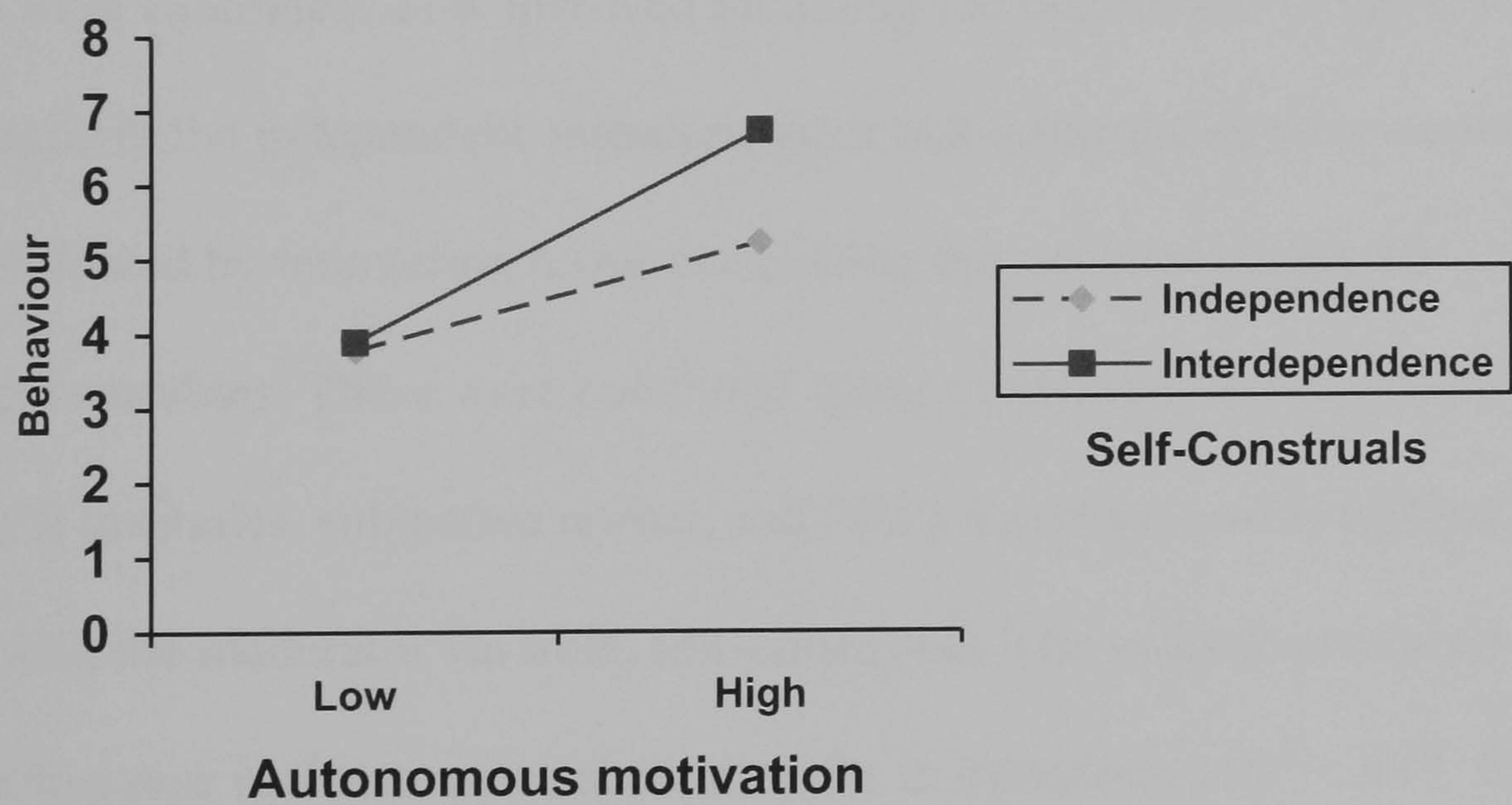


Turning to the interaction between autonomous motivation and self-construals (Figure 5.2) in the prediction for physical activity behaviours, the unstandardised regression coefficients for behaviour were significantly different from zero for low ( $B = .242, t = 2.067, p < .05$ ) and high ( $B = .475, t = 2.901, p < .05$ ) of self-construals.



This suggests that the effect of autonomous motivation on behaviour is greater for people with high levels of self-construals, representing interdependent self-construals than for people holding low levels of self-construals, representing independent self-construals. Results indicate that people with high levels of self-construals, representing interdependent self-construals, were more likely to perform physical activity behaviour on the basis of autonomous motivation than people reporting low levels of self-construals, representing independent self-construals. This effect is therefore in the opposite direction to that predicted in H4a, so both hypotheses H4a and H4b were rejected. However, it is important to note that the effect was significant in both high and low self-construal groups and therefore the moderation effect was one of magnitude rather than of presence or absence.

**Figure 5.2. The moderating effect of self-construals on the relationship between autonomous motivation and physical activity behaviour.**



**5.3.2 Intentions**

A moderated hierarchical regression analysis was utilised to examine the contribution of independent-interdependent self-construals and autonomous motivation to the prediction of physical activity intentions (Table 5.2). In the first step of the analysis, autonomous motivation ( $R^2 = .169$ ,  $F(1, 187) = 38.04$ ,  $p < .05$ ) was



entered and significantly predicted intentions ( $\beta = .411, p < .05$ ) as hypothesised (H5). In the second step, the TPB constructs of attitudes, subjective norms, and perceived behavioural control were entered increasing the percentage variance accounted for in intentions ( $\Delta R^2 = .272, F(4, 184) = 32.67, p < .05$ ). As expected, attitudes ( $\beta = .531, p < .05$ ) and PBC ( $\beta = .264, p < .05$ ) significantly predicted physical activity intentions, but not subjective norms ( $\beta = -.144, p = .885$ ). The effect of autonomous motivation on intention was no longer significant as hypothesised, indicating the mediation of this effect (H6).

In the third step, the independent and interdependent self-construal variable was entered into the regression equation but did not increase the variance explained in intentions ( $\Delta R^2 = .428, F(5, 183) = 29.17, p > .05$ ) and did not predict intentions ( $\beta = .054, p = .353$ ). In the final step the moderating effect of the self-construal variable on the effects of the TPB variable and autonomous motivation on physical activity intentions were examined. This involved including the main effect of the moderator variable, namely the independent-interdependent self-construal dummy-coded variable, followed by interaction terms comprising the moderator with the independent variables. These were computed using multiplicative composites of the centred TPB (attitudes, subjective norms, and PBC) and autonomous motivation variables with the moderator variable, self-construals. The analysis produced a significant increase in the variance accounted for in intentions ( $\Delta R^2 = .447, F(9, 179) = 17.85, p < .05$ ). Attitudes ( $\beta = .529, p < .05$ ) and PBC ( $\beta = .224, p < .05$ ) remained significant predictors in the model. Furthermore, there was a significant positive interaction effect for subjective norm and self-construals ( $\beta = .131, p < .05$ ) and a significant negative interaction effect for PBC and self-construals ( $\beta = -.131, p < .05$ ) on intention. This supports hypothesis H7a and partially supports hypothesis H7b.

There was no moderation of the effect of autonomous motivation on intentions by the self-construal constructs leading to a rejection of the hypothesis of moderation (H8a) and the alternative hypothesis of no moderation (H8b) accepted.



**Table 5.2. Moderated multiple regression analysis for the prediction of physical activity intentions.**

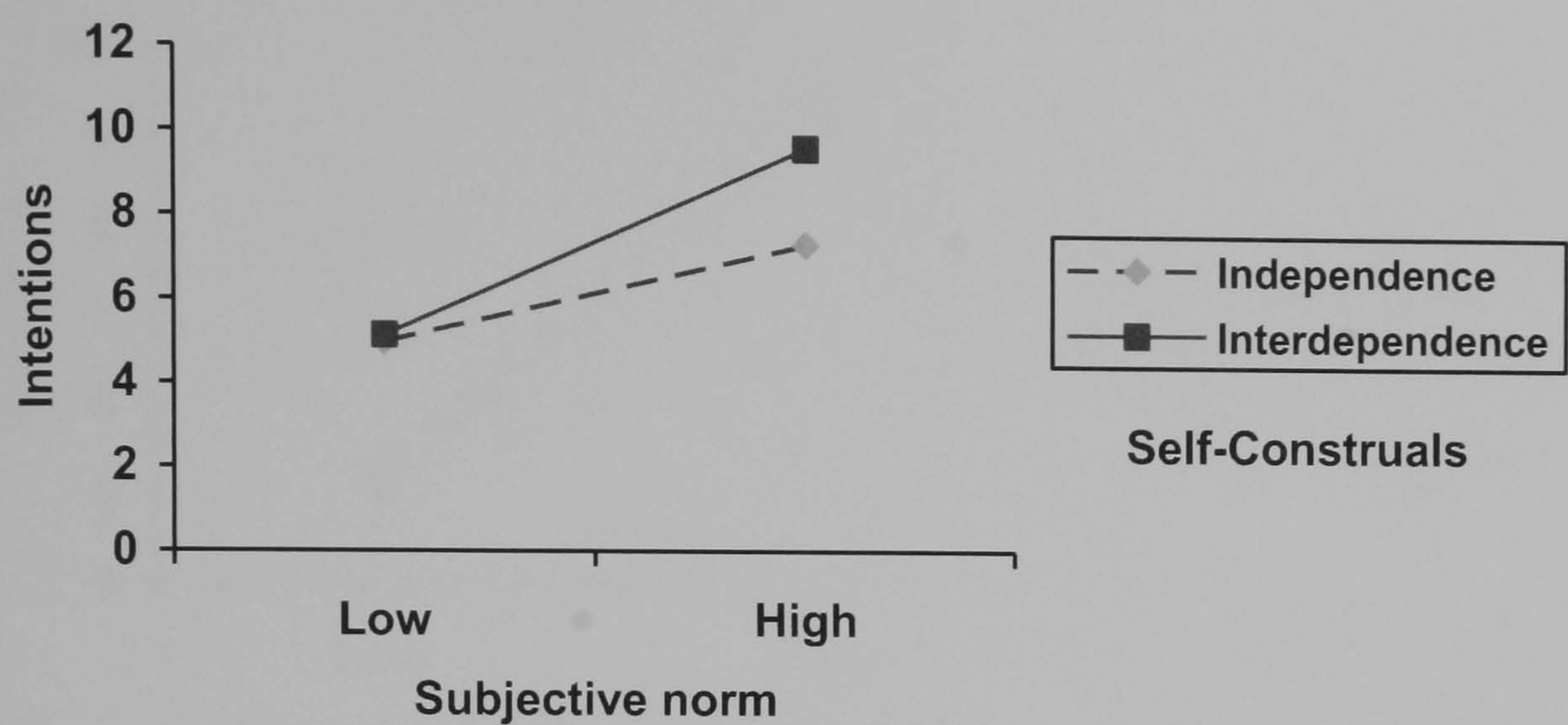
Step		$R^2$	$\Delta R^2$	$\beta$	$t$	$p$
1	Autonomous motivation	.169*	.169*	.411**	6.16	.000
2	Autonomous motivation	.441*	.272*	.055	.80	.423
	Attitudes			.531**	7.65	.000
	Perceived behavioural control (PBC)			.264**	4.49	.000
	Subjective norms			-.009	-.14	.885
3	Autonomous motivation	.443*	.003	.066	.95	.345
	Attitudes			.538**	7.71	.000
	Perceived behavioural control (PBC)			.262**	4.45	.000
	Subjective norms			-.009	-.15	.883
	Self-construals			.054	.93	.353
4	Autonomous motivation	.473*	.030*	.076	1.09	.276
	Attitudes			.529**	7.67	.000
	Perceived behavioural control (PBC)			.224**	3.76	.000
	Subjective norms			-.011	-.18	.858
	Self-construals			.044	.78	.436
	Attitudes x self-construals			-.002	-.03	.979
	Subjective norm x self-construals			.131*	2.24	.026
	Perceived behavioural control x self-construals			-.131*	-2.2	.028
	Autonomous motivation x self-construals			.100	1.50	.135

Note. \*  $p < .05$ , \*\*  $p < .005$ .

The interaction effects of self-construals and subjective norms and self-construals and PBC on physical activity intentions were examined by simple slopes analyses. Regression slopes were plotted of subjective norms and PBC on intentions for high (coded 1) and low (coded 0) levels of self-construals. The slopes for the regression of intention on subjective norms at high and low levels of the self-construals are shown in Figure 5.3. The unstandardised regression coefficients ( $B$ ) were significantly different than zero for independent ( $B = .387, t = 2.703, p < .05$ ) and interdependent ( $B = .995, t = 3.742, p < .05$ ) self-construals. The effect of subjective norms on intentions was greater for people with high levels of self-construals, representing interdependent self-construals, compared with low levels of self-construals, representing more independent self-construals. The significant interaction of subjective norms and self-construals obtained in hierarchical regression suggests that people with high levels of self-construals, representing interdependent self-construals, were more likely to form intentions on the basis of subjective norms than those with low levels of self-construals, reflecting an independent self-construal. This is in keeping with hypotheses (H7a).



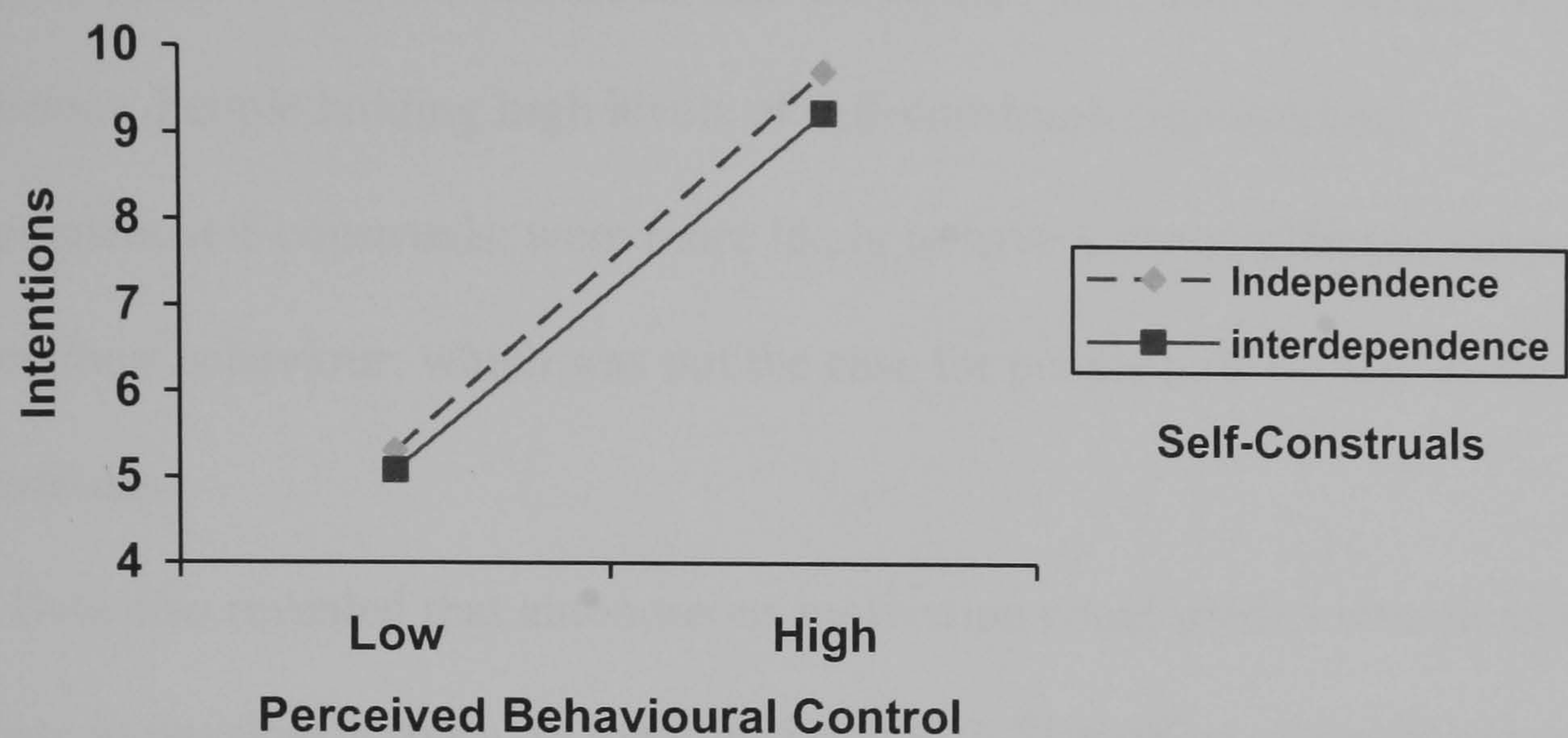
**Figure 5.3. The moderating effect of self-construals on the relationship between subjective norm and intentions.**



The simple slopes analysis for the interaction of PBC and self-construals in the prediction of physical activity intentions is shown in Figure 5.4. The unstandardised regression coefficients for intention were significantly different from zero for high levels of self-construal ( $B = .736, t = 5.257, p < .05$ ) and low levels of self-construal ( $B = .695, t = 3.432, p < .05$ ). The negative value suggests that high self-construal i.e. interdependent leads to a weaker relation between PBC and intention compared to people with low self-construal i.e. independent which should lead to a stronger PBC-intention relation.



