



**INVESTIGATING HOW PERCEPTION OF TIME LEFT IN LIFE EFFECTS
INFORMATION PROCESSING AND GOAL ORIENTATED BEHAVIOURS IN OLDER
ADULTS: USING SOCIOEMOTIONAL SELECTIVITY THEORY.**

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I composed this thesis, the work is my own. No part of this thesis has been submitted for any other degree or qualification.

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ABBREVIATIONS

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FULL TEXTS

ADL	Activities of Daily Living
CHSS	University of Edinburgh College of Humanities and Social Science Research Ethics Committee
ETL	Estimation of Time left
FTP	Future Time Perspective
FTPS	Future Time Perspective Scale
GDS-15	Geriatric Depression Scale (Short Form)
GDS-30	Geriatric Depression Scale (Long Form)
HIV	Human Immunodeficiency Virus
LREC	Local Research Ethics Committee
MMSE	Mini Mental State Examination
SHS	Scottish Household Survey
SOC	Selection Optimisation and Compensation
SST	Socioemotional Selectivity Theory
VAS	Visual Analogue Scale
WSREC	West of Scotland Racial Equality Council

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ABSTRACT

BACKGROUND/AIMS: Socioemotional Selectivity Theory (SST) is an emerging theory of lifespan development, implicating adaptive motivational processes with ageing. SST maintains that age is inherently linked with future time perspective (FTP). It argues that when people perceive time in life as expansive, typically in youth, individuals tend to prepare for the future, investing time and energy in *Future* and *Knowledge-oriented* goals. Increasingly with age FTP is more limited, consequently individuals prioritise *Present* and *Emotion-oriented* goals, aimed at mood regulation.

This study has three aims. The first is to test the key tenets of SST within a single study; examining motivational shifts associated with FTP and ageing, within the framework of two bipolar dimensions (*Present-Future* and *Knowledge-Emotion*). The second aim is to develop and introduce the use of vignettes as a novel means to test SST assumptions. The final aim is to engage a culturally diverse sample in order to test the key assumptions and validity of SST across two cultures, Anglo British and Asian British.

METHOD: Participants included 64 healthy older people, aged between 60 to 89 years. Mini Mental State Examination (MMSE) and Geriatric Depression Scale (GDS-15) were used to screen for cognitive impairment and depression. Participants aged 60-74 ($n = 41$) were allocated to the “young old” (Y/O) group and 75 years and above ($n = 23$) were assigned to the “old old” (O/O) group. Cultural differences were looked at between the Asian British ($n = 30$) and Anglo British ($n = 34$) participants. The eight goal-oriented vignettes, four *Present-Future* and four *Emotion-Knowledge*, were constructed and examined within a small pilot study, prior to their implementation within the main study. Perception of time left in life was assessed using Carstensen and Lang’s (1996) Future Time Perspective Scale (FTPS) and an estimation of time left (ETL).

RESULTS AND CONCLUSION: The study found that the Y/O group exhibited a more expansive FTP and a significant bias for *Future* and *Knowledge* goal-oriented information within the vignettes. Conversely, O/O participants reported a more constrained FTP and favoured *Present* and *Emotion* goal-oriented information. These

associations were evident in both cultural groups suggesting that the assumptions of SST are robust and valid across cultures.

FTP was found to be significantly associated with the *Present-Future* and *Knowledge-Emotion* goal-oriented dimensions, even when the effect of age was controlled for. This supports SST's assumption that perception of time, rather than age is the key modulator for individual's goal orientation. Overall, SST assumptions were shown to be robust and valid across both cultural groups. Some differences did emerge between cultures, as age appeared to be less predictive of an individuals' FTP within Asian British relative to Anglo British group. Results also indicated that FTP may be a better predictor of the *Knowledge to Emotion* motivational shift within the Asian British, rather than the Anglo British sample. The strength and patterns of associations within the study suggests that the vignettes are a suitable methodological approach for testing SST assumptions.

LITERATURE REVIEW STRATEGY

In an attempt to identify a broad range of studies, electronic searches of the University of Edinburgh data base “Ingenta Connect”, PsychINFO, Ovid, Cochrane Library’ and ‘EBSCO HOST’ were conducted. The terms used to conduct literature searches were a combination of the following: (1) ageing/gerontology/lifespan development; (2) theories of: ageing and lifespan development; (3) definitions of ageing; (4) Biomedical approaches to ageing; (5) neurobiology of normal ageing; (6) critical: evaluation and review; (7) Meta analysis studies; (8) Socioemotional Selectivity Theory (SST); (9) ageing: cognition, memory, attention, motivation and information processing; (10) philosophy; (11) demographic(s): age, gender, living arrangements, employment; (12) society; (13) culture; (14) research methodology in clinical psychology, psychology, social science and medicine; (15) review/use/development of vignette research methodology, Visual Analogue Scales(VASs).

The word OR and AND were also introduced to widen and improve retrieval of search results. The two main inclusion criteria used were English language journals that cover the period 1990 to 2008 inclusive. The period from 1990 was chosen as it saw the emergence of the main theory under review. However, earlier articles were subsequently obtained based on their relevance and methodological robustness.

Articles were selected based on their relevance to the concepts under exploration, and if they specifically addressed empirical¹, methodological² or theoretical³ issues pertinent to this investigation. The article and general literature review classification was based on the guidelines suggested in the *Handbook of Psychology of Ageing* (Birren & Schaie, 2006). The articles were evaluated on construct validity. For example Salthouse (2006)

¹ Empirical articles helped to understand answers to specific research questions.

² Methodological articles helped to consider how well the research questions were answered.

³ Theoretical articles helped to converge on questions that were pertinent to this investigation.

posits that “a causal hypothesis of the age relations in cognitive functioning is not plausible if the construct is not [exclusively and exhaustively] related both to age and cognition...” (p.8). Secondly, an effort was made to consider convergence of the construct of ageing across multiple indicators and variables. This meant considering studies which assess both commonalities and variance among the target study population.

From a total of 5,500 articles, 632 were selected based on their relevance to this investigation. The abstracts and the summaries of these articles were rated on a Likert Scale (1= *least relevant* to 10= *most relevant*) in three domains (i.e. *empirical relevance*, *methodological relevance* and *theoretical relevance*), consistent with the recommendation made by Salthouse (2006). This reduced the articles to 473. A database was developed to organise the articles according to areas indicated by the content headings. Quantitative indices, such as correlation and effect size were used in an effort to ground the selection strategy within scientific rigour. Moreover, the reference lists of all the selected articles were inspected for additional relevant articles and to identify primary authors of quoted articles, such as Carstensen and Erikson. This resulted in further articles and publications being selected. An electronic search of the University of Edinburgh library book database was also conducted, using the key terms above which resulted in books being identified and included in the systematic review. In total 375 publications (print/electronic) were used.

CHAPTER:1 INTRODUCTION

1.1 ADULT DEVELOPMENT AND AGEING

The study of ageing or gerontology is a relatively new science that has made incredible progress over the last 30 years in understanding and treating conditions associated with human ageing (Ekerdt, *et al.*, 2002). In recent years, understanding about the ageing process has expanded rapidly both in depth and breadth. This interest has been motivated by a number of factors, such as: (a) demographic changes and the lengthening of the maximum lifespan (Laidlaw & Pachana, 2009; Stuart-Hamilton, 2006); (b) increases in the average human lifespan, worldwide (Haub, 2007; Seigel, 1996); (c) the increasing proportion of older people in the population, particularly in the developed world (Lanzieri, 2006); (d) changing patterns of illness, (Federal Inter-Agency Forum on Ageing Related Statistics, 2006; National Statistics, 2005); and (e) the increasing percentage of the national health expenditure utilised by older people (Carvel, 2008).

The increasing proportion of older persons within the population and challenges of old age in general, appear to have given rise to a growing interest in the study of human ageing (Bond, *et al.*, 1993).

1.2 WHY STUDY ADULT DEVELOPMENT AND AGEING?

Many negative effects of ageing, concerning aspects of health and cognitive functioning have been well documented (Whitebourne, 2005). Traditionally the study of early life has been central in our efforts to understand the nature of the human lifespan development (Kimmel, 1980; Lerner, 2002). In contrast with the approaches taken in developmental psychology, ageing has historically been irreducibly linked to the physical and ontogenetic⁴ facets of the human organism (Dannefer, 1989). The human ageing experience has almost inextricably been linked with either physical phenomenon of time and/or the biological processes of organic change (Strehler, 1999). This has

4 Ontogenetic refers to the origin and development of an individual organism from embryo to adulthood. Sometimes also called ontogenesis.

often resulted in the ageing mechanisms and processes being largely and causally associated with disease, decline, deterioration, loss, and inevitably death (Strehler, 1964, 1999).

Recent research evidence (e.g. Baltes & Baltes 1990; Deary, *et al.*, 2000; Evandrou, 2005) is showing that decline associated with ageing may not be universal, normative or indeed due to a single cause (Schaie, 1996). Increasingly, ageing is being viewed as a complex multi-factorial process (Kowald & Kirkwood 1996; Ryff & Keyes, 1995). Many theorists (e.g. Rowe & Kahn, 1997; Staudinger & Fleeson, 1996; Strawbridge, *et al.*, 2002) highlight that old age may in fact entail adaptive emotional processes. Consistent with such contemporary accounts of ageing, investigating the adaptive mental processes of ageing may help to understand latent reserves for development, resilience (Staudinger & Fleeson, 1996) and emotional growth (Labouvie-Vief, 2003).

1.3 WHAT ARE THE AIMS OF THIS STUDY?

Socioemotional Selectivity Theory (SST) is an emerging theory of human lifespan development which posits that there are adaptive motivational processes and affective shifts associated with human ageing (Carstensen, *et al.*, 2003; Carstensen, *et al.*, 2006). The central assumption of SST is that when people perceive their time in life as limited, they tend to prioritise “present-oriented goals” related to emotional meaning (Carstensen, *et al.*, 1999). These goals are usually aimed at emotion regulation and the pursuit of emotionally rewarding social interactions (Lockenoff & Carstensen, 2004). Conversely, if time is perceived as “open-ended” then individuals are motivated to pursue “future-orientated goals”, aimed at knowledge acquisition, career planning and development of new social relationships (Carstensen, 1992, 1993; Carstensen, *et al.*, 1997).

In short, SST seeks to explain adaptive age-related changes in social behaviour and experience from two distinct but overlapping goals. It contends that, motivational and emotional trajectories across the adult lifespan are mediated by information seeking for knowledge for the future, or the preservation of emotions in the present. Goals aimed at feeling good and of emotional regulation become increasingly salient, above other motives, when time is perceived as limited (Carstensen, 1993; Carstensen *et al.*, 1999). In recent years SST has generated notable interest, as it is supported by both empirical

literature (e.g. Carstensen, 1995; Carstensen & Mikels; 2005, Isaacowitz, 2005; Labouvie-Vief, 2003) and extensive research evidence (e.g. Charles, *et al.*, 2003; Fung & Carstensen, 2004).

Despite the growing evidence for the theory, many of the SST researchers have engaged disparate research methods, implicating various information processing systems, such as memory (e.g. Carstensen & Turk-Charles, 1994; Charles *et al.*, 2003; Kennedy, *et al.*, 2004) and attention, (e.g. Isaacowitz, *et al.*, 2008; Mathers & Carstensen; 2003; 2005). However, these findings are deduced from laboratory studies, devoid of the social component of the theory. Critically, some research findings have been inconclusive, showing no predicted age effect for positive information (e.g. Isaacowitz, 2005), or definitively implicating the saliency of a specific information processing system (e.g. Charles *et al.*, 2003).

SST researchers do not always employ a formal or standardised measure of perception of time (e.g. Mather & Carstensen, 2003; Pinguart & Silbereisen, 2006), which is the “cardinal tenet” of the theory (Carstensen *et al.*, 1999). SST is said to be “robust” and valid, across class (e.g. blue and white collar workers) and across cultures (e.g. African Americans and European Americans) (Carstensen *et al.*, 1999; Carstensen & Fredrickson, 1998; Fung & Carstensen, 2006). However, when considering the theoretical assumptions of the theory amongst the Asian population, the evidence is inconsistent. For example, contrary to the stipulation of SST, younger Hong Kong Chinese also show preference for close and familiar relationships, in a similar way to Western older people (Fung, *et al.*, 1999; Fung, *et al.*, 2008a). Similarly, the effect of attentional bias for positive versus negative social information differs significantly between Chinese and Western populations. A recent study found that older but not younger Chinese participants exhibited a preference for negative stimuli (Fung, *et al.* 2008b). These recent findings suggest that the assumptions of SST may not be valid across cultures. Further studies, using diverse cultural populations, are required to investigate this more fully.

Much of the research has elicited association between preference for familiar social partners (e.g. Carstensen, 1992; Carstensen & Fredrickson, 1998; Fredrickson & Carstensen; 1990; Lang & Carstensen; 1994) and “positivity bias” in attention and memory (Mather & Carstensen, 2003) with *present* and *emotion-* oriented goals, and

subsequent emotion regulation. Fundamentally, no previous study has directly attempted to test the trajectories of the two motivational goals (e.g. *knowledge-future-oriented* goals and *emotion-present-oriented* goals) in response to age or constrained perception of time.

This study attempts to test all of the key tenets and assumptions of Socioemotional Selectivity Theory (SST) using a cross-cultural and a cross-sectional sample. The literature review aims to provide an overview of aging research and the relevant theories which may help in critically considering the evidence for SST. The following areas are considered:

- What are the demographics of ageing and how ageing is defined
- What is considered successful or optimal ageing
- Relevant theories of ageing and human lifespan development
- How ageing effects motivation, cognition and self-regulation
- What is future time perceptive (FTP) and how is it measured
- What is the evidence for Socioemotional Selectivity Theory (SST)

1.4 WHAT ARE THE DEMOGRAPHICS OF AGEING?

The twenty-first century is likely to entail a major demographic shift characterised by increasing proportion of older people in the population, particularly in Western industrialised nations (Laidlaw & Pachana, 2009). The National Institute on Ageing (1993) suggests that both the number and the proportion of older people in the population is likely to rapidly increase across the world, up to 400 per cent by 2050, according to some estimates (Seigel, 1996). This trend is seen even more strongly among the “oldest old”. For example, the eighty-five years plus year population increased by 30 per cent in the 1990s, from 3.1 million in 1990 to 4.2 million in 2000 (Hetzel & Smith, 2001).

Table 1.1 Predicted (in %)rise in the number of persons aged 65 and older (2007-2050)			
	2007	2025	2050
WORLD	7	10	16
Industrialised Countries	16	21	26
Developing Countries	6	9	15
Europe	16	21	28
North America	12	18	21
Oceania	10	15	19
Latin America & Caribbean	6	10	19
Asia	6	10	18
Africa	3	4	7
Sources: C. Haub. (2007). <i>World Population Data Sheet</i> , and United Nations Population Division.			

Table 1.1 shows that this demographic trend will be greatly accelerated in the coming years. The world population over the age of sixty-five is predicted to increase from 673 million in 2007 to 2 billion in 2050 (UN, 2007). In Europe the number of persons aged eighty or above are predicted to have increased from 18 million in 2004 to 50 million in 2005 (Lanzieri, 2006). Similarly in Britain the number of people over eighty-five is predicted to double in the next 20 years and treble in the next 30 years (Knight & Lee, 2008). The Scottish population aged fifty plus is projected to rise by 28 per cent, already the number of people in Scotland aged sixty-five plus exceeds the number of people aged fifteen and under (Registrar General for Scotland, 2006).

1.5 ETHNIC MINORITY DEMOGRAPHICS IN THE WESTERN WORLD

In Western Europe, over the last few decades, immigration has substantially increased the ethnic population in industrialised countries (Knight & Lee, 2008). The percentage of “non-white” population in Western countries is projected to grow considerably. For example, from 6.6 per cent to 18.2 per cent in Germany and from 6.3 per cent to 10.7 per cent in Sweden by 2050 (Coleman, 2006). The composition of older persons in America in 2003 consisted of 82 per cent white, while the ethnic minority, including individuals of mixed origin, consisted of 18 per cent. The projected figures for 2050 suggest that the white older adult population in America is likely to drop to 61 per cent, whereas ethnic minority older people are likely to increase to 39 per cent (Federal Inter-Agency Forum on Ageing Related Statistics, 2006).

In Britain the ethnic minority population grew by approximately five per cent each year between 1991 and 2001 (Coleman & Scherbov, 2005), where individuals aged over sixty-five comprise of 32 per cent of the overall older adult population (Age Concern, 2007). Figures available for Scotland show that nine per cent of the ethnic minority population are aged fifty-five years and over (Scottish Government, 2004). This shows that along with the increase in the older adult population world wide, the composition will also become more ethnically diverse (Knight & Lee, 2008). Surprisingly there is very little known about the lives of ethnic minorities living in Britain (Bond *et al.*, 1993). In summary, there is a growing need to consider diversifying from purely Eurocentric models of research and clinical practice in order to account for the increasingly multicultural older adult population.

1.6 CAUSES AND IMPLICATIONS OF DEMOGRAPHIC CHANGES

This rapid increase in the older adult population began in the 20th century as a result of various factors, including falling birth rates, a reduction in infant mortality, advances in medical and health care, economic prosperity and improved living conditions (Aldwin, *et al.*, 2007). Interestingly, the life expectancy of females has increased more rapidly compared with males. This is arguably due to a higher mortality of male foetuses, greater substance misuse, murders, death during wartime and fatal road traffic accidents, where men are said to be at greater risk (Balcombe & Sinclair, 2001). The so-called “compression of morbidity” (Gorin & Lewis, 2004) will have particular significance for society, especially for women, who are likely to have a longer life expectancy than men whilst equally experiencing a more severe decline in health in their later years (Stuart-Hamilton, 2006).

The relative increase in the proportion of older people in the population is also linked to a reduction in the average family size and changes in family structure (Bond *et al.*, 1993). In some developing countries and in most developed nations the fertility rate is below replacement levels (Stuart-Hamilton, 2006). This means that the number of younger people in our society is falling, with a smaller pool of potential carers within families. The National Health Service (NHS) Confederation, representing the managers and directors of NHS trusts, reported that in Britain the cost of helping “frail” older people with “daily living” is expected to rise three-fold to about £30 billion by 2026 (Carvel, 2008). This increase in care costs indicates that a significant proportion of the

population will consist of those either too old or too young to work, placing an additional economic burden on the developed and developing world economies.

In summary the increasing and diverse older adult population poses new challenges and questions, particularly for healthcare professionals, researchers and policy makers (WHO, 2002).

1.7 WHAT IS AGEING?

The term “ageing” and “senescence”⁵ are often used interchangeably (Balcombe & Sinclair, 2001). “Senescence” is often associated with degenerative changes linked with getting older (Strehler, 1999). “Ageing” in contrast refers to any time-related process which begins at conception (Balcombe & Sinclair, 2001). Stuart-Hamilton (2006) argues that ageing affects different people in different ways and distinctions may be needed between its various meanings and implications. For example “universal ageing” refers to age-related changes common to all, whereas “probabilistic ageing” is a term describing changes that may happen to only some people as they grow older, e.g. the onset of dementia. Moreover, “chronological ageing” differs from “social ageing” (society’s expectation of how people should behave as they grow old) and “biological ageing” (an individual’s physical functioning as they age) (Sheldon, 1948). Further distinctions can include “proximal ageing” (age-based effects as a result of recent events) and “distal ageing” (age-based differences stemming from a person’s earlier life, such as childhood Poliomyelitis⁶) (Stuart-Hamilton, 2006).

These terms can be further compared with the similar concept of; “primary ageing” (the age related changes to the body), “secondary ageing” (changes that typically occur with greater frequency with age) and “tertiary ageing”, which refers to marked physical deterioration immediately prior to death (Stuart-Hamilton, 2006). Another method of considering ageing is to divide the process between late and early adult life (Lerner,

⁵ Senescence: The organic process of growing older and showing the effects of increasing age.

⁶ Poliomyelitis: often called polio or infantile paralysis.

2002). Arguably, ageing is not a fixed point in development but can vary even within the same society and across history (Thane, 2000). These criteria and operational definitions are arbitrary in nature as there is no fixed point when an individual unambiguously crosses the threshold into old age. Therefore, exclusive emphasis on chronological age is an unsatisfactory measure in understanding the gradual processes associated with ageing.

1.8 HOW IS OLD AGE DEFINED?

Age classifications vary between countries and over time (Thane, 2000). Most developed countries have accepted a chronological age of sixty-five years as a definition of “elderly” or older person (Haub, 2007; WHO, 2002). Similarly gerontologists also denote the age of onset of old age or “threshold age” at around sixty or sixty-five (Bromley, 1988; Decker, 1980). The pensionable age limit often used by governments (Department of Health, 2001, 2006) and researchers (Neugarten, 1974, 1976) set a standard for the definition. The experience of ageing in our society is influenced by many factors (Thane, 1978, 1989). These include cultural (Roebuck, 1979), economic (Glascock & Feinman, 1980; Gorman, 1999), biological, and psychosocial factors, including access to necessary health and community services (Aldwin *et al.*, 2007).

Researchers typically divide older people into “young old” and “old old” categories (Neugarten, 1974) however the precise ages for these two age group classifications can vary between researchers. Typically the “young old” are said to be individuals around sixty and seventy-five, those seventy-five plus years of age are often classified as “old old” (Binstock, 2002; Stuart-Hamilton, 2006). The “oldest old” age category, referring to individuals aged 80 or 85 plus years, also increasingly emerges in literature, as older people are living longer (e.g. Baltes & Smith, 1990; Freund & Baltes, 1998).

1.9 WHAT IS SUCCESSFUL OR OPTIMAL AGEING?

The substantial increase in the ageing population has led to international (WHO, 2006) and national interest in prompting “successful” ageing (Kane, 2005). The National Services Framework for Older People (Department of Health, 2001) and the proposal for “life checks” at retirement have been a response to this impetus (Department of Health, 2001). The current emphasis has largely been on prompting adaptive physical

health behaviours amongst older people (Christmas & Anderson, 2000; Mayer, *et al.*, 1994; Taylor-Davies, *et al.*, 2000). In pursuit of successful ageing, clinicians are attempting to assess health risks and promote health and well-being in older people populations (Stuck, *et al.*, 2002), sometimes with limited success (Harari, *et al.*, 2006).

Initially Rowe and Kahn (1987) defined successful ageing as the avoidance of disease and disability. In their later work, however Rowe and Kahn (1998) expanded this view to include maintenance of physical and cognitive function, and engagement in social and productive activity. Although these factors are interrelated, physical health outcomes have often been deemed primary and separate from cognitive outcomes. As such, social engagement is examined in respect of its predictive value for physical and cognitive health and not in itself a measure of successful ageing (Berkman, *et al.*, 1993; Tabbarah, *et al.*, 2002). Riley (1998) has also criticised Rowe and Kahn for discounting the role of social structures or self-efficacy, an important psychological construct within Riley's model.

A further criticism of Rowe and Kahn's model is that it does not acknowledge the relationship between spirituality and health outcomes (Crowther, *et al.*, 2002). Research data consistently shows that religion or spiritual components play an important role in older people lives, in particular for ethnic minority elders (Princeton Religious Research Centre, 1987; 1994). Spirituality has been linked with an improvement in subjective well-being (Ellison, 1991) mediating levels of depression and distress (Williams, *et al.*, 1991) and is also said to be related to an increased lifespan. Therefore, the theoretical integration of spirituality into models of successful ageing is arguably an important one.

The concept of success in relation to ageing is never straightforward for clinicians and researchers (Woods, 2008). Firstly, the dichotomy of older people, into "diseased" and "normal", invariably limits the understanding of the extensive heterogeneity within this group, as shown by several longitudinal studies (e.g. Baltes & Mayer, 1999; Busse, 1985; Rowe & Kahn, 1998; Seeman, *et al.*, 1994; Whitebourne, *et al.*, 1992). Secondly, the term successful ageing can be contentious, as it can inadvertently apply a "lack of success" for those older persons whose experiences are not so positive (Strawbridge *et al.*, 2002). It also does not incorporate the complexity that some older people may have fewer personal resources or face greater challenges in their lives (Woods, 2008).

As early as 1948 the WHO concluded that adaptive ageing, in terms of good health, should be viewed as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” (WHO, 2006)

Aldwin and Gilmer (2004) advocate the term “optimal ageing”, which refers to maintaining a positive outlook and meaningful levels of life satisfaction throughout the lifespan. Aldwin and Gilmer’s (2004) definition of optimal ageing is proposed in conceptualising the participants within this study, as it moves away from the social construct of success and towards a more theoretically coherent notion of an individual’s capacity for adaptation.

1.10 THEORIES OF AGEING AND LIFESPAN DEVELOPMENT

As discussed earlier the very definition of ageing is open to various interpretations and meanings. Much of the research and resulting theories retain an implicit assumption of how human ageing is defined and conceptualised (Carey, 2003). Often theories of ageing are not mutually exclusive and only sufficiently address some or all of the typical ageing process in part, or in combination with other theories (Weiner & Timiras, 2003). Various dominant theories of ageing, with an emphasis on psychological theories, will be critically discussed with the aim of better understanding their contribution to the human life span development.

1.10.1 SUMMARY OF THE BIOMEDICAL THEORIES OF AGEING

Broadly speaking, biomedical theories of ageing can be divided into three overlapping groups of ageing theories. The first group states that ageing is a result of damage which accumulates over time, referred to as *Error Theories of Ageing* (Balcombe & Sinclair, 2001). The second group, referred to as *Programmed Theories of Ageing*, postulates that ageing is natural and programmed into the body (Blackburn, 2000; Brody, 1980; Campisi, 2003). The third group of theories are called *Evolutionary Theories of Ageing* (Weinert & Timiras, 2003) which view ageing within the confines of selection and mutation. Collectively, these theories conceptualise ageing largely as an ontogenic issue (Strehler, 1999), viewing the process of growing old as the sum of all changes (physiological, genetic and molecular) that occur with the passage of time, from conception to death (Carey, 2003). The biomedical theories permit understanding of organic and structural properties of the organism, associated with ageing. They are

however limited in explaining the psychological, cognitive and emotional development through the lifespan.

1.10.2 PSYCHOLOGICAL THEORIES OF AGEING

Psychological theories of ageing have been termed differently by different authors; some authors refer to them as psychological and others as lifespan developmental theories (Lerner, 2002). Schroots (1996) and Ekerdt and colleagues (2002) agree that both psychological and lifespan theories attempt to explain human development and ageing in terms of individual changes in; cognitive functions, motivation and behaviour, social and cultural roles and the ability to adapt and evolve with changing needs. Lifespan developmental theories view development throughout life as a continuous process of adaptation to a changing environment, both internal and external (Minichiello & Coulson, 2005).

In contrast to traditional psychological theories, lifespan developmental psychology emphasises that development continues throughout the lifespan, including old age. They also maintain that development may move forward, backward, or be static in any domain at any given time (Staudinger, *et al.*, 1995). In later life the range of diversity, in terms of lifetime opportunity for experience, growth, development and adversity means that comparisons within and across cohorts is not sufficient. Therefore, the normative comparison is not how the person compares with their peer group in their current function, but rather how the trajectory of change compares with that of their contemporaries (Stuart-Hamilton, 2006). In view of this, Woods (2008) argues that the lifespan perspective of change over time is critical in evaluating “normal” versus “abnormal” ageing. The emphasis on neuroplasticity (Staudinger & Fleeson, 1996) also indicates that individuals reserve the capacity to adapt to changes in cognitive functions (Woods, 2008; Schaie, 1996), behaviour (Carstensen *et al.*, 1999), roles and relationships (Carstensen, 1993) and coping ability (Carstensen & Fredrickson, 1998). In conclusion, psychological theories may provide a suitable framework from which to consider the processes of adaptive ageing.