**Figure 5.4. The moderating effect of self-construals on the relationship between Perceived Behavioural Control (PBC) and intentions.**



**5.4 Discussion**

**Summary of findings**

The present study examined the role of independent-interdependent self-construals on the effect of autonomous motivation and TPB variables on intentions and behaviour in physical activity. The findings suggested that autonomous motivation was a predictor for behaviour as hypothesised (H1) and this relationship was reduced to non-significance when intentions, subjective norms, and PBC were included as predictors of behaviour, as expected (H2). Intentions mediated the effect of the distal constructs from the TPB and autonomous motivation on behaviour as predicted (H3). Interestingly, PBC did not predict behaviour directly and there was a significant direct effect of intentions only. The effect of autonomous motivation on behaviour was, however, significant for people with high levels of self-construals, reflecting interdependent self-construals. Although this moderation effect was predicted (H4a), it was in the opposite direction to that hypothesised, so both hypotheses were rejected (H4a and H4b). This suggests that people with high levels of self-construals, representing interdependent self-construals, were more likely to



perform physical activity behaviour on the basis of autonomous motivation than people with low levels of self-construals, reflecting and independent self-construal. Contrary to predictions, self-construals also moderated the effects of subjective norms on behaviour. People holding high levels of self-construals, representing interdependent self-construals, were more likely to have a strong effect of subjective norms on their behaviour, which was not the case for people holding low levels of self-construals.

Data also revealed that autonomous motivation could predict intentions to participate in physical activity, as hypothesised (H5). This effect was reduced to non-significance with the inclusion of attitudes, PBC, and subjective norms in accordance with predictions (H6). Furthermore, in accordance with hypotheses, self-construals moderated the effects of subjective norms (H7a) and PBC (H7b) on intentions. Participants with high levels of self-construals, representing interdependent self-construals were more likely to form intentions on the basis of subjective norms than those with low levels of self-construals, reflecting independent self-construals. Further, people with low levels of self-construals reflecting independent self-construals were more likely to form intentions on the basis of PBC than these with higher levels, representing more interdependent self-construals. The self-construals did not moderate the effect of autonomous motivation on intentions so the hypothesis of moderation was rejected (H8a) and the alternative hypothesis accepted (H8b).

### **Self-construals, autonomous motivation and TPB**

The moderation effect of self-construals on the relationship between autonomous motivation and physical activity behaviour suggests that individual differences in interdependent and independent self-construals can influence the decision-making process leading to actual behaviour. These findings further extend

and support the results from Studies 3 and 4 where the effect of situationally-induced individualist and collectivist norms on intrinsic motivation was examined in group situations. They also provide further extension to previous research examining the effect of culture on autonomous motivation for members of individualist and collectivist cultures. More specifically, the findings from the studies described in Chapters 3 and 4 suggest that individualism and collectivism can function as situational environments where, under certain conditions, intrinsic motivation can flourish depending on the congruence of the choice condition with the group norm. Similarly, present findings extend those of Chirkov and colleagues (2003) who showed that an autonomy-supportive environment was related to the psychological well-being of members from both individualist and collectivist cultures.

Autonomous motivation predicted behaviour directly under conditions of high self-construals, thus interdependence. This finding is actually in contrast with SDT and the study hypothesis as autonomy is viewed more important for individualist cultures. The present research suggests that it is actually more important for interdependent cultures. One explanation is that autonomous motivation predicts behaviour directly only when people are holding an interdependent self otherwise the effects are directed through attitudes, PBC, and intentions as it has been suggested in other integrated models (Hagger et al., 2006b, Hagger & Chatzisarantis, 2009). So under this particular condition it seems that there is a non-intentional effect of autonomous motivation on behaviour. Autonomous motivation is a spontaneous impulsive impetus to engage in physical activity unconstrained by planning, thus if the person feels connected with others (i.e., interdependent) they are more likely to spontaneously engage in physical activity. This might happen because the social context supports such an engagement. On the other hand if a person views their self as



independent, then they will likely consider their personal attitudes and perceptions of control when deciding to engage in a behaviour because such evaluations are related to their own personal goals.

Looking at the moderation effect of the self-construals on the relationship between the TPB constructs revealed two important findings. The moderation of the effect of subjective norms on intentions by self-construal suggests that individuals who have a high level of self-construals, reflecting an interdependent self view, are more likely to engage in physical activity behaviour as a result of social pressure to engage in physical activity behaviour compared with individuals reporting low levels of self-construals, that reflect an independent self. This finding is in agreement with research in cross-cultural psychology where the role of peer group pressure on decision making is more dominant and substantial for collectivist cultures (Hofstede, 2001; Oyserman & Lee, 2008; Oyserman & Sorensen, in press; Triandis, 1989, 1995, 1996).

Self-construals also moderated the relationship between PBC and intentions. However, in this case the effect was negative, which meant that individuals with low levels of self-construals, reflecting an independent self, had a stronger effect of PBC on intentions than individuals with high levels of self-construals, reflecting an interdependent self-construal. The concept of PBC refers to the extent that people attribute the performance of the behaviour to be under their personal control (Ajzen, 1991). Such issues relating to internal control and the control that an individual can exercise over the environment tends to be an attribute that is of great importance in individualist cultures (Hsieh, Shybut, & Lotsof, 1969) and people that hold independent self-construals (H. Lee, Hubbard, O'Riordan, & Kim, 2006)

Furthermore, the self-construal construct moderated the relationship between subjective norms and intentions. Individuals with high levels of self-construals, reflecting an interdependent self, had a stronger effect of subjective norms on intentions than individuals with low levels of self-construals, reflecting an independent self-construal. This is also consistent with previous research which has found stronger effects of subjective norms on intentions in collectivist groups relative to individualist groups (Bagozzi et al., 2001; Blanchard et al., 2009). This result can be explained with regard to the cross-cultural effects on the TPB relationships. Subjective norms are beliefs about normative expectations of valued others and of social pressure (Ajzen, 1991). Members of collectivist cultures tend to be attentive of group situations and sensitive to group norms (Lillard, 1998; Markus & Kitayama, 1991a, 1991b; Ochs, 1988; Triandis, 1995). Thus, people who exhibit high levels of independence are more likely to be more receptive to and more likely to attend perceived social norms than people who exhibit an independent self.

Finally, the moderating effects of self-construals on relations among the TPB variables suggest that independent and interdependent self-construals should be taken into consideration to provide a more complete account of relations in the TPB. For example, cross-cultural studies on the TPB have shown a degree of inconsistency with respect to the effects of culture and ethnicity on the relations among the TPB variables. For example, some studies have not reported a moderating effect for ethnicity on the TPB relationships (Motl, et al., 2002; Trost, et al., 2002), while others have found moderating effects for some relationships but not others (Blanchard, Mask, Vallerand, la Sablonnière, & Provencher, 2007; Cheung, Chan, & Wong, 1999; Chu & Chiu, 2002; Hagger, Chatzisarantis, et al., 2007; Hu & Lanese, 1998; C. Lee & Green, 1990) Blanchard et al., 2009). The present study extends this research by



adopting independent and interdependent self-construals as individual difference variables rather than the effects of cultural groups defined by nationality or ethnicity on the TPB constructs. Results suggest that the inconsistency observed in some studies may be due to the fact that previous research has focused on culture and ethnicity than individual differences in such orientations within a culture.

## **Chapter 6**

### **General Discussion**

#### **6.1 Summary of findings**

The main aim of this thesis was to examine the role of situationally-induced individualist and collectivist group norms on the effect of perceived source of choice (e.g., personal, significant others) on intrinsic motivation. It also aimed to test the effect of individual differences in collectivist and individualist group norms on the relationship between autonomous motivation and intentional behaviour. This research integrated the concept of intrinsic motivation and the need for autonomy as postulated in Self-Determination Theory (SDT) (Deci & Ryan, 1985a, 2000, 2002), individualism and collectivism as group norms in a Social Identity Theory perspective (Tajfel 1974, 1978; Tajfel & Turner, 1979; McAuliffe et al, 2003), independence-interdependence as individual differences in self-construals reflecting the psychological qualities of individualism-collectivism from a Self-Systems Theory (Markus & Kitayama, 1991b), and the Theory of Planned Behaviour (Ajzen, 1985). The results of these studies make an original contribution to the current knowledge regarding the role of choice as determinant of autonomy and intrinsic motivation in situational contexts reflecting an individualist or collectivist group orientation. The research extends previous research on self-determination theory and culture, which was predominantly based on the examination of individualism and collectivism as cultural level constructs (Chirkov et al, 2003). Finally, some initial steps were taken towards the investigation on the role of culture-specific individual difference variables on autonomous motivation in an integrated model of SDT and behavioural



prediction as theorised in the Theory of Planned Behaviour (Ajzen, 1985, 1991; Fishbein & Ajzen, 1975).

### **6.1.1 Individualism and collectivism as a group norms**

The studies described in Chapter 2 developed the necessary empirical methodology for the experimental examination of intrinsic motivation in group situations. Since one of the main aims of this thesis was to examine the interactive effects of situationally-induced group norms and perceived source of choice on intrinsic motivation, there was the need to construct and validate a sound experimental method where the manipulation of individualism and collectivism as situational group norms was possible. This was achieved by further extending and cross-culturally validating the line of research employed by McAuliffe and colleagues (2003) who studied the feasibility of individualism and collectivism as group norms from a Social Identity Theory context.

The studies presented in Chapter 2 are the first to investigate the cross-cultural validity of whether individualist and collectivist group norms can operate in people with a predominantly collectivist cultural background. More specifically, two studies employing Tajfel's (1970) minimal group paradigm investigated the effect of individualist or collectivist group norms on evaluation of employees behaviour, group tolerance, relatedness, and identification of group members who share either an individualist (British) or collectivist cultural background (Chinese and Greeks).

In Study 1, Chinese participants showed an overall preference for collectivist behaviour. However, this preference for collectivist behaviour was attenuated when an individualist group norm was introduced. This was not the case for British participants who generally evaluated normative and non-normative group member behaviour as equally positive. Nevertheless, any cross-cultural differences were

eliminated when the levels of group identification were taken into account. For high group identifiers there was no overall preference for collectivist behaviour per se, but preference for group member behaviour was consistent with the group norm. So when the group norm was individualist group members indicated a preference for individualist behaviour irrespective of cultural background. When the group norm was collectivist, participants preferred group members displaying collectivist behaviour. This finding demonstrates that the cultural differences that are observed over behavioural perception were not present in high group identifiers.

The above pattern of results was further validated in measures of group tolerance and relatedness. Participants from both cultural backgrounds tend to perceive the group to be more tolerant of group members displaying behaviours congruent with the group norm. The results on relatedness exposed the generally beneficial aspects of collectivist behaviour in a group context. The Chinese participants reported feeling more related to the group member showing collectivist behaviour irrespective of group norm. Whereas, British participants tended to feel less related to participants displaying collectivist (non-normative) behaviour when the group norm was individualist.

One of the limitations for Study 1 was that the Chinese cultural background participants were tested in an individualist country (Britain) and in English. In order to boost the validity of the results and account for the unexpected result for the British sample when group identification was not taken into account, a follow up study was conducted. This time participants were tested in the country of their origin, were already employees of various organisations and not among a student population, and were tested in their native language. The results indicated no cross-cultural differences. When the group norm was collectivist participants positively evaluated



group members showing collectivist behaviour. This pattern was completely reversed when the group norm was individualist for participants of both cultural backgrounds. In this study, the levels of group identification did not account for the effects. Furthermore, in both studies participants scored higher to the measurements of relatedness with the group member indicating normative behaviour. However, participants tended to report higher levels of tolerance when the in-group displayed collectivist behaviour.

The results of the above studies are congruent with the findings of McAuliffe et al. (2003) where the concept of individualism and collectivism as group norms was introduced. As in their study, present findings suggest that individualist group norms are very important in fostering acceptance for group members displaying individualist group norm behaviour even for members from a collectivist cultural background. This extends previous research where only collectivist behaviours were considered acceptable in group contexts (Abrams, Marques, Bown, & Henson, 2000; Marques, et al., 1998). Present results suggest that individuals from a collectivist cultural background accept individualist group behaviour when the group norm is individualist.

In summary, the most important finding of the first two studies of this thesis was that group norms can be manipulated at a situational level. This is important in order to study the effects of such norms on intrinsic motivation and the provision of choice. The methods developed here were adopted in subsequent studies (Studies 3, 4, and 5) in order to investigate the interaction of situational norms and choice condition on intrinsic motivation in an experimental group context.

### **6.1.2 Effects of group norm and sources of choice on intrinsic motivation**

In Chapter 3 two studies employed the validated manipulation of individualist and collectivist group norms to investigate the interactive effects situational group norms and the source of choice either by the self or significant others on intrinsic motivation. The studies make a unique contribution to the literature by examining the role of choice as a determinant of intrinsic motivation in situational individualist and collectivist group settings. This is in contrast to previous studies where the effects of individualist and collectivist orientations were studied from an individual difference perspective (Iyengar & Lepper, 1999). The results from both studies suggest that participants presented with an individualist group norm and given personal choice over the decision as to which task to complete exhibited higher levels of intrinsic motivation compared with those presented with a collectivist group norm. However, under a collectivist group norm higher levels of intrinsic motivation were observed when a significant other (in this case a hypothetical group manager) made the choice compared to participants presented with an individualist group norm. These findings are consistent with SDT (Deci & Ryan, 1985a, 2000) and previously-conducted cross-cultural research (Iyengar & Lepper, 1999, 2002) and provide evidence that autonomy and environmental agents that support intrinsic motivation can be perceived differently depending on the general orientation of the group.

As cross-cultural research in intrinsic motivation suggests (Chirkov, et al., 2003; Iyengar & Lepper, 1999, 2002), it is not only personal choice that can positively-affect intrinsic motivation but also the interaction of the group norm and the environmental agent fostering intrinsic motivation. This replication of Iyengar and Lepper's cross-cultural findings for situational group norms is congruent with an SDT explanation of the factors that can influence autonomy and intrinsic motivation (Deci



& Ryan, 2000). More specifically, when the group norm is individualist, personal choice promotes intrinsic motivation since it is the environmental agent that fulfils the need of autonomy in such situations. In individualist group norm conditions, as in individualist cultures, the sense of choice and experiencing the self as the initiator of the action promotes intrinsic motivation (Deci, 1971; Deci, Koestner, & Ryan, 1999b; Deci & Ryan, 2000; Grolnick & Ryan, 1987). When the group norm is collectivist, participants, like people from a collectivist cultural background, experience higher levels of intrinsic motivation in the significant other choice condition because they have internalised the norms and opinions of significant others. In other words, people have chosen to be volitionally or wilfully dependent on their significant others and chosen to forego their personal independence but not autonomy. The significant other is viewed as supporting autonomy and relatedness needs and so the fact that they make the choice on behalf of the participant is not viewed as undermining of intrinsic motivation but is, instead, supportive of it. This is another way of autonomy fulfilment expressed as the autonomous internalisation of the demand of another (Deci & Ryan, 2000).

The studies described in this chapter included a measure of group identification, as it was expected that the levels of identification could moderate intrinsic motivation in relation with group norm and choice conditions. This was expected as an indication of the role of group norm. However, the results obtained are inconsistent with hypotheses. A possible explanation for this is that group identification does not account for perceptions of relatedness with the significant other but focus more on the norm itself. In addition, there may have been a lack of variance in the group identification measure as the majority of group members reported identifying strongly with the group, which was expected given the

manipulations designed for this purpose in the group norm manipulation. Recent research has suggested that the best way to account for the effects of a significant other's demands on intrinsic motivation is to measure the socioemotional attachment of participants to the significant other (Bao & Lam, 2008).

The results from Chapter 4 are preliminary and the small sample size means that the effects were not statistically significant. However, if the trends observed are viewed in light of the results from the studies described in Chapter 3 some interesting remarks about intrinsic motivation under collectivist and individualist group norms can be made. The scope of the study was to further explore the effect of environmental agents' choice and individualist and collectivist group norms on intrinsic motivation. The methodology employed was identical to the studies in Chapter 3. However, an extra choice condition was added where the significant other provided personal choice to participants. Trends in the data indicated that when the group norm was individualist participants had higher levels of intrinsic motivation in the personal choice condition than all the others. This finding is in consistent with SDT and the results of Chapter 3. However, in the collectivist group norm condition participants tended to indicate higher levels of intrinsic motivation when the significant other provided choice relative to the personal, significant other, or control choice conditions.

This finding further suggests that personal choice leads to intrinsic motivation among collectivist participants provided a significant other makes the choice for them. When the experimenter makes a choice for them or they are provided with personal choice by the experimenter, intrinsic motivation levels are lower. Therefore individuals in the collectivist condition will experience the task as intrinsically motivating if the agent presenting the task is a significant other regardless of whether



the significant other provides choice or makes the choice for them. This is in keeping with SDT. Participants who have internalised the needs of significant others are likely to view the decisions made by the significant others as supporting their autonomy and relatedness. They are therefore likely to find the task intrinsically motivating regardless of the choice condition as long as it is provided, and therefore perceived to be endorsed, by the significant other. In summary, it seems that personal choice alone might not be sufficient to evoke intrinsic motivation among people acting in a collectivist group norm. Personal choice tends to be important among individuals operating in individualist conditions. Personal choice provided by a significant other or a choice made by the significant other on behalf of the actor evokes higher intrinsic motivation in people operating in a collectivist norm because it is the social agent that is made salient by the norm. The fact that an actor chooses to be volitionally dependent on the significant other means that he or she is likely to feel a sense of autonomy provided the significant other is involved in decision making regardless to whether personal choice is provided by the significant other or the choice is made by the significant other.

### **6.1.3 Individual differences**

Chapter 5 brings the level of analysis from the group to the individual. This is achieved by investigating the moderating effects of independent-interdependent self-construals on the relationship between autonomous motivation and intentions/physical activity behaviour and also among constructs in the Theory of Planned Behaviour (TPB). More specifically, the self-construals of independence-interdependence were included as they reflect individualism and collectivism as global orientations reflecting people's general tendencies that influence their perceptions of the self and their behaviour in social situations. The integration of the TPB and SDT is a recent

development providing the ability to understand prediction of human behaviour with the inclusion of motivation (Hagger & Chatzisarantis, 2009; Hagger, et al., 2006a, 2006b).

The unique contribution of the study is that the moderating effect of self-construals was examined in the context of an integrated model including hypotheses from the TPB and SDT. The scope of this study was to examine the role of individual differences in individualist and collectivist orientations on relations between autonomous motivation and intentions and physical activity behaviour. It was expected that such individual differences would moderate the effect of autonomous motivation on intentions and behaviour. Specifically, it was predicted that people with independent self-construals would have a stronger effect of autonomous motivation on intentions and behaviour. This is because autonomy is more consistent with an individualist approach to making decisions and supported by previous research (Ryan & Deci, 1999). However, the latter paper also notes that intrinsic motivation is relevant for both collectivist and individualist cultures, even though it is rated more important among individualist cultures. This is congruent with hypotheses from SDT that autonomy is cross-cultural valid. An alternative hypothesis was therefore put forward that there would be no moderation effect consistent with the universal hypothesis or that any moderation would be in magnitude rather than present or absent.

Results indicated that independent and interdependent self-construals moderated the effect of autonomous motivation on behaviour. People holding interdependent self-construals were more likely to have a stronger relationship between autonomous motivation and physical activity behaviour than people holding independent self-construals. This finding is actually in contrast to hypotheses from



SDT. Autonomy is viewed more salient in individualist cultures (Ryan et al., 1999). In contrast, the present research suggests that it is actually more important among people with interdependent orientations. One explanation is that autonomous motivation predicts behaviour directly, and therefore impulsively or spontaneously, only when people hold an interdependent self view. Otherwise the effects are directed through attitudes, perceived behavioural control, and intentions as suggested in other models (Hagger, et al., 2006b). This path therefore suggests that people with an interdependent outlook are more likely to act according to the autonomous motives without deliberation. This may be because deliberation is likely to involve the weighing up of significant others' desires and behaviour would only occur if those significant others supported autonomy.

There was moderation of the effect of subjective norms on intentions to engage to physical activity, suggesting that people holding an interdependent self view were more likely to engage to physical activity as result of social pressure. This finding is in agreement with the research in cross-cultural psychology where the role peer group pressure on decision-making is more dominant and significant in collectivist cultures (Hofstede, 2001; Oyserman & Lee, 2008; Oyserman & Sorensen, in press; Triandis, 1989, 1995, 1996). Finally, the moderation effect of self-construals on the relationship between perceived behavioural control and intentions revealed that people holding an independent self were more likely base their intention on control-related perceptions than those holding interdependent values. The concept of perceived behavioural control refers to the extent that people attribute the performance of the behaviour to be under their personal control and agency (Ajzen, 1991). Such issues relating to internal control and the control that an individual can exercise over the environment tends to be an attribute that is of great importance in

individualist cultures (Hsief, et al., 1969) and people that hold an independent self-construal (H. Lee, et al., 2006).

## **6.2 Implications for theory**

The findings presented in this thesis have several implications for theory. First, results have demonstrated that situations that engender individualist and collectivist group norms can be applied to people from a collectivist cultural background. Second, the investigation has extended hypotheses from SDT by demonstrating that behaviours can be experienced as intrinsically motivated in collectivist and individualist contexts, provided tasks are chosen by an appropriate agent, a significant other, for people operating collectivist group norms. Third, individualist and collectivist norms can operate as individual difference variables affecting the role of autonomous motivation as a predictor of behavioural intentions and actual behaviour in an extended integrated model of SDT and TPB.

The main finding of the studies in Chapter 2 is the replication of the attenuation of the preference for collectivist group behaviour by the introduction of an individualist group norm condition among group members of a collectivist background. This research provides cross-cultural validity for previous findings examining the effects of situational norms on group member evaluations (McAuliffe et al, 2003). This suggests that individualist group norms are important for fostering individualist behaviour regardless of cultural orientation. This provides evidence that individualist behaviour is acceptable in group contexts provided the norm supports such behaviour.

Chapters 3 and 4 provide evidence of the different environmental agents fostering intrinsic motivation in different contexts. These findings are important for SDT as they provide evidence that the provision and interpretation of conditions that



give rise to intrinsic motivation may be interpreted differently depending on whether the group norm supports collectivism or individualism. Specifically, it is the interaction of the group environment and the environmental agent that supports autonomy and intrinsic motivation that determines whether people experience tasks as intrinsically motivating. Group situations can therefore affect the way in which people experience satisfaction of their basic psychological needs and intrinsically motivated behaviours. Present findings indicate that optimal intrinsic motivation in collectivist contexts can be achieved when environmental agents either provide personal choice, an autonomy-supportive contingency, or make choices on behalf of group members.

Finally, present findings also tested the effect of self-construals on the relationship between autonomous motivation and intentional behaviour in an extended, integrated model of the TPB and SDT. This is congruent with previous research that has indicated that general cultural orientations such as collectivism and individualism and ethnicity moderate the effects of the TPB variables (Bagozzi, et al., 2001; Blanchard, et al., 2008; Hagger, Chatzisarantis, et al., 2007). It also extends research by including autonomous motivation in an integrated model and examines how the effect of autonomous motivation on intentions and behaviour is changed by individual differences in collectivist and individualist (as self construals) orientations. This demonstrates a more complete understanding of the social cognitive and motivational influences on decision making by accounting for general collectivist and individualist orientations.

### **6.3 Implications for practice**

This thesis has several implications for practice. The overall finding that individualism and collectivism as group norms or individual differences constructs can nurture self-determined motivated behaviours under the proper environmental

agents is very important when considering the situational circumstances most likely to give rise to intrinsic motivation and behavioural persistence. The findings from Studies 3 and 4 (Chapter 3) suggested that the optimal environmental factors that support intrinsic motivation have to be tailored to the normative context. Thus, practitioners interested in promoting intrinsic motivation should consider the group norm before identifying the environmental factors that will be most effective in supporting intrinsic motivation. In order to promote intrinsic motivation among group members, managers and organisers of groups that hold a more collectivist orientation (e.g., educational settings) are advised to have a significant other either provide personal choice for group members or even make the choice for them. However, those leading groups that hold more individualist orientations (e.g., artists) the provision of personal choice is the optimal environmental factor that promotes intrinsic motivation.

However, as Studies 1 and 2 (Chapter 2) suggested that people can be members of multiple groups holding different orientations, there needs to be flexibility in the provision of choice by external agents. A person's optimal environmental contingency to maximise intrinsic motivation can constantly change depending on group membership. This change can happen even in the same organizational setting. For example, a person can be a member of a group whose dominant norm is individualist and a member of another that holds a collectivist group norm. In each of these different scenarios, the contextual factor that maximises intrinsic motivation will differ.

Furthermore, the relationship between independent-interdependent self-construals, autonomous motivation, behavioural intentions, and behaviour found in Study 6 (Chapter 5) has particular relevance for interventions aimed to increase



physical exercise, especially when a cross-cultural element is included. Cross-cultural differences in independent and interdependent self-construals should be taken into consideration by practitioners when they are designing interventions. For example, it may be more appropriate to target normative-oriented messages to change exercise behaviour at people with interdependent self-construals. In contrast, self-efficacy and control-oriented messages may be more effective among those with independent self-construals. Providing messages targeting physical activity behaviour change using autonomy-supportive techniques are likely to be effective among people holding both independent and interdependent self-construals, although they may result in slightly greater unit-changes in behaviour for interdependent people.

#### **6.4 Thesis limitations and future research directions**

There are number of possible directions for future research. These range from addressing the limitations of the results concerning group identification to the study of the effect of different forms of autonomy-supportive environmental agents on intrinsic motivation in different group norm contexts.

Firstly, it should be noted that group identification did not produce a consistent pattern of results among the studies in this thesis. Future studies should attempt to investigate the role of group identification as a moderator of the effects of situational group norms and group member behaviour on group member evaluations (Studies 1 and 2) or of the effects of group norms and source of choice on intrinsic motivation (Studies 3 and 4). One way to do this would be to experimentally manipulate group norms or to use more progressive measures such as affective perceptions and emotional attachment towards the significant other. More specifically, research in the area of social identity theory provides new experimental means to examine the role of group identification (Tarrant & Campbell, 2007). For

example, group identification can be manipulated by controlling for the number of negative and positive questions associated with the in-group in a salient linguistic task (Jetten, et al., 1997; Salancik, 1974). Furthermore, recent research suggests that measures of attachment might be effective in assessing group identification. For example, Bao and Lam (2008) provide evidence where children of a collectivist cultural background indicate higher levels of intrinsic motivation when a choice is made by a person with whom they hold a great socio-emotional attachment such as a parent or caregiver. Future research should therefore explore the role of the relatedness of group members to significant others in collectivist group norm situations as a moderator of the effects presented in the current studies.

Second, the findings from Study 5 (Chapter 4) suggest that the moderating effect of collectivist and individualist group norms on relations between autonomous motivation and intentional behaviour should not be viewed as present or absent, but as relative degree of influence, strong or weak. Future research should therefore attempt to replicate this effect in a wider portfolio of behaviours to confirm the generalisability of the effect. This would be important theoretically as the generalisability of the moderating effects of self-construals on the autonomous motivation-intention and autonomous motivation-behaviour relationship would be consistent with the notion in SDT that autonomous motivation is universal.

Finally, future research should investigate and better account for the role of independence-interdependence self-construals on autonomous motivation in behaviours not under the volitional control of the individual. For example, safe sex practices involving condom use where female partners are less likely to perceive that they have full control over the use of condoms may be an interesting in this regard. In such situations, the partner may feel that they have low control and perhaps low



autonomy towards their decision making. However, because this is a collaborative behaviour the person is likely to have internalised the views and opinions of her partner and may therefore still feel autonomous in making decisions. This line of investigation will provide indication of how autonomous motivation is affected by individual differences in collectivist and individualist (as self construals) orientations where behavioural control cannot be exercised.

## **6.5 Final remarks**

In conclusion, this thesis has demonstrated the effect of individualism and collectivism in the form of group norms and individual differences on self-determined motivation. It has made an original and significant contribution to the area by providing cross-cultural evidence of the feasibility of individualism and collectivism as a functioning group norm, by examining the effect of different environmental agents that hold functional significance on intrinsic motivation in different group contexts, and by proposing and testing an integrated model of behavioural prediction that includes individualism and collectivism as individual difference constructs.

Following studies examining the effects of global cultural orientations of individualism and collectivism on intrinsic motivation, the present studies examined the effects of situationally-induced individualist and collectivist group norms on intrinsic motivation. For this to be achieved there was a theoretical and empirical necessity to develop methods that permitted the manipulation of individualist and collectivist group norms. This was achieved by cross-culturally validating a method to manipulate individualist and collectivist group norms and test their function in members from both individualist and collectivist cultural backgrounds.

Utilising these methods, the present investigation revealed that people tend to be more intrinsically motivated when the environmental factor that supports intrinsic

motivation (i.e., the source of choice) was congruent with the group norm. Intrinsic motivation was found to be higher when people were provided with personal choice over their behaviour when the group norm was individualist, consistent with many studies on SDT (Patall et al., 2008). However, when the group norm was collectivist, choice made or provided by a significant other promoted intrinsic motivation. The environmental agents that foster intrinsic motivation were therefore revealed to be a function of the different group norms. In agreement with SDT, the environmental agent fostering intrinsic motivation had to be consistent with the group norm.

Finally, moving the analysis from the situational to the individual, the role of individualism and collectivism as individual differences factors were examined in an integrated model of human behaviour including self-determined motivation and other socio-cognitive factors. Optimistically, it is the wish of the author that this thesis will generate further research examining the role of cultural, situational, and individual difference factors on self-determined motivational processes.