1.10.3 SELECTIVE OPTIMISATION WITH COMPENSATION (SOC)

Baltes and Baltes (1990) argue that “Selective Optimisation with Compensation” (SOC) is a process that is utilised throughout the lifespan. However, the physical, mental and

social losses associated with ageing are amplified in old age. The SOC model proposes three interacting processes: (i) *Selection*, involving prioritisation of functions that allow for satisfaction and personal control; (ii) *Optimisation*, a process by which individuals activate their reserve capacities to maximise their functioning in chosen domains; and (iii) *Compensation*, which refers to the extent that individuals utilise additional resources to replace capacities that are reduced (Baltes, 2003).

This model argues that there are two distinct types of selection serving different regulatory functions in life. *Loss-based selection* refers to the processes of adapting goals and goal selection in response to age-related losses, whereas *elective selection* denotes to the pursuit of higher level functioning and associated goals. The former is said to be a response to actual or anticipated loss of resources and the latter occurs as a consequence of new task-related demands (Riediger, *et al.*, 2006). Optimisation is the process of maximising performance by capitalising internal and external resources (Freund & Baltes, 1998; Lang & Carstensen, 1994). For example a man who wishes to keep in touch with his family in Australia, learns to use e-mail so he can more efficiently pursue his goal, has optimised his effort by creating circumstances that facilitate success. Conversely, compensation is the process of adapting to limitations that interfere with goals pursuit (Freund & Baltes, 1998). For example, an individual, who is no longer able to walk and learns to use a “mobility scooter”, is employing a compensatory strategy to facilitate their goal of being mobile.

Research studies have shown that SOC strategies are linked to a range of “*General*” and “*Domain-Specific*” adaptive functioning in various age groups (Riediger *et al.*, 2006), including adolescence (Sherrod, 2001), middle-age (Abraham & Hansson, 1995; Li, *et al.*, 2001) and old age (Freund & Baltes, 1998, Lang & Carstensen, 1994). *General* strategies consist of positive emotional functioning, well-being and life or ageing satisfaction (Chou & Chi, 2002; Freund & Baltes, 1998; Staudinger & Freund, 1998; Staudinger *et al.*, 1995), whereas *Domain-Specific* indicators relate to areas such as job satisfaction (Wise *et al.*, 2002) learning ability (Wiese & Schmitz, 2002) and adaptation to a range of life stressors associated with work and family (Baltes & Heydens-Gahir, 2003).

This theory has been applied to various demographic and cultural groups, including American (Abraham & Hansson, 1995), Chinese (Chou & Chi, 2002) and German

(Baltes & Mayer, 1999; Lang & Carstensen, 1994; Li, *et al.*, 2001). These research findings consistently show a positive association between “SOC-related” strategies, indicating that adaptive development concords with the proportion of “SOC-related” strategies utilised, which promote adaptive regulation throughout the lifespan. Research shows that higher engagement in “SOC-relevant” strategies is predictive of present and continuing future success (Wise *et al.*, 2002). For example, Lang and colleagues (2002) using longitudinal data from the Berlin Ageing Study, demonstrated that SOC-related strategies predicted higher survival rate over a four-year interval and greater “sensorimotor-cognitive” and “social-personality” resources. Moreover, employing SOC strategies is shown to predict “satisfaction” with ageing, absence of agitation, absence of social and emotional loneliness and subjective wellbeing (Freund & Baltes, 1998). The SOC framework is increasingly viewed as a meta-theory, given its capacity to integrate research from a wide range of perspectives into an effective model of human development and ageing (Riediger *et al.*, 2006).

The SOC model is not widely criticised in literature, nevertheless it has some important theoretical, conceptual and predictive limitations. Firstly, this theory appears to be less salient for older people who have profound limitations and have fewer opportunities to make selection and develop resources, and for those with diminished capacity to reassign resources. This approach largely contends that elements of SOC work together, hence promoting adaptive regulation throughout the lifespan (e.g. Baltes & Baltes, 1990; Baltes & Carstensen, 1996; 2003). It would seem that this premise does not hold across all age groups or for all demographic populations. For example, Abraham and Hansson (1995) suggest that people who are more ambitious in their career are more likely to favour selection, rather than optimisation and compensation. They also suggest that people, who have "tenacious, problem-oriented" coping methods at work, rely on optimisation, more than selection and compensation. Freund and Baltes (1998) agree that, for the oldest old, optimisation and compensation are more closely associated with *optimal* ageing rather than selection. This suggests that, factors such as personality types and demographic characteristics may favour one or two elements of the SOC theory, instead of all three components.

1.10.4 PSYCHODYNAMIC THEORY OF AGEING

Erikson's (1950) psychodynamic theory considers human growth and maturation from birth to old age and contends that human development passes through seven stages, each associated with different identity crisis and solutions. Each stage involves a crisis of two opposing emotional forces termed as "contrary dispositions". In this theoretical model the primary importance is on "ego development" and shifting emphasis, underpinned by physical development and biological maturation (Erikson, 1968, 1980). The outcome of each stage can result in personal growth "dominated by dramatic shifts in emphasis" (Erikson, 1982). For example, according to Erikson, the main issue for young adults is "intimacy crisis", which can refer to establishing an intimate relationship and a family. In middle age the "crisis" is between "generativity versus stagnation". Generativity can refer to productive and gainful engagement with one's work, education or children, and crisis in this stage may include marital difficulties or dislocated "attempts at self-improvement". A study by Whitbourne and colleagues (1992) concluded that Erikson's stage model was well founded. It also supported Erikson's belief that development was an evolutionary process based on sequencing biological, psychological, and social events. Moreover, Erikson (1980) postulated that maturation of bodily functions are also linked with the expectation of the society and culture in which a person lives.

In the eighth stage, nearing the end of life, an individual enters into "integrity" versus "despair crisis". Erikson (1982) concluded that the task of old age was to balance the search for "ego integrity" and "wholeness" with a sense of despair. The individual who achieves "ego integrity" (successfully coping with the demands of both id and society) experiences acceptance of the lived life, despite past dissatisfactions or present challenges. At this stage, development seems to mean that a person is able to integrate their own meaning of life with acceptance of death and transcendence (Erikson & Erikson, 1997). The emphasis at this stage is on wisdom (Erikson 1982; Erikson, Erikson & Kivnick, 1986).

However, this theory does not define wisdom nor explain how it manifests itself in development, above and beyond the notion of experience and judgement, and why it is specifically prioritised in old age. This approach also views lifespan as a sequential and stage dependent process. It is not clear from the evidence that a linear relationship between these various stages and adaptive development is exclusively a consequence of

reconciling “identity crises”. For Erickson (1982), success entails achieving balanced outcomes via “basic virtues” between the two opposing dispositions. These concepts may have some face validity but are difficult to falsify or test empirically. This theory also assumes that human behaviour is driven by some rational goals. Arguably, factors such as trauma (Higgins, 1994; Moos, & Schaefer, 1986), level of intelligence (Deary *et al.*, 2000; Hart, *et al.*, 2003) and availability of material resources (Lang, *et al.*, 2002) can also shape behaviour and developmental success. Perhaps, due to such limitations, Erikson’s theory continued to be re-evaluated and refined (i.e. Erikson & Erikson 1997).

1.10.5 CONTINUITY THEORY OF AGEING

Continuity Theory (Atchley, 1989, 1980) implies that optimal ageing requires adaptations in later life, which permit the continuity of the self in *internal* and *external* domains. Internal continuity, for example, can refer to habits or personality factors. External continuity involves maintaining social relationships, roles and environment (Atchley, 1999). Research evidence shows that maintaining and continuing behaviours or finding new roles, consistent with pre-existing personality factors, directly contributes to well being (Bowling, 2005; Mannell, & Kleiber, 1997). By implication, this theory places emphasis on maintaining identity and self concept, which is shown to be a critical feature in adaptive ageing (Atchley, 1989). Optimised older people are conceptualised as “independent” adults with persistent self-concept and identity. In other words, individuals who are able to remain autonomous and meet their needs in everyday life, in areas such as income, housing, healthcare, nutritional and recreational needs.

This approach has significant limitations for explaining adaptive ageing for the very old and for those who experience pathological ageing. It also provides a limited explanation for the changing, social and emotional priorities that older people exhibit (Carstensen *et al.*, 1999). The theoretical assumption that internal and external continuity is the criteria for optimal ageing appears conceptually inconsistent, especially when considering that priorities and needs of the individual change across the human lifespan and development.

1.10.6 ACTIVITY THEORY OF AGEING

Activity theory (Havighurst & Albrecht, 1953) can be viewed as a forerunner to continuity theory and guided by the conceptual framework of social psychology. It contends that well-being and satisfaction with life are reflected in old age by the extent to which individuals are able to remain involved in the social context e.g. social roles and relationships (Lemon, *et al.*, 1972; Longino & Kart, 1982). As age-related losses occur, they should be replaced with new and different roles and interests. This theory highlights that one's self-concept is affirmed through activities associated with various forms of role support. The fundamental assumption of this approach is that the more activity undertaken, the greater the life satisfaction (Hooyman & Asuma, 1988).

This theory may be useful in understanding optimal ageing in some people, depending upon circumstances and personality (Minichiello & Coulson, 2005; Rowe & Kahn, 1998). For instance, Patterson and Carpenter (1994) showed that greater participation by widows and widowers in leisure activities helped maintain higher morale. Misra and colleagues (1996) also found a positive relationship between physical exercise, self-esteem, and self-rated perception of health amongst a group of older women, the majority of whom lived alone. Havighurst and Albrecht (1953) argue that old age can be a lively and creative experience, and that it is "idleness", not ageing, which hastens illness and decline. The *Activities of Daily Living* (ADL) is another standardised framework through which specific physical competencies, necessary to maintain independent life are measured (Kelly, 1993). ADL indicators have also been linked with other indices, such as "quality of life" (Lawton, *et al.*, 1995) and are thought to determine adaptive ageing (Kelly, 1993).

Paid employment and unpaid voluntary work constitutes two major forms of productive activity (Luoh & Herzog, 2002). Studies indicate that about 30 to 50 per cent of Americans aged fifty-five and above engage in voluntary work (Zedlewski & Schaner, 2005). In general, partially retired, higher educated individuals and those who have better health are more likely to participate in voluntary work (Luoh & Herzog, 2002; Warmurton, *et al.*, 1998). The literature investigating productive activity (e.g. Li & Ferraro, 2005; 2006; Luoh & Herzog, 2002; Van Willigen, 2000) has consistently shown positive support for psychological well-being of older participants. Voluntary workers report fewer symptoms of anxiety and a higher level of life satisfaction and better personal control. Research on paid work in older adult population is more limited

and does not appear to show a conclusive psychological benefit of working into old age (Hao, 2008).

Bowling (2009) posits that active ageing is not synonymous with optimal ageing or indeed an enhanced quality of life. The results from studies on volunteering have shown a nonlinear effect of the number of hours worked on mental health and physical well-being (Luoh & Herzog, 2002; Morrow-Howall *et al.*, 2003). Lemon and colleagues (1972) also argue that interpersonal activities in particular are beneficial for psychological well-being as they offer a means of acquiring role support and sustaining an individual's self-concept. Hall (1922) in his seminal study *Senescence: The last half of life* concluded that residents in retirement homes attributed their "long life" to factors such as heredity, physical activity in early life and absence of "over-work". The participants in his study favoured early retirement, valuing contemplation and rest above continual activity.

A study of London UK day centre members showed that individuals were less interested in fitness, language, health or beauty classes, as they preferred activities where competition and testing was not a feature (Hazen 1986). Andrews (1991) also demonstrated that older people engage in a range of socially productive activities, which are not always measurable and are most likely undertaken to minimise the risks of dependency. Activity in old age can be a fulfilling experience that can bolster meaning in later life (Su & Ferraro, 1997) and improve self-esteem (Siegrist, Knesebeck & Pollack, 2004). Therefore, it would appear that it is not the quantity of activity undertaken but rather the quality and type of activity, and the meaning attached to it, which has beneficial affects on well-being in later life.

Both continuity and activity theory emphasise the social and behavioural dimensions in adaptive ageing. However, Estes (1983) and Minkler (1984) criticised activity theorists for their narrow focus on individuals' adaptation and satisfaction, to the neglect of larger structural issues and differences in old age, based on class, race and gender. Holsteine (1999) has gone further, highlighting the "sexist" implications of gerontological models of "productivity". Moody (1988) contests the "frenzy of activity" in later life can actually mask, rather than diminish, the emptiness of meaning.

In summary, it is not necessarily activity alone, but arguably the shift in meaning attached to that activity, which is perhaps the key motivator for action in later life. This indicates a motivational shift towards activities which enhance emotional function, promoting well-being and autonomy.

1.10.7 DISENGAGEMENT THEORY OF AGEING

Disengagement theory of ageing assumes that ageing is an inevitable process, characterised by a gradual tendency to disengage from social roles and activities (Cumming & Henry, 1961). It suggests that once this process is initiated, then it is irreversible. It contends that an ageing person has an increased preoccupation with one's self, reflecting an individual's preparation for death (Cumming, 1963). This results in decreased interaction between the ageing person and others in the social system. According to this perspective there is a cyclical relationship between decreased interaction with others and society's rejection of the ageing individual. Disengagement does not lead to dissatisfaction or deficits but can be associated with satisfaction and harmony (Stuart-Hamilton, 2006). Therefore, optimal ageing is best achieved through abandoning social roles and relationships, and by reducing both activities and involvement (Cumming, 1963; Cumming & Newell, 1960). According to this theory, disengagement is a culturally independent concept, but its expression varies across cultures (Cumming & Henry, 1961; Cumming, 1963).

This theory has been increasingly dismissed by gerontology researchers since the 1950's, as progressively old age was shown to be a lively and creative experience (Havighurst & Albrecht, 1953). The disengagement model also entails a number of important conceptual and methodological weaknesses. For example, it did not explain the mechanisms that drive "disengagement", nor address if it is society or the individual that initiates the disengagement. Critically, the original data on which Cummings and Henry (1961) based the theory consisted of a small sample of older persons in Kansas City, USA. From this data, societal disengagement in older people was assumed to be universal. Moreover, participants who became detached were initially reclusive, hence disengagement cannot be thought of as an exclusive response to ageing (Stuart-Hamilton, 2006).

In the 1960s and 1970s critics of Disengagement Theory, largely the emerging Activity theorists discredited the idea that disengagement from lifelong activities could have certain advantages. In the 1980's and 1990's some theorists tentatively revisited disengagement theory with research on the very old or dying populations (e.g. Johnson & Barer, 1992; Kalish, 1972; Marshall, 1994, 1999; Tornstam, 1989). Whilst being critical of the original theory's functional limitations and many of its unhelpful connotations of isolation and dislocation from society, they argued that adaptive ageing is not primarily a function of activity or perceived productivity. Ignatius Nascher (1919), the American physician credited for coining the term "geriatrics", advocated that "mental stimulation is the most important measure in the hygiene of old age" (p. 488). Similarly, Staley Hall (1922), another pioneer in the study of ageing, concluded that in old age, meanings associated with contemplation have priorities over meanings associated with continual activity. More recently, this approach appears to have been integrated into new paradigms. For example Tornstam (1989, 1997a, 1997b), who initially agreed with the rejection of the Disengagement theory, argued that this theory had inherent explanatory power which researchers have unwittingly disregarded.

1.10.8 GEROTRASCENDENCE THEORY OF AGEING

The theory of Gerotranscendence developed by Tornstam (1989; 1992) was incorporated by Joan Erikson, both wife and colleague of Erikson, as the ninth stage of old age (Erikson & Erikson, 1997). This theory grew from multi-theoretical and conceptual frameworks (e.g. Aziz, 1990; Chinen, 1985, 1986; Erikson, 1950; 1982; Hart *et al.*, 2003), drawing from wide ranging disciplines, such as developmental theories, Disengagement theory, philosophy, and theology. It postulates that human development persists into old age towards a process of maturation, wisdom and gerotranscendence. This process with increasing age involves shifts in the definition of reality, from a materialistic and rational view of the world to a more "transcendent" one, the so-called shift in "meta-perspective" (Tornstam, 1989, 1997c). The dimensions of gerotranscendence are described as ontological changes⁷ in: (a) the cosmic; (b) the self;

7 Ontological changes refer to transforming towards higher orders of human consciousness.

and (c) social and individual relationships (Tornstam, 1996). The “normal” ageing process involves a shift from the middle-aged person’s definition, based on a materialistic and rational view of the world, towards the ageing person’s more cosmic and transcendent approach in defining and experiencing reality. For example, a person becomes less self-occupied and “less narcissistic”, and at the same time, more selective in their choice of social interactions and activities. This shift in meta-perspective also incorporates re-definition of the perception of time, space and objects and an increased interest in socially meaningful interactions. Tornstam (1989; 1994) also draws parallels between other theoretical concepts such as Jung’s “collective unconscious” (Jung 1965) and Erikson’s model of ego development (Erikson, 1982; 1986).

Importantly it is argued, that gerotranscendence can be accelerated by life crises and grief, but elements in cultures can also facilitate or impede the process (Tornstam, 1997b). Therefore, the process towards a transcendent form of life is one that is instinctive and trans-cultural, where the shifts in meta-perspective are believed to be conditioned by genetic programming (Tornstam, 1994). Tornstam (1997c) argues that, in the Western cultures, the process of gerotranscendence can be impeded due to the societal emphasis on rationalism and materialism (Tornstam, 1997c). According to this approach, older people who appear to withdraw from physical and social activity should not automatically be regarded as disengaged or apathetic, as they may have a greater need for self-reflection (Tornstam, 1996a, 1996b).

In contention, this theory has been inconclusive in providing systematic support for “gerotranscendence wisdom” as being an integral or an exclusive feature of old age (Jönson & Magnusson, 2001). In other words, gerotranscendence wisdom may not necessarily be a feature that is qualitatively different in old age, as compared to other stages in life. Researchers have shown that religiosity or spirituality, rather than age alone, may promote the development of certain transcendent views (Ahmadi, 1998, 2000; Ahmadi, *et al.*, 2000; Thomas, 2001). For instance, Ahmadi (1998) in a qualitative study with Iranian Sufis (Islamic mystics) showed that internalisation of Sufi ideals lead to a shift in meta-perspectives, such as decrease in self-centredness and a

shift towards more meaningful relationships. In a further study, Ahmadi (2000) found that spiritual development, rather than age pertains to the qualities associated with gerotranscendence. This indicates that development of gerotranscendence is not a consequence of ageing alone but can be influenced by underlying cultural and religious beliefs. This view appears to have some validity as cultures that promote mystical type ideas which are integrated into an individual's ways of thinking, irrespective of religiosity, show a positive relationship between gerotranscendence and life satisfaction (Ahmadi, 2001; Ahmadi, *et al.*, 2000; Thomas, 2001).

Arguably, there are a number of weaknesses in this theory. For example, it lacks a clear definition of gerotranscendence, which is a central construct of the theory, and it is unclear who defines what it means in the everyday life of an individual. It is also not clear how genetic or biological factors, cultural and "social matrix factors", interact in the fluctuating trajectories of human development. Importantly, it is ambiguous in explaining: (a) in what way is gerotranscendence driven by adaptive evolutionary processes; (b) why do "crises" seem to affect men and women in old age differently; and (c) what are the mechanisms which facilitate or initiate redefinition of time, space and shifts in "meta-perspective"?

In summary, the theory of gerotranscendence appears to counter other theories, which imply that optimal ageing in old age requires the same activities and ideals as in middle age. It argues that optimisation in old age is qualitatively different from that which occurs earlier in life (Tornstam, 1997c).

1.10.9 SUMMARY OF PSYCHOLOGICAL THEORIES OF AGEING

Psychological theories in general address processes, experience and the meaning of old age but are limited in demonstrating how they are linked with the biological mechanisms of ageing. In contrast, biomedical models, primarily emphasise the preservation of physiological functions (Balcombe & Sinclair, 2001). Alternatively, psychosocial approach emphasises social optimisation, life satisfaction, continuity of the self, psychological resources and personal growth as being the key to adaptive ageing (Bowling & Dieppe, 2005).

In summary, it would appear that, adaptive ageing is not purely a function of activity or continuity but rather that in later life there are important shifts in priorities, where

greater resources are allocated to the pursuit of activities and relationships, which specifically promote meaning and emotional well-being (Carstensen, 1992; 1993; Lockenoff & Carstensen, 2004). Therefore, it may be reasonable to assume that important underlying motivational changes can be associated with old age (Heckhausen & Dweck, 1998).

1.11 AGEING AND MOTIVATION

The question of lifespan development and maturation has moved away from loss-deficits model of ageing (Gitlelson, 1948), and towards mechanisms that compensate or enhance emotional well-being (Carstensen *et al.*, 2006; Willis & Schaie, 2006). Ageing and motivation intercepts wide ranging disciplines within developmental psychology (e.g. motivation, cognition, and emotional regulations) (Knight & Poon, 2008; Watt, 2004). The approach taken in this investigation can be organised within the “social-cognitive” perspective, as it attempts to identify interacting psychological processes (Dweck & Leggett, 1998; Gollwitzer & Kirchhoff, 1998). Heckhausen and Dweck (1998) state that, “this approach grants motivation its own role in shaping cognition, emotion, and behaviour, rather than reducing goal-directed behaviours to cold-blooded information processing or enactment of a personality type” (p.1).

Goals can be defined as “desired states that people seek to obtain, maintain or avoid” (Emmons, 1996: p.314). Expectancy and value of a desired outcome and subsequently goal-directed behaviours are thought to be influenced by situational factors, such as desirability of goal, and by the individual’s evaluation and perception (Heckhausen & Dweck, 1998). Importantly, processes involved in human action include self-regulation (Kuhl & Fuhrmann, 1998), compensatory selection (Heckhausen, 1998; Heckhausen & Schulz, 1995) and goal pursuits across the lifespan (Gollwitzer & Kirchhoff, 1998). Throughout an individual’s life, the pursuit of goals may change, depending on the opportunities for goal attainment. Increasingly, goals are viewed as the central and defining feature of motivation. In other words, an individual’s goals drive, guide and organise behaviour, as well as their cognition and affect (Heckhausen & Gollwitzer, 1987; Heckhausen, 1998). In this sense, cognition, affect, and behaviour can be viewed as coherently and interactively related processes that are activated in pursuit of valued goals (Heckhausen & Dweck, 1998).

1.12 AGEING AND COGNITION

The cognitive lives of older people are complex (Knight & Poon, 2008), characterised by stability, decline and improvements (Carstensen, *et al.*, 2006). Research in cognitive ageing has highlighted decline in areas of “effortful functioning”, such as, divided attention (Madden, 1986), reasoning and problem solving (Salthouse, 1996), also known as *fluid intelligence* (Craik & Salthouse, 2000, Salthouse, 1991). However, deficits in abilities of older people are less evident in cognitive processes that require procedural memory, world knowledge, or cultural knowledge, referred to as *crystallised intelligence* (Schaie, 2005). In fact, tasks requiring automatic processing (e.g. general knowledge, arithmetic skills and vocabulary), indicative of crystallised intelligence, improve across adulthood (Salthouse, 2004). Development in crystallised intelligence may offset cognitive deficits and decline in fluid abilities (Knight & Poon, 2008). Old age and life experience may foster expert systems (Rybash, *et al.*, 1986) and account for expansion and preservation of crystallised intelligence (Baltes & Staudinger, 2000). In later life an individual retains greater flexibility in solving interpersonal problems, particularly if they are emotionally intensive (Blanchard-Fields, *et al.*, 1995).

A study by Logan and colleagues (2002) has demonstrated that the observed age-associated deficits can be eradicated, when older people are provided with strategies in completing memory tasks. Such findings have lead researchers to focus on social conditions that enhance or impede cognitive performance. In an experimental study (Rahhal, *et al.*, 2001), memory performance was compared under two conditions: (a) in condition one, instructions given emphasised that memory was being tested, as the experimenter repeatedly highlighted the need to “remember” as many statements from a list; (b) conversely in condition two, with an identical procedure, instructions emphasised “learning”. Surprisingly, age differences in performances were only apparent when memory was emphasised and were eradicated when learning was highlighted. This finding appears to support the assertion that societal and cultural beliefs, which associate memory decline with age, may invoke “performance deficits”.

In summary, the literature shows that developmental trajectories throughout life have implications for emotion, cognition (e.g. Carstensen & Mikels, 2005) and motivation (Heckhausen & Dweck (1998). Watt (2004) suggests that cognition is an extension of emotion and that emotion is an evolutionary extension of homeostasis (self-regulation).

Therefore, cognition may in turn impact on goal-selection and be reflected in social information processing (Carstensen, 1992; 1995).

1.13 AGEING, EMOTION AND SELF-REGULATION

The emotional development of older people appears to be characterised by a shift towards more positive emotions and improved emotional regulation (Carstensen *et al.*, 2003; Carstensen *et al.*, 2006; Labouvie-Vief, 2003). Despite ongoing debate (e.g. Diener, *et al.*, 1999; Ekman & Davidson, 1994) consensus is emerging, suggesting that affect can be viewed as a subsystem of emotion. Emotions are typically brief, free floating and are usually about meaningful circumstances, with a particular objective, whereas affect is said to be free-floating or “objective-less”

Older people compared with their younger counterpart, may experience greater emotional complexity (Ong & Bergeman, 2004). For instance, experiencing both pleasant and unpleasant emotions at the same time (Carstensen, *et al.*, 2000; Knight & Poon, 2008). Research indicates that core elements of emotions, such as subjective experience and psychological responsiveness are not adversely affected with age (Carstensen *et al.*, 2006). Interestingly, older people are shown to be more emotionally expressive compared with younger adults (Malatesta-Magai, *et al.*, 1992), having greater emotional control (Lawton, *et al.*, 1992) and increased positive affect (Carstensen *et al.*, 2000; Mroczek & Kolarz, 1998). Older people, relative to their younger counterparts, exhibit a slower overall physiological reaction time (Levenson, 2000; Tsai, Levenson, & Carstensen, 2000) and a reduction in negative emotional experiences (Carstensen *et al.*, 2000; Mroczek & Kolarz, 1998). It would appear that older people maintain a positive and seemingly synchronised reduction in negative aspects of emotional experience and expression, despite losses in some areas of functioning. Consistent with this view, cases of major depressive disorders are reportedly lower amongst older people, compared with younger adults (Regier, *et al.*, 1988).

Conversely, research evidence (e.g. Alexopoulos, *et al.*, 1997; Parker, *et al.*, 2003; Van den Berg, *et al.*, 2001) indicates that there may be under detection of depression among the older adult population, as the underlying structure of depressive symptoms may differ in older people. Symptoms of depression are often placed into four broad groups:

emotional, cognitive, physical and volitional (Blazer, 2002). Emotional symptoms of depression (e.g. feeling sad) can often be under-reported amongst the elderly (Gallo, *et al.*, 1994). Therefore, many researchers place importance on considering other features of depression amongst the older adult population. These include symptoms such as irritability, anger or somatic complaints, with no obvious medical aetiology (Gallo *et al.*, 1994; Gallo, *et al.*, 1999; Gottfries, 1998). The question of the reliability of depression detection, between older and younger age groups, has been considered by both researchers and clinicians (Laidlaw, *et al.*, 2003).