## REFERENCES

- Aaker, J. L., & Lee, A. Y. (2001). "I" seek pleasures and "we" avoid pains: The role of self-regulatory goals in information processing and persuasion. *Journal of Consumer Research*, 28(1), 33-49.
- Abrams, D., Marques, J. M., Bown, N., & Henson, M. (2000). Pro-norm and anti-norm deviance within and between groups. *Journal of Personality and Social Psychology*, 78(5), 906-912.
- Abrams, D., Thomas, J., & Hogg, M. A. (1990). Numerical Distinctiveness, Social Identity and Gender Salience. *British Journal of Social Psychology*, 29, 87-92.
- Aiken, L., & West, S. (1992). *Multiple regression: Testing and interpreting results*. Thousand Oaks: Sage Publications.
- Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl & J. Beckman (Eds.), *Action-control: From cognition to behavior*. (pp. 11-39). Heidelberg: Springer.
- Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Ajzen, I. (2002). Constructing a TpB Questionnaire: Conceptual and Methodological Considerations. Retrieved November 1, 2005, from <http://people.umass.edu/aizen/pdf/tpb.measurement.pdf> 2007
- Ajzen, I., & Driver, B. L. (1991). Prediction of Leisure Participation from Behavioral, Normative, and Control Beliefs - an Application of the Theory of Planned Behavior. *Leisure Sciences*, 13(3), 185-204.
- Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. Englewood Cliffs, NJ: Prentice-Hall.

- Amabile, T. M. (1979). Effects of External Evaluation on Artistic Creativity. *Journal of Personality and Social Psychology*, 37(2), 221-233.
- Amabile, T. M., Dejong, W., & Lepper, M. R. (1976). Effects of Externally Imposed Deadlines on Subsequent Intrinsic Motivation. *Journal of Personality and Social Psychology*, 34(1), 92-98.
- Anderson, R., Manoogian, S. T., & Reznick, J. S. (1976). Undermining and Enhancing of Intrinsic Motivation in Preschool-Children. *Journal of Personality and Social Psychology*, 34(5), 915-922.
- Armitage, C. J., & Conner, M. (2001a). Efficacy of a minimal intervention to reduce fat intake. *Social Science & Medicine*, 52(10), 1517-1524.
- Armitage, C. J., & Conner, M. (2001b). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, 40, 471-499.
- Bagozzi, R. P., Lee, K. H., & Van Loo, M. F. (2001). Decisions to donate bone marrow: The role of attitudes and subjective norms across cultures. *Psychology & Health*, 16(1), 29-56.
- Bao, X. H., & Lam, S. F. (2008). Who makes the choice? Rethinking the role of autonomy and relatedness in Chinese children's motivation. *Child Development*, 79(2), 269-283.
- Bhawuk, D. P. S., & Brislin, R. (1992). The Measurement of Intercultural Sensitivity Using the Concepts of Individualism and Collectivism. *International Journal of Intercultural Relations*, 16(4), 413-436.
- Biddle, S. J. H., Soos, I., & Chatzisarantis, N. L. D. (1999). Predicting physical activity intentions using a goal perspectives approach: a study of Hungarian youth. *Scandinavian Journal of Medicine & Science in Sports*, 9(6), 353-357.



- Blais, M. R., Boucher, C., Sabourin, S., & Vallerand, R. J. (1990). Toward a Motivational Model of Couple Happiness. *Journal of Personality and Social Psychology*, 59(5), 1021-1031.
- Blanchard, C. M., Kupperman, J., Sparling, P. B., Nehl, E., Rhodes, R. E., Courneya, K. S., & Baker, F. (2009). Do ethnicity and gender matter when using the theory of planned behavior to understand fruit and vegetable consumption? *Appetite*, 52, 15-20.
- Blanchard, C. M., Kupperman, J., Sparling, P., Nehl, E., Rhodes, R. E., Courneya, K. S., et al. (2008). Ethnicity and the theory of planned behavior in an exercise context: A mediation and moderation perspective. *Psychology of Sport and Exercise*, 9(4), 527-545.
- Blanchard, C. M., Mask, L., Vallerand, R. J., la Sablonnière, R., & Provencher, P. (2007). Reciprocal relationships between contextual and situational motivation in a sport setting. *Psychology of Sport and Exercise*, 8, 854-873.
- Blanck, P. D., Reis, H. T., & Jackson, L. (1984). The Effects of Verbal-Reinforcement of Intrinsic Motivation for Sex-Linked Tasks. *Sex Roles*, 10(5-6), 369-386.
- Boggiano, A. K., & Ruble, D. N. (1979). Competence and the Overjustification Effect - Developmental-Study. *Journal of Personality and Social Psychology*, 37(9), 1462-1468.
- Bracken, B. A., & Barona, A. (1991). State of the art procedures for translating, validating, and using psychoeducational tests in cross-cultural assessment. *School Psychology International*, 12, 119-132.

- Briley, D. A., & Wyer, R. S. (2001). Transitory determinants of values and decisions: The utility (or nonutility) of individualism and collectivism in understanding cultural differences. *Social Cognition*, 19(3), 197-227.
- Brislin, R. W. (1986). The wording and translation of research instruments. In W. J. Lonner & J. W. Berry (Eds.), *Field methods in educational research* (pp. 137-164). Newbury Park, CA: Sage.
- Brown, R. (2000). Social identity theory: past achievements, current problems and future challenges. *European Journal of Social Psychology*, 30(6), 745-778.
- Brown, R., Condor, S., Mathews, A., Wade, G., & Williams, J. (1986). Explaining Intergroup Differentiation in an Industrial-Organization. *Journal of Occupational Psychology*, 59(4), 273-286.
- Brown, R., & Williams, J. (1984). Group Identification - the Same Thing to All People. *Human Relations*, 37(7), 547-564.
- Carver, C. S., & Reicher, S. D. (1999). Several more themes, alot more issues: Commentary on the commentaries. In R. S. J. Wyer (Ed.), *Advances in socail cognition*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Carver, C. S., & Scheier, M. F. (2000). Autonomy and self-regulation. *Psychological Inquiry*, 11(4), 284-291.
- Carver, C. S., & Scheir, M. F. (1999). Themes and issues in the self regulation of behavior. In R. S. J. Wyer (Ed.), *Advances in social cognition*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Chatzisarantis, N. L. D., Biddle, S. J. H., & Meek, G. A. (1997). A self-determination theory approach to the study of intentions and the intention-behaviour relationship in children's physical activity. *British Journal of Health Psychology*, 2, 343-360.



- Chatzisarantis, N. L. D., & Hagger, M. S. (2005). Effects of a brief intervention based on the theory of planned behavior on leisure-time physical activity participation. *Journal of Sport & Exercise Psychology*, 27(4), 470-487.
- Chatzisarantis, N. L. D., Hagger, M. S., Biddle, S. J. H., & Karageorghis, C. (2002). The cognitive processes by which perceived locus of causality predicts participation of physical activity. *Journal of Health Psychology*, 7(6), 685-699.
- Chatzisarantis, N. L. D., Hagger, M. S., Biddle, S. J. H., Smith, B., & Wang, J. C. K. (2003). A meta-analysis of perceived locus of causality in exercise, sport, and physical education contexts. *Journal of Sport & Exercise Psychology*, 25(3), 284-306.
- Chatzisarantis, N. L. D., Hagger, M. S., Smith, B., & Phoenix, C. (2004). The influences of continuation intentions on execution of social behaviour within the theory of planned behaviour. *British Journal of Social Psychology*, 43, 551-583.
- Chen, X. Y., Dong, Q., & Zhou, H. (1997). Authoritative and authoritarian parenting practices and social and school performance in Chinese children. *International Journal of Behavioral Development*, 21(4), 855-873.
- Cheung, S. F., Chan, D., & Wong, Z. (1999). Reexamining the theory of planned behavior in understanding wastepaper recycling. *Environment and Behavior*, 31, 604-626.
- Chirkov, V. I., & Ryan, R. M. (2001). Parent and teacher autonomy-support in Russian and US adolescents - Common effects on well-being and academic motivation. *Journal of Cross-Cultural Psychology*, 32(5), 618-635.

- Chirkov, V. I., Ryan, R. M., Kim, Y., & Kaplan, U. (2003). Differentiating autonomy from individualism and independence: A self-determination theory perspective on internalization of cultural orientations and well-being. *Journal of Personality and Social Psychology*, 84(1), 97-110.
- Chirkov, V. I., Ryan, R. M., & Willness, C. (2005). Cultural context and psychological needs in Canada and Brazil - Testing a self-determination approach to the internalization of cultural practices, identity, and well-being. *Journal of Cross-Cultural Psychology*, 36(4), 423-443.
- Chu, P., & Chiu, J. (2002). Factors influencing household waste recycling behavior: Test of an integrated model. *Journal of Applied Social Psychology*, 33, 604-626.
- Cordova, D. I., & Lepper, M. R. (1996). Intrinsic motivation and the process of learning: Beneficial effects of contextualization, personalization, and choice. *Journal of Educational Psychology*, 88(4), 715-730.
- Cross, S., & Markus, H. (1991). Possible Selves across the Life-Span. *Human Development*, 34(4), 230-255.
- Csikszentmihalyi, M., & Rathunde, K. (1993). The measurement of flow in everyday life: Toward a theory of emergent motivation. In J. E. Jacobs (Ed.), *Developmental perspectives on motivation* (pp. 57-97). Lincoln: University of Nebraska Press.
- De Vos, G. (1985). Dimensions of the self in Japanese culture. In A. Marsella, G. De Vos & F. L. K. Hsu (Eds.), *Culture and self* (pp. 149-184). London: Tavistock.
- deCharms, R. (1968). *Personal causation*. New York: Academic Press.
- Deci, E. L. (1971). Effects of Externally Mediated Rewards on Intrinsic Motivation. *Journal of Personality and Social Psychology*, 18(1), 105-&.



- Deci, E. L. (1972). Effects of Contingent and Noncontingent Rewards and Controls on Intrinsic Motivation. *Organizational Behavior and Human Performance*, 8(2), 217-229.
- Deci, E. L., Betley, G., Kahle, J., Abrams, L., & Porac, J. (1981). When Trying to Win - Competition and Intrinsic Motivation. *Personality and Social Psychology Bulletin*, 7(1), 79-83.
- Deci, E. L., Cascio, W. F., & Krusell, J. (1975). Cognitive Evaluation Theory and Some Comments on Calder and Staw Critique. *Journal of Personality and Social Psychology*, 31(1), 81-85.
- Deci, E. L., Connell, J. P., & Ryan, R. M. (1989). Self-Determination in a Work Organization. *Journal of Applied Psychology*, 74(4), 580-590.
- Deci, E. L., Egharri, H., Patrick, B. C., & Leone, D. R. (1994). Facilitating Internalization - the Self-Determination Theory Perspective. *Journal of Personality*, 62(1), 119-142.
- Deci, E. L., & Flaste, R. (1995). *Why we do what we do : the dynamics of personal autonomy*. New York: Putnam's Sons.
- Deci, E. L., Koestner, R., & Ryan, R. M. (1999a). A meta-analytic review of experiments examining the effects of extrinsic rewards on intrinsic motivation. *Psychological Bulletin*, 125(6), 627-668.
- Deci, E. L., Koestner, R., & Ryan, R. M. (1999b). The undermining effect is a reality after all - Extrinsic rewards, task interest, and self-determination: Reply to Eisenberger, Pierce, and Cameron (1999) and Lepper, Henderlong, and Gingras (1999). *Psychological Bulletin*, 125(6), 692-700.

- Deci, E. L., Nezlek, J., & Sheinman, L. (1981). Characteristics of the Rewarder and Intrinsic Motivation of the Rwardee. *Journal of Personality and Social Psychology*, 40(1), 1-10.
- Deci, E. L., & Ryan, R. M. (1980). The empirical exploration of intrinsic motivational processes/. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 13, pp. 39-80). New York: Academic Press.
- Deci, E. L., & Ryan, R. M. (1985a). *Intrinsic motivation and self-determination in human behavior*. New Yorl: Plenum.
- Deci, E. L., & Ryan, R. M. (1985b). The General Causality Orientations Scale - Self-Determination in Personality. *Journal of Research in Personality*, 19(2), 109-134.
- Deci, E. L., & Ryan, R. M. (1987). The Support of Autonomy and the Control of Behavior. *Journal of Personality and Social Psychology*, 53(6), 1024-1037.
- Deci, E. L., & Ryan, R. M. (2000). The "what" and "why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry*, 11(4), 227-268.
- Deci, E. L., & Ryan, R. M. (2002). *Handbook of self-determination research*. Rochester, NY: University of Rochester Press.
- Deci, E. L., & Ryan, R. M. (2005). Self-determination theory: An approach to human motivation and personality Retrieved November 1, 2005, from <http://www.psych.rochester.edu/SDT/index.html>
- Deci, E. L., Ryan, R. M., Gagne, M., Leone, D. R., Usunov, J., & Kornazheva, B. P. (2001). Need satisfaction, motivation, and well-being in the work organizations of a former eastern bloc country: A cross-cultural study of self-determination. *Personality and Social Psychology Bulletin*, 27(8), 930-942.



- Deci, E. L., Schwartz, A. J., Sheinman, L., & Ryan, R. M. (1981). An Instrument to Assess Adults Orientations toward Control Versus Autonomy with Children - Reflections on Intrinsic Motivation and Perceived Competence. *Journal of Educational Psychology*, 73(5), 642-650.
- Deschamps, C. (1982). Social identity and relations of power between groups. In H. Tajfel (Ed.), *Social identity and intergroup relations*. Cambridge: Cambridge University Press.
- Duncan, T., & Mcauley, E. (1987). Efficacy Expectations and Perceptions of Causality in Motor-Performance. *Journal of Sport Psychology*, 9(4), 385-393.
- Durkheim, E., & Halls, W. D. (1984). *The division of labor in society*. New York: Free Press.
- Elliot, A. J., McGregor, H. A., & Thrash, T. M. (2002). The need for competence. In E. L. Deci & M. K. Ryan (Eds.), *Handbook of Self-Determination Research*. New York: University of Rochester Press.
- Fielding, K. S., & Hogg, M. A. (2000). Working hard to achieve self-defining group goals: A social identity analysis. *Zeitschrift Fur Sozialpsychologie*, 31(4), 191-203.
- Fishbein, M., & Ajzen, I. (1975). *Belief, attitude, intention, and behavior: An introduction to theory and research*. Reading, M: Addison-Wesley.
- Flowerday, T., & Schraw, G. (2003). Effect of choice on cognitive and affective engagement. *Journal of Educational Research*, 96(4), 207-215.
- Flowerday, T., Schraw, G., & Stevens, J. (2004). The role of choice and interest in reader engagement. *Journal of Experimental Education*, 72(2), 93-114.

- Frodi, A., Bridges, L., & Grolnick, W. (1985). Correlates of Mastery-Related Behavior - a Short-Term Longitudinal-Study of Infants in Their 2nd Year. *Child Development*, 56(5), 1291-1298.
- Gardner, W. L., Gabriel, S., & Dean, K. K. (2004). The individual as "melting pot": The flexibility of bicultural self-construals. *Cahiers De Psychologie Cognitive-Current Psychology of Cognition*, 22(2), 181-201.
- Gardner, W. L., Gabriel, S., & Lee, A. Y. (1999). "I" value freedom, but "we" value relationships: Self-construal priming mirrors cultural differences in judgment. *Psychological Science*, 10(4), 321-326.
- Grolnick, W. S., & Ryan, R. M. (1987). Autonomy in Childrens Learning - an Experimental and Individual Difference Investigation. *Journal of Personality and Social Psychology*, 52(5), 890-898.
- Hagger, M. S., Asci, F. H., Lindwall, M., Hein, V., Mulazimoglu-Balli, O., Tarrant, M., et al. (2007). Cross-cultural validity and measurement invariance of the social physique anxiety scale in five European nations. *Scandinavian Journal of Medicine & Science in Sports*, 17, 703-719.
- Hagger, M. S., & Chatzisarantis, N. L. D. (2005a). First- and higher-order models of attitudes, normative influence, and perceived behavioural control in the theory of planned behaviour. *British Journal of Social Psychology*, 44, 513-535.
- Hagger, M. S., & Chatzisarantis, N. L. D. (2005b). *The social psychology of exercise and sport*. Buckingham, UK: Open University Press/McGraw-Hill.
- Hagger, M. S., & Chatzisarantis, N. L. D. (2009). Integrating the theory of planned behaviour and self-determination theory in health behaviour: A meta-analysis. *British Journal of Health Psychology*, 14, 275-302.