In a study of 1612 participants in Baltimore, aged over fifty, Gallo and colleagues (1997; 1999) showed that older people who presented without dysphoric symptoms for depression, such as sadness and irritability, were less likely to be accurately diagnosed but equally likely to develop morbid outcomes. The under-reporting of affective symptoms of depression by older people may also account for the under detection of late-life depression (Holland, *et al.*, 2010). In view of such evidence, it may be argued that the underlying structure, or at the very least, the presentation of depressive symptoms can differ in older people (Laidlaw, *et al.*, 2003). Various screening instruments are used for detecting depressive symptoms amongst the older people population, such as Beck Depression Inventory (BDI) (Beck, *et al.*, 1996) and the Geriatric Depression Scale (GDS) (Yesavage, *et al.*, 1983). A study using the Minimum Data Set (MDS) and GDS, as a measure of depression amongst 704 nursing home residents, concluded that MDS and GDS identified different elements of depression (Koehler, *et al.*, 2005) This study illustrated that the GDS more effectively detects the continuous underlying components, rather than the obvious positive categories (e.g. anger, anxiety and paranoia) of the MDS. Koehler and colleagues (2005) concluded that GDS 15-item version is more sensitive to the major dysphoria category than the MDS, and has higher “internal consistency” and “reliability” than MDS for detecting depression in older adult populations.

The difficulty in the accurate diagnosis of depression for older people may be in part, due to the negative relationship between age and prevalence of depressive disorders in adult community samples. Many symptoms of depression may occur in the older adult population due to other factors, such as medical or health complications, which may be “aggravated or amplified by mood disturbance” (Laidlaw *et al.*, 2003; p.45). Moreover,

many of the symptoms may be overlooked by researchers and clinicians and attributed to normative age-related decline. It seems that despite being faced with additional adversity, older people on average maintain levels of well-being and life satisfaction that supersedes many younger people. This has been described as the “well-being paradox” (Staudinger, 2000) or the “satisfaction paradox” (Diener *et al.*, 1999) and consistently emerges across a range of studies, populations and measures (Minichiello & Coulson, 2005). Brandtstadter (1999) argues that there is “no evidence to conclude that well-being and perceived quality of life in later life declines” (p. 125). Carstensen and colleagues (2003), with reference to SST, argue that well-being may actually improve in old age because older people see time as being limited compared to younger people. Therefore, they are more motivated to construct their social lives in order to regulate emotions and maximise positive mood.

1.14 WHAT IS FUTURE TIME PERSPECTIVE (FTP)?

The awareness of time is thought to be an important “instrument” for human functioning (Carstensen *et al.*, 1999), facilitating the evolution of human thought and cognition (Suddendorf & Corballis, 1997). Lewin (1939) identified perception of time left in life as an important psychological variable, arguing that an individual’s “life space” entails social surrounding and a time dimension, a fundamental aspect in development, which influences present behaviour. Bergius (1957) argued that expectation of time left in the future, termed future time perspective (FTP), influences both cognitive and motivational components, impacting on expectation and goal selection, influencing choices in daily behaviour. Early researchers (e.g. Gjesme, 1979; Lewin, 1939; Rakowski, 1982) demonstrated that FTP is an important concept which can change during particular periods of development. This leads researchers to consider that FTP may be related to developmental changes, differing in content with increasing age (Rakowski, 1979).

Historically, investigations have shown that younger people are more focussed on their future, whereas older people show preference for the past (Kastenbaum, 1961; Lomranz, *et al.*, 1985) and that FTP may become increasingly constrained with age (Rakowski, 1979). Bouffard and colleagues (1996) concluded that as individuals’ age, they shift from an expansive FTP to a limited FTP. From this broad theory of adult development,

SST has attempted to empirically link FTP with social and motivational shifts (Carstensen & Lang, 1996, Carstensen, 2006, Carstensen & Lang, 1997).

1.15 WHAT IS SOCIOEMOTIONAL SELECTIVITY THEORY (SST)

SST is a lifespan development theory, which differs from other lifespan theories in that its principle focus is the motivational consequences of perceived time left in life (Carstensen, 1993; 1995; Carstensen *et al.*, 2003; Fung & Carstensen, 2004). SST contends that “the perception of time as constrained or limited” as opposed to “expansive or open-ended” has implications for motivation, cognition and emotion, throughout an individual’s life (Carstensen *et al.*, 1999; p. 165). Specifically, attention to and memory for emotional information, as well as the pursuit of emotionally gratifying interaction, is expected to vary by age and constrained perception of time (Carstensen, 1991; Mather, *et al.*, 2004; Isaacowitz, 2005, Carstensen *et al.*, 1999).

The key assumptions of SST are that:

- When people perceive time as expansive, typically in youth, individuals tend to prepare for the “future”, investing time and energy in acquiring new information and “knowledge” (Carstensen *et al.*, 1999).
- A more constrained or limited perception of time is thought to give rise to “present-orientation”, where attention from future-oriented goals shifts to experiencing occurrences in the “present moment”. This involves the pursuit of goals aimed at “emotion regulation” (Carstensen, 1992, 1993; Carstensen *et al.*, 1997).
- The regulation of emotion states is linked to the selection and pursuit of emotionally relevant social goals and the preferential processing of positive over negative information (Lockenoff & Carstensen, 2004; Mathers & Carstensen, 2003; 2005).

Primarily, SST theorists argue that behaviour throughout life is motivated by two competing bipolar goal “constellations”: (a) future-knowledge oriented goals; (b) present-emotion oriented goals (Carstensen *et al.*, 1999). Importantly, SST researchers have attempted to offer a motivational account of why the emotional trajectories may

become increasingly positive across the human lifespan. SST maintains that when knowledge-related goals compete with those relating to the regulation of emotion, the comparative importance of the two goals are evaluated and action is taken or avoided, depending on the perception of the approaching ending (Carstensen, 1992, 1993; Carstensen *et al.*, 1997). It is thought that the motivational goal shifts (*Present-Emotion* and *Future-Knowledge*) outlined in SST, lead older people to prioritise emotion-regulatory goals which are associated with optimising current mood. As such, age-related “*positivity effect*” in information processing has been investigated and studied within the framework of SST (Carstensen *et al.*, 2006).

The term *positivity effect* has been used to describe a motivational shift, from a focus on negative stimuli in youth, to positive stimuli as people age (Mather & Carstensen, 2005). SST predicts that Future-oriented and Knowledge-related goals will be adaptively prioritised when the future is perceived as expansive, which entails the delay of emotional reward or emotional goals. Conversely, if the appraisal process is that time is limited, a more present-oriented state is experienced with pursuits and attention directed toward emotion regulating goals. The shift toward more emotion regulating goals, directed by constrained perception of future time, is thought to account for the “positivity effect”.

Chronological age is inextricably associated with the perceived amount of time left in life (Fung & Carstensen, 2004). Critically, these age-associated patterns are altered when individuals adopt a time perspective, which differs from that predicted by their place in the life cycle. For example, “perceived endings”, as observed in college students as they approach graduation, also appear to shift focus towards processing positive social information and exhibiting a preference for meaningful interactions (Fredrickson, 1995; Kennedy and colleagues; 2004). Similarly, terminally ill patients exhibit this shift regardless of age (Carstensen & Fredrickson, 1998; Pinquart & Silbereisen, 2006). In other words, the relative priority of different types of goals, changes as a function of perceived time left in life.

1.15.1 HOW IS FTP DEFINED AND MEASURED IN SST?

SST researchers maintain that FTP and age are inherently linked (Fung & Carstensen, 2004). However, regardless of age, perceived endings can induce cognitive and

motivational shifts, similar to those observed amongst older people (Pinquart & Silbereisen, 2006). FTP is a core construct in SST, conceptualised as bipolar continuum (Cate & John, 2007), ranging from expansive (e.g. “my future seems infinite to me”) to constrained or more limited (e.g. “I have the sense that time is running out”) (Carstensen & Lang, 1996). Lang and Carstensen (2002), using their 10-item questionnaire to measure FTP, found a strong correlation between FTP and age cohort. The sample consisted of German participants who were divided into three age categories (i.e. 20-40; 45-65; and 70-90 years of age). The oldest group perceived future time as being most limited and showed preference for emotionally meaningful goals. Importantly, individuals, across the three age categories, who viewed their future as more open-ended prioritised *Knowledge* (future) related goals. Conversely, participants who perceived time as being more limited prioritised *Emotion* (present) related goals. Carstensen and Lang’s (1996) Future Time Perspective Scale (FTPS) has also been employed in a cross-cultural sample (i.e. Taiwan and mainland China) and was found to be consistent with SST predictions (Fung, *et al.*, 2001)..

The fundamental assumption of SST regarding FTP, is that change in one polarity (e.g. perception of time limitedness) leads to a synchronised change in the other (e.g. eliciting a corresponding reduction in the view that time is expansive). Cate and John (2007) suggest that such a “uni-dimensional” and “bipolar” conceptualisation of FTP, purported by SST, does not incorporate “duality” and complexity of how perception unfolds in life and effects motivation. For example, middle age can be viewed as a time of both gains in psychological resources, increasing investment in the future and emotion goals, even though an individual is increasingly aware of time-limitedness in life (Helson, *et al.*, 2006; Staudinger, & Bluck, 2001).

Moreover, there appears to be important differences in the temporal horizons across Western and Eastern cultures. In other words, participants’ cultural background can affect the extent to which they connect events occurring in the immediate term, versus those that occur in the future. East Asians are thought to be more sensitive to future time orientation, whereas Westerners appear to be more disposed to living in the moment and more present-oriented (Maddux, *et al.*, 2007).

1.16 EVIDENCE FOR SOCIOEMOTIONAL SELECTIVITY THEORY?

1.16.1 HOW DOES PREFERENCE FOR SOCIAL PARTNERS EXPLAIN SST?

Initially the early evidence for SST theory emerged from the perspective of social gerontology in an effort to explain the phenomenon that older people tended to focus on closest socioemotional partners, whilst simultaneously limiting acquaintance relationships (Carstensen, 1992; Carstensen, 1995; Carstensen *et al.*, 1999). Carstensen (1992) reanalysed a subset of data from a longitudinal study in which participants had been interviewed at four different stages during the adult lifespan, around seventeen or eighteen years of age, thirty, forty, and finally at fifty years of age. This research examined the frequency of contact, satisfaction and emotional closeness in five different types of relationship (e.g. parents, siblings, close friendships, acquaintances, and spouses). The data showed the greatest reduction in contact over time in acquaintance relationships, which SST argues are primarily informational resources (Carstensen *et al.*, 1999). Conversely, contact frequency for intimate relationships, such as close friendships and spouse, were shown to increase in the later periods of life. Lang and Carstensen (1994) conducted a cross-sectional analysis of two age groups of older people, participants in their eighties and in their nineties, from the Berlin Ageing Study (Baltes,*et al.*, 1993). The data showed that older people were actively selecting and limiting their contact to more meaningful social networks.

In an effort to explain the volitional component of selective preference for close social networks amongst older adults, Fredrickson and Carstensen (1990) compared the “mental representation” of social partners held by young and old adults ranging from sixteen to ninety-two years of age. They employed a “card-sort paradigm”, which required participants to sort a set of 18 cards into piles, each containing a description of a prospective social partner. This included relationships such as, a close friendship, a sibling, or a neighbour. Participants were instructed to sort the cards into as many or few piles, in order to indicate preference for interacting with different types of social relationships. As predicted, older adults placed greater emphasis on close and familiar relationships, whereas younger individuals placed equal emphasis across the different types of social relationships. Participants were also asked to identify which of the persons described on the cards they would like to improve their relationships with. Younger individuals more typically preferred social partners they did not know well,

whereas older people were more likely to identify individuals who were already well-known to them. This study does appear to indicate there is active cognitive selection and preference for closer social partners amongst older people.

In criticism, different cultures show a different pattern of social interaction, suggesting that culture rather than perception of time or age, influences preference for close social network composition (e.g. Fung *et al.*, 2008a). Some studies even indicate that cultural difference can be extenuated with age (Fung & NG, 2006). More obviously, this research paradigm does not directly address the key underlying assumptions of the theory such as the two goal-oriented motives, characterised by four domains (i.e. *Present-Emotion* and *Future-Knowledge*). It would be reasonable to assert that conclusion based on the preference for social partners alone does not support or indeed test the key tenet of the theory.

1.16.2 HOW DO THE MEMORY STUDIES EXPLAIN SST?

Perhaps in order to allay such criticisms, SST researchers have attempted to test the theory more directly. For example, Carstensen and Turk-Charles, (1994) employed an “incidental memory paradigm”⁸ in order to examine the type of information older and younger adults recalled about an emotionally charged interaction. The sample consisted of participants (20-83 years of age) who were asked to read a two-page selection, drawn from a popular novel. After a delay of one hour, they were asked to recall as much of the story as possible. Participants’ responses were classified as “emotional or non-emotional”. Older people were shown to review and recall the more affective and subjective content, compared with younger adults who were more likely to report the factual aspects of the text. Notably, a similar profile emerged for both older adults and younger adults, who perceived their time in life as constrained or limited. Such evidence would appear to counter an exclusively developmental explanation for the shift in processing positive information.

⁸ Incidental memory paradigm: A short story containing equivalent amount of emotional and non-emotional information.

Kennedy, et al. (2004) studied the responses of 300 females (47-101 years of age) who were required to initially report their memories of the year 1987 and then retrospectively recall their responses in 2001 (i.e. 14 years later). The participants within the experimental condition were instructed to recall whilst focusing either on their present emotional state, or on the accuracy of their initially reported responses. The control group were given no such prompt. The results demonstrated that the older control group (79-101 years of age), more positively recalled the originally reported events of 1987. The younger control participants (47-65 years of age) did not demonstrate this positivity bias in their recollections. Interestingly, when all participants were instructed to focus on emotional states, regardless of age, they all exhibited a positivity bias in their recall. Moreover, “emotionally focussed” participants’ responses differed from the “accuracy-focused” participants, in that; they reported improvement in their current mood following recall. Kennedy and colleagues (2004) concluded that increasing age was linked with a “positivity effect” in autobiographical memory and that this positivity effect concords with the emotional motivations predicted by SST, for individuals nearing the end of their life (Lockenhoff & Carstensen (2007).

Age differences have been reported in memory for emotional pictures (Charles *et al.*, 2003) words (Knight, *et al.*, 2002) and faces (Mathers & Carstensen, 2003; Leigland, *et al.*, 2004). For example, when individuals were presented with a picture slide show, without being given any explicit instructions on how to encode the pictures, older people were less likely to remember the pictures overall. They were however, more likely to recall positive images compared with the negative images. This effect was observed across the older adult sample, including males, females, African-Americans and European-Americans, and individuals from low to high economic status (Charles *et al.*, 2003). This led the researchers to deduce that memories of older people indicate the influence of emotion-regulation, as they were more likely to recall positive emotional information.

In contrast, some studies did not find this superior recall in memory for emotional stimuli (e.g. D’Argembeau & Van der Linden, 2004; Kensinger, *et al.*, 2002; Comblain, *et al.*, 2004). This could suggest that memory tasks may not directly engage general information processing mechanisms and that the goal of emotion-regulation may not be entirely understood by the type of information that is encoded and recalled. This view

appears to be supported by research, as the goals that are most salient at the time of retrieval can influence the valence of memories of both younger and older people (Fitzsimmons & Bargh, 2004; Higgins, 1996).

It is also unclear from the above discussed SST research, as to how remembering information in a positive light can be an effective emotion-regulation strategy and why this strategy is exclusively utilised by older adults. Interestingly, some studies have not found positivity effects in long term memory (Denburg, *et al.*, 2003; Kensinger *et al.*, 2002) and this positivity effect does not emerge, when older participants display relatively low executive functioning (Carstensen, *et al.*, 2006). Once again, these studies do not clearly demonstrate how and to what extent, the self-reported memories reflect a motivational shift in goal-orientation (e.g. from *Knowledge-Future* to *Present-Emotion*), an important underlying assumption of SST. There are also other critical reasons why aspects of general information processing cannot be reduced to function of memory or recall, as memory is, at least in part, a result of a number of earlier cognitive operations, such as attention, which may impact upon what is remembered (Revelle, 1993).

1.16.3 HOW DOES AN ATTENTIONAL BIAS IN INFORMATION PROCESSING EXPLAIN SST?

Increasingly evidence suggests that older adults better attend positively valenced stimuli compared to negatively valenced emotional information (Charles *et al.*, 2003; Mather & Carstensen, 2003). More recently, SST researchers have studied attention mechanisms, using “eye tracking”, in order to investigate the *positivity effect* in older people (Isaacowitz, 2005). Eye tracking studies involve monitoring the gaze of the participants to visual and emotional stimuli. In SST literature (e.g. Mather & Carstensen, 2003) both memory and attention mechanisms are interchangeably attributed to the positivity effect. Mather and Carstensen (2005) for instance, argue that greater focus on emotional goals in old age leads individuals to favour positive and avoid negative information in their attention and memory. Isaacowitz (2005) on the other hand, maintains that the information that is most attended to from the environment, is most likely to be encoded into memory and more readily recalled. Therefore, attention mechanisms are said to be the “most interesting cognitive operation”, as attention is the most selective stage of information processing (Isaacowitz, 2005; p. 119).

Findings from the “eye tracking” method are compelling but far from conclusive. For example, Isaacowitz (2005) initially employed the eye tracking procedure using a sample of 144 participants. The stimuli consisted of pictures of skin cancer as unpleasant negative information. This was selected as it is a health condition with a significant visual component. Line drawings matched to each of the cancer images and female faces were rated as neutral images by external raters and were categorised as positive or neutral stimuli. Images of faces, lines and skin cancer were presented in a standard order, so that the association between skin cancers and their matched line drawings were not made by the participants. Unexpectedly, the results showed that there were no significant age differences on the percentage of time fixated to any of the three types of images. Differences did however emerge, when additionally considering the role of optimism as a variable. Older people were shown to be more optimistic compared with younger adults. A more complex picture seems to have emerged from the results than would be expected, or indeed may have been predicted by SST. For instance, young adults with high levels of optimism were less likely to attend the skin cancer images; conversely an opposite pattern emerged for older people, as optimistic older people spent more time attending to these unpleasant images.

Isaacowitz (2005) conceded that the age and optimism interaction is difficult to explain but explained his unexpected results by arguing that optimists tune into negative information, when it is perceived as relevant to them. He stated that older individuals simply find the topic of skin cancer to be more relevant. Such a position appears to be unreliable as the sample actively excluded individuals, both young and old, who had a history of skin cancer, seemingly in an effort to minimise attention bias due to extraneous factors. No clear explanation was offered as to why skin cancer would be particularly more relevant for older adults, compared with younger adults. Eye tracking, as a tool for studying emotional development across the lifespan, appears to have an inherent weakness, as it cannot be consistently employed due to age differences in vision. A longitudinal study by Charles and colleagues (2001), with a follow up to 23 years, indicated that negative affect declined with age, at least until the age of sixty. It also showed that individuals high in neurotic personality trait did not display any age-related improvement in their emotional lives. Considered together, these findings appear to suggest that factors such as personality may also be important, in addition to age and perception of time. Consistent with this view, anxious individuals, when compared with

non-anxious individuals, exhibit an attentional biases towards negative stimuli (Mogg & Marden, 1990; Williams, *et al.*, 1997).

Mather and Carstensen (2003) used a “dot-probe” task, entailing one emotional (happy, sad/angry) and one neutral face being presented side by side, on a computer screen for one second. After this delay, the faces disappeared and random dots replaced the visual images. Older people were slower to respond when the dots replaced a negative image, compared with a neutral image and they were faster in their response when dots appeared behind a positive image. In contrast, younger adults did not show any attentional biases for any of the images. This led the researchers to infer that older people were more likely to attend to positive images in order to improve their mood and to improve their emotion-regulation.

This assumption was more directly tested by Isaacowitz and colleagues (2008) using “eye tracking” method which measured the duration of fixation to “emotional and non emotional” faces. Negatively valenced (angry, afraid, sad), positively valenced faces (happy) and faces with neutral expressions were used as stimuli for eye tracking. The participants included 85 young adults (18-25 years of age) and 106 community-dwelling older people (58 - 89 years of age). This study showed that younger and older adults differed in their preferences for the type of image they attend to, depending on the type of mood that had been induced previously (30 seconds before monitoring their eye tracking preferences). Young adults’ gaze patterns were consistent with their negative mood as they preferred gazing at *angry* and *afraid* faces. On the other hand older people, even when in a negative mood state, preferred gazing at *happy* faces and looked away from *angry* and *sad* faces. The authors posited that their findings resolve an important “piece of the theoretical puzzle”, demonstrating that older people are intentionally preferring positive images in order to regulate their mood (Isaacowitz, *et al.*, 2008; p. 848). Charles, Mathers and Carstensen (2003) using similar emotional images have found that participants of all ages actually looked more at the negative images. However, older people uniquely showed “forgetfulness” for negative images but not positive images, perhaps suggesting that older people do not differ on attentional bias but are more likely to retain positive information. This finding along with Isaacowitz’s (2005) data appears to indicate that attentional mechanisms, as measured by eye tracking studies, may not fully help to understand the positivity effect in older

people. Importantly, the assumption that more readily attending to positive visual stimuli improved mood was not directly tested in any of the above discussed studies.

Perhaps a more fundamental criticism of the methodology is that it is inferential in nature and appears to omit the core construct of the SST, which is ostensibly about socioemotional selection in everyday life, where stimuli are complex and dynamic. Arguably the data and conclusions derived from lab-based experimental manipulations do not directly engage the key tenet of the theory, such as selectivity bias in response to a more limited future and shift from *Future* to *Present* and *Knowledge* to *Emotion* oriented goals. Critically, they failed to engage the time perspective component of the theory, relying merely on age as a measure of time-limitedness. They also do not directly examine or link time perspective and infer motivational shifts based on attentional biases. Furthermore, the emerging evidence suggests that the so-called positivity affect may not be normative across all cultures (Fung *et al.*, 2008b). Such findings could suggest that the SST phenomena is not universal or indeed a reliable and robust explanation of lifespan development in old age, across populations and cultures.

1.16.4 IS SST UNIVERSAL ACROSS CULTURES?

Earlier cross cultural studies of the SST phenomenon appear to have shown patterns in motivational shifts as predicted by SST. For example, Fung and colleagues (1998) observed that Hong Kong Chinese, when faced with the hand-over of Hong Kong to China in 1997, were shown to be sensitive to time-relevant changes and exhibited a preference for close social relationships. This change in social network composition is said to emerge across cultures (Carstensen *et al.*, 1999). Lang and Carstensen (2002) proposed that chronological age is intrinsic and negatively related to FTP, across all cultures (Fung & Carstensen, 2006). There are, however, some inconsistencies in SST research in terms of its robustness and validity across cultures. For example, the findings of the study carried out in Hong Kong to measure older peoples' bias towards familiar social partners were not entirely conclusive, as younger people also favoured familiar social partners, under some test conditions (Fung *et al.*, 1998). A conflicting picture has emerged in subsequent investigations, where age-related preferences for emotionally close social relationships were found in a longitudinal study amongst Germans (Lang 2000) and further supported by a correlational study amongst Germans (Lang & Carstensen, 2002), Taiwanese and mainland Chinese people (Fung, *et al.*,

2001). Findings such as these lead to the conclusion that SST associated motivational shifts are consistent across class and across cultures (Carstensen *et al.*, 1999; Carstensen & Fredrickson, 1998).

It can be argued that a large body of cross-cultural evidence has been extracted from Western cultures, such as The United States and Germany (e.g. Fung *et al.*, 2001; Lang & Carstensen, 1994). There are only few notable exceptions, one of which compared social network composition among older people, aged 70-90 years old, in France, Germany, The United States and Japan (Antonucci, *et al.*, 2004). The findings were consistent with SST for both cultural groups. However, it may be argued that many of the earlier studies (e.g. Fredrickson & Carstensen, 1990, 1998) examining cultural differences and inferring universality of SST have relied on Western samples. Perhaps, not surprisingly these studies found very little difference across cultures.

When cultural samples of SST studies incorporate non-Western participants, some interesting findings emerge. For instance, Fung and Ng (2006) showed that young and old Canadians did not differ in the emphasis they placed on interpersonal relatedness. In contrast; older Hong Kong Chinese, compared with their younger counterparts, placed greater importance on interpersonal relationships. The evidence here may indicate that cultural differences are exaggerated with age. It would appear that the effect of culture is significant in how individuals organise their social network composition across their lifespan. In other words, with increasing age, East Asians may be more likely than their Western counterparts to place greater importance on their nuclear and extended family members, not due to underlying perception of time-limitedness, but rather exhibiting a more culturally specific pattern of interaction. This would appear to suggest that the effect of age and culture within the SST requires further examination.

More recently, a study by Fung and colleagues (2008a) consisted of two cultural groups; German people from Berlin and Hong Kong-based Chinese people. Each group comprised 330 participants who were administered the FTPS (Carstensen & Lang, 1996), which was available in both in German and Chinese. It examined whether Germans and Hong Kong Chinese people differed in the association between age and their preference for social relationships. This study showed that, in contrast to the German participants, the Hong Kong Chinese participants showed a greater preference for nuclear family members, which supports a view that how individuals organise their

social networks composition can vary, depending on their culture. Nevertheless, similar to the Germans, Hong Kong Chinese also exhibited a positive association to age and a preference for extended family member contact. As expected, a negative association was also found between age and acquaintance relationships. The researchers concluded that the fundamental mechanisms of SST can be generalised across cultures, despite the observed cultural differences between Germans and Hong Kong Chinese and the type of specific social relationships that were preferred. Although these findings appear to confirm that both cultural groups prioritised emotionally meaningful relationships, they may not necessarily prioritise the same types of relationships.

Surprisingly, this study (Fung *et al.*, 2008a) found that FTP may not be a universal predictor of SST assumptions. For example, FTP was shown to be a partial mediator for age differences in the proportion of preference for friendships amongst Hong Kong Chinese and partially predicted the proportion of friends and acquaintance relationships preference amongst the Germans. In both cultural groups, FTP poorly predicted preference for nuclear or extended family preference. The findings from this study appear to contrast with prior research (e.g. Lang, 2000; Lang & Carstensen, 2002) and seemingly supports the earlier consideration by Carstensen and colleagues (1999) suggesting that cultural, and perhaps religious beliefs, can affect how FTP drives age differences in social goals. Fung and colleagues (2008a), attempted to explain this difference by arguing that the two cultural groups differed on factors, such as, fertility rate, differences in family size, and living arrangements. They argued that as the German group reported lower fertility rates, hence comprise fewer nuclear family members, were therefore more likely to live alone, compared with their Hong Kong Chinese counterparts. This explanation is not compelling, as the fertility rate is actually lower in Hong Kong, compared to Germany (Census and Statistics Department, 2005; United Nations Statistics Division, 2007). Moreover, Fung and colleagues (2008a) acknowledged that living arrangements did not differ across cultures in their sample and thus could not account for the observed cultural differences, in age-related preference for social relationships.

In summary it may be purported that FTP may interact with cultural factors and the nature of this interaction may not have been fully explored with SST. However the aforementioned studies indicate that individuals across their lifespan prioritised more

meaningful relationships, however, within the confines and definitions of their respective cultures.

1.17 WHAT IS THE RATIONALE AND AIMS OF THE PRESENT STUDY

Further from the aims referred to on pages four to six, the literature review indicates that there are a number of gaps in SST research. The present study has three key aims:

Aim one:

The first aim of the study is to investigate the motivational shifts relative to ageing and more importantly FTP. Firstly, no previous study has examined the motivational shifts associated with ageing in the context of two bipolar dimensions (e.g. *present-future* and *knowledge-emotion*). This study attempts to examine the relationship between shifts in these distinct bipolar dimensions and FTP. SST predicts that FTP would modulate shifts across the two goal directing dimensions (Carstensen, 1995; Carstensen *et al.*, 1999). This study seeks to test this prediction.

Many previous studies have only addressed the motivational shifts from *future* to *present* or *knowledge* to *emotion* (e.g. Fredrickson & Carstensen, 1990; Kennedy *et al.*, 2004), or merely examined motivational shifts in relation to age rather than FTP, an essential component of SST (Carstensen, 1992; Carstensen *et al.*, 2006, Fredrickson & Carstensen, 1990; Mathers & Carstensen, 2005; Pinquart & Silbereisen, 2006). It is therefore hoped that this study's novel value lies in its attempt to tie together FTP and the four goal-oriented domains (i.e. present, future, emotion and knowledge).

Aim Two:

The second aim of the study is to develop and introduce the use of vignettes as a novel means of testing the key underlying assumptions and components of SST incorporating more naturalistic social stimuli. The vignette method was developed and favoured above previous research procedures, as it assimilates the richness of social stimuli encountered in everyday life (Finch, 1987; Rossi & Anderson, 1982). Compared to the laboratory environment studies (e.g. Charles *et al.*, 2003; Issacowitz, 2005; Issacowitz

et al., 2008) or the *card-sort paradigm*⁹ (Fredrickson & Carstensen 1990) employed by previous SST researchers, the vignettes method would arguably enable more direct assessment of the type of information older people in this study may prioritise. For example, if an individual's focus is primarily on the *future-knowledge* related information, (implicating an expansive perception of time) then it is assumed they will prioritise information relating to actions associated with these goals, such as, planning for the future and learning new information. When present time frame and emotion-related goals are prioritised (limited perception of time) then it is expected that individuals will attend to immediate goals, pertaining to affective states (Carstensen *et al.*, 1999). In this sense, this study's approach attempts to test the very heart of the theory.

Aim Three:

This study attempts to engage a culturally diverse sample, in order to test the key assumptions and validity of SST across cultures. Recent research has highlighted cultural inconsistencies within the fundamental components of SST. For example, recent evidence has highlighted that there may be cultural differences in the relationship between perception of time left in life and preferences for the type of social information that is prioritised during particular periods of lifespan development (Fung *et al.*, 2008a; 2008b). Similarly, Fung and Ng (2006) found that cultural variation, rather than the perception of time, was a key variable for prioritising close interpersonal relationships. SST would predict that it is the perception of time left in life, which, fundamentally dictates the type of goals that are prioritised, including social information processing and relationship selection. Given findings that ageing is closely associated with a progressively limited perception of time across all cultures (Lang & Carstensen, 2002; Fung & Carstensen, 2006), SST does not account for these cultural variations.

⁹ card-sort paradigm", requires participants to sort a set of 18 cards into piles, each containing a description of a prospective social partner. This included relationships such as, a close friendship, a sibling, or a neighbour. Participants were instructed to sort the cards into as many or few piles, in order to indicate preference for interacting with different types of social relationships.

Specifically, SST would predict that regardless of culture, as individuals' age and view time as less expansive, they will prioritise *present-emotion* related information, akin to the positivity effect. It appears that this is not always the case. It is the intention of this study to investigate cultural variations in FTP and its modulation of goal-oriented motivational shifts.

Previous cross-cultural studies examining SST included Western populations (e.g. German and American; Lang, 2000; Carstensen & Fredrickson, 1998) or Hong Kong and mainland Chinese participants (Fung *et al.*, 2001; Fung & Ng, 2006). This study attempts to broaden the cross-cultural validity of SST by using participants from the Indian sub-continent. This is a population that has not previously been studied by SST researchers.

1.18 HYPOTHESES

The hypotheses within the study relate to these three aims.

(A) Hypotheses testing age-related differences within the two goal-oriented dimensions, *present-future* and *knowledge-emotion*

Hypothesis One

It is hypothesised that the Young Old (Y/O) group (aged 60 – 74 years) will demonstrate a statistically significant bias for *future* (over *present*) goal-oriented information relative to the Old/Old (O/O) group (aged 75 years and over), as tested by the *present-future* (P/F) vignettes. Conversely, it is hypothesised that the O/O group will demonstrate a statistically significant bias for *present* (over *future*) goal-oriented information relative to the Y/O group.

Hypothesis Two

It is hypothesised that the Y/O group will demonstrate a statistically significant bias towards *knowledge* (over *emotion*) goal-oriented information, relative to the O/O group, as tested by the *knowledge-emotion* (K/E) vignettes. Conversely, it is expected that the O/O group will demonstrate a statistically significant bias for *emotion* (over *knowledge*) goal-oriented information, relative to the Y/O group.

Hypothesis Three

It is hypothesised that the two goal-oriented dimensions (*P/F* and *K/E*) will be significantly negatively correlated. Participants showing a bias for *future* goal-oriented information within the *P/F* vignettes will also show a bias for *knowledge* goal-oriented information within the *K/E* vignettes. Participants showing a bias for *Present* goal oriented information within the *P/F* vignettes will show a bias for *emotion* goal-oriented information within the *K/E* vignettes.

(B) Hypotheses relating to Future Time Perception Scale (FTPS) and the goal-oriented dimensions.

Hypothesis Four

It is hypothesised that participant age (in years) and scores on the FTPS will demonstrate a significant negative correlation with younger participants, on average, scoring higher on the FTPS.

Hypothesis Five

It is hypothesised that participants reporting more expansive perspective of the future, as measured by the FTPS, will have a greater estimation of their time left in life (ETL). As such, FTPS and ETL (in years) will demonstrate a significant positive correlation.

Hypothesis Six

It is hypothesised that participants reporting a less expansive perception FTP will demonstrate a significant bias for *present* and *emotion* (over *future* and *knowledge*) goal-oriented information as measured by the *P/F* and *K/E* vignettes. Conversely, it is hypothesised that participants reporting a more expansive FTP will demonstrate a significant bias for *future* and *knowledge* (over *present* and *emotion*) goal-oriented information as measured by the *P/F* and *K/E* vignettes.

Hypothesis Seven

SST posits that it is the reducing perspective of future time and not merely chronological age that is associated with altered motivational/attentional priorities. In

line with the theory it is hypothesised that the predictions made within hypothesis six will hold true when the effects of age are controlled for.

(C) Cultural variations within FTP and the goal-oriented dimension.

In an effort to contribute to evidence for the cultural validity of SST, the following exploratory questions are addressed using Anglo British and Asian British participants.

1. Are there cultural variations in the hypothesised negative correlation between age and FTP?
2. Are there cultural differences in the hypothesised correlation between FTP and the goal-oriented dimensions P/F and K/E, as measured by the vignettes?
3. Are the age related biases for goal-oriented information (specifically the hypothesised bias for *future* and *knowledge* goal-oriented information within the Y/O participants and *present* and *emotion* goal-oriented information bias within the O/O participants) evident in both cultural groups?

CHAPTER:2 METHOD

2.1 DESIGN

The main study employed a cross-sectional design, consisting of two groups of older people. Group one consisted of “young old” older people (60 - 74 years of age) and group two consisted of “old-old” older people (75 plus years of age). This classification is based on categories identified by Neugarten, (1974, 1996) and is widely employed in gerontological research (Binstock, 2002; Stuart-Hamilton, 2006). Opportunity and Snowball sampling techniques were used to identify and recruit participants (Clark-Carter, 2004). A more detailed explanation will be provided in the procedure section.

The participants were administered a questionnaire interview, including the Geriatric Depression Scale (GDS), Mini Mental State Examination (MMSE) a cognitive screening instrument, Future Time Perspective Scale (FTPS), the four *Present Vs Future* vignettes and four *Emotion VS Knowledge* vignettes and asked their estimation of time left in life (ETL). Based on their scores on the screening measures, participants who met the study criteria were allocated in to the following categories.

The independent (categorical) variables: measures were: (1) age group; (2) cultural group. The dependent (continuous) variables measured were: (1) Score on the FTPS; (2) ETL in years; (3) mean scores on the four *Present Vs Future* vignettes; and (4) mean scores on the four *Emotion Vs Knowledge* vignettes.

Inclusion and Exclusion Criteria

The following inclusion and exclusion criteria were used:

2.1.1 INCLUSION CRITERIA

- Excellent understanding of written and spoken English as indicated by (a) their own declaration (b) the use of English as the main language in their occupation and (c) the researcher’s assessment of their understanding of the questionnaires during assessment stage.
- Aged 60 years and above.

- Non-depressed: As indicated by a score < 4 on the GDS-15 (Short Form) or a score < 9 on the GDS-30 (Long Form). The GDS-30 was only used in the pilot study.
- Absence of cognitive impairment as indicated by the Mini Mental State Examination (MMSE) cognitive screening instrument.

2.1.2 EXCLUSION CRITERIA

- Evidence of depression. Score on GDS-30 >9 (pilot study). In the main study GDS-15 was used, hence score >4 precluded participation.
- Pre-existing diagnosis of dementia or evidence of cognitive impairment. Score < 23 on MMSE cognitive screening instrument.
- Recent diagnosis of physical or mental ill-health, (e.g. stroke, personality disorder) within the last six months.
- Evidence of substance misuse.
- Unable to provide written informed consent.

In practice, steps were taken to ensure that participants met eligibility criteria. For example, ethnic minority participants were informed from the outset, that the study criteria required them to be fluent in the English language. In order to ensure this, the criterion of having used English as the primary language in their occupation was used, as recommended by West of Scotland Regional Equality Council (WSREC). Individuals, who reported suffering from dementia or were diagnosed with physical or mental ill-health, within the last six months, were excluded. These exclusions were made in line with SST literature, as diagnosis of a recent serious illness and cognitive impairment are shown to confound the findings (Pinquart & Silbereisen, 2006; Carstensen *et al.*, 2006).

2.2 ETHICAL CONSIDERATIONS

The key consideration for this study included: (1) ensuring ethical scrutiny for the study; (2) ensuring informed consent of participants; (3) considering and eradicating any potential unintended stress or psychological discomfort, (4) ensuring

confidentiality; and (5) developing a clear procedure for participants who may not meet the study criteria due to possible cognitive impairment (e.g. Score < 23 on MMSE).

Initially, advice was sought from the Local Research Ethics Committee (LREC) based on the submitted documentation (Participant Information Sheet, Appendix: 3.1; Consent Form Appendix: 3.2 and the research proposal). LREC concluded that ethics scrutiny could not be provided as “the participants are neither patients nor NHS staff” (Appendix: 2.1). Subsequently, the research proposal, along with the related documents, was submitted to and scrutinised by The University of Edinburgh College of Humanities and Social Science (CHSS) Research Ethics Committee. Approval was granted, along with a recommendation to shorten the length of the participant information sheet and to simplify some of the language used, which was amended as suggested (Appendix: 2.2 & 2.3). However, the content and the related length were closely based on the NHS National Research Ethics Services (NHS National Patient Safety Agency, 2007) guidelines. It suggests that the information sheet (Appendix: 3.1) should consist of two parts:

Part (1) detailing brief and clear information on essential elements of the research.

Part (2) should contain information such as the purpose of research; e.g. “why I have been invited?”; “do I have to take part?” “What will happen if I do not take part?”; “what will happen if there is a problem”?

This was communicated to the CHSS chair, based on this the length of the information sheet and the content was approved (Appendix: 2.4; 2.5). The definition by Medicine for Human Use (Medicines for Human Use, Clinical Trials Regulation, 2004) and the Regulations which transpose the provisions of the European Clinical Trials Directive (EC2001/20) in to UK law, and LREC (2007) guidelines were followed, in order to ensure informed consent and ethical study procedure.

The following steps were taken to mitigate any unintended psychological distress or discomfort: (1) providing information regarding the research procedure, including any risks or benefits etc; (2) highlighting freedom to withdraw participation at any stage; (3) and a pilot study was also used to identify any unintended psychological discomfort. None were reported.

Other considerations included cultural sensitivities, such as asking Sikh's about tobacco consumption or Muslims about alcohol use. These are prohibited on religious grounds and had the potential of causing offence to some participants. All participants were provided with a debriefing session at the end of the questionnaire interview.

Steps taken to ensure participant confidentiality included: (a) conducting the questionnaire interview in a private and confidential space; (b) anonymising data by allocating each participant with a number; (c) storing identifying information (e.g. Consent Forms) separately from the questionnaire in a secure and confidential NHS facility (Royal Victoria Hospital, Edinburgh); and (d) all E-data was stored on a NHS encrypted and password protected laptop.

In agreement with the research supervisors, a clear protocol was developed in the event that the screening measures precluded participation in the study (e.g. explaining what the screening tools may mean and advising participants to consult with their GP for fuller assessment (s). The researcher also provided his own contact details, should participants have any further queries. This was also communicated in the Information Sheet (Appendix: 3.1). It was important to frame questions in a culturally sensitive manner whilst ensuring procedural consistency. Additionally, consideration was given to possible sensory impairment (i.e. hearing, sight). Hence, font size 16 was used for all reading material provided, as recommended by NHS (NHS National Patient Safety Agency, 2007) guidelines for "elderly participants".

2.3 INSTRUMENTS

The instruments administered to participants were two screening measures, Mini Mental State Examination (MMSE) and the Geriatric Depression Scale (GDS). Subsequently, if participants met the study criteria then a full three part questionnaire interview was conducted (Appendix: 3.3). In part I, questions included; age, gender, qualifications, marital status, living arrangements, current health status, ethnicity, religion, strength of belief, alcohol and cigarette usage, and estimation of time left in life (ETL) etc. Part II contained the Future Time Perspective Scale (FTPS) and an enlarged copy the of 5-point scale, presented separately. Part III consisted of participant instruction for scoring the vignettes and a separate vignettes response sheet (Appendix: 3.4).

2.3.1 MINI METAL STATE EXAMINATION (MMSE)

The MMSE is a brief, quantitative measure of cognitive status in adults (Folstein, Folstein, & McHugh, 1975). It is widely used as a rapid means of qualifying cognitive functions (Crum, Anthony, Bassett, & Folstein, 1993; Davey & Jamieson, 2004). The MMSE provides measures of orientation, registration (immediate memory), short-term memory, including language functions (Folstein *et al.*, 1975).

It has been tested amongst a number of populations (Tombaugh & McIntyre, 1992). The maximum score an individual can obtain is 30 points. Results in the range 0-23 indicate impairment of cognition (Turning Research into Practice, 2009).

2.3.2 MMSE VALIDITY AND RELIABILITY

MMSE validity and reliability was explored in a study by Mitrushina and Satz, (1991) with a sample of 122 healthy, community-residing older people between the ages of 57-85 years. They found a good test-retest reliability ranging from 0.45 to 0.38 over a two year period. Significant correlations were also found with many neuropsychological measures (Lezak, Howieson & Loring 2004). Folstein and colleagues (1975) in their original standardisation sample of “non-demented” psychiatric patients, reported a high test-retest reliability ($r = 0.89$). The *internal consistency* of the MMSE, when used as a screening test for cognitive function has shown to be adequate alpha- 0.78. Jones and Gallo (2000) identified five MMSE factors (i.e. concentration, language and praxis, orientation, memory and concentration) and shown that it has good *construct validity* among community dwellings older people.

Other studies show that MMSE has good *concurrent* (Folstein *et al.*, 1975; Friedl *et al.*, 1996; Agrell & Dehlin, 2000) and *convergent* validity (Snowden *et al.*, 1999). There are number of limitations to the MMSE, such as people from different cultural groups, or low intelligence or low education may score poorly, in the absence of cognitive impairment (Tombaugh & McIntyre, 1992). Ethnicity is known to affect MMSE performance where African Americans and Hispanics have shown to be more likely to be erroneously identified as having dementia (Anthony *et al.*, 1982; Espino *et al.*, 2001, Mulgrew *et al.*, 1999). This may be an important consideration given the ethnic minority sample in the study.

The effect of ethnic difference overall, is shown to be minimal in cultural studies (Espino *et al.*, 2001). A study examining the effect of ethnicity on MMSE performance, as a screening instrument for dementia with 149 British Gujarati (ethnic group indigenous to the Indian subcontinent) showed that MMSE was a robust measure, as most of the effects were due to age, education and visual impairment, and not due to ethnic variation (Lindesay, *et al.*, 1998). Better educated people typically achieve high scores on this measure, despite having cognitive impairments (Brayne & Calloway, 1990; Lezak, *et al.*, 2004). Whilst accepting the limitations of the MMSE, it was deemed to be the most suitable cognitive screening test for this study as it is routinely used to assess cognitive abilities in epidemiological studies, and has been extensively used in clinical and research settings, including amongst community dwelling older people (Lezak, *et al.*, 2004).

2.3.3 GERIATRIC DEPRESSION SCALE (GDS)

The GDS is an instrument specifically developed to measure depression in older people (Yesavage *et al.*, 1983; Yesavage, 1986). It has been tested and used extensively with older adult populations (Gallo *et al.*, 1995). The GDS-30 (Long Form) is a 30-item questionnaire in which participants are asked to respond by answering *Yes* or *No*, in reference to how they felt over the past week (Gallo *et al.*, 1995; Lezak *et al.*, 2004). The direction of positive items varies, with 20 “yes” and 10 “no” responses contributing to the summation score. Cut-off scores: “normal” (0-9); “mild depressives” (10-19); “severe depressives” (20-30) (Yesavage *et al.*, 1983) (Appendix 4.16). The GDS-15 (Short Form) consists of 15 questions and was developed from the GDS-30. Questions from the GDS-30 which had the highest correlation with depressive symptoms in validation studies were selected for GDS-15 (Sheikh & Yesavage, 1986). Of the 15 items, 10 indicated the presence of depression when answered positively, 5 questions (numbers 1, 2, 7, 11, 13) indicated depression when answered negatively. Scores of 0-4 are considered “normal”; 5-8 indicate “mild”; 9-11 indicate “moderate”; and 12-15 indicate “severe depression” (Sheikh *et al.*, 1991).

2.3.4 GDS VALIDITY AND RELIABILITY

GDS is shown have around 92 per cent *sensitivity* and 89 per cent *specificity* when evaluated against diagnostic criteria (Gallo *et al.*, 1995; Wancata *et al.*, 2006). The

reported internal consistency and split-half reliability coefficient is high (0.92) (Lezak *et al.*, 2004). Moreover it has good *concurrent* and *discriminate validity* ($r = 0.85$) across a range of populations (Jefferson *et al.*, 2001) and measures, such as, the Beck Depression Inventory, (Hyer & Blount, 1984), Hamilton Rating Scale for Depression (Yesavage *et al.*, 1983) and the Centre for Epidemiological Studies Depression Scale (Wancata *et al.*, 2006).

The GDS-15 is also shown to have good standard of *sensitivity* (0.805) and *specificity* (0.750), *concurrent* (Wancata *et al.*, 2006) and *discriminate validity* (Almeida & Almeida, 1999; Van *et al.*, 1995). In a validation study comparing the GDS-30 and the GDS-15 for self-rating of symptoms of depression, both were successful in differentiating depressed, from non-depressed adults with a high correlation ($r = 0.84$, $p < .001$) (Sheikh & Yesavage, 1986). Hence, GDS-15 was selected for the main study, as it would reduce participation time and has been used with healthy, medically ill and mild to moderately and cognitively impaired older people (Van, *et al.*, 1995; Almeida & Almeida, 1999). It has also been employed extensively within community and long term care settings (Gallo *et al.*, 1995).

2.3.5 FUTURE TIME PERSPECTIVE SCALE (FTPS)

The FTPS consists of a 10-item questionnaire measure designed to assess perception of time left in life (Carstensen & Lang, 1996). FTPS represents a bipolar continuum from expansive (e.g. “many opportunities await me in the future”) to time limited items (e.g. “I have the sense that time is running out”) (Fung, *et al.*, 2001; Lang & Carstensen, 2002). Items 8, 9, and 10 are reverse items. Participants are asked to indicate their agreement with items on a seven point scale (1= “strongly disagree” to 7= “strongly agree”). FTPS is keyed so that high scores indicate an “expansive” view of the future, whereas low scores indicate that the individual views their time as being “limited”. Hence, high (expansive) scores are expected to correlate negatively with age. The older the individuals gets, the FTP is predicted to become increasingly more limited (i.e. lower scores) (Cate & John, 2007).

2.3.6 FTPS VALIDITY AND RELIABILITY

Using a longitudinal sample of older German people (aged 70-104) from the Berlin Longitudinal Ageing Study, Lang (2000) examined the relationship between individual

differences in FTPS scale (operationalised by the single item, “I have the feeling that my time is coming to an end”). The correlation between FTPS scale and age, even among such a restricted age sample, was -0.32. As predicted, it showed that with increasing age individuals’ exhibit a more limited sense of time left in life. “Old old” participants saw their time as closer to an end (lower FTPS score) compared with “Young old” participants. In a German sample, divided into three age groups (ages 20-40, 45-65, and 70-90), using the FTPS, Lang and Carstensen (2002) found a strong negative correlation between the scores on the FTPS, and age cohort ($r = -0.70$).

Similarly the FTPS was employed in study of age and cultural differences between young people (18-30 years) and older people (60-90 years) in both Taiwan a Mainland China (Fung *et. al.*, 2001). The cross-sectional age differences showed that a low score on the FTPS predicted that older people saw their time as more limited. Cate and John (2007) with an ethnically diverse sample, showed that scores on the FTPS (Carstensen & Lang, 1996) items significantly and negatively correlated with age in a cross-sectional sample ($r = -.52$, $P < 0.01$). They also converted the seven point scale into a five point scale and found this to be statistically robust, retaining *concurrent* and *discriminate validity* and comparable reliability. Fung and colleagues (2008a) have also employed the five point FTPS, ranging from one (strongly disagree) to five (strongly agree), with cross cultural populations. Based on the evidence and the recommendations of previous studies, a five point scale was favoured and employed in this investigation.

2.3.7 VIGNETTE DEVELOPMENT

Vignettes can be defined as brief stories or scenarios that describe hypothetical characters and/or situations (Finch, 1987), and have been shown to be an effective methodology in examining different groups’ interpretation of a “uniform situation” (Rahman, 1996, Schoenberg & Radvall, 2000). This technique has been employed by researchers from various disciplines to study a range of topics, including cognition and motivation (Stolte, 1994), end of life medical decision making (Denk *et al.*, 1997) and social information processing (Crain, *et al.*, 2005). Their specificity enables contextual influence on judgements to be examined (Rossi & Anderson, 1982). Gerber (1994) suggests using “neutral vocabulary” in vignettes and shows that by providing respondents with situations they recognise as “real”, the researcher is able to reliably tap

into the expectations and reactions, which participants are likely to exhibit themselves, in similar social situations.

The following recommendations guided the content of the vignettes developed. This included: (a) situations presented should be plausible and “real” for participants (Neff, 1979; Hill, 1997); (b) avoiding “eccentric situations” or characters (Barter & Renold, 1999); (c) West (1982) suggests that “fuzziness is a strength” as ambiguity leaves space for participants to define the situation in their own terms, (d) Erikson (1986) states that “ the moment-to-moment style of description in a narrative vignettes gives the reader a sense of being there in the scene” (p.149). In this study, vignettes themes and hypothetical situations were based on the researcher’s clinical experience of everyday situations reported and encountered by older people. Finally, emphasis was placed on keeping the language simple and everyday (Finch, 1987). The vignette method is shown to be effective for tapping into complex internal states, however, as Finch (1987) acknowledged, the issue of what triggers a response is not wholly resolved.

Originally, ten vignettes were created, however, following the pilot study only eight were deployed within the main study. Of the eight vignettes used within the main study four related to the P/F dimension and four to the K/E dimension. The content of the Present vs. Future vignettes (1-4) contained equally weighted and semantically loaded sentences for *Present* and *Future-oriented goals*. Scenarios included: (1). A story about gardening; (2). A holiday with a friend; (3). A birthday present for grandchildren and (4). Buying a television.

Conversely, stories for knowledge vs. emotion vignettes (5-8) contained equally weighted and semantically loaded sentences, for *Knowledge* and *Emotion-oriented goals*. Scenarios included: (5) Using the internet for the first time, (6) Installing a new TV, (7) Starting an evening class and; (8) Going to the library (Appendix: 7.5).

The internal reliability of the four vignettes forming the K-E dimension was found to be encouragingly high (Crombach’s $\alpha = .85$). Similarly, the internal reliability for the four vignettes making up the P-F dimension was also found to be high (Crombach’s $\alpha = .84$).

Quantitative researchers typically construct vignettes by systematically manipulating the experimental evaluation factors (e.g. Present vs. Future) that affect respondents’ judgments, termed “factorial objectives” (Rossi & Anderson, 1982). Martin and

colleagues (1993) argue that, by altering the sequence of “factorial objectives” and administering gender specific vignettes, both gender and priming bias can be “eliminated”. This recommendation was implemented in the development and administration of vignettes for this study. Furthermore, the first and last sentences of each vignette were merely descriptive and were not semantically loaded, in terms of goal-orientation (Appendix: 4.1). This was done in order to minimise the “primacy effect” and the “recency effect” (Frensch, 1994; Healy, Havas & Parkour, 2000).

2.3.8 VISUAL ANALOGUE SCALES (VAS)

VAS is a measurement instrument that is used widely in human clinical and psychological research, including with older people (Tiplady *et al.*, 1998) to assess subjective states, such as, pain (Scott & Huskinson, 1976), anxiety (Humphris, Morrison & Lindsay, 1995), stress (Corah, 1973) and fear (Hodgson & Rachman, 1974). This instrument captures the underlying continuum of subjective states, which cannot be easily or directly measured (Wewers & Lowe, 1990) and is most effective when assessing subjective changes within individuals (Crichton 2001). VAS typically consists of a horizontal line, ten cm in length, ranging across a continuum which is marked with semantic opposites, such as, ranging from “no pain” to “worst possible pain”(Von Korff, Deyo, Cherkin & Barlow, 1993). The construction and development of VAS, used in this study, was based on the stylistic recommendations made by Wewers and Lowe (1990) and by Tiplady *et al.*, (1998).

In this study a nine cm line consisted of two continuums e.g. *present Vs future* and *Knowledge Vs Emotion*. Each centimetre was converted into a corresponding numerical score. Hence, participant scores, in response to vignettes one to four, ranged from one (strongly present goal-oriented judgement) to nine (strongly future goal-oriented judgement). In other words, a low score corresponds with present goal-oriented a high score with *future* goal-oriented judgment. For vignettes five to eight, respondents scores can range from one (strongly *knowledge* goals-oriented judgement) to nine (strongly emotion goals-oriented judgements). Hence, a low score would indicate a *knowledge* goal, and a high score an *emotion* goal-oriented bias in processing social information presented in the form of vignettes. A score of five (neutral) would be expected if information for particular goal-orientation was not being favoured, as the vignettes contain two equally and semantically loaded goal orientations.

2.3.9 VAS VALIDITY AND RELIABILITY

The VAS (continuous scale) can be compared to other linear scales such as the Likert scales (LS) or Borg Scales (12 fixed points), with similar sensitivity and reproducibility. Interestingly, VAS outperforms other measures in assessing subjective states, such as anxiety and pain (Tiplady *et al.*, 1998). Grant and colleagues (1999) have shown VAS reproducibility coefficient to be as high as 78 per cent for breathlessness and fatigue. Additionally, VAS have a good sensitivity ratio (2.7) compared with LS and Borg scale (Grant *et al.*, 1999). Tiplady and colleagues (1998) demonstrated that VAS is an effective instrument for researchers in assessing subjective states in both young and healthy older adult participants.

2.4 PILOT STUDY

A pilot study was conducted to test the feasibility of the study design, procedure and the face validity of the measures being used. This is strongly recommended, especially when using measures that have been devised by the researcher (Britton, 1996; Clark-Carter, 2004). After administering the questionnaire interview, all participants in the pilot study were debriefed at the end and their comments recorded (Appendix: 5.1). In accordance with Barter and Renold's (1999) recommendation, a pilot study was also conducted to test the face validity of the vignettes used.

2.4.1 PILOT STUDY PARTICIPANTS

The Pilot study consisted of two stages. In stage one the sample included third and fourth year female Trainee Clinical Psychologists ($n = 5$) ages ranging from 28-30 ($M=28.2$; $SD = 1.5$). They were administered the screening measures and the questionnaire interview (GDS-30 and MMSE). After the questionnaire interview, the study design and rationale was explained and these participants were asked to comment on; the study design, procedure, questionnaire and measures used, the content and face validity of the vignettes, and the structure of vignette response sheet. A number of changes were suggested by the Trainee Clinical Psychologists (Appendix: 6.1; Appendix: 6.2).