- Hagger, M. S., Chatzisarantis, N. L. D., Barkoukis, V., John, C. K., Hein, V., Pihu, M., et al. (2007). Cross-cultural generalizability of the theory of planned behavior among young people in a physical activity context. *Journal of Sport & Exercise Psychology*, 29(1), 2-20.
- Hagger, M. S., Chatzisarantis, N. L. D., & Biddle, S. J. H. (2002a). A meta-analytic review of the theories of reasoned action and planned behavior in physical activity: Predictive validity and the contribution of additional variables. *Journal of Sport & Exercise Psychology*, 24(1), 3-32.
- Hagger, M. S., Chatzisarantis, N. L. D., & Biddle, S. J. H. (2002b). The influence of autonomous and controlling motives on physical activity intentions within the Theory of Planned Behaviour. *British Journal of Health Psychology*, 7, 283-297.
- Hagger, M. S., Chatzisarantis, N. L. D., Culverhouse, T., & Biddle, S. J. H. (2003). The processes by which perceived autonomy support in physical education promotes leisure-time physical activity intentions and behavior: A trans-contextual model. *Journal of Educational Psychology*, 95(4), 784-795.
- Hagger, M. S., Chatzisarantis, N. L. D., & Harris, J. (2006a). From psychological need satisfaction to intentional behavior: testing a motivational sequence in two behavioral contexts. *Personality and Social Psychology Bulletin*, 32(2), 131-148.
- Hagger, M. S., Chatzisarantis, N. L. D., & Harris, J. (2006b). The process by which relative autonomous motivation affects intentional behavior: Comparing effects across dieting and exercise behaviors. *Motivation and Emotion*, 30(4), 307-321.

- Harackiewicz, J. M., Manderlink, G., & Sansone, C. (1984). Rewarding Pinball Wizardry - Effects of Evaluation and Cue Value on Intrinsic Interest. *Journal of Personality and Social Psychology*, 47(2), 287-300.
- Hardeman, W., Johnston, M., Johnston, D. W., Bonetti, D., Wareham, N. J., & Kinmonth, A. L. (2002). Application of the theory of planned behaviour in behaviour change interventions: A systematic review. *Psychology & Health*, 17(2), 123-158.
- Heider, F. (1958). *The psychology of interpersonal relations*. New York: Wiley.
- Hinkle, S., & Brown, R. (1990). Intergroup comparisons and social identity: Some links and lacunae. In D. Abrams & M. Hogg (Eds.), *ocial identity theory: Constructive and critical advances*. New York: Harvester/Wheatsheaf.
- Hofstede, G. (1991). *Cultures and organisations: Software of the mind*. Maidenhead: McGraw-Hill.
- Hofstede, G. (2001). *Culture's Consequences: Comparing Values, Behaviors, Institutions and Organizations Across Nations*. Thousand Oaks CA: Sage Publications.
- Hogg, M. A., Abrams, D., Otten, S., & Hinkle, S. (2004). The social identity perspective - Intergroup relations, self-conception, and small groups. *Small Group Research*, 35(3), 246-276.
- Hogg, M. A., Fielding, K. S., Johnson, D., Masser, B., Russell, E., & Svensson, A. (2006). Demographic category membership and leadership in small groups: A social identity analysis. *Leadership Quarterly*, 17(4), 335-350.
- Hogg, M. A., & Turner, J. C. (1987). Intergroup Behavior, Self-Stereotyping and the Salience of Social Categories. *British Journal of Social Psychology*, 26, 325-340.



- Hogg, M. A., Turner, J. C., & Davidson, B. (1990). Polarized Norms and Social Frames of Reference - a Test of the Self-Categorization Theory of Group Polarization. *Basic and Applied Social Psychology*, 11(1), 77-100.
- Hornsey, M. J., Spears, R., Cremers, I., & Hogg, M. A. (2003). Relations between high and low power groups: The importance of legitimacy. *Personality and Social Psychology Bulletin*, 29(2), 216-227.
- Hsieh, T. T., Shybut, J., & Lotsof, E. J. (1969). Internal versus external control and ethnic group membership. *Journal of Consulting and Clinical Psychology*, 33, 122-124.
- Hsu, F. L. K. (1985). The self in cross-cultural perspective. In A. Marsella, G. De Vos & F. L. K. Hsu (Eds.), *Culture and self* (pp. 24-55). London: Tavistock.
- Hu, S. C., & Lanese, R. R. (1998). The applicability of the theory of planned behavior to the intention to quit smoking across workplaces in southern Taiwan. *Addictive Behaviors*, 23(2), 225-237.
- Hull, C. L. (1943). *Principles of behavior: An introduction to behavior theory*. New York: Appleton-Century-Crofts.
- Iyengar, S. S., & Lepper, M. R. (1999). Rethinking the value of choice: A cultural perspective on intrinsic motivation. *Journal of Personality and Social Psychology*, 76(3), 349-366.
- Iyengar, S. S., & Lepper, M. R. (2002). Choice and its consequences: On the costs and benefits of self-determination. In A. Tesser, D. A. Stapel & J. V. Wood (Eds.), *Self and motivation: Emerging psychological perspectives*. (pp. 71-96). Washington, DC: American Psychological Association.

- Jetten, J., McAuliffe, B. J., Hornsey, M. J., & Hogg, M. A. (2006). Differentiation between and within groups: The influence of individualist and collectivist group norms. *European Journal of Social Psychology, 36*(6), 825-843.
- Jetten, J., Postmes, T., & McAuliffe, B. J. (2001). 'We're all individuals': Group norms of individualism and collectivism, levels of identification, and identity threat. *Australian Journal of Psychology, 53*, 117-118.
- Jetten, J., Postmes, T., & McAuliffe, B. J. (2002). 'We're all individuals': group norms of individualism and collectivism, levels of identification and identity threat. *European Journal of Social Psychology, 32*(2), 189-207.
- Jetten, J., Spears, R., & Manstead, A. S. R. (1997). Strength of identification and intergroup differentiation: the influence of group norms. *European Journal of Social Psychology, 27*(5), 603-609.
- Kernan, M. C., Heimann, B., & Hanges, P. J. (1991). EFFECTS OF GOAL CHOICE, STRATEGY CHOICE, AND FEEDBACK SOURCE ON GOAL ACCEPTANCE, PERFORMANCE AND SUBSEQUENT GOALS. *Journal of Applied Social Psychology, 21*(9), 713-733.
- Kim, H., & Markus, H. R. (1999). Deviance or uniqueness, harmony or conformity? A cultural analysis. *Journal of Personality and Social Psychology, 77*(4), 785-800.
- Kitayama, S., Duffy, S., Kawamura, T., & Larsen, J. T. (2003). Perceiving an object and its context in different cultures: A cultural look at New Look. *Psychological Science, 14*(3), 201-206.
- Koestner, R., Bernieri, F., & Zuckerman, M. (1992). Self-Regulation and Consistency between Attitudes, Traits, and Behaviors. *Personality and Social Psychology Bulletin, 18*(1), 52-59.



- Koestner, R., Ryan, R. M., Bernieri, F., & Holt, K. (1984). Setting Limits on Childrens Behavior - the Differential-Effects of Controlling Vs Informational Styles on Intrinsic Motivation and Creativity. *Journal of Personality*, 52(3), 233-248.
- Kuhnen, U., & Haberstroh, S. (2004). Self-construal activation and focus of comparison as determinants of assimilation and contrast in social comparisons. *Cahiers De Psychologie Cognitive-Current Psychology of Cognition*, 22(2), 289-310.
- Kuhnen, U., Hannover, B., & Schubert, B. (2001). The semantic-procedural interface model of the self: The role of self-knowledge for context-dependent versus context-independent modes of thinking. *Journal of Personality and Social Psychology*, 80(3), 397-+.
- Kuhnen, U., & Oyserman, D. (2002). Thinking about the self influences thinking in general: cognitive consequences of salient self-concept. *Journal of Experimental Social Psychology*, 38(5), 492-499.
- Langer, E. J. (1975). Illusion of Control. *Journal of Personality and Social Psychology*, 32(2), 311-328.
- Lee, A. Y., Aaker, J. L., & Gardner, W. L. (2000). The pleasures and pains of distinct self-construals: The role of interdependence in regulatory focus. *Journal of Personality and Social Psychology*, 78(6), 1122-1134.
- Lee, C., & Green, R. T. (1990). Cross-cultural examination of the Fishbein Behavioral Intentions Model. *Journal of International Business Studies*, 21, 289-305.
- Lee, H., Hubbard, A. S. E., O'Riordan, C. K., & Kim, M. S. (2006). Incorporating Culture into the Theory of Planned Behavior: Predicting Smoking Cessation

- Intentions among College Students. *Asian Journal of Communication*, 16(3), 315-332.
- Lepper, M. R., & Greene, D. (1975). Turning Play into Work - Effects of Adult Surveillance and Extrinsic Rewards on Childrens Intrinsic Motivation. *Journal of Personality and Social Psychology*, 31(3), 479-486.
- Levine, T. R., Bresnahan, M. J., Park, H. S., Lapinski, M. K., Wittenbaum, G. M., Shearman, S. M., et al. (2003). Self-construal scales lack validity. *Human Communication Research*, 29(2), 210-252.
- Lillard, A. (1998). Ethnopsychologies: Reply to Wellman (1998) and Gauvain (1998). *Psychological Bulletin*, 123(1), 43-46.
- Marian, V., & Kaushanskaya, M. (2004). Self-construal and emotion in bicultural bilinguals. *Journal of Memory and Language*, 51(2), 190-201.
- Markus, H. R., & Kitayama, S. (1991a). Cultural variation in the self-concept. In J. Strauss & G. R. Goethals (Eds.), *The self: Interdisciplinary approaches* (pp. 18-48). New York: Springer-Verlag.
- Markus, H. R., & Kitayama, S. (1991b). Culture and the Self - Implications for Cognition, Emotion, and Motivation. *Psychological Review*, 98(2), 224-253.
- Marques, J. M., Abrams, D., Paez, D., & Martinez-Taboada, C. (1998). The role of categorization and in-group norms in judgments of groups and their members. *Journal of Personality and Social Psychology*, 75(4), 976-988.
- McAuliffe, B. J., Jetten, J., Hogg, M. A., & Hornsey, M. J. (2001). Individualist group norms: When it's OK to go your own way. *Australian Journal of Psychology*, 53, 120-120.



- Miller, J. G. (1988). Bridging the content-structure dichotomy: Culture and the self. In M. H. Bond (Ed.), *The cross-cultural challenge to social psychology*. (pp. 266-282). Beverly Hills, CA: Sage.
- Miserandino, M. (1996). Children who do well in school: Individual differences in perceived competence and autonomy in above-average children. *Journal of Educational Psychology*, 88(2), 203-214.
- Mossholder, K. W. (1980). Effects of Externally Mediated Goal Setting on Intrinsic Motivation - a Laboratory Experiment. *Journal of Applied Psychology*, 65(2), 202-210.
- Motl, R. W., Dishman, R. K., Saunders, R. P., Dowda, M., Felton, G., Ward, D. S., et al. (2002). Examining social-cognitive determinants of intention and physical activity among black and white adolescent girls using structural equation modeling. *Health Psychology*, 21(5), 459-467.
- Murray, H. A. (1938). *Explorations in personality*. New York: Oxford university press.
- Nisbett, R. E., Peng, K. P., Choi, I., & Norenzayan, A. (2001). Culture and systems of thought: Holistic versus analytic cognition. *Psychological Review*, 108(2), 291-310.
- Ntoumanis, N. (2001). A self-determination approach to the understanding of motivation in physical education. *British Journal of Educational Psychology*, 71, 225-242.
- Oaker, G., & Brown, R. (1986). Intergroup Relations in a Hospital Setting - a Further Test of Social Identity Theory. *Human Relations*, 39(8), 767-778.

- Ochs, E. (1988). *Cultural and language development: language acquisition and language socialization in a Samoan village*. Cambridge: University of Cambridge Press.
- Oishi, S. (2000). Goals as the cornerstones of subjective well-being: Linking individuals and cultures. In E. Diener & E. M. Suh (Eds.), *Culture and subjective well-being*. (pp. 87-12). Cambridge, MA: Bradford.
- Oishi, S., Wyer, R. S., & Colcombe, S. J. (2000). Cultural variation in the use of current life satisfaction to predict the future. *Journal of Personality and Social Psychology*, 78(3), 434-445.
- Overskeid, G., & Svartdal, F. (1996). Effect of reward on subjective autonomy and interest when initial interest is low. *Psychological Record*, 46(2), 319-331.
- Oyserman, D., & Lee, S. W. S. (2008). A situated cognition perspective on Culture: Effects of priming cultural syndromes on cognition and motivation. In R. Sorrentino & S. Yamaguchi (Eds.), *Handbook of motivation and cognition across cultures*. NY: Elsevier.
- Oyserman, D., & Sorensen, N. (in press). Understanding cultural syndromes effects on what and how we think: A situated cognition model. In C. Chiu, R. Wyer & Y. Y. Hong (Eds.), *Problems and solutions in cross-cultural research and applications*. New York: Psychology Press.
- Patall, E. A., Cooper, H., & Robinson, J. C. (2008). The effects of choice on intrinsic motivation and related outcomes: A meta-analysis of research findings. *Psychological Bulletin*, 134(2), 270-300.
- Pittman, T. S., Davey, M. E., Alafat, K. A., Wetherill, K. V., & Kramer, N. A. (1980). Informational Versus Controlling Verbal Rewards. *Personality and Social Psychology Bulletin*, 6(2), 228-233.



- Postmes, T., & Jetten, J. (2006). "I di it My way": Collective expressions of Individualism. In T. Postmes & J. Jetten (Eds.), *Individuality and the Group: Advances in Social Identity*. London: Sage.
- Reeve, J., & Deci, E. L. (1996). Elements of the competitive situation that affect intrinsic motivation. *Personality and Social Psychology Bulletin*, 22(1), 24-33.
- Reeve, J., Nix, G., & Hamm, D. (2003). Testing models of the experience of self-determination in intrinsic motivation and the conundrum of choice. *Journal of Educational Psychology*, 95(2), 375-392.
- Reis, H. T., Sheldon, K. M., Gable, S. L., Roscoe, J., & Ryan, R. M. (2000). Daily well-being: The role of autonomy, competence, and relatedness. *Personality and Social Psychology Bulletin*, 26(4), 419-435.
- Rotter, J. B. (1966). GENERALIZED EXPECTANCIES FOR INTERNAL VERSUS EXTERNAL CONTROL OF REINFORCEMENT. *Psychological Monographs*, 80(1), 1-&.
- Ryan, R. M. (1982). Control and Information in the Intrapersonal Sphere - an Extension of Cognitive Evaluation Theory. *Journal of Personality and Social Psychology*, 43(3), 450-461.
- Ryan, R. M. (1993). Agency and organization: Intrinsic motivation, autonomy and the self in psychological development. In J. Jacobs (Ed.), *Nebraska symposium on motivation: Developmental perspectives on motivation*. Lincoln, NE: University Of Nebraska Press.
- Ryan, R. M. (1995). Psychological Needs and the Facilitation of Integrative Processes. *Journal of Personality*, 63(3), 397-427.

- Ryan, R. M., & Connell, J. P. (1989). Perceived Locus of Causality and Internalization - Examining Reasons for Acting in 2 Domains. *Journal of Personality and Social Psychology*, 57(5), 749-761.
- Ryan, R. M., & Deci, E. L. (2000a). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54-67.
- Ryan, R. M., & Deci, E. L. (2000b). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78.
- Ryan, R. M., & Deci, E. L. (2000c). The darker and brighter sides of human existence: Basic psychological needs as a unifying concept. *Psychological Inquiry*, 11(4), 319-338.
- Ryan, R. M., & Frederick, C. (1997). On energy, personality, and health: Subjective vitality as a dynamic reflection of well-being. *Journal of Personality*, 65(3), 529-565.
- Ryan, R. M., & Grolnick, W. S. (1986). Origins and Pawns in the Classroom - Self-Report and Projective Assessments of Individual-Differences in Childrens Perceptions. *Journal of Personality and Social Psychology*, 50(3), 550-558.
- Ryan, R. M., Kuhl, J., & Deci, E. L. (1997). Nature and autonomy: An organizational view of social and neurobiological aspects of self-regulation in behavior and development. *Development and Psychopathology*, 9(4), 701-728.
- Ryan, R. M., Mims, V., & Koestner, R. (1983). Relation of Reward Contingency and Interpersonal Context to Intrinsic Motivation - a Review and Test Using Cognitive Evaluation Theory. *Journal of Personality and Social Psychology*, 45(4), 736-750.