Stage two included a random sample of eligible candidates, who were recruited from religious and community centres (e.g. community and church groups) in Edinburgh and Glasgow. Initially, contact was made with the key individual or committee who had the

authority to provide permission to approach individuals on their premises. Subsequently, a copy of the participant information sheet (Appendix: 3.1) and consent (Appendix: 3.2) form were forwarded to the relevant organisations, before directly approaching participants who had agreed to take part.

The sample consisted of five Anglo British ($M = 74.80$; $SD = 9.63$) and five Asian British ($M = 54$; $SD = 12.45$) participants ($n = 10$). Their Socioeconomic status (SES) ranged from unskilled to professional and was determined using the Registrar General's Occupational classification (Prandy, 1990) and education level. Ethnic ranges, for both the pilot and the main study, were identified using "The Scottish Executive Central Research Unit, 2000" report (Pankaj, 2002) and West of Scotland Regional Equality Councils (WSREC, 2008) recommendations. In response to the pilot study, two vignettes were removed, one from *Present Vs Future* goal and, one from *Emotion Vs Knowledge* scenarios (Appendix: 6.3).

2.4.2 CHANGES MADE IN RESPONSE TO THE PILOT STUDY FINDINGS

The pilot study was valuable in improving the procedure for the main study. These included changes to the demographic questionnaire, participant information sheet, consent form, standard researcher protocol sheet, and clearer examples for participants. Two vignettes were also excluded as they were thought least engaging or valid by the pilot participants (Appendix: 2.3). These changes were approved by the Edinburgh University Ethics Committee (Appendix: 2.4)

2.5 MAIN STUDY PARTICIPANTS

2.5.1 EXCLUSION OF PARTICIPANTS

In total, ninety five community-dwelling older people participated in this study. However, twenty three individuals were excluded during the questionnaire interview screening stage (fourteen individuals scored > 4 on the GDS-15 (Short Form), nine scored < 23 on the MMSE). A further eight ethnic minority participants were excluded during the final stage of testing, the administering of the vignettes. When administering the vignettes these eight individuals, who initially identified themselves as having sound understanding of written and spoken English, were found to have insufficient English language capabilities to fully understand the vignette content. This was indicated

through their request for clarification of the vignette content, from the researcher, in Punjabi, Hindi, or Urdu.

2.5.2 PARTICIPANTS WITHIN THE STUDY

The final sample consisted of sixty four participants. Individuals between 60-74 years of age were categorised as “Young Old” (Y/O) ($M = 65.2$; $SD = 3.8$; 18 female and 23 male; $n = 41$). Individuals in the “Old Old” (O/O) group ranged between 75 and 89 years of age ($M = 79.2$; $SD = 5.2$; 11 female and 12 male; $n = 23$).

The O/O group comprised of 36 per cent of the overall sample. “*The Older People in Scotland: Results from the Scottish Household Survey (SHS) 1999-2002*” (2004) shows that people aged 60-74 constitute 70 per cent and individuals 75 and over 30 per cent of the overall older adult population living Scotland. The proportional spread in ages within this study reflected that of the older adult population living in Scotland.

2.5.3 CULTURAL GROUPS

Forty four per cent of the sample was White Scottish ($n = 28$), thirty one per cent Pakistani ($n = 20$), sixteen per cent Indian ($n = 10$), and nine per cent Other White British ($n = 6$). Participants belonging to the Indian sub-continent were categorised as British Asian ($n = 30$; 47 per cent) and indigenous participants as Anglo British ($n = 34$; 53 per cent). The British Asian group ranged between 60 and 80 years of age ($M = 67.3$; $SD = 6.3$; 10 female and 20 male). Participants within the Anglo British group ranged between 60 and 89 years of age ($M = 72.8$, $SD = 8.6$; 19 female and 15 male).

The Y/O group consisted of seventeen (41.5 per cent) White Scottish (7 female and 10 male), two (5 per cent) Other White British (female), five (12 per cent) Indian British (4 female and 1 male), and seventeen (41.5 per cent) Pakistani British (5 female and 12 male). The O/O age group included eleven (48 per cent) White Scottish (7 female and 4 male), four (17 per cent) Other White British (3 female and 1 male), five (22 per cent) Indian British (1 female and 4 male), and three (13 per cent) Pakistani British (male).

2.5.4 PARTICIPANT SOCIO-ECONOMIC STATUS (SES)

SES of participants was determined on the basis of participant’s current or previous occupation, using the Registrar General’s Standard Occupation Classification and their

level of education. These two indicators are commonly employed in research across adults and older adult populations (Liberatos, Link, & Kelsey, 1988; Preston & Taubman, 1994).

Within the full sample 49 per cent of males but only 30 per cent of females could be classified as professional, Managerial/Technical. Of the Y/O group, 34 per cent could be classified as Professional and Managerial/Technical, with only 26 per cent of the O/O individuals falling into these categories. Within the Asian British group, 43 per cent of the participants compared with 9 per cent within the Anglo British group, were classified as Managerial/Technical indicating that the Asian British group have a proportionally higher number of individuals with higher SES. Within the study, males relative to females, Y/O relative to O/O individuals, and Asian British relative to Anglo British were more likely to belong to a higher SES group.

2.6 PROCEDURE

The snowball sampling for the Asian British sample began through contact with the West of Scotland Racial Equality Commission (WSREC) who recommended contacting various organisations (e.g. community centres and other local organisations) that could facilitate the recruitment of the appropriate community based older people within the Greater Glasgow and Edinburgh areas. Subsequently some of these organisations suggested other community based groups through which additional appropriate participants were recruited.

The recruitment strategy for the Anglo British sample included contacting community groups and organisations working with older people who were likely to meet the inclusion criteria. The *“Get Up and Go Programme: Activities and Opportunity for older people in Edinburgh”* (1st October 2007 to 30th September 2008) brochure was used for this. The organisations contacted through this were also requested to suggest other suitable groups or community resources that would facilitate the recruitment of older people meeting the inclusion criteria for the study.

Initially, telephone contact was made with organisation managers/supervisors/or project leaders, outlining the research proposal. This was followed up with a letter outlining the research aims (Appendix: 1.7), accompanied with: (a) participant information sheet; (b) consent form; (d) demographic questionnaire (Appendix 3.3); (e) vignette response

sheet (VAS); and (f) a copy of inclusion and exclusion criteria (refer to p. 49). Subsequently a meeting was held with organisation representatives who were requested to identify individuals they felt were likely to meet the inclusion criteria. Issues such as, confidential space for the interview within the organisations premises were agreed in advance. Participant information sheets were also provided to staff for dissemination. Staff approached individuals who they felt met the study criteria and a list of individuals who agreed to take part was compiled by the organisation staff. No participation fee was given.

From the initial contact, a two week cooling off period was given before conducting the Questionnaire Interview at the premises of the relevant organisations. Upon contact, each participant was checked against the inclusion and exclusion criteria. This was achieved by confirming the inclusion criteria and verbally outlining the factors which may exclude them from taking part in the study, such as a pre-existing diagnosis of dementia or an inability to understand written or spoken English. The contents of the information sheet, aims of the study and procedure were also discussed, and written informed consent obtained (Appendix: 3.2). Standardised instructions and a protocol sheet were used to maintain procedural consistency (Appendix: 7.1).

The questionnaire interview comprised of five distinct stages:

- Stage one included ensuring that participants had read and understood the information sheet and met the inclusion criteria, and agreed to take part. They were also checked against the exclusion criteria before proceeding (Appendix: 7.1).
- Stage two entailed administering the two screening measures (GDS-15, Appendix 7.2; and MMSE; Appendix 7.3). The participants were requested to wait outside the interview room and after a 5-10 minute delay and screening measures scored, the interview was resumed. Participants who met the study criteria were given a brief explanation regarding the two screening measures before proceeding. If participants did not meet the study criteria, as indicated by a score of <23 on MMSE or > 4 on GDS-15, then they were offered a fuller explanation and advised to seek referral to their G.P for further assessment(s). Contact details were provided, should the participants or their G.P. wish to

contact the researcher for further discussion. The interview was terminated only after answering any questions or queries.

- In Stage three, the demographic questionnaire was administered and completed by the researcher (Appendix 3.3, Part I). The questionnaire design was based on the guidelines by Clark–Carter, (2008) and in an effort to ensure reliability and validity of the data; it mostly consisted of closed questions (Heiman, 1995). Questions such as gender, age, occupation, level of education, living arrangements, current health status, ethnicity, religious affiliation, and estimation of perceived time left were asked. As health behaviours have been shown to be a factor in successful ageing (e.g. Rowe & Kahn, 1997) therefore questions such as alcohol and tobacco use were included. Categories such as living arrangements were based on *the Old People in Scotland: Results from the Scottish Household Survey 1999-2002* (Raab & Macdonald, 2004) document. All other categories, such as health status, were based on the statistical frequencies identified by the National Statistics UK 2004 document for Older Adults, Office for National Statistics, (2005).
- Stage four consisted of administering the FTPS (Appendix 3.3: refer to Part II). Participants were also provided with a separate enlarged copy of the Likert scale component of the FTPS (Appendix: 7.4). Based on the findings from the pilot study, participants were given an example (i.e. *if I were to ask you to rate how much you enjoyed your meal yesterday, and you stated that “I enjoyed my dinner yesterday”, then using this scale [researcher points to the scale] where would you rate your agreement or disagreement with this statement*) (Appendix: 7.1; refer to Part 3). Each of the ten statements on the FTPS were read out and responses recorded.
- Stage five entailed administering the eight gender specific vignettes (four: Present vs. Future and four Knowledge vs. Emotion goal-oriented) (Appendix: 7.5). Participants were instructed that “... *I’m going to tell you a few short stories about an imaginary person (John if male, Gill if participant was female). I would like you to imagine yourself in the same situations as [John/Gill].* (Appendix 7.1; refer to Part 4)

Consistent with the recommendation of Martin (2006), respondents in this study were asked to rate their judgements on the VAS constructed from the vignette response sheet (Appendix: 3.4). The vignette response sheet along with a black pen was provided. Before starting, a practice example was given in order to orientate the participants into scoring the vignettes accurately (e.g. consistent with their intended direction of preferences). The researcher stated “*let’s try an example, if I asked you how much you enjoyed your most recent outing*” [The researcher points to the line], “*Where would you place the cross through the line?*”

Subsequently, the researcher read out the gender specific vignettes in a slow, clear voice with consistent pauses after each sentence. After each story the researcher stated “*using this line [researcher pointed to the line] can you show; only using one cross anywhere through the line, how much of this story you think this story is about [John’s/Jill’s] present or future goals*”. When shifting from *Knowledge* vs. *Emotion* goal-oriented vignettes (5-8) the researcher oriented the participants by saying, “*this time you are asked to rate something different*” and proceeds as noted before transplanting present-future with emotion-knowledge (Appendix: 7.1: refer to Part 4). Finally, the participant is invited to make comments or ask questions and their response is noted and the interview terminated (Appendix: 3.3; refer to Part IV).

2.7 STATISTICAL ANALYSIS

Data was analysed using the SPSS 14.0 program.

2.8 CALCULATING SAMPLE SIZE

Determining the appropriate sample size was complex to calculate as no similar studies are available in the literature to compare with the current study. Previous study designs investigating SST have marked differences from the current study, mainly due to its novel use of vignettes. However, recent SST studies have reported findings with a mixed small, medium and large effect size (e.g. Fung *et al.*, 2008a; Fung *et al.*, 2008b). Specifically, Fung and colleagues (2008a) study found medium to strong effects between age, FTSP and social network composition (.13-.62).

A statistical power calculation was conducted with the desired power at 80 per cent, a confidence level of 95 per cent and a (conservative) predicted effect size of .3. Given the breadth of range in effect sizes within previous research from small to large an effect size of .3 was selected based on Cohen's (1988) suggestion that this constitutes a medium effect. The calculation revealed that 49 participants were required for this study. However, in line with recent research (e.g. Fung *et al.*, 2008a; Isaacowitz *et al.*, 2008; Löchenoff & Carstensen, 2007) and the potential for attrition within the sample, a larger sample size of 60-90 was sought in order to allow for more robust findings.

2.9 DISSEMINATION OF FINDINGS

A summary of the research findings will be made available to all the agencies involved. The option of receiving a copy of this summary sheet was also given to all participants. This was highlighted on the information sheet along with the researchers contact details. Findings will also be presented at appropriate venues and hopefully considered for publication in a peer review journal.

CHAPTER:3 RESULTS

3.1 SOCIO-DEMOGRAPHIC DESCRIPTION OF THE SAMPLE

Table 3.1 summarises the socio-demographic information for the Y/O and O/O comparison groups.

Summary statistics within Table 3.1 illustrate that the two age groups were matched for gender, culture, and social class. The two groups were also matched in respect of smoking ($\chi^2(1) = 3.14$), alcohol consumption ($\chi^2(1) = .03$) and considering themselves to have enough money (Fishers Exact Test, $p = n.s.$), with no significant difference identified between the two groups.

The two groups were not matched on several of the socio-demographic factors, as significant differences emerged between the groups in respect to religious beliefs, educational level, diagnosis of illness, fitness within the last month, and marital status. Moreover, the two groups were significantly different in relation to living arrangements, area in which they lived, and change in the strength of their religious beliefs (all F.E.T. $p < .01$).

Table 3.1: Socio-demographic characteristics of the two age comparison groups

Characteristic	Young-Old ¹ (n = 41)		Old-Old ² (n = 23)		Summary Statistics		
	Mean	SD	Mean	SD	df	t	p
<i>Age of Participants</i>	65.20	3.76	79.22	5.15	62	12.5	.0005
<i>Gender</i>	%	N	%	N	df	χ^2	<i>l.</i> p
Male	56	23	52	12	1	.092	.76
Female	44	18	48	11			
<i>Religious beliefs</i>					-	20.95	.00 ⁺
No Beliefs	24	10	0	0			
Hindu	2	1	13	3			
Muslim	42	17	13	3			
Christianity	24	10	65	15			
Sikh	2	1	9	2			
Buddhist	2	1	0	0			
Other	2	1	0	0			
<i>Diagnosis of illness</i>					1	9.01	.00
Yes	61	25	96	22			
No	39	16	4	1			
<i>Fitness within the last month</i>					-	11.5	.01 ⁺
Very Good	5	2	0	0			
Good	54	22	22	5			
Not Sure	17	7	17	4			
Poor	20	8	30	7			
Very Poor	5	2	30	7			
<i>Marital Status</i>					-	18.18	.00 ⁺
Married	61	25	30	7			
Widowed	10	4	61	14			
Separated	7	3	4	1			
Divorced	17	7	4	1			
Single	5	2	0	0			
<i>Culture</i>					1	2.11	.19
Anglo British	46	19	65	15			
Asian British	54	22	35	8			
<i>Social Class Category</i>					-	8.53	.12 ⁺
I. Professional	22	22	9	2			
II. Managerial/Technical	12	30	17	4			
IIINM: Skilled non-manual	9	22	35	8			
IIIM: Skilled manual	2	5	26	6			
IV: Partly Skilled	4	10	4	1			
V: Unskilled	5	12	9	2			
<i>Educational Level</i>					-	11.34	.01 ⁺
None	2	1	26	6			
School level	15	6	17	4			
Post-School level	51	21	50	11			
Degree level	27	11	4	1			
Postgraduate level	5	2	4	1			
Other	0	0	0	0			

+ = Fisher's Exact Test

3.2 MAIN HYPOTHESES

3.2.1 ATTENTIONAL BIASES FOR PRESENT-FUTURE (P/F) AND KNOWLEDGE-EMOTION INFORMATION (K/E) RELATIVE TO AGE

Levene's test revealed that the assumption of homogeneity of variance within the P/F and K/E dimension was violated ($F(1, 62) = 15.96$ & $F(1,62) = 18.76$; both $p < .001$). Test statistics reported account for the fact that equal variance is not assumed.

Present-Future (P/F) Dimension

As predicted in **hypothesis one**, the Y/O group ($M = 4.55$, $SE = .32$), scored, on average, significantly higher than the O/O group ($M = 2.04$, $SE = .22$) on the P/F dimension ($t(62) = 6.49$, $p < .001$), representing a large effect size $r = .64$. This indicates that the Y/O group on average showed a significant bias for *Future* goal-oriented information, within the vignettes. Alternatively, the O/O group on average biased *Present* goal-oriented information.

Knowledge-Emotion (K/E) Dimension

In line with **hypothesis two**, the Y/O group ($M = 4.28$, $SE = .28$) scored significantly lower, on average, than the O/O group ($M = 7.42$, $SE = .17$) within the K/E dimension ($t(60) = 9.64$ $p < .001$) representing a large effect size $r = .78$. These results show a significant difference in the direction predicted; the Y/O group favoured goal-oriented information relating to knowledge, whereas the O/O group significantly biased emotion goal-oriented information within the vignettes.

Present-Future (P/F) and Knowledge-Emotion (K/E) Dimension

Kendall's tau correlation coefficients are reported due to the non parametric nature of the data. Analysis showed that the P/F and K/E dimensions were significantly negatively correlated, $\tau = -.56$ ($p < .001$, one tailed). This indicates, in line with **hypothesis three**, that individuals reporting, on average, a bias for *Present* goal-oriented information within the P/F vignettes also showed, on average, a bias for *Emotion* goal-oriented information within the K/E vignettes. Conversely, individuals reporting, on average, a bias for future goal oriented information, within the P/F vignettes, on average, biased knowledge goal-oriented information within the K/E vignettes.

Partial correlations revealed that the K/E and P/F goal-oriented dimensions remained significantly correlated when the independent and combined effects of age and FTP were controlled for ($r = -.32, -.35$ respectively, and combined age and FTP $r = -.27$, all one tailed, all $p < .05$).

3.2.2 FUTURE TIME PERSPECTIVE SCALE (FTPS) ANALYSIS

FTPS, AGE and Estimation of Time Left (ETL)

Correlation analysis using the entire sample ($N = 64$) was employed to examine the relationship between FTPS, ETL, and the goal-oriented dimensions. Non – parametric coefficients are reported, as Kolmogorov-Smirnov test indicated that the parametric assumption of normally distributed data was violated for FTPS and ETL scales ($D(64) 0.143$ and $D(64) 0.141$ respectively, both $p < .01$).

As predicted, within **hypothesis four**, FTPS was significantly negatively associated with age of participant ($\tau = -.66, p < .001$, one tailed), indicating that as age increases perception of future time decreases. Participants age account for 44.1 per cent of the variance within FTP. Similarly, ETL and age were significantly negatively correlated ($\tau = -.75, p < .001$) illustrating, as predicted, that as age increases ETL decreases.

Consistent with **hypothesis five**, scoring on the FTPS and ETL were significantly positively correlated ($\tau = .74, p < .001$, one tailed) with FTP accounting for 54.8 per cent of the variance within ETL.

FTPS and ETL and the Goal-Oriented Dimensions

As predicted, scores on the FTPS were found to be significantly negatively associated with the K/E dimension ($\tau = -.56, p < .001$, one tailed) and positively significantly correlated with the P/F dimension ($\tau = .61, p < .001$, one tailed test). As such, participants perception of the time left in life, as measured by the FTPS accounted for 37.2 per cent of the variance within the P/F dimension and 31.4 per cent of the variance within the K/E dimension. These findings are in line with **hypothesis six**.

ETL was also found to be significantly associated with the K/E ($\tau = -.62$) and P/F dimensions ($\tau = .58$, both one tailed, both $p < .01$). ETL accounted for 38.4 per cent and 33.6 per cent of the variance within the K/E and P/F dimensions respectively.

In summary, limited reported FTP and ETL were found to be significantly correlated with a bias for present and emotion (over future and knowledge) goal-oriented information within the vignettes. Alternatively, more expansive reported FTP and ETL was significantly associated with a bias for future and knowledge (over present and emotion) goal-oriented information within the vignettes.

Partial Correlations

Partial correlation analysis revealed that FTPS was significantly correlated with K/E ($r = -.30$) and P/F ($r = .41$, both $p < .01$) goal-oriented dimensions, even when the effect of age was controlled for. When age was controlled the FTPS accounts for 9 and 17 per cent of the variance within the K/E and P/F goal-oriented dimensions respectively; a finding in line with **hypothesis seven**.

3.2.3 CULTURE, AGE, AND THE P/F AND K/E DIMENSIONS

Summary statistics (within Table 3.2) reveal that the two cultural groups were matched for gender, marital status, diagnosis of a serious illness, fitness level in the last month and educational level. The two groups were also matched in respect of smoking ($\chi^2(1) = 0.87$, $p = n.s.$), area in which they lived ($\chi^2(1) = 0.87$, $p = n.s.$), change in their religious beliefs (F.E.T $p = n.s.$) and considering themselves to have enough money (F.E.T $p = n.s.$).

The two groups were not matched in regard to age, religious beliefs, or social class (see Table 3.2). In respect of the other background characteristics the two groups were found to be significantly different in relation to alcohol consumption ($\chi^2(1) = 25.04$, $p < .01$).and living arrangements, (F.E.T. $p < .001$).

Table 3.2 : Socio-demographic characteristics of the two cultural comparison groups

Characteristic	Anglo British (n = 34)		Asian British (n = 30)		Summary Statistics		
	Mean	SD	Mean	SD	df	t	p
<i>Age of Participants</i>	72.82	8.56	67.30	6.28	60	2.97	.004
<i>Gender</i>	%	N	%	N	df	χ^2	p
Male	44	15	67	20	1	3.27	.07
Female	56	19	33	10			
<i>Religious beliefs</i>					-	69.72	.00 ⁺
No Beliefs	27	9	3	1			
Hindu	-	-	13	4			
Muslim	-	-	67	20			
Christianity	73	25	-	-			
Sikh	-	-	10	3			
Buddhist	-	-	3	1			
Other	-	-	3	1			
<i>Diagnosis of illness</i>					1	.34	.56
Yes	77	26	70	21			
No	23	8	30	9			
<i>Fitness within the last month</i>					-	8.39	.06 ⁺
Very Good	3	1	3	1			
Good	35	12	50	15			
Not Sure	9	3	27	8			
Poor	32	11	13	4			
Very Poor	21	7	7	2			
<i>Marital Status</i>					-	3.76	.46 ⁺
Married	41	14	60	18			
Widowed	32	11	23	7			
Separated	9	3	3	1			
Divorced	12	4	13	4			
Single	6	2	0	0			
<i>Social Class Category</i>					-	11.37	.04 ⁺
I. Professional	18	6	17	5			
II. Managerial/Technical	9	3	43	13			
IIINM: Skilled non-manual	35	12	17	5			
IIIM: Skilled manual	18	6	7	2			
IV: Partly Skilled	9	3	7	2			
V: Unskilled	12	4	10	3			
<i>Educational Level</i>					-	4.37	.36 ⁺
None	15	5	7	2			
School level	18	6	13	4			
Post-School level	47	16	53	16			
Degree level	21	7	17	5			
Postgraduate level	0	0	10	3			
Other	0	0	0	0			

+ = Fisher's Exact Test

Cultural differences in FTSP

The Anglo British group reported a less expansive FTP ($M = 25.26$, $SE = 1.66$) relative to the Asian British group ($M = 27.97$, $SE = 1.49$). This difference was established to be insignificant ($t(62) = -1.20$, $p = n.s$).

The insignificant difference in average FTP score for the two groups may reflect the significant age discrepancy between the groups (see Table 3.2).

Given the significant age discrepancy between the two groups, correlations between FTP and age were explored for each cultural group. Age and FTP was found to be more strongly correlated within the Anglo British group ($\tau = -.79, p < .001$, one tailed) with participant age accounting for 62.4 per cent of the variance within FTP scores. Within the Asian British group age accounted for 30.3 per cent of the variance within FTP scores ($\tau = -.55, p < .001$, one tailed).

FTPS and the Goal-Oriented Dimensions

Partial correlations were carried out between FTPS and K/E and P/F dimensions controlling for the effect of age (as the groups were not balanced in this respect).

FTP and the K/E dimension was found to be significantly negatively correlated within the Asian British group ($r = -.36, p < .05$, one tailed) and insignificantly negatively correlated for the Anglo British group ($r = -.18, p = n.s.$, one tailed). FTP accounted for 13.1 and 3.2 per cent of the variance within the K/E dimension for the Asian British and Anglo British groups respectively.

FTP and the P/F dimension was found to be significantly positively correlated within the Asian British group ($r = .40, p < .05$, one tailed), and the Anglo British group ($r = .35, p < .05$, one tailed). FTP accounted for 16 and 14.3 per cent of the variance within the P/F dimension for the Asian British and Anglo British groups respectively.

Culture, Age, and the Knowledge-Emotion (K/E) Dimension

Table 3.3 shows mean comparisons between the Anglo British and Asian British groups for the two goal-oriented dimensions. To investigate the influence of culture and potential interactions between age and culture on the K/E dimension, an age (Y/O and O/O) x culture (Asian British and Anglo British) between-subjects ANOVA was conducted (see Table 3.4 for the ANOVA statistics). Consistent with the previous findings age had a significant effect on the K/E dimension ($F(1,60) = 54.61, p < .01, \omega^2 = .45$), with the Y/O participants showing a significant bias for knowledge (over emotion) goal-oriented information and O/O participants showing a significant bias for Emotion (over knowledge) goal-oriented information. This pattern was seen in both cultural groups. No significant association was found in relation to culture and biases within the K/E dimension ($F(1,60) = 2.058, p = n.s$). There was no significant interaction found between age group and cultural group in relation to biases within the K/E dimension ($F(1,60) = 0.158, p = n.s$)

Table 3.3: Anglo British and Asian British participants scoring within the P/F and K/E Dimensions

	Present-Future		Knowledge-Emotion	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Anglo British n = 34	3.64	2.11	5.91	2.13
Y/O n = 19	5.00	1.74	4.51	1.82
O/O n = 15	1.93	1.02	7.68	0.67
Asian British n = 30	3.65	2.14	4.85	2.02
Y/O n = 22	4.17	2.19	4.09	1.77
O/O n = 8	2.25	1.20	6.93	0.83

Table 3.4: Showing 2x2 between subjects ANOVA, comparing age and cultural groups in relation to the mean score on Knowledge-Emotion (K/E) dimension.

Four Conditions	Type III Squares	of Df	Mean Square	F	Sig
Age groups (Y/O/O/O)	124.939	1	124.939	54.606	0.00
Cultural groups (Asian/Anglo British)	4.709	1	4.709	2.058	0.157
Age groups x Cultural groups	0.361	1	0.361	0.158	0.692
Error	137.27	60	2.288		
Total	287.027	63			

Ethnicity and Present-Future (P/F) Dimension

To investigate the influence of culture and potential interactions between age and culture on the P/F dimension, an age (Y/O and O/O) x culture (Asian British and Anglo British) between-subjects ANOVA was conducted (see Table 3.5 for the ANOVA statistics). As previously shown, age had a significant effect on biases within the P/F dimension ($F(1,60) = 28.48, p < .01, \omega^2 = .30$), with the Y/O participants showing a significant bias for future (over present) goal-oriented information and O/O participants showing a significant bias for present (over future) goal-oriented information. This pattern was seen in both cultural groups.

No significant effect was established between culture and biases within the P/F dimension ($F(1,60) = 0.30, p = n.s.$). No significant interaction was found between age and culture in relation to biases within the P/F dimension ($F(1,60) = 0.15, p = n.s.$).

Table 3.5: Showing 2x2 between subjects ANOVA, comparing age and cultural groups in relation to the mean score on Present-Future (P/F) dimension.