- Salancik, J. R. (1974). Inference of Ones Attitude from Behavior Recalled under Linguistically Manipulated Cognitive Sets. *Journal of Experimental Social Psychology*, 10(5), 415-427.
- Schimmack, U., Oishi, S., & Diener, E. (2005). Individualism: A valid and important dimension of cultural differences between nations. *Personality and Social Psychology Review*, 9(1), 17-31.
- Schwartz, B. (2000). Self-determination - The tyranny of freedom. *American Psychologist*, 55(1), 79-88.
- Schwartz, B. (2004). *The paradox of choice : why more is less* (1st ed.). New York: Ecco.
- Seligman, M. E. (1972). Learned Helplessness. *Annual Review of Medicine*, 23(5), 407-&.
- Sheldon, K. M. (2002). The self-concordance model of health goal striving: When personal goals correctly represent the person. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research*. (pp. 65-86). Rochester, NY: University of Rochester Press.
- Sheldon, K. M., Elliot, A. J., Kim, Y., & Kasser, T. (2001). What is satisfying about satisfying events? Testing 10 candidate psychological needs. *Journal of Personality and Social Psychology*, 80(2), 325-339.
- Sheldon, K. M., Ryan, R., & Reis, H. T. (1996). What makes for a good day? Competence and autonomy in the day and in the person. *Personality and Social Psychology Bulletin*, 22(12), 1270-1279.
- Singelis, T. M. (1994). The Measurement of Independent and Interdependent Self-Construals. *Personality and Social Psychology Bulletin*, 20(5), 580-591.

- Standage, M., Duda, J. L., & Ntoumanis, N. (2003a). A model of contextual motivation in physical education: Using constructs from self-determination and achievement goal theories to predict physical activity intentions. *Journal of Educational Psychology*, 95(1), 97-110.
- Standage, M., Duda, J. L., & Ntoumanis, N. (2003b). Predicting motivational regulations in physical education: the interplay between dispositional goal orientations, motivational climate and perceived competence. *Journal of Sports Sciences*, 21(8), 631-647.
- Swann, W. B., & Pittman, T. S. (1977). Initiating paly activity of childern. Moderating influence of verbal cues on intrinsic motivation. *Child Development*, 48(3), 1128-1132.
- Symons Downs, D., & Hausenblas, H. A. (2005). Elicitation studies and the theory of planned behavior: A systematic review of exercise beliefs. *Psychology of Sport and Exercise*, 6, 1-31.
- Tajfel, H. (1970). Experiments in Intergroup Discrimination. *Scientific American*, 223(5), 96-&.
- Tajfel, H. (1974). Social Identity and Intergroup Behaviour. *Social Science Information Sur Les Sciences Sociales*, 13(2), 65-93.
- Tajfel, H. (1978). *Differentiation between social groups : studies in the social psychology of intergroup relations*. London ; New York: Published in cooperation with European Association of Experimental Social Psychology by Academic Press.
- Tajfel, H., & Turner, J. C. (1979). An Integrative Theory of Intergroup Conflict. In W. G. Austin & S. Worchel (Eds.), *The Social Psychology of Intergroup Relations*. Monterey, CA: Brooks-Cole.



- Tajfel, H., & Turner, J. C. (1979). An integrative theory of intergroup conflict. In W. G. Austin & S. Worchel (Eds.), *The social psychology of intergroup relations* (pp. 33-147). Pacific Grove, CA: Brooks/Cole.
- Tarrant, M., & Campbell, E. (2007). Responses to within-group criticism: Does past adherence to group norms matter? [Article]. *European Journal of Social Psychology*, 37(6), 1187-1202.
- Trafimow, D., Triandis, H. C., & Goto, S. G. (1991). Some Tests of the Distinction between the Private Self and the Collective Self. *Journal of Personality and Social Psychology*, 60(5), 649-655.
- Triandis, H. C. (1989). The Self and Social Behavior in Differing Cultural Contexts. *Psychological Review*, 96(3), 506-529.
- Triandis, H. C. (1995). *Individualism & collectivism*. Boulder, CO: Westview Press.
- Triandis, H. C. (1996). The psychological measurement of cultural syndromes. *American Psychologist*, 51(4), 407-415.
- Triandis, H. C., Bontempo, R., Villareal, M. J., Asai, M., & Lucca, N. (1988). Individualism and Collectivism - Cross-Cultural Perspectives on Self Ingroup Relationships. *Journal of Personality and Social Psychology*, 54(2), 323-338.
- Triandis, H. C., Mccusker, C., & Hui, C. H. (1990). Multimethod Probes of Individualism and Collectivism. *Journal of Personality and Social Psychology*, 59(5), 1006-1020.
- Trost, S. G., Pate, R. R., Dowda, M., Ward, D. S., Felton, G., & Saunders, R. (2002). Psychosocial correlates of physical activity in white and African-American girls. *Journal of Adolescent Health*, 31(3), 226-233.

- Turner, J. C. (1985). Social categorization and self-concept: A social cognitive theory of group behavior. In E. J. Lawler (Ed.), *Advances in group processes: Theory and research* (Vol. 2, pp. 77-122). Greenwich, CT: JAI.
- Turner, J. C. (1991). *Social influence*. Buckingham: Open University Press.
- Turner, J. C., Hogg, M., Oakes, P. J., Reicher, S. D., & Wetherell, M. (1987). *Rediscovering the social group: A self-categorization theory*. Oxford: Blackwell.
- Turner, J. C., & Oakes, P. J. (1989). Self-categorization theory and social influence. In P. B. Paulus (Ed.), *The psychology of group influence*. Hillsdale, NJ: Erlbaum.
- Vallerand, R. J. (2000). Deci and Ryan's self-determination theory: A view from the hierarchical model of intrinsic and extrinsic motivation. *Psychological Inquiry*, 11(4), 312-318.
- Vallerand, R. J., & Bissonnette, R. (1992). Intrinsic, Extrinsic, and Amotivational Styles as Predictors of Behavior - a Prospective-Study. *Journal of Personality*, 60(3), 599-620.
- Vallerand, R. J., & Reid, G. (1984). On the Causal Effects of Perceived Competence on Intrinsic Motivation - a Test of Cognitive Evaluation Theory. *Journal of Sport Psychology*, 6(1), 94-102.
- Vansteenkiste, M., Simons, J., Soenens, B., & Lens, W. (2004). How to become a persevering exerciser? Providing a clear, future intrinsic goal in an autonomy-supportive way. *Journal of Sport & Exercise Psychology*, 26(2), 232-249.
- Vohs, K. D., & Heatherton, T. F. (2001). Self-esteem and threats to self: Implications for self-construals and interpersonal perceptions. *Journal of Personality and Social Psychology*, 81(6), 1103-1118.



- Walker, G. J., Courneya, K. S., & Deng, J. Y. (2006). Ethnicity, gender, and the theory of planned behavior: The case of playing the lottery. *Journal of Leisure Research, 38*(2), 224-248.
- Waterman, A. S. (1993). Two Conceptions of Happiness - Contrasts of Personal Expressiveness (Eudaimonia) and Hedonic Enjoyment. *Journal of Personality and Social Psychology, 64*(4), 678-691.
- White, R. W. (1959). Motivation Reconsidered - the Concept of Competence. *Psychological Review, 66*(5), 297-333.
- Williams, G. C., Gagne, M., Ryan, R. M., & Deci, E. L. (2002). Facilitating autonomous motivation for smoking cessation. *Health Psychology, 21*(1), 40-50.
- Williams, G. C., Grow, V. M., Freedman, Z. R., Ryan, R. M., & Deci, E. L. (1996). Motivational predictors of weight loss and weight-loss maintenance. *Journal of Personality and Social Psychology, 70*(1), 115-126.
- Williams, G. C., McGregor, H. A., Sharp, D., Levesque, C., Kouides, R. W., Ryan, R. M., et al. (2006). Testing a self-determination theory intervention for motivating tobacco cessation: Supporting autonomy and competence in a clinical trial. *Health Psychology, 25*(1), 91-101.
- Wilson, P. M., & Rodgers, W. M. (2004). The relationship between perceived autonomy support, exercise regulations and behavioral intentions in women. *Psychology of Sport and Exercise, 5*(3), 229-242.
- Ybarra, O., & Trafimow, D. (1998). How priming the private self or collective self affects the relative weights of attitudes and subjective norms. *Personality and Social Psychology Bulletin, 24*(4), 362-370.

Zuckerman, M., Porac, J., Lathin, D., Smith, R., & Deci, E. L. (1978). Importance of Self-Determination for Intrinsically-Motivated Behavior. *Personality and Social Psychology Bulletin*, 4(3), 443-446.



## APPENDIX 1

### GROUP MEMBER MANIPULATION AND MANIPULATION CHECK ITEM

#### 1. INDIVIDUALIST BEHAVIOURAL ORIENTATION

As an employee of Tech Industries, you are required to evaluate other workers. **John Smith** is an employee of Tech Industries, you are asked to evaluate him on the basis of three statements made by him during an interview:

1. “I concentrate on achieving my own personal goals”
2. “I think it is important to give priority to personal interests as much as possible”
3. “When making a decision, I tend to trust my own judgment”

Now read the statements below and circle the number which best describes your point of view for each statement.

#### 2. COLLECTIVIST BEHAVIOURAL ORIENTATION

As an employee of Tech Industries, you are required to evaluate other workers. **John Smith** is an employee of Tech Industries, you are asked to evaluate him on the basis of three statements made by John during an interview:

1. “I concentrate on achieving my group’s goals”
2. “I think it is important to give priority to group interests as much as possible”
3. “When making a decision, I take into consideration the advice of others”

Now read the statements below and circle the number which best describes your point of view for each statement.

#### 3. BEHAVIOUR MANIPULATION CHECK ITEM

1. How can the behaviour of this employee be described?

1	2	3	4	5	6	7	8	9
individualist								collectivist

#### 4. GROUP NORM MANIPULATION ITEM

What best describes the video?

1	2	3	4	5	6	7	8	9
individualist								collectivist

APPENDIX 2

ITEMS FOR GROUP MEMBER EVALUATION

1. I have a positive attitude toward this Tech Industries employee.

1	2	3	4	5	6	7	8	9
strongly agree								strongly disagree

2. This Tech Industries employee’s behaviour is acceptable.

1	2	3	4	5	6	7	8	9
strongly agree								strongly disagree

3. This employee is a good member of Tech Industries

1	2	3	4	5	6	7	8	9
strongly agree								strongly disagree

4. This Tech Industries employee seems likeable.

1	2	3	4	5	6	7	8	9
strongly agree								strongly disagree



## APPENDIX 3

## GROUP TOLERANCE ITEMS

1. To what extent you think that other members of Tech Industries would tolerate this employee's behaviour.

1 2 3 4 5 6 7 8 9  
not at all very much

2. To what extent you think that other members of Tech Industries would stand for this employee's behaviour.

1 2 3 4 5 6 7 8 9  
not at all very much

3. To what extent you think that other members of Tech Industries would endorse this employee's behaviour.

1 2 3 4 5 6 7 8 9  
not at all very much

4. To what extent you think that other members of Tech Industries would punish this employee's behaviour.

1 2 3 4 5 6 7 8 9  
not at all very much

APPENSIX 4

RELATDNESS ITEMS

1. I felt really distant to this employee.

1	2	3	4	5	6	7	8	9
not true at all								very true

2. I really doubt that this employee and I would ever be friends.

1	2	3	4	5	6	7	8	9
not true at all								very true

3. I felt like I could really trust this employee.

1	2	3	4	5	6	7	8	9
not true at all								very true

4. I'd like a chance to interact with this employee.

1	2	3	4	5	6	7	8	9
not true at all								very true

5. I'd really prefer not to interact with this employee.

1	2	3	4	5	6	7	8	9
not true at all								very true

6. I don't feel like I could really trust this employee.

1	2	3	4	5	6	7	8	9
not true at all								very true

7. It is likely that this employee and I could become friends if we interacted a lot.

1	2	3	4	5	6	7	8	9
not true								very true



8. I feel close to this employee.

1	2	3	4	5	6	7	8	9
not true at all								very true

APPENDIX 5

GROUP IDENTIFICATION TASK AND  
IDENTIFICATION ITEMS

Now write down all the behaviours you would display that showed that you are in line with the general orientation of the company.

Now read the statements below and circle the number which best describes your point of view for each statement.

1. Being an employee at Tech Industries is important to me.

123456789
2. I identify with being an employee at Tech Industries.

123456789
2. I feel a sense of belonging with the group of Tech Industries employees.

123456789



## APPENDIX 6

### ABBREVIATED SCALE FOR INDIVIDUALISM AND COLLECTIVISM

1. I would rather make an important decision by myself than discuss it with my friends.

1	2	3	4	5	6	7
not at all						very much

2. One should be as independent of others as much as possible.

1	2	3	4	5	6	7
not at all						very much

3. When faced with difficult personal decision it is better to decide yourself rather than follow the advice of friends or relatives.

1	2	3	4	5	6	7
not at all						very much

4. If the group is slowing me down, it is better to leave it and work alone.

1	2	3	4	5	6	7
not at all						very much

5. Aging parents should live at their children's home.

1	2	3	4	5	6	7
not at all						very much

6. Children should live at their parents' home until they are old enough to get married.

1	2	3	4	5	6	7
not at all						very much

7. I can count on my relatives for help if I find myself in any kind of trouble.

1	2	3	4	5	6	7
not at all						very much

8. I feel it is all right to depend on family and friends for many important things.

1	2	3	4	5	6	7
not at all						very much

9. I would help within my means if a relative told me that he (she) is in financial difficulty.

1	2	3	4	5	6	7
not at all						very much



APPENDIX 7

STUDY 2 MATERIALS IN GREEK LANGUAGE

Συμμετάσχετε σε μια δημοσκόπηση Οργανωτικής Ψυχολογίας. Θα σας ζητηθεί να παρακολουθήσετε ένα βίντεο διάρκειας δυο λεπτών και στη συνέχεια να απαντήσετε το ερωτηματολόγιο. Όλες οι πληροφορίες θα τηρήσουν τις ηθικές και επιστημονικές αρχές του Τμήματος Ψυχολογίας του Πανεπιστημίου του Έσσεξ, για περαιτέρω πληροφορίες/ερωτήσεις επικοινωνήστε στο prentz@essex.ac.uk. Μπορείτε να αποσυρθείτε από την έρευνα οποιοδήποτε στιγμή. Δεν θα ζητηθεί το όνομά σας και όλες οι πληροφορίες που θα δώσετε θα παραμείνουν απολύτως εμπιστευτικά.

Ποιά είναι η ημερομηνία γεννήσεώς σας;  
(Παρακαλώ συμπληρώστε την ημέρα, τον μήνα και το έτος γεννήσεως στα κουτάκια παρακάτω).

--	--

Ημέρα

--	--

Μήνας

--	--	--	--

Έτος

Ποιά είναι η υποκοότητά σας;

(Παρακαλώ συμπληρώστε την χώρα και την πόλη καταγωγής σας στην παραπάνω σειρά)

Αν επιθυμείτε περισσότερες πληροφορίες για τα αποτελέσματα αυτής της έρευνας, παρακαλώ συμπληρώστε παρακάτω την ηλεκτρονική σας διεύθυνση:

(Παρακαλώ συμπληρώστε στην παραπάνω γραμμή την ηλεκτρονική σας διεύθυνση, αν δεν επιθυμείτε να την δώσετε, δεν είναι απαραίτητο)

Αυτό είναι ένα πείραμα οργανωτικής ψυχολογίας εναλλαγής-ρόλων, φανταστείτε τον εαυτόν σας ως έναν εργαζόμενο μιας ηγετικής διεθνούς εταιρείας με το ονομα Tech Industries. Θα παρακολουθήσετε τρεις από τους συναδέλφους σας να σχεδιάζουν ένα σήμα κατατεθέν για ένα καινούριο προϊόν. Αυτό το βίντεο θα σας συστήσει στην «φιλοσοφία» του χώρου εργασίας. Παρακαλώ δώστε προσοχή.

Τι περιγράφεται καλύτερα στο βίντεο;

1	2	3	4	5	6	7	8	9
Ατομικός						Συλλογικός		

Τώρα συμπληρώστε τις συμπεριφορές που θα πρέπει να παρουσιάσετε ώστε να ακολουθήσετε την γενική γραμμή προσέγγισης της εταιρείας.

Τώρα διαβάστε τις παρακάτω δηλώσεις και κυκλώστε τον αριθμό που εκφράζει καλύτερα την αποψή σας για κάθε δήλωση.

3. Μου είναι σημαντικό να είμαι εργαζόμενος στη Tech Industries.

1	2	3	4	5	6	7	8	9
συμφωνώ απόλυτα							διαφωνώ απόλυτα	
2. Ταυτίζομαι με τον ρόλο του υπαλλήλου στην Tech Industries.

1	2	3	4	5	6	7	8	9
συμφωνώ απόλυτα								διαφωνώ απόλυτα
3. Αισθάνομαι ότι ανήκω στην ομάδα υπαλλήλων της Tech Industries.

1	2	3	4	5	6	7	8	9
συμφωνώ απόλυτα								διαφωνώ απόλυτα



Ως εργαζόμενος στη Tech Industries, σας ζητείτε να εκτιμήσετε τους άλλους εργαζόμενους. Ο Γιαννης Παπαδοπουλος είναι ένας υπάλληλος της ίδιας εταιρείας. σας ζητείτε να τον εκτιμήσετε με βάση τις τρεις δηλώσεις του Γιαννη κατά τη διάρκεια της συνέντευξής του:

4. “Συγκεντρώνομαι στην επίτευξη των στόχων της ομάδας μου.”
5. “Νομίζω ότι είναι σημαντικό να δίνεις προτεραιότητα στα ενδιαφέροντα της ομάδας όσο γίνεται περισσότερο.”
6. “Όταν πρόκειται να πάρω κάποια απόφαση, λαμβάνω υπόψιν την συμβουλή των άλλων.”

Τώρα διαβάστε τις δηλώσεις παρακάτω και κυκλώστε τον αριθμό που εκφράζει καλύτερα την αποψή σας για κάθε δήλωση.

1. Πώς μπορεί να περιγραφεί η συμπεριφορά αυτού του υπαλλήλου;

123456789

Ατομικήσυλλογική

2. Έχω μια θετική συμπεριφορά προς αυτόν τον υπάλληλο της Tech Industries.

123456789

συμφωνώ απόλυταδιαφωνώ απόλυτα

3. Η συμπεριφορά αυτού του υπαλλήλου της Tech Industries είναι αποδεκτή.

123456789

Συμφωνώ Απόλυταδιαφωνώ απόλυτα

4. Αυτός ο υπάλληλος είναι ένα καλό μέλος της Tech Industries.

123456789

Συμφωνώ Απόλυταδιαφωνώ απόλυτα

5. Αυτός η υπάλληλος της Tech Industries φαίνεται συμπαθής.

123456789

Συμφωνώ Απόλυταδιαφωνώ απόλυτα

6. Η συνολική εντύπωσή μου για την Tech Industries είναι θετική.

123456789

Συμφωνώ Απόλυταδιαφωνώ απόλυτα

7. Μέχρι ποιο σημείο πιστεύετε ότι άλλα μέλη της Tech Industries θα ανέχονταν την συμπεριφορά αυτού του υπαλλήλου.

123456789

καθόλουπάρα πολύ

8. Μέχρι ποιο σημείο πιστεύετε ότι άλλα μέλη της Tech Industries θα υποστήριζαν την συμπεριφορά αυτού του υπαλλήλου.

1	2	3	4	5	6	7	8	9
καθόλου								πάρα πολύ

9. Μέχρι ποιο σημείο πιστεύετε ότι άλλα μέλη αυτής της Tech Industries θα ενέκριναν την συμπεριφορά αυτού του υπαλλήλου.

1	2	3	4	5	6	7	8	9
καθόλου								πάρα πολύ

10. Μέχρι ποιο σημείο πιστεύετε ότι άλλα μέλη της Tech Industries θα τιμωρούσαν την συμπεριφορά αυτού του υπαλλήλου.

1	2	3	4	5	6	7	8	9
καθόλου								πάρα πολύ

11. Ένωσα πολύ απόμακρος προς αυτόν τον υπάλληλο.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

12. Αμφιβάλλω για το αν θα μπορούσαμε ποτέ να γίνουμε φίλοι με αυτόν τον υπάλληλο.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

13. Ένωσα ότι μπορώ πραγματικά να εμπιστευτώ αυτόν τον υπάλληλο.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

14. Θα ήθελα μια ευκαιρία να μπορέσω να επικοινωνήσω με αυτόν τον υπάλληλο.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

15. Πραγματικά προτιμώ να μην επικοινωνήσω με αυτόν τον υπάλληλο.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

16. Δεν νιώθω ότι θα μπορούσα πραγματικά να εμπιστευτώ αυτόν τον υπάλληλο.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

17. Είναι πιθανόν να γινόμασταν φίλοι με αυτόν τον υπάλληλο αν επικοινωνούσαμε αρκετά.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές



18. Νιώθω κοντά σε αυτόν τον υπάλληλο.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

19. Πιστεύω ότι αυτός ο υπάλληλος απολαμβάνει πραγματικά τη δουλειά του.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

20. Πιστεύω ότι αυτός ο υπάλληλος θεωρεί ότι η δουλειά του είναι διασκεδαστική.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

21. Πιστεύω ότι αυτός ο υπάλληλος αισθάνεται τη δουλειά του ανιαρή.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

22. Πιστεύω ότι η δουλειά αυτού του υπαλλήλου δεν του απορροφά την προσοχή.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

23. Πιστεύω ότι αυτός ο υπάλληλος πιστεύει ότι η δουλειά του είναι πολύ ενδιαφέρουσα.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

24. Πιστεύω ότι αυτός ο υπάλληλος βρίσκει την δουλειά του αρκετά διασκεδαστική.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

Ως εργαζόμενος στη Tech Industries, σας ζητείτε να εκτιμήσετε τους άλλους εργαζόμενους. Ο Γιαννης Παπαδοπουλος είναι ένας υπάλληλος της ίδιας εταιρείας, σας ζητείτε να τον εκτιμήσετε με βάση τις τρεις δηλώσεις του Γιαννη κατά τη διάρκεια της συνέντευξής του:

1. “Συγκεντρώνομαι για την επίτευξη των προσωπικών μου στόχων.”
2. “Νομίζω ότι είναι σημαντικό να δίνεις προτεραιότητα στα προσωπικά σου ενδιαφέροντα όσο γίνεται περισσότερο.”
3. “Όταν πρόκειται να πάρω κάποια απόφαση, τείνω να εμπιστεύομαι την προσωπική μου κρίση.”

Τώρα διαβάστε τις δηλώσεις παρακάτω και κυκλώστε τον αριθμό που εκφράζει καλύτερα την αποψή σας για κάθε δήλωση.

1. Πώς μπορεί να περιγραφεί η συμπεριφορά αυτού του υπαλλήλου;

123456789

Ατομικήσυλλογική

2. Έχω μια θετική συμπεριφορά προς αυτόν τον υπάλληλο της Tech Industries.

123456789

συμφωνώ απόλυταδιαφωνώ απόλυτα

3. Η συμπεριφορά αυτού του υπαλλήλου της Tech Industries είναι αποδεκτή.

123456789

συμφωνώ απόλυταδιαφωνώ απόλυτα

4. Αυτός ο υπάλληλος είναι ένα καλό μέλος της Tech Industries.

123456789

συμφωνώ απόλυταδιαφωνώ απόλυτα

5. Αυτός η υπάλληλος της Tech Industries φαίνεται συμπαθής.

123456789

συμφωνώ απόλυταδιαφωνώ απόλυτα

6. Η συνολική εντύπωσή μου για την Tech Industries είναι θετική.

123456789

συμφωνώ απόλυταδιαφωνώ απόλυτα



7. Μέχρι ποιο σημείο πιστεύετε ότι άλλα μέλη της Tech Industries θα ανέχονταν την συμπεριφορά αυτού του υπαλλήλου.

1	2	3	4	5	6	7	8	9
καθόλου								πάρα πολύ

8. Μέχρι ποιο σημείο πιστεύετε ότι άλλα μέλη της Tech Industries θα υποστήριζαν την συμπεριφορά αυτού του υπαλλήλου.

1	2	3	4	5	6	7	8	9
καθόλου								πάρα πολύ

9. Μέχρι ποιο σημείο πιστεύετε ότι άλλα μέλη αυτής της Tech Industries θα ενέκριναν την συμπεριφορά αυτού του υπαλλήλου.

1	2	3	4	5	6	7	8	9
καθόλου								πάρα πολύ

10. Μέχρι ποιο σημείο πιστεύετε ότι άλλα μέλη της Tech Industries θα τιμωρούσαν την συμπεριφορά αυτού του υπαλλήλου.

1	2	3	4	5	6	7	8	9
καθόλου								πάρα πολύ

11. Ένωσα πολύ απόμακρος προς αυτόν τον υπάλληλο.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

12. Αμφιβάλλω για το αν θα μπορούσαμε ποτέ να γίνουμε φίλοι με αυτόν τον υπάλληλο.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

13. Ένωσα ότι μπορώ πραγματικά να εμπιστευτώ αυτόν τον υπάλληλο.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

14. Θα ήθελα μια ευκαιρία να μπορέσω να επικοινωνήσω με αυτόν τον υπάλληλο.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

15. Πραγματικά προτιμώ να μην επικοινωνήσω με αυτόν τον υπάλληλο.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

16. Δεν νιώθω ότι θα μπορούσα πραγματικά να εμπιστευτώ αυτόν τον υπάλληλο.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

17. Είναι πιθανόν να γινόμασταν φίλοι με αυτόν τον υπάλληλο αν επικοινωνούσαμε αρκετά.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

18. Νιώθω κοντά σε αυτόν τον υπάλληλο.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

19. Πιστεύω ότι αυτός ο υπάλληλος απολαμβάνει πραγματικά τη δουλειά του.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

20. Πιστεύω ότι αυτός ο υπάλληλος θεωρεί ότι η δουλειά του είναι διασκεδαστική.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

21. Πιστεύω ότι αυτός ο υπάλληλος αισθάνεται τη δουλειά του ανιαρή.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

22. Πιστεύω ότι η δουλειά αυτού του υπαλλήλου δεν του απορροφά την προσοχή.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

23. Πιστεύω ότι αυτός ο υπάλληλος πιστεύει ότι η δουλειά του είναι πολύ ενδιαφέρουσα.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

24. Πιστεύω ότι αυτός ο υπάλληλος βρίσκει την δουλειά του αρκετά διασκεδαστική.

1	2	3	4	5	6	7	8	9
καθόλου αληθές								πάρα πολύ αληθές

1. Θα προτιμούσα να πάρω μια σημαντική απόφαση μόνος μου παρά να την συζητήσω με τους φίλους μου.

1	2	3	4	5	6	7
καθόλου						πάρα πολύ



2. Κάποιος θα πρέπει να είναι όσο γίνεται περισσότερο ανεξάρτητος από τους άλλους.

1	2	3	4	5	6	7
Καθόλου						πάρα πολύ

3. Όταν αντιμετωπίζεις κάποια δύσκολη, προσωπική απόφαση, είναι καλύτερα να την παίρνεις μόνος σου παρά να ακολουθείς την συμβουλή των φίλων ή των συγγενών σου.

1	2	3	4	5	6	7
Καθόλου						πάρα πολύ

4. Αν η ομάδα με καθυστερεί, είναι καλύτερα να αποχωρήσω και να εργαστώ μόνος μου.

1	2	3	4	5	6	7
Καθόλου						πάρα πολύ

5. Οι ηλικιωμένοι γονείς θα πρέπει να μένουν στο σπίτι των παιδιών τους.

1	2	3	4	5	6	7
καθόλου						πάρα πολύ

6. Τα παιδιά θα πρέπει να μένουν στο σπίτι των γονέων τους μέχρι να είναι κάποιας ηλικίας για να παντρευτούν.

1	2	3	4	5	6	7
καθόλου						πάρα πολύ

7. Μπορώ να υπολογίζω στην βοήθεια των συγγενών μου, αν αντιμετωπίσω κάποιο πρόβλημα.

1	2	3	4	5	6	7
καθόλου						πάρα πολύ

8. Αισθάνομαι πως είναι επιτρεπτό να εξαρτάμαι από την οικογένεια και τους φίλους μου για πολλά σημαντικά θέματα.

1	2	3	4	5	6	7
καθόλου						πάρα πολύ

9. Αν κάποιος συγγενής μου έλεγε πως έχει κάποια οικονομική δυσκολία, θα βοηθούσα με όποιον τρόπο μπορώ.

1	2	3	4	5	6	7
Καθόλου						πάρα πολύ

**APPENDIX 8**

**SAMPLE OF TARGET ACTIVITY ANAGRAMS FOR  
STUDY 3**

**1. Nature**

**NATURE 1**

GNIMLACWSV  
YEKALVITGY  
ZGEBTLMURR  
KFORDAFLAE  
AYELLGSJSN  
KEIPOPRLSE  
SFGTSCTEQC  
EUOXYGENES  
GKWTLUHBHN  
NQPWDXZRDA

CALMING  
ECOLOGY  
GRASS  
GREEN  
LAKE  
OXYGEN  
PLAMTS  
SCENERY  
TREES  
WILDLIFE



**NATURE 2**

SHLWXGGGFR  
SLHAWKENOD  
CUAOBDFIRE  
BDNMIPGPEI  
XSFSINMMSE  
CWACENZATC  
YENCVTACIA  
SIREVIROSE  
CWAFQUMLMP  
JUNGLEWTMW

**ANIMALS**  
**CAMPING**  
**FOREST**  
**JUNGLE**  
**PEACE**  
**PICNIC**  
**RIVER**  
**SEASIDE**  
**SNOW**  
**SUNSET**

**2. Education**

**EDUCATION 1**

LEARNINGTL  
CFKXNSETEI  
OHJFTNEEAC  
IKIRGBHLCN  
DFOLAPNIHE  
ZPIHDKEAEP  
SSPLVRONRS  
HLIUWDEDSK  
ALOOHCSNNF  
MATHSHZZQT

ALPHABET  
CHILDREN  
ENGLISH  
LEARNING  
MATHS  
PENCIL  
PENS  
SCHOOL  
SPORTS  
TEACHER



**EDUCATION 2**

SVGSSOUAKP  
LCREEANPBR  
APAIISOIPVO  
ISDTRPVLSF  
RKUIULEYEE  
EOANOPRSCS  
TOTACVSLYS  
ABEMHAIABO  
MYSUYBTNHR  
BNCHVWYJOB

**APPLY**  
**BOOKS**  
**COURSES**  
**ESSAY**  
**GRADUATES**  
**HUMANITIES**  
**JOB**  
**MATERIALS**  
**PROFESSOR**  
**UNIVERSITY**

**3. Space**

**SPACE 1**

KEOJDCOPSA  
IPNUHVRUHS  
NUKUOAPZAT  
TLMETEORSR  
USLSRPQIAO  
PARNUQEINN  
SROSSXNNJA  
FVYRUCREMU  
ATHGINDDAT  
BKCWLTTBRT