Four Conditions	Type III Squares	of Df	Mean Square	F	Sig
Age groups (Y/O/O/O)	85.837	1	85.83	28.477	0.00
Cultural groups (Asian/Anglo British)	0.908	1	0.908	0.301	0.585
Age groups x Cultural groups	4.53	1	4.534	1.504	0.225
Error	180.857	60	3.014		
Total	281.327	63			

CHAPTER:4 DISCUSSION

4.1 SUMMARY OF RESULTS

4.1.1 AGE AND GOAL-ORIENTED DIMENSIONS

Hypothesis one and two were supported. The results demonstrated that “Old old” (O/O) participants, were significantly more inclined to favour present and emotion goal-oriented information, in comparison to the “Young old” (Y/O) participants. Conversely, Y/O participants showed a significant preference for future and knowledge goal-oriented information.

In line with hypothesis three and consistent with Carstensen’s theory of SST (Carstensen *et al.*, 1999), the two goal-oriented dimensions (K-E and P-F) were found to be significantly associated. In other words, individuals with an attentional bias for future goal-oriented information were more likely to show a bias for knowledge goal-oriented information (over emotion goal-oriented information). Conversely, individuals showing a bias for present goal-oriented information were more likely to bias emotion goal-oriented information (over knowledge-oriented information). Notably, these associations were maintained when the effects of age and FTP were controlled for. These findings appear to support SST’s proposition that behaviour is motivated by two interrelated bipolar goal “constellations”; (e.g. future/knowledge oriented-goals and present/emotion oriented-goals) (Carstensen *et al.*, 1999).

4.1.2 FTP AND GOAL-ORIENTED DIMENSIONS

As predicted within hypotheses four and five, less expansive FTP was strongly and significantly associated with ageing and reduced ETL in life. Moreover, reduced ETL was found to be significantly associated with ageing. This suggests that as people get older they perceive their future time as being more limited in life.

Hypothesis six was also found to be supported. Results indicate that individuals with a limited FTP and ETL showed a bias for present and emotion goal-oriented information (over *Future* and *Knowledge* goal-oriented information). Conversely, individuals reporting a more expansive FTP and greater ETL favoured information relating to future

and knowledge goal-oriented information (over present and emotion goal-oriented information).

In line with hypothesis seven FTP was found to explain unique variance in both goal-oriented dimensions, even when the effect of age was controlled for. This result would appear to support SST's assertion that FTP, and not necessarily chronological age, modulates goal-oriented shifts from future and knowledge to present and emotion (Carstensen *et al.*, 2003; Fung & Carstensen, 2004).

Further analysis revealed that ETL and FTP are matched in the proportion of variance they each predicted within the goal-oriented dimensions. This suggests that ETL may be a useful alternative single question measure to FTPS when examining motivational shifts related to ageing.

4.1.3 CULTURAL VARIATIONS

The final objective of the study was to investigate the cross cultural validity of SST by examining cultural differences in FTP and the associations between age, FTP, and the two goal oriented dimensions. In this dimension results were more complex.

There was no significant difference found between the Anglo British and Asian British groups regarding their mean score on the FTPS. This was surprising, as the two groups were significantly different in terms of average age, (see table 3.2) as the Anglo British group, were significantly older than the Asian British group. As one might expect, given the age of the Anglo British group, they shared a stronger relationship between age and FTP relative to the Asian British group. This suggests that age is less predictive of FTP within Asian British individuals, relative to Anglo British. This may suggest that culture or underlying religious beliefs may modulate the effects of FTP, contrary to the exclusively age-related explanation offered by SST (Lang & Carstensen, 2006).

There was no significant difference established between the two cultural groups in regard to goal-oriented biases. Within both cultural groups results indicate that age and FTP modulate goal orientation in the aforementioned directions. However, a closer examination of the data showed that the association between FTP and the knowledge-emotion dimension was stronger within the Asian British group relative to the Anglo British group. This suggests that FTP may be a better predictor of the knowledge to

emotion motivational shifts for Asian British individuals relative to the Anglo British. The strength of the association between FTP and the *Present to Future* dimension appeared to be comparable between the two groups.

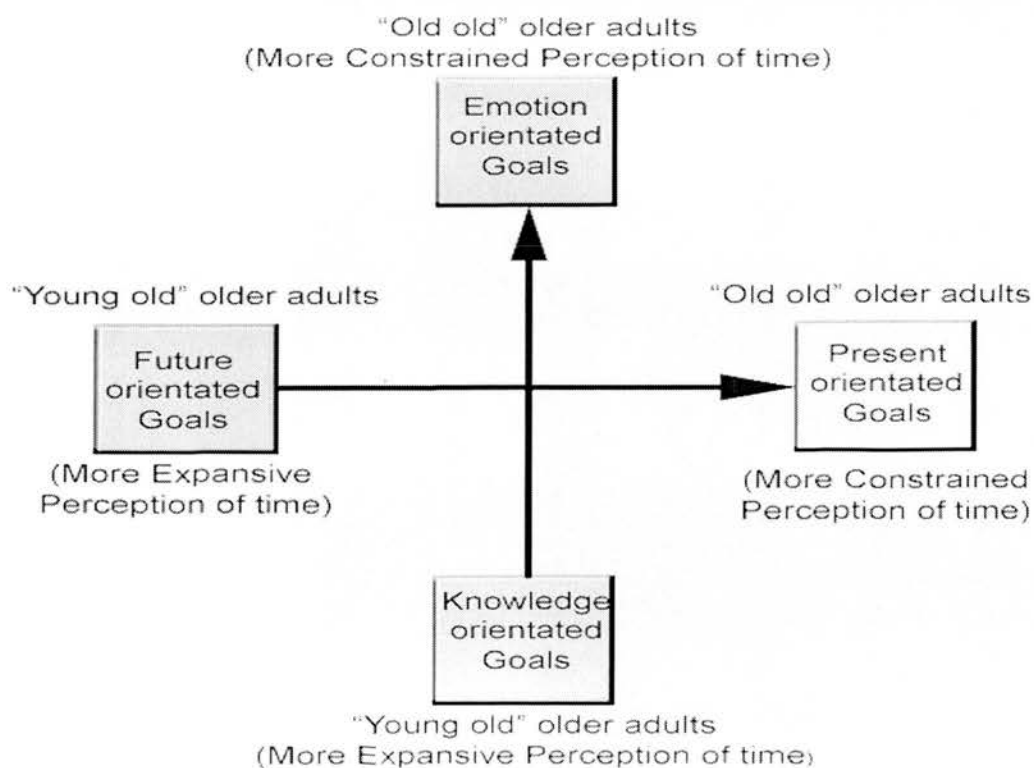
Overall, results from this study are in strong support of SST as the attentional biases associated with ageing and FTP for the two goal dimensions are in line with SST predictions. The strength and patterns of associations within the study indicate that the combined implementation of vignettes and VAS are a successful measure for detecting the shifting attentional biases associated with ageing and FTP.

4.2 DISCUSSION OF SST AND AGEING

This study, consistent with the findings of Lockenhoff and Carstensen (2004) showed that the O/O older people group prioritised present and emotion goal-oriented information compared with young old participants. The two goal-oriented dimensions tested within the study are conceptualised within figure 4.1, which attempts to illustrate how age and FTP are connected to these dimensions. The two goal-oriented dimensions (K/E and P/F) were found to be significantly associated. In other words, individuals with an attentional bias for *Future* goal-oriented information were more likely to show a bias for knowledge goal-oriented information. Equally, individuals with a bias for present goal-oriented information were more likely to exhibit an attentional bias for present and emotion goal-oriented information. Notably, these associations were maintained, even when the effects of age and FTP were controlled for.

The current study findings appear to support SST's proposition that goal-oriented behaviour is motivated by two competing bipolar goal "constellations"; (e.g. future-knowledge and present-emotion oriented goals) (Carstensen *et al.*, 1999). Overall, the findings of this investigation are in line with many previous studies supporting the notion of age-related motivational shifts in information processing (e.g. Carstensen *et al.*, 1997; Carstensen *et al.*, 2003; Carstensen & Mikels, 2006; Fredrickson & Carstensen, 1990; Mathers & Carstensen, 2005).

Model illustrating cognitive and emotional shifts from "young old" older adults to "old old" older adulthood



Developed by M. Wajid Zia

Figure 4:1: illustration of cognitive emotional shifts.

4.2.1.1 THE KNOWLEDGE -EMOTION DIMENSION AND PREVIOUS SST FINDINGS

The age related shift from *Knowledge* to *Emotion* observed within the current study can be viewed within the context of several former studies showing similar findings. A large body of SST theory and memory research has focussed on age related patterns across the lifespan (e.g. Carstensen, 1992, Carstensen & Mikels, 2005; Fredrickson & Carstensen, 1990) and the shifts observed during the end of life (Carstensen & Fredrickson, 1998). Carstensen and Turk- Charles (1994) for example, showed that “salience of emotions” increases progressively with age, from 20 to 83 years of age, where emotional content regarding social interactions was increasingly retained by older people. Emerging research from cognitive ageing also suggests that older persons’ memory resources are more focussed on affect (Hashtroudi *et al.*, 1994), where memories for emotional and subjective information are more readily retained (Gould & Dixon, 1993). Memory for emotional material is shown to be good in older people,

especially for positive information (Charles, *et al.*, 2003, Carstensen *et al.*, 2006). This investigation appears to support the view that information processing can vary as a function of age.

SST studies showing presence for more meaningful social network composition in response to old age (Carstensen, 1990, Carstensen & Frederickson, 1998; Lang and Carstensen, 1994) and constrained FTP (Carstensen, 1990, Frederickson, 1995; Ernsner-Hershfield, *et al.*, 2008) also appear to point towards age-related motivational shifts. SST argues that *Present* orientation involve goals related to emotional meaning and emotional regulation, where attention from *Future-oriented* goals shifts to experiencing occurrences in the present moment. *Present-oriented* goals are therefore refracted in the pursuit of emotionally gratifying interactions (Carstensen, 1992, 1993; Carstensen *et al.*, 1997, Carstensen *et al.*, 1999).

This study indicates that the type of goal-oriented information that is likely to be attended to can be predicted by age or FPT. As discussed earlier, previous SST lab-based studies, engaging attentional mechanisms have yielded inconsistent findings, implicating personality factors, such as optimism (e.g. Isaacowitz, 2005) and neuroticism (Charles, 2001 *et al.*,) and not necessarily age. Alternatively other studies seem to show that older people are actively motivated towards positive information (Isaacowitz *et al.*, 2008; Mathers & Carstensen, 2003).

Consistent with the assumption of SST, this study has shown that *Knowledge* and *Emotion-related* goals together comprise an essential constellation of goals that motivate social behaviours, and cognitive appraisal throughout life. When *Knowledge-related* goals compete relating to the regulation of emotion, the comparative importance of the two goals are evaluated and action is taken or avoided, depending on the temporal horizon of human development (Carstensen, 1992, 1993; Carstensen *et al.*, 1997, Carstensen *et al.*, 1999).

4.2.2 MOTIVATIONAL SHIFTS AND THE POSITIVITY EFFECT

SST researchers have attempted to offer a motivational account of why the emotional trajectories may become increasingly positive across the human lifespan. In essence it is thought that the motivational shifts associated with ageing, reflect the fundamental goal of emotion-regulation, which is linked to the increased positivity, evident in older

age. The interaction of motivation and goal-directed behaviour aimed at self-regulation across the human lifespan is well established (Kuhl & Furhrmann, 1998, Heckhausen, 1998; Heckhausen & Schulz, 1995). For example, age-related priorities have shown to be reflected in cognitive appraisal, motivation and social behaviour (Carstensen, 1991; 1992; 1993; Carstensen, *et al.*, 1999; Carstensen *et al.*, 2006; Fung & Carstensen, 2004).

In the current study, progressive age is associated with a move from *Future* towards *Present* and from *Knowledge* to *Emotion* oriented-goals. Isaacowitz and colleagues (2008) argue that this pattern of motivational shifts is also reflected in the attentional bias for positive social stimuli, as a means of self regulation in old age. However, it is important to make clear that the shifts within the dimensions associated with age were not examined in relation to the participant's sense of positivity. In other words, the relationship between the *Future* to *Present* and *Knowledge* to *Emotion* dimensions and the positivity effect was not directly tested within this study.

Nevertheless, the co-occurrence of the motivational shift towards *Present* and *Emotion*, and the corresponding *positivity effect* have been well documented, which are thought to be "automatically activated" in old age, indicated by the type of information older people prioritise (Lockenoff & Carstensen, 2007; Mather 2006). Kennedy and colleagues (2004) found that O/O participants (aged 79-101) tended to intrinsically shift emphasis towards *Present* and *Emotion*- oriented goal. These findings lead them to conclude that increasing age was linked with a "positivity effect". Importantly, their data also showed that when *Present* and *Emotion*-oriented goals were experimentally induced in younger adults, then regardless of age, participants exhibited a positivity bias. This would appear to counter an exclusively age-related explanation for the so-called positivity effect, suggesting that the *Present-Emotion* shift in goal orientation may be the key modulator.

The underlying mechanisms of the "well-being paradox" (Diener *et al.*, 1999; Staudinger, 2000) may be explored within the framework of SST and potentially be synonymous with the positivity effect. Consistent with this supposition, advanced age has shown to be a protective factor against psychopathology (Gatz *et al.*, 1993), across several epidemiologic data-driven studies (Foster, 1997). Carstensen and colleagues (2006), propose that older people may exhibit a greater level of "well-being", compared

to their younger counterparts, as they are motivated to focus on emotion regulation, proactively pursuing rewarding social choices. In other words, the focus in later life is on achieving good homeostasis of affect, even as cognition and physical health may become more problematic.

Based on this, evidence, it would seem plausible, even when considering the under reporting and under-detection (Gallo *et al.*, 1994; Gallo, *et al.*, 1999; Holland, *et al.*, 2010) of depressive disorders amongst older people, that old age may entail adaptive and protective emotional regulatory processes. These mechanisms may be motivational in nature and compensate for the challenges of old age, enhancing emotional well-being (Willis & Schaie, 2006).

4.2.3 AGEING COGNITION, MOTIVATION AND SOCIOEMOTIONAL FUNCTIONING

Based on the literature review, it would seem that the interaction of intellectual functioning, motivation, and emotion regulation could hold important clues for understanding adaptive ageing. For example, Hess and colleagues (2003) in their study showed that deterioration in performance of memory tasks only emerged when age-related decline was emphasised to participants. Younger adults were generally shown to out perform older adults, however, this effect was significantly reduced when participants read the positive account of memory (i.e. article describing that memory may “improve” with age). The researchers identified that earlier positive accounts of memory mediated effective “semantic clustering” strategies. Conversely, efficient strategies were not engaged by those older people who were told of age-related memory deficits. Such research evidence points to the possible influence of emotion and motivation on cognitive performance, indicating that socioemotional functioning can be maintained or even enhanced with age (Carstensen *et al.*, 2006)

Moreover, improved crystallised intelligence in old age may offset cognitive decline in areas of fluid intelligence or “effortful functioning” (Salthouse; 2004; Schaie, 2000) and could also interact with motivational systems, as the demands of the cognitive systems shift from acquiring new information (knowledge-oriented goals) to emotion regulation. Evolutionary Theories of ageing also suggest that evolutionary design (Sterans, 2000) and adaptive evolutionary mechanisms underlie human ageing. In this sense, age-related changes may occur in the face of age related challenges. Watt (2004) posits that

“cognition is an extension of emotion” whilst “emotion is an evolutionary extension of homeostasis” (p. 77). Motivation can therefore be viewed as a behavioural extension of shifts in goal orientation driven by these underlying age-related adaptive mechanisms and processes (Gollwitzer & Kirchhoff, 1998; Heckhausen & Gollwitzer, 1987; Heckhausen, 1998; Heckhausen & Schulz, 1995). It would therefore be entirely adaptive in old age to shift resources to *Present* and *Emotion* oriented goals and towards enhancing emotional functioning, over the acquisition of new information.

4.3 DISCUSSION OF FUTURE TIME PERSPECTIVE AND SST

Consistent with previous research the current study found that less expansive FTP is associated with increasing chronological age. Specifically, longitudinal studies, examining the relationship between individual differences in FTP, concluded that older individuals saw their time as more constrained (Lang, 2000; Lang & Carstensen 2002). Notably, age only accounted for under half of the variance within responses to FTP, suggesting that although these factors are linked, other elements may also contribute to an individual's FTP.

The findings regarding the relationship between FTP and the goal-oriented dimensions were also inline with previous studies. For example, Lang and Carstensen (2002) found that participants reporting a constrained FTP prioritised emotionally meaningful goals. Conversely, individuals who viewed their futures as open-ended favoured knowledge-oriented goals.

4.3.1 FTP AND CHRONOLOGICAL AGE

SST researchers argue that a constrained FTP and not necessarily chronological age is the key factor modulating the motivational shifts associated with emotional regulation. This view is supported by extensive research (e.g. Carstensen *et al.* 2003; Carstensen *et al.* 1999; Ersner-Hershfield *et al.* 2008; Kennedy *et al.*, 2004; Lockenhoff & Carstensen 2007).

Consistent with these previous studies this investigation found that FTP showed a significant association with the K/E and P/F dimensions, independent of participant's age. Controlling for the effects of age reduced the strength of this relationship, however, it is important to note that this finding indicates that the relationship between

FTP and goal orientations is in part independent to age. This indicates that the shift from future and knowledge to present and emotion goal orientations and the associated positivity effect, relates in part to perceived time limitedness and not exclusively age. This is an area of growing interest for SST researchers. Specifically, Isaacowitz proposes that “motivational manipulation can change younger adults’ attention to negative stimuli to be more like older adults” (Appendix, 1.2). Importantly this would indicate that there are motivational systems, subsidiary to the age related systems, which effect processing biases throughout the lifespan. The current study implicates FTP as one of these systems. The incorporation of the estimation of time left in life question and its parallel with FTP in relation to the association with the goal-oriented dimensions indicates that this factor is also an additional, related, modulating factor to motivational systems.

Additional studies exploring the relative independence of FTP and age, in relation to socio-emotional motivational shifts, have looked at illness and students approaching graduation. Specifically, studies on both HIV (Carstensen & Fredrickson, 1998) and Cancer (Pinquart & Silbereisen, 2006) patients have helped in separately examining constrained perception of time and chronological age in relation to emotion regulation. Carstensen and Fredrickson (1998, study 2) divided participants into three groups (e.g. HIV-negative, HIV-positive asymptomatic and HIV positive symptomatic). The data showed that HIV positive symptomatic participants showed a shift towards affective dimensions comparable to participants 70 years and older that had non-HIV status. The study showed that both age and illness interacted with an individual’s perceived time in life. When time was perceived as more limited they began to organise social interactions along emotional dimensions.

An alternative explanation of this finding may be that HIV disease carries with it a social stigma or fear of contracting infections. Therefore, interactions with familiar social partners may be preferred over and above novel social relationships due to combined effects of social discrimination and failing health.

In an attempt to mitigate some of these criticisms Pinquart and Silbereisen (2006) analysed the preference of social contacts of cancer patients. They also argued that whereas HIV cannot be successfully treated, cancer on the other hand can potentially be treated. They investigated the effect of various therapeutic successes, which in turn

presumably effected perception of time left in life, against patient's contact preferences. The participants in this study consisted of 329 newly diagnosed cancer patients (ages ranging from 18-83 years old) and 170 control group participants, who had no diagnosis of cancer or life threatening illness.

The results indicated that cancer patients, regardless of age, were more likely than healthy controls to show a preference for familiar social relationships. The data also indicated that contact preferences changed depending on the perceived success of treatment. In other words if treatment was successful, in particular amongst younger patients, then a corresponding increased preference for novel social contacts emerged. Conversely perceived failure of treatment resulted in a shift toward maintaining emotionally close social relationships.

A weakness of Pinquart and Silbereisen (2006) study is that no direct measure of FTP was employed, instead the criteria used was; cancer diagnosis; type of therapy and perceived level of success of therapy to reflect time limitedness. Despite this limitation, the study can be seen to support SST. It indicates that restriction in time limitedness rather than age accounts for shifts in selective social contact preferences, which in turn facilitates emotion regulation.

Fredrickson (1995) examined the socio-emotional behaviour of 66 college students in relation to the length of time prior to graduating and age. The study indicated that there was no difference between senior (fourth year) students and the younger cohort in the time they spent with different social partners. However, senior students nearing their graduation rated the need for emotional engagement with their friends much more highly compared with the younger age group. The study appears to support that SST is not restricted to older people nearing the end of their life, but is equally applicable to younger individuals at a time of transition.

Considered together, these studies suggest that FTP and age do not follow a paralleled trajectory as life factors influence FTP and hence affect socio-emotional motivational shifts.

4.3.2 IS FTP A UNIDIMENSIONAL CONCEPT?

An additional consideration in exploring the trajectory and characteristics of FTP and its relationship to socio-emotional motivational shifts is whether FTP is appropriately viewed as unidimensional. Much of SST research conceptualises FTP as a construct representing a bipolar continuum from expansive to constraint perception of time (Fung *et al.*, 2001; Lang & Carstensen, 2002). Cate and John (2007) suggest that such a “unidimensional” and “bipolar” conceptualisation of FTP does not incorporate “duality” and the complexity of how perception unfolds and effects motivations. For example, middle age can be viewed as a time of both gains in psychological resources and increasing investment in the future and emotion goals, even though this time in life can be accompanied by a more time limited perception (Helson, Soto, & Cate, 2006; Staudinger, & Bluck, 2001). Cate and John (2007) posit that the structure of FTP needs to explain how individuals can accommodate competing demands and seemingly prioritise goals that differ from that predicted by SST. They argue that in order to understand the structure of FTP and how it changes in adulthood, it is important to establish how it fits into the “framework” of middle age.

Interestingly, studies discussed earlier looking at age differences in social goal preference (i.e. Carstensen & Fredrickson, 1998; Fredrickson & Carstensen, 1990) also show that middle age may be an important understudied period regarding the underlying structure of FTP. These studies found that middle-aged individuals placed the greatest importance on information seeking when interacting with a new social partner, above even the young adults. These findings suggest that middle age may be a time of continued emphasis on gaining information, even though there is a simultaneous importance placed on emotion regulation a pattern inconsistent with SST. Future research may wish to consider a more multidimensional conceptualisation of time and its interaction with goal orientation.

4.4 DISCUSSION OF CULTURE AND SST

Overall the current study lends supports to the cross cultural validity of SST with both cultures showing associations between age, FTP and the goal-oriented dimensions in a manner consistent with SST. These findings concord with several previous studies supporting the cultural validity of SST (e.g. Fung *et al.*, 1999, Carstensen *et al.*, 1999; Carstensen & Fredrickson, 1998b).

Nevertheless, there appears to be some contention within the cross-culture evidence for SST (e.g. Carstensen & Fredrickson, 1998b; Fung & Ng, 2006; Fung *et al.*, 2008a; 2008b; Tsai *et al.*, 2000). It may be argued that within eastern cultures attentional biases to negative stimuli as a means of social regulation could be seen as a method of emotion regulation. Consequently, the SST assertion that individuals shift toward positively salient information for the purpose of emotion regulation may not be universal across all cultures.

4.4.1 CULTURE, FTP AND AGE

The data within this study indicated that age was less predictive of FTP for Asian British participants compared with Anglo British (although within both cultural groups age and FTP were significantly associated). This suggests in line with earlier studies by Fung and colleagues (2008a) that there are cultural differences influencing the relationship between age and FTP. Abi-Hashem (2000), asserts that the question of time and how people view it is not simply about cognitive or emotional behaviour; rather, it is more “existential, spiritual, and philosophical” in nature, so cultural differences may well be expected in relation to age and FTP.

There are several factors worth considering in respect to cultural differences in the relationship between age and FTP. Boniwell & Zimbardo (2004) propose that time is a continuous variable in life in which subjective experiences are conceptualised and organised. Time and the timing of events that affect individuals can be organised within three distinct possibilities, the past (relating to events that have already occurred), the present (unfolding moments) and the future (the events that have not yet occurred). Crucially they argue that these are the three temporal frames within which all human experiences are organised. They provide cognitive categories within which knowledge structures can be tagged and are relevant for memory processes (encoding, storage and retrieval), and for developing inferences and goal expectations (Zimbardo & Boyd, 1999). They also highlight that categorisation of social information is likely to depend on factors such as individual’s interpretation, beliefs and the context in which knowledge is retrieved and applied. It is therefore viable that culture and age differences will interact with these factors, especially when considering the religious differences between these two groups. This has been conceded by SST as being an important but often neglected variable (Carstensen *et al.*, 1999).

4.4.2 CULTURE, FTP AND THE KNOWLEDGE -EMOTION DIMENSION

Within the present study FTP appeared to be a better predictor of participants' Knowledge-Emotion motivational shift for British Asian participants relative to the Anglo Asian participants. This finding can be considered within the broader context of cultural differences within time and perception. Research evidence consistently shows that East Asians, compared to their western counterparts, make broader, more complex causal attributions relative to time (Chiu & Hong, 2007). East Asians are thought to be more in tune with past events and more sensitive to future events in an effort to deduce from experience and to distal consequences of events. In contrast Western individuals are thought to be predisposed to "living in the moment", more readily discounting the future (Briley, 2009). Knight and Poon (2008) maintain that the nature of individual's socio-cultural environment can shape their cognitive representations in important ways. Critically, at the core of these cultural variations are differences in the complexity of inferences and evaluation of time.

Several cross cultural studies (e.g. Markus & Kitayama, 1991; Triandis, 1989) have consistently shown that Western societies found in the United States place greater value on factors such as independence, autonomy and uniqueness. Within these cultures, individuals seek positive emotions (Frey & Stahlberg, 1986) in order to maintain and promote their self-esteem and optimism (Herzog, Franks, Markus & Holmberg, 1998). East Asian cultures, however (e.g. Japan and China) place greater importance on interdependence and not viewing the self as a separate unit, but rather as part of a broader community and collective structure. It would seem that East Asians view optimism (Chang, Sanna, Yang, 2003) and self-esteem (Kwan, Bond, & Singelis, 1997) as being less important than being able to fit in to the wider society.

Kitayama and Karasawa (1995) argue that East Asians are motivated and attuned to negative emotions in their social environment in order to comply with social norms and to avoid social mistakes. Therefore in East Asian culture emotion regulation involves being able to monitor positive as well as negative emotion. Consistent with this view, Uchida (2007) noted that the construct of happiness for Americans only included positive features, whereas Japanese considered both positive and negative features as individual happiness within a group context may lead to social disharmony for the wider group.

In essence, research indicates that non-Western cultures adopt a more encompassing integrative framework of motivating factors for behaviours and thoughts. This may be one explanation for the difference between cultures within the current study. Specifically, the stronger association between FTP and the K-E dimension for British Asian participants may reflect their more established integration of these two concepts relative to the Anglo British.

4.5 LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

4.5.1 METHODOLOGICAL LIMITATIONS AND CONSIDERATIONS

Despite the potential innovative value of this research, it is important to highlight the principle shortcomings of this methodology from the onset. Firstly, there is no precedence for using vignettes in any previous SST research and it is important to emphasise that the vignettes, in this study, have only been tested on a relatively small sample group. In light of these concerns, the vignettes may be vulnerable to several methodological limitations.

Firstly, the content may reflect cultural biases. For example, “going on holiday” and “attending to the garden” (statements within the vignettes), could reflect culturally specific priorities, which may not be equally prioritised or familiar within the two cultural groups. Moreover, the vignettes have not been standardised for factors such as class and educational status. This may be problematic as individuals could identify with the content of vignettes, depending on factors such as class or educational background. For example, middle class participants might be expected to place greater importance on new learning as a means of identifying present-oriented goals rather than future goals.