ASTRONAUT  
MERCURY  
METEORS  
NASA  
NEPTUNE  
NIGHT  
PULSAR  
SPUTNIK  
STAR  
SUPERNOVA



## **SPACE 2**

Y T L Y B R L E R A  
T R K A O C J B E P  
F X E C U O W R T O  
X V K V Z N E J S L  
K E M U O T C T U L  
T T A P I C E H L O  
S C I P X A S X C N  
I R U K R A D I W U  
J J A L I E N S D S  
K S P M V F T H P M

**ALIENS**  
**APOLLO**  
**CLUSTER**  
**DARK**  
**DISCOVERY**  
**JUPITER**  
**LAUNCH**  
**MARS**  
**ROCKET**  
**SUN**

4. Sport

SPORTS 1

EOCXPTPGLP  
DNWASINVLL  
HAILLIYIAA  
FCALRCNCBY  
LOTEAJOTE  
GLEIUNWHOR  
JHYRPQEHOS  
CDYOFDRFL  
RUNNINGPDI  
DWORCPMKQA

ADRENALINE  
ALCOHOL  
CHEERING  
CROWD  
FOOTBALL  
GOALS  
INJURY  
PITCH  
PLAYERS  
RUNNING

**SPORTS 2**

SINNETBHSY  
FVEKTTDOET  
WINNINGCMI  
KDPQUMGKAV  
BZXGGYUEGI  
NETBALLYTT  
NOTNIMDABC  
SSENTIFUMA  
ROTITEPMOC  
BASKETBALL

**ACTIVITY**  
**BADMINTON**  
**BASKETBALL**  
**COMPETITOR**  
**FITNESS**  
**GAMES**  
**HOCKEY**  
**NETBALL**  
**TENNIS**  
**WINNING**



**5. Occupations**

**OCCUPATIONS 1**

Q S Q N G H R I T M  
R C O Q U E C S K E  
E E N L T R I K D C  
H W D I I T S E F H  
C F R L N C N E O A  
T W D E I T I H I N  
U G I C I U N T K I  
B C T S L E B W O C  
S U T B A K E R P R  
S E C R E T A R Y E

**BAKER  
BUILDER  
BUTCHER  
DENTIST  
MECHANIC  
NURSE  
SCIENTIST  
SECRETARY  
SOLICITOR  
WRITER**

**OCCUPATIONS 2**

GECKHHHPNR  
NXGARGMADE  
IPYSROMQWW  
NEHHNEWFOA  
IRKEROETAR  
AIYIYJLRED  
REFIFDNVDH  
TNAMECILOP  
JCPENSIONU  
VSSOBPRLP

**BOSS  
CAREER  
EXPERIENCE  
FIREMAN  
MONEY  
PENSION  
POLICEMAN  
REWARD  
TRAINING  
WORK**

**Entertainment**

**ENTERTAINMENT 1**

HECLOWNSIF  
GALWAPJIIU  
FBUPYRENEN  
EWPDOCTGIH  
DPYSIENIVI  
EBPSAEPNOQ  
CLUBBINGMJ  
ZMINOITCIF  
RNTMYWUOEY  
DVWSYPKRHB

ART  
AUDIENCE  
CLOWN  
CLUBBING  
FICTION  
FUN  
MOVIE  
MUSIC  
PEOPLE  
SINGING



## ENTERTAINMENT 2

L E R T A E H T S A  
S I O E T A B P D C  
K A T L M I J Q N T  
O E J E F S L N E O  
O R N V R E G T I R  
B I R I I A D W R P  
C A L S E J T R F X  
B O U I N H X U F W  
T R D O Y W O X R D  
E D A N C E R O N E

ACTOR  
BAR  
BOOKS  
CINEMA  
DANCER  
FRIENDS  
LEISURE  
LITERATURE  
TELEVISION  
THEATRE



## APPENDIX 9

### GROUP IDENTIFICATION TASK FOR STUDIES 3, 4, AND 5



Jerry Hammond is your line manager.

Now write down all the behaviours that you think Jerry Hammond would display in line with the general orientation or “philosophy” of the company.

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You and your colleagues are working toward sketching a draft logo which is going to be used for a new product. The product is a new low calorie apple based refreshment drink targeted for children. The name of the product is **Applelicious**. On the space below contribute to the task by drawing a logo/trademark for the product.



## **APPENDIX 10**

### **Sample of jumble anagrams target activities for Study 5**

#### **1. Sport Related Jumble Anagrams.**

Jumbles is a type of word search anagrams where you if you re-arrange correctly **all** the letters in the given no-words you will find a real word related with **sports**.

For example:           **lbujme → jumble**



1. ivtacyti →
2. ehyalth →
3. nwinngi →
4. riedenanla →
5. vuniliisdad →
6. gbruy →
7. sgairgoens →
8. mnmneagtae →
9. awste →
10. gelsabaml →
11. nlgsoi →
12. etallbn →
13. clarsioe →
14. tcahm →
15. aitncngh →
16. semulsc →
17. nceerghi →
18. liysmcop →

## 2. Space Related Jumble Anagrams.

Jumbles is a type of word search anagrams where you if you re-arrange correctly **all** the letters in the given no-words you will find a real word related with **space**.

For example:           **lbujme → jumble**

1. lsnaie →
2. nepetun →
3. iunaoimoctncm →
4. iodetsasr →
5. rsavteboryo →
6. icsydorve →
7. troaantsu →
8. ealirspct →
9. urtslec →
10. llbekhaco →
11. aiernpltamu →
12. trahe →
13. cdlo →
14. krctoe →

### 3. Occupation Related Jumble Anagrams.

Jumbles is a type of word search anagrams where you if you re-arrange correctly **all** the letters in the given no-words you will find a real word related with **occupations**.

For example:            **lbujme → jumble**

- |                  |                  |
|------------------|------------------|
| 1. racot →       | 16. yawrle →     |
| 2. efamrr →      | 17. ssbo →       |
| 3. empaiconl →   | 18. ihaccmen →   |
| 4. pilianpotac → | 19. heubcrt →    |
| 5. niaemfr →     | 20. noeym →      |
| 6. yeeastrrc →   | 21. eearrc →     |
| 7. rabek →       | 22. vtotmoaini → |
| 8. ihfmarens →   | 23. eprtcearn →  |
| 9. idyaohl →     | 24. icimsuna →   |
| 10. braenk →     | 25. cmeotum →    |
| 11. soltrif →    | 26. nmotieps →   |
| 12. emvnaadtce → |                  |
| 13. rrebtaris →  |                  |
| 14. rievwein →   |                  |
| 15. ebaenrrtd →  |                  |



#### 4. Nature Related Jumble Anagrams.

Jumbles is a type of word search anagrams where you if you re-arrange correctly **all** the letters in the given no-words you will find a real word related with **nature**.

For example:            **lbujme → jumble**

1. slaanim →
2. dwin →
3. eplap →
4. lujgne →
5. dwil →
6. sbdir →
7. akle →
8. ushb →
9. aevsle →
10. licnmga →
11. uosdrtoo →
12. gmiancp →
13. yegnox →
14. scndtreotiu →
15. aceep →

## 5. Entertainment Related Jumble Anagrams.

Jumbles is a type of word search anagrams where you if you re-arrange correctly **all** the letters in the given no-words you will find a real word related with **entertainment**.

For example:            **lbujme → jumble**

1. ratco →
2. ifrdsne →
3. prots →
4. tra →
5. nuf →
6. ionsteveil →
7. ueianecd →
8. egasm →
9. ehhtaer →
10. rba →
11. ugrmlao →
12. oosbk →
13. rgupo →
14. ceisbieetlr →
15. owohlyodl →

## 6. Education Related Jumble Anagrams.

Jumbles is a type of word search anagrams where you if you re-arrange correctly **all** the letters in the given no-words you will find a real word related with **education**.

For example:            **lbujme → jumble**

1. aterche →
2. oselns →
3. sokob →
4. rmksa →
5. rapep →
6. amhst →
7. tysud →
8. ermniits →
9. clohso →
10. oasocsmrl →
11. sepn →
12. rscuoorkew →
13. yvnitsrieu →
14. rfuteu →
15. emsax →



# APPENDIX 11

## MATERIALS FOR STUDY 6

### QUESTIONNAIRE ABOUT EXERCISE

You are invited to take part in a questionnaire study concerning your intentions and behaviours towards exercise. It would be appreciated if you could complete the following questions.

Participation is entirely voluntary and you are free to withdraw at any point without having to give a reason. All data collected will remain confidential and used for research purposes only.

Please read and sign the consent form below before answering the questionnaire.

If you have any questions, please email the researcher:  
Panagiotis Rentzelas, PhD student, School of Psychology  
(pxr@psychology.nottingham.ac.uk).

This study has been explained to me to my satisfaction, and I agree to take part. I understand that I am free to withdraw at any time.

Signature of the participant: \_\_\_\_\_  
(Please sign on the line)

Date: 











  
*Day Month Year*

**Personal Information (these data are for describing the population as a whole and will be used for research purposes only)**

Name: \_\_\_\_\_ Age: \_\_\_\_\_

Are you Male ☐ or Female ☐

Date of Birth: 











  
*Day Month Year*

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### Part 1

The following questions tell us a little about what you are like. There are no right or wrong answers, everyone feels differently so please answer all of the questions by ticking the box that best describes you.

1. I have respect for the authority figures with whom I interact.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

2. It is important for me to maintain harmony within my group.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

3. My happiness depends on the happiness of those around me.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

4. I would offer my seat in a bus to a senior person.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

5. I respect people who are modest about themselves.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

6. I will sacrifice my self-interest for the benefit of the group I am in.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

**Strongly disagree**

1	2	3	4	5	6	agree

**Strongly disagree**

1	2	3	4	5	6	7

Strongly disagree

1	2	3	4	5	6	agree

**Strongly disagree**

1	2	3	4	5	6	7

**This part is about the exercise you do during your free time. Exercising during your free time includes all vigorous sports and physical activities that increases your heart rate and makes you out of breath for at least 20 minutes at a time, 3 days per week. There are no right or wrong answers to the following questions so please answer them as honestly as you can. The information you give will not be shown to anyone else and will be used for research purposes only. Please answer all the questions.**

**Extremely unlikely**

1	2	3	4	5	6	7



**I plan to do active sports and/or vigorous exercise, for at least 20 minutes, 3 days per week during my free time, over the next 5 weeks with the following regularity. (Tick the box that best describes your answer)**

Strongly disagree						Strongly agree
1	2	3	4	5	6	7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**I expect I will do active sports and/or vigorous exercise, for at least 20 minutes, 3 days per week during my free time, over the next 5 weeks. (Tick the box that best describes your answer)**

Definitely false						Definitely true
1	2	3	4	5	6	7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**I exercise during my free time...**

	Not true for me		Sometimes true for me			Very true for me	
	1	2	3	4	5	6	7
1. ...Because other people say I should							
2. ...Because I feel guilty when I don't exercise							
3. ...Because I value the benefits of exercise							
4. ...Because it is fun							
5. ...Because people important to me (parents, family etc.) say I should							
6. ...Because I feel ashamed when I miss an exercise session							
7. ...Because it's important to me to exercise regularly							
8. ...Because I enjoy my exercise sessions							
9. ...Because other people will not be pleased with me if I do not exercise							
10. ...Because I feel like a failure when I haven't exercised in a while							
11. ...Because I think it's important to make the effort to exercise regularly							
12...Because I find exercise a pleasurable activity							

## I exercise during my free time...

1. ...Because I feel under pressure from my friends/family to exercise

*Doing active sports and/or vigorous exercise, for at least 20 minutes, 3 days per week over the next 5 weeks during my free time is... (circle the number that best describes your answer and circle ONE number on EACH line).*

<b>Unenjoyable</b>	1	2	3	4	5	6	7	<b>Enjoyable</b>
<b>Bad</b>	1	2	3	4	5	6	7	<b>Good</b>
<b>Useless</b>	1	2	3	4	5	6	7	<b>Useful</b>
<b>Boring</b>	1	2	3	4	5	6	7	<b>Interesting</b>
<b>Harmful</b>	1	2	3	4	5	6	7	<b>Beneficial</b>

**How much control do you have over doing active sports and/or vigorous exercise for at least 20 minutes, 3 days per week during your free time in the next 5 weeks? (Tick the box that best describes your answer)**

Very little control							Complete control
1	2	3	4	5	6	7	

**If I wanted to I could do active sports and/or vigorous exercise for at least 20 minutes, 3 days per week during my free time over the next 5 weeks. (Tick the box that best describes your answer)**

Strongly disagree	2	3	4	5	6	Strongly agree
1						7

**I feel in complete control over whether I will do active sports and/or vigorous exercise for at least 20 minutes, 3 days per week during my free time over the next 5 weeks. (Tick the box that best describes your answer)**

Completely false						Completely true
1	2	3	4	5	6	7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Most people who are important to me would *want* me to do active sports and/or vigorous exercise for at least 20 minutes, 3 days per week during my free time over the next 5 weeks. (Tick the box that best describes your answer)**

Strongly disagree						Strongly agree
1	2	3	4	5	6	7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Most people I know would *approve* of me doing active sports and/or vigorous exercise for at least 20 minutes, 3 days per week during my free time over the next 5 weeks. (Tick the box that best describes your answer)**

Strongly disagree						Strongly agree
1	2	3	4	5	6	7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**People who are important to me would... (Tick the box that best describes your answer)**

Strongly disapprove						Strongly approve
1	2	3	4	5	6	7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**...of me doing active sports and/or vigorous exercise for at least 20 minutes, 3 days per week during my free time over the next 5 weeks.**

If my brother or sister fails, I feel responsible.						
Strongly disagree						Strongly agree
1	2	3	4	5	6	7
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Even when I strongly disagree with the group members, I avoid an argument.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

I would rather say 'No' directly, than risk being misunderstood.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

Speaking up during a class is not a problem fro me.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

Having a lively imagination is important to me.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

I am comfortable with being singled out for praise or rewards.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

I am the same person at home that I am at school.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

Being able to care for myself is a primary concern for me.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

11. I act the same way no matter who I am with.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

I feel comfortable using someone’s first name soon after I meet them, even when they are much older than I am.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

I prefer to be direct and forthright when dealing with people I have just met.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

I enjoy being unique and different from others in many respects.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

My personal identity, independent of others, is very important to me.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

I value being in good health above everything.

Strongly disagree						Strongly agree
1	2	3	4	5	6	7

Time 2 QUESTIONNAIRE

Questionnaire about Health Behaviours

Thank you for agreeing to participate in the second part of our survey which asks your opinions about your participation in *exercise practices* in the past five weeks. Everyone does things differently so there are no right or wrong answers, we are interested what you actually do. Do not spend too long on any one statement and give the response that best describes your feelings. All responses are strictly confidential, and please answer all the questions.

Participation is entirely voluntary and you are free to withdraw at any point without having to give a reason. All data collected will remain confidential and used for research purposes only.

Please read and sign the consent form below before answering the questionnaire.

If you have any questions, please email the researcher:  
Panagiotis Rentzelas, PhD student, School of Psychology  
(pxr@psychology.nottingham.ac.uk).

This study has been explained to me to my satisfaction, and I agree to take part. I understand that I am free to withdraw at any time.

Signature of the participant: \_\_\_\_\_  
(Please sign on the line)

Date: 

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Day Month Year

**Personal Information** (these data are for describing the population as a whole and will be used for research purposes only)

Name: \_\_\_\_\_ Age: \_\_\_\_\_

Are you Male ☐ or Female ☐

Date of Birth: 

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Day Month Year

\_\_\_\_\_



**During the last five weeks, I have done active sports and/or vigorous exercise....**  
(Tick the box that best describes your answer)

Not at all	Once per week	A couple of days per week	Several days per week	Many days per week	Most of the days per week
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**In the course of the past five weeks, how often have you participated in active sports and/or vigorous exercise?** (Tick the box that best describes your answer)

Never	One or twice	A few times	Most days	Almost everyday	Every day
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>