Finally, given that only English language vignettes were used within the study, it is possible that these measures are not sensitive enough to be used in samples where English is a second language. It may be that only highly acculturated participants would have the English language capability that would allow for the information reflecting the goal-oriented domains to be detected. It is important to note that issues regarding the cultural appropriateness of experimental measures are a consideration for all studies, where cultural differences are being explored.

On balance, these vignettes have been influenced by the earlier work of Carstensen and Turk-Charles (1994) termed *Incidental Memory Paradigm* which included extracts from a popular novel containing emotional and non emotional information. More generally, vignettes have been used extensively in clinical research to examine information processing (Crain, Finch, & Foster, 2005), cognition and motivation (Stolte, 1994), and to assess internal subjective states (Wewers & Lowe, 1990). They have been shown to be robust and valid instruments (Finch, 1987; Tiplady, Jackson, Maskrey, & Swift, 1998).

Additional steps were also taken to seek critical evaluation of this approach from the onset. Firstly, a pilot study was used to determine the face validity of the vignettes. This provided useful feedback and allowed for improvements within the research procedure and design. A critique of the approach and the underlying rationale was sought from Professor Derek Isaacowitz (Appendix: 1.1; 1.2), who is one of the key proposers of SST. A meeting was held with Professor Bob Knight on 24th February 2009, who provided a review of the study, in relation to its design, procedure, and the key elements of SST being evaluated (Appendix :1.3; 1.4; 1.5). An attempt was also made to invite critique of the method and the rationale being employed from Professor Laura Carstensen but no response was received (Appendix: 1.6). It is hoped that this demonstrates the rigorous effort to seek critical review of the methodology being employed.

4.5.2 SAMPLE CONSIDERATIONS

There are several limitations in regard to the sample within the study. Firstly, participants were recruited using a snowball opportunistic sampling technique. This was the most effective method, within the timeframe, for accessing the difficult to reach community dwelling target sample. Nevertheless, this sampling method is shown to be less satisfactory compared with random sampling techniques (Clark-Carter, 2008). Future research would benefit from a random sampling technique.

The study was limited in its effort to establish matched comparison groups (between Y/O vs. O/O, and Anglo British vs. Asian British) in respect to various socio-demographic factors. Consequently, findings related to age and cultural differences must be interpreted more cautiously. Many of the socio-demographic factors that were

unbalanced between the two age groups were consistent with ageing. For example, the O/O group reported higher levels of illness, poorer fitness levels, lower educational level, and contained more widowers. The two age groups were also not matched in respect of religious beliefs and living arrangements. Given studies indicating the influence of illness on shifting FTP (e.g. Carstensen & Fredrickson, 1998; Pinguart & Silbereisen, 200), future research should be directed at exploring how these factors may interact with age, FTP, and the motivational shifts proposed by SST.

Socio-demographic differences between the two cultural groups reflect expected cultural variations (e.g. religious affiliation and alcohol consumption). It was not possible within the confines of the current study to ascertain how cultural and religious factors may interact with FTP and the goal-oriented dimensions. As such “cultural” differences reported within the study may in fact reflect “religious” differences. Useful prospective investigations may seek to disentangle cultural as a pose to religious or spiritual differences that interact with lifespan development. This is particularly prudent given the increasing evidence that positive spirituality is an important factor for health and “ageing, well-ness” among older adults (Crowther *et al.*, 2002)

The current study highlighted several important considerations for future investigations aimed at addressing the cultural validation of SST. Firstly, due to stringent inclusion criteria (e.g. fluent English language capability) it appears that the Asian sample were highly acculturated and contained proportionately higher levels of SES (relative to the Anglo British group). Several steps should be taken to take account of acculturation and SES within cultural comparisons. Firstly, the measures used within the study should be available within the participants’ native language. Prospective studies could seek to develop vignettes and FTPS in various languages. Secondly, to allow for acculturation to be more adequately considered with a measure, taking account of the length of time a participant has spent within the “host” culture should be introduced. Within the current study it was not established when the Asian British participants had migrated to Scotland, for example in their early adult life or in later years.

Given the heterogeneity of Asian British individuals, in respect to religion, language, and accepted norms for integration within the host culture future research should be more specific in isolating a particular cultural group to investigate.

A more general sampling limitation of the study is that it is difficult to ascertain how representative the older adult sample within the study is to the wider older adult population. Invariably individuals willing to engage within research projects are those who are more socially engaged, have greater levels of mobility, and are likely to have greater personal resources. Willingness to take part in the research may in of itself exclude individuals who were more withdrawn and aversive to social contact. Hence it could be speculated that the sample within this study (relative to the older adult population as a whole) were better emotionally regulated, more confident and more willing to engage in activities that they perceived to be meaningful and helpful to others.

4.5.3 LIMITATION OF MEASURES

An important limitation of the study is that the relationship between age, FTP, and the two goal-oriented dimensions was not examined in relation to the positivity effect. An important consideration for future research is to address whether the individuals who bias more *Present* and *Emotion* goal-oriented information (and report less expansive FTP) also report higher positivity.

An interesting finding from the study was that FTP and the one question ETL measure were highly significantly associated and matched in the proportion of variance they explained in the goal-oriented dimensions. Future research could benefit from further establishing this association with the aim of validating a single item measure, ETL, as an equally useful instrument relative to the 10 item measure, for exploring SST.

It was beyond the scope of the current study to explore how personality factors may interact with the association between FTP and shifts within the goal-oriented dimensions. Previous research indicates that personality factors such as optimism (Isaacowitz, 2005) and neuroticism (Charles *et al.*, 2001) are related to attention to stimuli that affect emotion regulation. What is not clear is how these factors interact with FTP and the consequences of this potential interaction on attention to emotional stimuli and other goal-oriented behaviours that influence emotion regulation.

4.5.4 ANALYSIS CONSIDERATIONS

As with all studies employing correlation analysis causal relationships between factors cannot be deduced. For example, FTP has been found to be associated with the present-future and knowledge-emotion dimensions. Interpretation of this finding from the perspective of SST is that FTP modulates the bias shifts from knowledge to emotion and from present to future. However, it may be the case that biases within these two goal-oriented dimensions influence FTP. In other words, it may be that a bias for more *Knowledge* goal-oriented information influences an individual's FTP. However, given the close relationship between age, FTP, and the two goal-oriented dimensions, interpretation of the findings consistent with SST seems tenable.

A similar difficulty arises in speculating the direction of influence between the two goal-oriented dimensions. Specifically, it is unclear whether a bias for *Emotion* goal-oriented information causes the bias for more *Present* goal-oriented information or vice versa. Equally it is unclear whether a bias for *Knowledge* goal-oriented information provokes the bias for *Future* goal-oriented information or the converse. Future research is needed to better understand interactions between the two goal-oriented dimensions.

The third variable problem is also an important consideration. For example, although it is tenable that age is the causal factor in shifting FTP it must also be considered that there could be other factors, related to both age and FTP, underlying this association.

4.5.5 VALIDITY AND RELIABILITY OF THE VIGNETTES

Response to the vignettes was shown to be significantly associated with age and FTP in a manner consistent with SST, suggesting that this method could be a valid instrument for use within SST research. Additionally, findings from the pilot study suggest that the vignettes show face validity. Importantly internal reliability of the vignettes for the P-F and K-E dimension was shown to be encouragingly high, suggesting that all the vignettes are consistently measuring the two dimensions under investigation.

Nevertheless, the current study was limited in its capacity to fully demonstrate the validity and reliability of vignettes for implementation within SST research. Future studies should seek to validate the vignettes by exploring their association with previous methods employed within SST research for example card-sort paradigm (Fredrickson

and Carstensen 1990). Additional test-retest reliability of the vignettes must also be considered within future research.

Despite the numerous weaknesses of this investigation, it has perhaps taken a small step towards testing SST and exploring the dynamic and the multifaceted phenomena of human ageing.

4.5.6 CLINICAL IMPLICATIONS

Clinical implications include the need for setting present-oriented and emotionally meaningful goals in therapy, particularly for older adults who may be encountering life limiting conditions. Activity scheduling and homework, for example may benefit from more explicit emphasis on emotional regulation, and activities that are emotionally meaningful for older people. Compared to younger people, older people are likely to find greater meaning in the present moment, rather than be motivated to allocate cognitive resources to planning far into the future. These principles may be helpful for guiding and discovering during the therapeutic process. The findings from this investigation, also appear to support the Selective Optimisation and Compensation model. Beyond this, at this stage, it may be tenuous to draw extensive clinical implications from this study given that it actively recruited healthy older people. Nevertheless, this study has demonstrated that older people, despite the inevitable challenges associated with ageing, retain the capacity to adapt and flourish well into their later life.

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APPENDICES

APPENDIX 1: CORRESPONDENCE

**APPENDIX 1.1 CORRESPONDENCE WITH PROFESSOR DEREK
ISAACOWITZ. REGARDING THE METHODOLOGY EMPLOYED AND THE
STUDY RATIONALE**

Re: Research Application of STT by Edinburgh University D. Clin. Psych. student

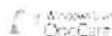
From: Wajid Zia (wajidz@hotmail.com)

Sent: Wed 12/24/08 9:30 PM

To: Derek M. Isaacowitz (dmi@brandeis.edu)

Cc: isaacowitz@brandeis.edu; Ken Laidlaw (klaidlaw@staffmail.ed.ac.uk)

2 attachments



Fung, Isa...pdf (50.6 KB), Isaacowit...pdf (79.9 KB)

Dear professor Isaacowitz,

I am a Trainee Clinical Psychologist based at the University of Edinburgh. As part of my doctorate thesis I am looking at Socioemotional Selectivity Theory (SST). I have greatly benefited from your analysis and evaluation of successful socioemotional ageing. In particular, I have found your paper 'An Attentional Perspective on the Successful Socioemotional Ageing: Theory and Preliminary Evidence' (2005), both challenging and compelling.

It was challenging because it required me to integrate understanding about a range of cognitive processes, such as memory, attention and motivation, along with paying attention to the mechanisms associated with emotional regulation. It was compelling because of your thoroughness and high level of scrutiny, including that of your own research data (e.g. your eye-tracking study of emotion and ageing).

From your article I hypothesised that perhaps this discrepancy in data is due to the methodologies employed and that the variance may be dependent on the cognitive processes being engaged, i.e. attention or specific components of memory. In so doing, such methods may be circumventing the composite processes of social information processing.

As I understand the chief contention of SST is that there are four goal oriented domains (Present, Future, Emotion and Knowledge) and that there is a shift in motivation and information processing away from future towards the present and from knowledge to emotion oriented goals. The key variable for the positivity bias in social information processing appears to be perception of time, rather than exclusively age. This view seems to be supported by the research evidence from young adults suffering from cancer and those who perceive time as limited.

In my research effort I am hoping to engage all the key assumptions of the theory, such as the four domains and the perception of time left. In my research approach I have attempted to ensure that all the composite components of information processing are subject to a naturalistic social stimulus.

The participants will be requested to rate their responses on visual analogue scales after listening to 2 sets of 4 short vignettes which contain equally weighted numbers of sentences, relating to present and future goals. A similar approach will be employed when considering emotion versus knowledge bias. Future Time perspective Scale (FPTS) will also be administered. My sample would consist of healthy OA's (i.e. non-depressed, GDS score < than 4 & free from cognitive impairment as indicated by MMSE scores > 23). I am hoping to recruit cross-cultural population (indigenous white N= 30; immigrant non-white N=30) as there appear to be very few studies testing STT across cultures.

I would be most interested in your research findings as noted in your paper: ‘Age related positivity enhancement is not universal. Older Chinese look away from positive stimuli’ (in Press). I wonder if you would be able to provide me a copy of this paper? I am sure it would be helpful in understanding the data from the largely South East Asian population in my study.

I am wondering if the key variable in the positivity effect observed within adaptive human ageing is the perception of time left in life? It is also interesting that the motivational shifts noted by SST are also observed within the neurobiological structures of the normal ageing brain. SST suggests that motivation in response to time being limited shifts away from knowledge and future oriented goals (which are largely supported by frontal structures) towards the present and emotional regulation goals (which are largely limbic in nature). This neuro-structural shift is typically observed in EEG studies of the normal ageing brain, for example reduction in prefrontal cortex activity and functions, and seemingly parallel increased activation in some of the limbic regions.

Moreover some studies have also highlighted neuronal shrinkage in the hippocampus of normal ageing brains. As I understand the hippocampus is harmonically synchronized to the thalamus and the limbic system is in part inversely integrated with the prefrontal cortex. Interestingly, the neurobiological literature also implicates the mid parts of the limbic system to the brain clocks. I suspect that limbic systems correlate with “quantum” style properties. I must confess that my current understanding of neurobiology is restricted. I am also assuming that inferences can be made from observed shifts in information processing to neurobiological structures. In my defence, however, I would suggest that neuropsychology also makes predictions on this very basis.

I am sorry for this lengthy email, I felt it would be helpful for me to outline my thoughts and subject them to scrutiny and critique. I am also attaching a paper: ‘Subjective Perception of Time and a Progressive Present Moment: The Neurobiological Key to Unlocking Consciousness’ in the hope that it may be of some interest.

I would greatly appreciate your critique of my approach and the rationale that underlies it. For example, the grasp of the key constructs of SST and the method being proposed to test its main contentions. I would be most grateful for your response. In the meantime please accept my best wishes over the festive break and for the coming New Year.

Kind regards

Wajid

Wajid Zia (BSc. M. Phil)

Trainee Clinical Psychologist

Royal Victoria Hospital Directorate

13 Craighleith Road,

Edinburgh

United Kingdom

**APPENDIX 1.2 CORRESPONDENCE WITH PROFESSOR DEREK
ISAACOWITZ.
RESPONSE RECEIVED REGARDING THE METHODOLOGY EMPLOYED
& THE STUDY RATIONALE.**

Re: Research Application of STT by Edinburgh University D. Clin. Psych. student

From: Derek M. Isaacowitz (dmi@brandeis.edu)

Sent: 24 December 2008 21:30:42

To: Wajid Zia (wajidz@hotmail.com)

Cc: isaacowitz@brandeis.edu; Ken Laidlaw (klaidlaw@staffmail.ed.ac.uk)

📎 2 attachments

Fung, Isa...pdf (50.6 KB), Isaacowit...pdf (79.9 KB)

Hi Wajid,

Nice to hear from you. I am attaching the paper you requested, as well as another recent one that may be of interest (it appeared in Psych Science in September). You raise some very interesting questions about distinguishing the role of motivational changes and neural changes, and my brief answer is that I think we are on the verge of starting to be able to do this, but it is still early.

So, for example -- we find that motivational manipulations can change younger adults' attention to negative stimuli to be more like OA's, but not so for positive stimuli. Some work by Kensinger and others is suggesting a unique role for neural changes in OA's' preferential processing of positive stimuli. So, this may be one way in which motivational and neural changes might together produce "positivity effects" in cognition.

Please keep me posted on the interesting work that you are doing, and best wishes for a happy and healthy holiday season.

Best wishes

Derek

APPENDIX 1.3 CORRESPONDENCE WITH PROFESSOR BOB KNIGHT

RE: Requested critical review of the Research Procedure, Methodology and underlying research assumptions. Further to a meeting held on 24th February 2009.

Re: SST- thesis research- Edinburgh University D. Clin. Psych. student

From: Wajid Zia (wajidz@hotmail.com)

Sent: 09 March 2009 22:01:38

To: bknight@usc.edu

Cc: Ken Laidlaw (klaidlaw@staffmail.ed.ac.uk)

1 attachment



Thesis Overview..doc (54.0 KB)

Dear Professor Knight,

I hope you enjoyed your visit to Edinburgh and that you will have an opportunity to return in the near future.

I would like to thank you for meeting with me on 24th February to discuss my thesis project. I really appreciated being able to discuss specific issues related to my study design and procedure, as well as, conceptually broader questions of adaptive and maladaptive ageing, culture and its meaning and the future direction of research in these areas .

As requested, I would be most grateful for your written feedback on the study design and procedure and the key elements of Socioemotional Selectivity Theory being engaged. For example- knowledge vs emotions and future vs present oriented goals. I have attempted to outline the study more fully in the overview document for your consideration. I am attaching this document in case you no longer have the paper copy.

Once again thank you for your advice and guidance

Best wishes

wajid.

APPENDIX 1.4 CORRESPONDENCE WITH PROFESSOR BOB KNIGHT

Response received regarding critical review of the Research Procedure, methodology and underlying research assumptions. Further to a meeting held on 24th February 2009.

Re: SST- thesis research- Edinburgh University D. Clin. Psych. student

From: Bob Knight (bknight@usc.edu)

Sent: 11 March 2009 19:48:14

To: Wajid Zia (wajidz@hotmail.com)

Wajid,

I enjoyed meeting with you as well and am impressed with the core ideas and design of your study. I'll be interested in seeing the results.

I read it a bit more closely on the train a few days ago. I mainly look carefully at the body of the proposal and the questionnaires that I was less familiar with. I remained impressed with the design of the study.

My main suggestions would be regarding analysis strategies. I think your current hypotheses basically come down to correlations between time perception and perception of present to future oriented goals in the stories and between time perception and affective versus informational content of stories. These are interesting, but I found myself wondering about potential differences between young-old and old-old and between Euro-Scottish and Asian-Scottish participants, and whether you would expect any interaction effect there. I think it would be interesting both in terms of mean levels of different variables and also to look at whether the correlations mentioned above would differ among these groupings.

In any case, good luck with the study and let me know the results when you have them,

Bob G. Knight, Ph.D.

The Merle H. Bensinger Professor of Gerontology

Professor of Psychology

University of Southern California

Los Angeles, CA 90089-0191

**APPENDIX 1.5 CORRESPONDENCE WITH PROFESSOR BOB KNIGHT.
REVIEW OF THE METHODOLOGY EMPLOYED**

RE: SST- thesis research- Edinburgh University D. Clin. Psych. student

From: Wajid Zia (wajidz@hotmail.com)

Sent: 15 March 2009 16:33:02

To: Bob Knight (bknight@usc.edu)

Dear Professor Knight,

Please forgive my delay in writing back. The last weeks have been absorbing as I am coming to the end of my clinical training and related processes. Thank you so much for your helpful feedback and advice. Your suggestions seem immensely relevant and alive as I start to contemplate analysis of the data.

Provisionally I would say that my sample is too small to pick up any subtle interactions within the groups. I will however let you know of what I find. Once again, I would like to thank you for meeting with me in Edinburgh and guiding me with your views and feedback.

I will continue to follow your and Ken's work closely, and I am sure like many of my colleagues, I will be inspired to think creatively about the big questions before us.

Thank you.

Best wishes

Wajid

**APPENDIX 1.6 CORRESPONDENCE WITH PROFESSOR LAURA
CARSTENSEN.**

Request review of the methodology employed.

FW: Research Socioemotional Selectivity Theory- Edinburgh University D. Clin. Psych. student

From: Wajid Zia (wajidz@hotmail.com)
Sent: Tue 1/27/09 5:50 PM
To: laura.carstensen@stanford.edu
Cc: Ken Laidlaw (klaidlaw@staffmail.ed.ac.uk)

Dear professor Carstensen,

I am a Trainee Clinical Psychologist based at the University of Edinburgh. As part of my doctorate thesis I am looking at Socioemotional Selectivity Theory (SST). I am fortunate enough to be supervised by Ken Laidlaw who is one of our senior Clinicians and one of our leading researchers in the psychology of ageing. As I understand he has worked closely with Bob Knight and recently amongst other work has jointly edited the "Handbook of Mental Disorders in Later Life: Assessment and Treatment" (2008). Ken had initially introduced me to your theory, so I have him to thank for my interest in SST.

I have become interested in this theory for number of reasons. This includes its capacity to enable researchers to test out the positivity bias observed within the human ageing process. Moreover from my reading so far, this theory seems to concord with a large body of neurobiological evidence and many of the structural shifts observed in the normal ageing brain. For example, broadly speaking most researchers agree that there is a decline in prefrontal cortex activity and associated functions. However there also appears to be parallel shifts within the limbic regions, characterised by an increase in limbic activity. As you will know this shift is by no means global across these regions. For instance the hippocampus appears to show neuronal shrinkage. I am attempting to ground my understanding of the cognitive and goal oriented shifts noted in SST within the current understanding of neurobiological mechanisms.

I hope this approach will help me to understand better the cognitive and social information processing shifts, as noted in SST, from Future and Knowledge orientated goals to Present and positive Emotion related goals, subject to perception of time left. If this were to be the case than I think it could potentially throw up big questions regarding the adaptive and evolutionary mechanisms in the human ageing brain and what adaptive ageing looks like at structural, cognitive and behavioural levels. This would seem to tie up with some of the arguments advocated by Erickson.

In my study I am using your FTSP scale and vignette methodology to test bias of social information processing across 4 domains, namely Present versus Future and Emotion versus Knowledge. The participants will be requested to rate their responses on visual analogue scales after listening to 2 sets of 4 short stories which contain equal number of sentences relating to present and future goals. A similar approach will be employed when considering emotion versus knowledge bias. My sample would consist off healthy OA's (i.e. non-depressed ,GDS score < than 4 & free from cognitive impairment as indicated by MMSE scores >23). I am hoping to recruit a cross-cultural population (indigenous white N= 30; immigrant non-white N=30) as there appear to be very few studies testing STT across cultures. I have come across Fung et al (2008) paper which looks at 'Age differences in social network composition among German and Hong Kong Chinese' using STT. This has been helpful for me in understanding the cross cultural validity and application of your theory.

I would be most grateful for any suggestions and advice that you may have for me in testing your theory. However, I do have some clear questions at this stage and they are as follows:

1) Am I right in thinking that STT theory proposes 4 goal oriented domains (Present, Future, Emotion and Knowledge) where the key variable for the positivity bias in social information processing is perception of time rather than exclusively age? As suggested by research evidence from young adults suffering from cancer etc.

2)I am also attempting to target information processing bias (positivity bias) rather than specific areas of cognitive functioning such as that of memory or attention which have been the primary focus by other researchers. In your view what is the conceptual validity of this approach?

3) Would you have any comments or suggestion on the methodology being employed?

4)I am also using your FTPS but only using a 5 point response as advocated by some researchers rather than the original seven point response on the FTPS. Do you feel this is acceptable and would this compromise the validity or the reliability of the FTPS?

I would be most grateful for your response and your views as I take tentative steps towards integrating my clinical and research interests for the future. I avidly look forward to your response. In the meantime please accept my best wishes over the festive break and for the coming New Year.

Kind regards

Wajid

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Phone: (Off): Office: 00-44-(0) 131 5375096/7

Fax: 00-44-(0) 131 5375141/0

Email: Mohammad.Zia@nhslothian.scot.nhs.uk

APPENDIX 1.7 LETTER OUTLINING RESEARCH AIMS

ROYAL VICTORIA HOSPITAL DIRECTORATE

13 Craigleith Road, Edinburgh EH4 2DN

Tel: 0131 537 5000 Fax: 0131 537 5141/0

Department of Clinical Psychology

Trainee Clinical Psychologist: M. Wajid Zia

(Direct Dial: 0131 537 5096/7) Ext : 35096/7

Date:

Ref: XXX

Dear Mr-- or Ms---

RE: A STUDY OF HOW PERCEPTION OF TIME LEFT IN LIFE AFFECTS OUR GOALS.

Further from our telephone conversation on [*insert date*] I would like to thank you for agreeing to take part in this study by identifying older adults, who use your service and will meet the criteria for taking part. In this study, we are aiming to learn more about how perception of time left in life affects our feelings, thoughts and actions in everyday life. Please refer to the enclosed participant information sheet for a fuller overview of the research project.

The summary of findings will be made available to your organisation, to individuals who take part, and to other healthcare professionals working with older adults, with the aim of improving the needs and the well-being of older adults in our community. As discussed, all participation is voluntary and requires the person to consent in writing. After an individual has read and understood the content from the participant information sheet, and agreed to take part, they will be given at least, a two week cooling off period. After this time they will then be asked to provide written consent and will then be interviewed. Notably, no participation fee will be paid. The University of Edinburgh Ethics Committee has scrutinised this project to make sure that it is ethically sound. However, should you have any further questions or queries then please do not hesitate to get in touch using my contact details above.

I look forward to meeting with you on [*insert date*] to discuss this further. In the meanwhile, I am enclosing some information which maybe helpful in understanding a little more about the research project and to see if older adults using your service will be suitable for this study.

Yours sincerely

M. Wajid Zia

List of attachments:

- Attachment 1: Identifies individuals who will be suitable for this study and individuals who may not meet the study criteria.
- Attachment 2: Participants Information Sheet
- Attachment 3: Participants Consent Form
- Attachment 4: Questionnaire to be completed by the interviewer in a private space.

APPENDIX 2: ETHICS

APPENDIX 2.1 ETHICS LREC

South East Scotland Research Ethics Service

Deaconess House
148 Pleasance
Edinburgh
EH8 9RS
Tel: 0131 536 9067
Fax: 0131 536 9346



Name: M. Wajid Zia
Address: Trainee Clinical Psychologist
Clinical Psychology Department
Royal Victoria Hospital
Edinburgh
EH3 2DN

Date: 26/08/2010
Your Ref:
Our Ref: NR/0908AB02
Enquiries to: Alex Bailey
Extension:
Direct Line: 0131 536 9050
Email: alex.bailey@nhslothian.scot.nhs.uk

Dear Mohammad,

Full title of project: How perception of time left in life effects information processing and goal orientated behaviour in older adults

You have sought advice from the South East Scotland Research Ethics Service on the above project. This has been considered by the Scientific Officer and the Chair of LREC01 and you are advised that, based on the submitted documentation (thesis consent form, thesis participant information sheet, changed thesis proposal), it does not need NHS ethical review under the terms of the Governance Arrangements for Research Ethics Committees in the UK. The advice is based on the following:

- *The participants are neither patients nor relatives or carers of patients (recruited for this reason) nor are they NHS staff or medical students.*

You may wish to inform your local R&D Office/clinical effectiveness unit of your intention to run the project in individual NHS Board areas so that they can give consideration to the need to register with the local R&D office.

Please note that this advice is issued on behalf of the Research Ethics Service and does not constitute a favourable opinion or an endorsement from a Research Ethics Committee. It may be provided to journal editors, conference organisers or others who require evidence of consideration of the need for ethical review prior to publication or presentation of your results. If you wish you may still decide to apply to a REC, but note that a retrospective ethical opinion cannot be given.

You should retain a copy of this letter with your project file as evidence that you have sought advice from the South East Scotland Research Ethics Service.

Yours sincerely,

Alex Bailey
Scientific Officer
South East Scotland Research Ethics Service

Enclosure: NRES leaflet - "Defining Research"

South East Scotland Research Ethics Service

DIFFERENTIATING AUDIT, SERVICE EVALUATION AND RESEARCH

November 2006

The "Ad Hoc Advisory Group on the Operation of NHS Research Ethics Committees" recommended NRES should develop guidelines to aid researchers and committees in deciding what is appropriate or inappropriate for submission to RECs, and NRES (with the Health Departments and with advice from REC members) has prepared the guidelines in the form of the attached table.

RESEARCH	CLINICAL AUDIT	SERVICE EVALUATION
The attempt to derive generalisable new knowledge including studies that aim to generate hypotheses as well as studies that aim to test them.	Designed and conducted to produce information to inform delivery of best care.	Designed and conducted solely to define or judge current care.
Quantitative research – designed to test a hypothesis. Qualitative research – identifies/explores themes following established methodology.	Designed to answer the question: “Does this service reach a predetermined standard?”	Designed to answer the question: “What standard does this service achieve?”
Addresses clearly defined questions, aims and objectives.	Measures against a standard.	Measures current service without reference to a standard.
Quantitative research -may involve evaluating or comparing interventions, particularly new ones. Qualitative research – usually involves studying how interventions and relationships are experienced.	Involves an intervention in use ONLY. (The choice of treatment is that of the clinician and patient according to guidance, professional standards and/or patient preference.)	Involves an intervention in use ONLY. (The choice of treatment is that of the clinician and patient according to guidance, professional standards and/or patient preference.)
Usually involves collecting data that are additional to those for routine care but may include data collected routinely. May involve treatments, samples or investigations additional to routine care.	Usually involves analysis of existing data but may include administration of simple interview or questionnaire.	Usually involves analysis of existing data but may include administration of simple interview or questionnaire.
Quantitative research - study design may involve allocating patients to intervention groups. Qualitative research uses a clearly defined sampling framework underpinned by conceptual or theoretical justifications.	No allocation to intervention groups: the health care professional and patient have chosen intervention before clinical audit.	No allocation to intervention groups: the health care professional and patient have chosen intervention before service evaluation.
May involve randomisation	No randomisation	No randomisation
ALTHOUGH ANY OF THESE THREE MAY RAISE ETHICAL ISSUES, UNDER CURRENT GUIDANCE:-		
RESEARCH REQUIRES R.E.C. REVIEW	AUDIT DOES NOT REQUIRE R.E.C. REVIEW	SERVICE EVALUATION DOES NOT REQUIRE R.E.C. REVIEW

APPENDIX 2.2 UNIVERISTY ETHICS APPROVAL LETTER

The University of Edinburgh
School of Health in Social Science

RESEARCH ETHICS COMMITTEE


Ethics Checklist Number: HSS/ethics/17

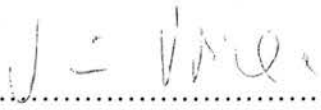
Name of Researcher: M Wajid Zia

Proposed Title of Research: How perception of time left in life affects information processing and goal orientated behaviours in older adults

This submission for review by the School of Health in Social Science Ethics Research Committee has been reviewed by two members. The Committee is happy to grant clearance, subject to the following advice:

The information sheet is very long, and the language is quite complex. It may put off potential participants who do not engage with this kind of written information. You may consider shortening and simplifying it, so that you recruit a wider range of study participants. If you decide to do this you should show the revised version to the Committee.

Signed:  Guro Huby
Research Ethics Committee



Date: 16-12-2008
Signed:  David Price
Research Ethics Committee

Date: 17/12/08
Date:

The University of Edinburgh
School of Health in Social Science

SCHOOL OF HEALTH IN SOCIAL SCIENCE

APPROVAL BY RESEARCH ETHICS COMMITTEE

Name/s of Researcher/s:	M Wajid Zia
Ethics Checklist Number:	HSS/ethics/17
Proposed Title of Research:	How perception of time left in life affects information processing and goal orientated behaviours in older adults
Funding Body:	N/A
<p>The above research proposal has been approved by the School of Health in Social Science Research Ethics Committee.</p> <p>Signed:  (Guro Huby)</p> <p>Date: 16-12-2008</p> <p>Signed:  (David Price)</p> <p>Date: 17/12/08</p>	

**APPENDIX 2.3 ETHICS RESEARCH COMMITTEE PROPOSED
AMENDMENTS**

Correspondence with The University of Edinburgh Research Ethics
Committee CHSS


: [Fwd: Re: Ethics submission]

From: Wajid Zia (wajidz@hotmail.com)

Sent: 24 December 2008 17:21:20

To: l.sheal@ed.ac.uk

Cc: Ken Laidlaw (klaidlaw@staffmail.ed.ac.uk)

 **3 attachments**

**GDS-SCALE...doc (24.0 KB), GERIATRIC...doc (27.8
KB), REV-Thesi...doc (45.0 KB)**

Hi Lorna,

I hope you have had a pleasant break over the festive period. I have now conducted a small pilot study for my thesis research. On the basis of the feedback from participants I would like to use a shorter version of the Geriatric Depression Scale (GDS) which has 15 questions appose to the original GDS which has 30 questions. Can you please forward this to the Chair, CHSS Ethics Research Committee Guro Huby for their approval? I have also discussed this with my supervisor, Dr Ken Laidlaw, he has approved this.

The pilot also allowed me to test out the participant information sheet. Part 1 seems to be fine as it has been well understood and contains all of the key aspects, such as outline of the research, confidentiality, time taken to complete the interview and the right of the individual to withdraw from the study at any point without having to give a reason.

On refection I would like to retain part 2. I entirely agree that it is considerable in length but I am also conscious that the information sheet also has to comply with the NHS guidelines. Part 2 is very closely based on the NHS guidelines, including all of the

subheadings. However, if there are any other views on this by the Chair then, I would be happy to implement the suggestions fully (Please refer to the attached info. sheet).

Once again thank you for all your help in dealing with this.

Best wishes

Wajid

Attached:

- 1) Information sheet
- 2) GDS- long version
- 3) GDS- short version

APPENDIX 2.4 CHANGES APPROVED BY THE CHSS ETHICS CHAIR

RE: [Fwd: RE: [Fwd: Re: Ethics submission]]

From: Wajid Zia (wajidz@hotmail.com)

Sent: 18 January 2009 12:57:37

To: guro.huby@ed.ac.uk

Dear Guro Huby,
(Chair, CHSS Ethics Research Committee)

Thank you for your email and approving the changes and all your helpful suggestions.

Kind regards

Wajid

Re: [Fwd: RE: [Fwd: Re: Ethics submission]]

From: Guro Huby (guro.huby@ed.ac.uk)

Sent: 13 January 2009 17:44:51

To: Wajid Zia (wajidz@hotmail.com)

Cc: David Price (dprice4@staffmail.ed.ac.uk); 'Lorna Sheal' (L.Sheal@ed.ac.uk)

Wajid,

Many thanks for sending me the below update on your project. I have no comments or objections. The suggestion to simplify the information sheet is a suggestion and not a requirement.

Good luck with the project!

With best wishes,

Guro Huby

Chair, CHSS Ethics Research Committee

APPENDIX 2.5 CHANGES APPROVED BY THE CHSS ETHICS CHAIR

Re: [Fwd: RE: [Fwd: Re: Ethics submission]]

From: Wajid Zia (wajidz@hotmail.com)

Sent: 16 December 2008 17:44:51

To: Guro Huby (guro.huby@ed.ac.uk)

Cc: David Price (dprice4@staffmail.ed.ac.uk); 'Lorna Sheal'
(L.Sheal@ed.ac.uk)

Dear Guro Huby,

(Chair, CHSS Ethics Research Committee)

I would like to thank you and Mr David Price for providing ethics scrutiny and review of my thesis proposal. I greatly appreciate the suggestions that you have made regarding the length and the readability of the language used in the information sheet. I agree that the information sheet is too long. Initially I developed a single page document (largely part one of the current information sheet).

Additional headings and subheadings were added in order to meet the NHS guidelines for the 'information sheet' content. In an effort to address this I had divided the information sheet into 2 parts. Part one consists of an overview of the research that is brief, no more than a page at font 16 part two is much more in-depth. If you advise me to reduce the length to part one then I would be happy to do this. Secondly, after the first point is clear regarding length then I would be very keen to implement your suggestions regarding simplifying the language. I would also like to show the revised version to the committee and would greatly appreciate the feedback on this.

Finally as I understand I have the ethical clearance and the go ahead from the SHSS committee to recruit participants and gather data. I would greatly welcome you additional comments and will seek to implement them fully. Once again thank you for reviewing and advising me on my research proposal.

Best wishes

M. Wajid Zia

APPENDIX 3: PARTICIPANT INFORMATION

APPENDIX 3.1 INFORMATION SHEET



PARTICIPANT INFORMATION SHEET

STUDY TITLE: HOW PERCEPTION OF TIME LEFT IN THE WORLD AFFECTS OUR GOALS IN EVERYDAY LIFE?

PART I

Invitation to take part in a research project:

We would like to invite you to take part in a research study. Before you decide you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. Talk to others about the study if you wish.

Part 1 tells you the summary of the research. It will hopefully explain the purpose of the study and what will happen to you if you take part. **Part 2** gives you more detailed information about the conduct of the study. Please ask if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

Summary of the research project:

I am a Trainee Clinical Psychologist based at the Royal Victoria Hospital, Edinburgh. As part of my thesis for the University of Edinburgh I am carrying out research with the aim of learning more about how our feelings, thoughts and actions are affected by our perception of time left in life. If you decide to take part in this research, then we will describe the study and go through this information sheet, which we will then give to you. We will then ask you to sign the consent form to show you have agreed to take part.

In the first instance you will be requested to complete some measures which look at your mood, memory and thinking. This will help us to understand if you meet the criteria for taking part in the research. Once you have completed these measures then we will discuss what the results might mean in your case. This part should take no longer than 20 minutes.

If you meet the research criteria then we will begin with the main part of the research. In this part, questions relating to your age, ethnicity, religion and how much time you feel you have left in this world will be asked. You will also be required to listen to short imaginary stories about a person the same age as you and rate them on a scale. Please remember there are no right or

wrong answers to any of the questions. We are only interested in your opinions. This part should take no longer than 30 minutes.

Your participation is voluntary and should you for any reason decide not to complete the interview, you will be free to do so at any point without having to give a reason. Importantly, your decision to take part or withdraw from the study will not have any impact on the level of care or support that you may be receiving.

Any information that you provide will be treated as confidential and with sensitivity. It will not be possible for you to be identified by the information that you give. This means that all identifiable information such as name or date of birth will not be included in the final document.

If you would like access to the final report, or you have any further questions at a later stage, then please do not hesitate to get in touch using the contact details noted below.

Thank you

Contact Details (Researcher):

M. Wajid Zia
Trainee Clinical Psychologist
Clinical Psychology Department
Royal Victoria Hospital
Edinburgh
EH3 2DN

Tel: 0131- 537 5096 or 537 5205

Email: Muhammad.Zia@nhslothian.scot.nhs.uk

PART II

What is the Purpose of the Research? Why is it important?

It is estimated that the older adult population, age 60 and above, is likely to increase throughout the world, including Scotland. The need to understand and support this growing age group is also likely to become more important in the coming years. There is a lot of research evidence which suggests that there are some positive mental processes associated with ageing and when we perceive time to be limited in this world. At the moment very little is known about how these processes work in everyday life. In this study we are aiming to investigate the following:

- (1) As people get older their thinking gets more positive?
- (2) When we think we have limited time left in the world, does this trigger more positive thinking?
- (3) Do these processes affect our goals and what is important to us in everyday life?

Why have I been invited?

You have been asked to take part in this research because you are aged 60 years and over. You represent a comparatively healthy older adult population. This means that you are free from mental health difficulties such as depression or any other condition which may have an impact on your thinking abilities. Around 52 other people, 60 and above, will also be invited to take part in this research.

Do I have to take part?

No. It is entirely up to you. You are free to withdraw at any time, without having to give a reason. If you decide to take part, you are asked to sign a consent form to show you have agreed to take part. You will still be able to change your mind at any time, without having to give any reason. Importantly your decision to take part or withdraw from the study will not have any impact on the level of care or support that you may be receiving.

Who is doing the research?

The research is being carried out by M. Wajid Zia, Trainee Clinical Psychologist, as part of his qualification of Doctorate in Clinical Psychology at the University of Edinburgh. Dr. Ken Laidlaw. PhD. (Senior Lecturer) and

Ms. Liz Baikie, (Consultant Clinical Psychologist) will be supervising this research.

Will taking part in the research be kept confidential? Who will see the information that I provide?

Any information that you provide will be treated as confidential and with sensitivity. It will not be possible for you to be identified by the information that you give. This means that all identifiable information like name, date of birth will not be included in the final document. Only the named researcher will have access to the completed questionnaires or identifiable data.

Each participant will be allocated a number on top of the questionnaire so they cannot be identified based on the information they provide. All data will be anonymised. Questionnaires and consent forms will be stored separately in a secure and confidential NHS facility (Royal Victoria Hospital). The electronic data will be stored on a NHS laptop which is encrypted and password protected. At the end of the working day it is stored in a locked cupboard.

The information you provide will be disposed of securely after a maximum period of 3 years. Electronic data will be deleted from the computer as recommended by the NHS IT guidelines. Paper data and questionnaire will be shred and disposed of in a confidential NHS waste disposal bag.

What will happen to me if I take part?

You will only need to meet the researcher on a single occasion. In the first instance you will be requested to complete some measures which look at your mood, memory and thinking. This will help us to understand if you meet the criteria for taking part in the research. Once you have completed these scales then we will discuss what the results might mean in your case. This part should take no longer than 20 minutes.

If you meet the research criteria then we will begin with the main part of the research. In this part, questions such as your age, ethnicity, religion and how much time you feel you have left in this world will be asked. You will be asked to indicate your agreement with statements about your beliefs about the future. You will also be asked to listen to short imaginary stories, about a person the same age as you and rate them on a scale. Please remember there are no right or wrong answers to any of the questions. We are only interested in your opinions. This part should take no longer than 30 minutes.

Finally you will have an opportunity to ask questions and make any other comments about the research. If you meet the research criteria then the total duration of the interview should be no longer than 50 minutes.

What will happen to me if I do not meet the research criteria?

If you do not meet our entry criteria for the study as indicated by measures which look at your mood, memory and thinking. Then we will not continue with the other questionnaires. We will discuss the results of the measures and what they may indicate. You will have an opportunity to ask questions and to make any comments. You may be advised to see your G.P. who could make the decision to refer you to relevant local NHS services for fuller assessments.

You or your G.P can contact the researcher (using the details provided in part one) at a future date to discuss the results of these measures. It is important to highlight that the researcher will not be able to provide any clinical judgments or interventions.

Are there any risks or benefits to taking part?

You will be asked to estimate how much time you have left in the world. For some people this could be upsetting or difficult to talk about. Remember you are free to withdraw from the study at any time without having to give an explanation. If, at any time, you are asked a question you do not wish to answer or find the discussion upsetting, you can refuse to answer or stop the interview.

There are no individual benefits for taking part in this study. However, the finding from this research may help us to understand better the positive processes of ageing and could assist in developing more effective support services within the NHS.

What will happen to the results of the study?

The results will be used for a Doctorial thesis and hopefully for publication in a peer review journal. Upon request and using the contact details above a summary of the key findings can be made available.

Who has reviewed this research?

Before any research can be undertaken it needs to be examined by Ethics Committee to make sure that it is safe and suitable. The University of Edinburgh has approved this research. I have also sought advice from the South East Scotland Research Ethics Service.

What if there is a problem?

If you have a concern about any aspect of this study, you should ask to speak to the researcher who will do their best to answer your questions (Tel:

0131- 537 5096 or 537 5205). If the issue is not addressed to your satisfaction then you can contact Dr. Pauline Thomson (Clinical Psychologist), Leith Community Center, Edinburgh. Tel 0131 536 6393
Email: Pauline.Thomson@nhslothian.scot.nhs.uk

Dr. **Pauline Thompson** is not directly involved in this research.

If you remain unhappy and wish to complain formally, you can do this using the contact details noted below.

Professor Dave Peck

**School of Health in Social Science
The University of Edinburgh
Medical School
Teviot Place
Edinburgh**

EH8 9AG

Tel: 131 651 3972 Email: david.peck@ed.ac.uk

APPENDIX 3.2 CONSENT FORM

Serial No: _____



CONSENT FORM

I agree to the Following:

- I have read the information sheet provided and fully understood its contents.
- I understand that my participation is voluntary and that I am free to withdraw from this study at any stage without having to give a reason.
- I understand that I will have an opportunity to make comments and ask questions about all aspects of this research which may affect me.
- I agree that any responses I give during the research can be used anonymously in the presentation of the findings of this research.
- I agree to take part in this study.

Please sign: _____

Date: _____

Name: _____

D.O.B: _____

Age: _____

APPENDIX 3.3: QUESTIONNAIRE

Cancer Cerebrovascular Multiple health problems

Other (*Please specify*): -----

10. How would you classify your race/ethnicity? (*please tick*):

White Other white African Indian
Scottish British
Pakistani Chinese Other (*Please specify*): -----

11. What is your religion? (*please tick*):

None Hindu Muslim Christian
Sikh Buddhist Other (*Please specify*): -----

12. As you get older has the strength of your religious belief changed? (*Please specify*):

A lot Stronger Same Less A lot less
Stronger as before Stronger Stronger

13. Each week do you feel you have enough money to live comfortably? (*Please specify*):

Strongly Agree Not sure Disagree Strongly
Agree Disagree

14. Do you drink alcohol? (*please tick*):

No: Yes:

If yes then:

Has your drinking pattern changed in the last few years?

No: Yes:

If yes then are you drinking:

More than before Less than before Same as before

15. Do you smoke (*please tick*):

No: Yes:

If yes then:

Has your smoking pattern changed in the last few years?

No: Yes:

If yes then are you smoking:

More than before Less than before Same as before

16. How much time you feel you have left in this world?: Years-----

17. What strategies are you using to estimate this? Briefly describe: -----

19 Has your belief about time left in this world affected what is important to you in life?

No: Yes: not sure

PART II:

“In this section you will be asked a number of general questions regarding your beliefs about the future. In order to indicate your agreement with the items, please use this scale”

1 Strongly Disagree	2	3	4	5 Strongly Agree
--	----------	----------	----------	---

1. Many opportunities await me in the future.	
2. I expect that I will set many new goals in the future.	
3. My future is filled with possibilities.	
4. Most of my life lies ahead of me.	
5. My future seems infinite to me.	
6. I could do anything I want in the future.	
7. There is plenty of time left in my life to make plans.	
8. I have the sense that time is running out.	
9. There are only limited possibilities in my future.	
10. As I get older, I begin to experience time as limited.	

**PART III:
Administering the vignettes**

Instructions for participants: “Now we are going to do something different. In this section I ’m going to tell you few short stories about an imaginary person called.....[Say “**John**” if participant is male, say “**Gill**” if the participant is female]. I would like you to imagine yourself in the same situation as John/ Gill.

Please list to each story carefully. At the end of each story I’m going to ask you to rate what you think each story is about. There is no right or wrong answer. I am only interested in your opinion”.

Do you have any questions for me before we start? (*Researcher will record any questions or comments*): -----

Let’s begin. (*Gender specific vignettes will be administered and responses recorded on a separate vignette response sheet*).

Administer Vignettes:

Stories 1-4: ““using this line [researcher pointed to the line] can you show only using one cross anywhere through how much of this story you think this story is about [Johns/Jill’s] present or future goals”.

Stories 5-8: “This time you are asked to rate something different. ““using this line [researcher pointed to the line] can you show only using one cross anywhere through how much of this story you think this story is about [Johns/Jill’s] Knowledge or emotional goals.

PART IV

Debriefing of participants: “Thank you for taking part in this research. This study is aiming to look at how our goals change in life as we get older or see time as being more limited”.

1. Do you have any questions (*Researcher will record any questions or comments*):---

2. Do you have any comments that you would like to make (*Researcher will record any questions or comments*):-----

ONCE AGAIN THANK YOU FOR TAKING PART

APPENDIX 3.4: VIGNETTE RESPONSE SHEET

For Researcher use only
 Serial no:
 Group 1: Group 2:



VIGNETTE RESPONSE SHEET

EXAMPLE: Using only one cross anywhere through the line, please indicate how much you enjoyed your most recent outing?

Very Enjoyable	_____	Not at all Enjoyable
-------------------	-------	-------------------------

=====

Using only one cross anywhere through the line, please indicate how much of this story you believe is about John's [*the name Gill is added for females*] present or his future goals.

1 Story One

Present Goals	_____	Future Goals	<input type="checkbox"/>
------------------	-------	-----------------	--------------------------

2-Story Two

Present Goals	_____	Future Goals	<input type="checkbox"/>
------------------	-------	-----------------	--------------------------

3- Story Three

Present Goals	_____	Future Goals	<input type="checkbox"/>
------------------	-------	-----------------	--------------------------

4- Story Four

Present Goals	_____	Future Goals	<input type="checkbox"/>
------------------	-------	-----------------	--------------------------

This time you are asked to rate something different. Using only one cross anywhere through the line, please indicate how much of this story you believe is about goals to do with knowledge or emotion.

5- Story Five

Knowledge Goals	_____	Emotional Goals	<input type="checkbox"/>
------------------------	-------	------------------------	--------------------------

6- Story Six

Knowledge Goals	_____	Emotional Goals	<input type="checkbox"/>
------------------------	-------	------------------------	--------------------------

7- Story Seven

Knowledge Goals	_____	Emotional Goals	<input type="checkbox"/>
------------------------	-------	------------------------	--------------------------

8- Story Eight

Knowledge Goals	_____	Emotional Goals	<input type="checkbox"/>
------------------------	-------	------------------------	--------------------------

APPENDIX 4: VIGNETTE DEVELOPMENT 29

APPENDIX 4.1: VIGNETTE CODED FOR GOAL ORIENTATION

STORIES ABOUT JOHN (FOR MALE PARTICIPANTS)

STORIES 1 - 4: PRESENT VS FUTURE ORIENTED GOALS

1= Present Oriented Goals

2= Future Oriented Goals

1st and last sentence = Descriptive only

1- A story about gardening.

(1st line is descriptive) John has a small but a beautiful garden. **(1)** Recently he has been working very hard to get the balance of foliage and shrubbery just as he wants. **(2)** He is planning to make some changes later in the year. **(1)** At the moment he is preparing the flower bed to plant some tulips. **(2)** He's also thinking about leaving space for a small vegetable patch for the next year. **(1)** Today he was talking to his neighbour, Mr Smith, who also thinks that this is a good idea. **(2)** John is concerned that if his arthritis continues to get worse then it may be harder for him to look after his garden in the future. **(Last line is descriptive)** John has lived in his house for more than 20 years.

2- A holiday with a friend

(1st line is descriptive) John has a friend called Mark whom he has known since his childhood. **(2)** Next year they plan to go on a holiday together to Spain. **(1)** John knows that if he goes on this holiday then he will not have enough money to replace his worn-out sofa. **(2)** A part of him is really looking forward to this trip and visiting all the interesting tourist sights. **(1)** He has already started to learn some helpful Spanish phrases. **(2)** He is hoping that they will be useful if he decides to go on this holiday. **(1)** On a recent shopping trip John noticed a sofa for sale which he really likes and would be perfect for his living room. **(Last line is descriptive)** It is a very comfortable brown leather sofa.

3-Birthday present for grandchildren

(1st line is descriptive) John has a 17 year old granddaughter called Malisa. **(1)** Since retiring he is enjoying spending more time with his granddaughter. **(2)** In the future he also wants to spend more time with his older grandson called James, who is 19 years of age. **(1)** This week it is both Malisa's and James's Birthday. **(2)** He thinks it may be a good idea to make a small investment on their behalf for their future. **(1)** However, instead of this, James has asked for an expensive mountain bike and Malisa wants spending money for her first trip abroad with her friends. **(2)**

John has been offered a great investment opportunity which he knows will yield an excellent return for his grandchildren. **(Last line is descriptive)** John loves both of his grandchildren very much.

4- Buying a TV.

(1st line is descriptive) John lives in a two bedroom bungalow. **(2)** John intends to buy a new TV in the sales, in about six month's time. **(1)** He likes watching soaps and programmes on the discovery channel. **(2)** He would like a TV that is easy to use and also has all the modern features. **(1)** There is nothing wrong with the TV that he has at the moment, apart from the screen being a bit small. **(2)** He hopes to take one of his friends along with him in order to help him decide on which TV to purchase. **(1)** He has already started to collect information about various TV models and sale offers in the shops. **(Last line is descriptive)** John has always liked new gadgets.

STORIES 6 - 10: EMOTION VS KNOWLEDGE ORIENTED GOALS:

1= Emotion Oriented Goals

2= Knowledge Oriented Goals

1st and last sentence = Descriptive only

6- Using the internet for the first time

(1st line is descriptive) John has number of close relatives living in Australia. **(2)** His grandson has suggested that if he learns to use the internet then John can keep in touch with his relatives for very little cost. **(1)** John was very happy when he found a beginners computing course at his local community centre for older adults. **(2)** He thought this could be an opportunity to learn a new skill and to meet new people. **(1)** He feels apprehensive but also very excited about starting this course. **(2)** On his first day on the course they learned about the internet and John sent an email for the first time. **(1)** John felt very proud of his achievement because he had not done anything like this before. **(Last line is descriptive)** Luckily, the community centre is only a five-minute walk from his house.

7- Installing the new TV

(1st line is descriptive) John has bought a new wide screen TV and a satellite box. **(1)** He is very happy with his new purchase and keen to get it installed. **(2)** He needs to read the information booklets and follow the instructions carefully to ensure that it all goes smoothly. **(1)** He is keeping himself motivated by imagining

how good he will feel when the TV is fully installed. **(2)** The information booklets are helpful but very wordy and the installation is not as simple as he first thought. **(1)** He is very pleased to see his granddaughter who has come over to help because she is very good with technology. **(2)** John perseveres with reading the information leaflets so that he learns all of the features of his new TV. **(Last line is descriptive)** Later on that day John plans to go to the theatre with his granddaughter.

8- Visit to the Doctor

(1st line is descriptive) John is generally in good health. **(2)** Recently he has been reading self-help books on improving his health and getting the most out of his retirement. **(1)** On a day-to-day basis he feels good about himself and is very happy to have left his stressful job behind. **(2)** In the newspaper he came across an article, which suggested that risks of certain medical conditions increase with age. **(1)** This has caused him to become slightly concerned, however, he knows that he will feel much better if he arranges to have a check-up from his G.P. **(2)** John's G.P. gave him a complete medical examination and provided him with leaflets on how to have a healthier life style. **(1)** He was extremely relieved and pleased to find out that he is not suffering from any serious illness. **(Last line is descriptive)** John has started a gentle, daily exercise programme.

9- Starting an evening class.

(1st line is descriptive) John has always liked painting since his school days. **(1)** Now that he is retired he feels he has more time to develop new hobbies that he can enjoy. **(2)** Recently he has been learning and reading more about how to start and develop watercolour paintings. **(1)** This has made him feel more confident and relaxed about his ability to take up this hobby. **(2)** He would also like to learn more about using other materials and techniques, so he can get the most from his evening class. **(1)** He feels very pleased with his decision to enrol on this programme. **(2)** Monet is his favourite artist and John is keen to find out more about the techniques Monet used in his paintings. **(Last line is descriptive)** Next week John is planning to visit his local art gallery with his friend Mark.

10- Going to the Library.

(1st line is descriptive) It takes John half an hour on the bus to get to the library. **(2)** John is trying to broaden his reading to include books in areas that he has not read before. **(1)** He is finding this challenging but enjoyable. **(2)** Recently he has

taken out books on politics and DIY. **(1)** John's wife Marjorie would like to spend more time together as a couple doing things they both enjoy, such as visiting historic buildings. **(2)** John has found the book on DIY very helpful, for putting up the shelves at home. **(1)** John enjoys doing practical things at home. **(Last line is descriptive)** His friends often compliment him on this ability.

APPENDIX 5 PILOT STUDY

APPENDIX 5.1: PILOT QUESTIONNAIRE

Cancer Cerebrovascular Other (Please specify): -----

10. How would you classify your race/ethnicity? (please tick):

White Other white African Indian
Scottish British

Pakistani Chinese Other (Please specify): -----

11. What is your religion? (please tick):

None Hindu Muslim Christian

Sikh Buddhist Other (Please specify): -----

12. As you get older has the strength of your religious belief changed?(Please specify):

A lot Stronger Same Less A lot less
Stronger as before stronger stronger

13. Each week do you feel you have enough money to live comfortably?(Please specify):

Strongly Agree Not sure Disagree Strongly
agree disagree

14. Do you drink alcohol? (please tick):

No: Yes:

If yes then:

Has your drinking pattern changed in the last few years?

No: Yes:

If yes then briefly describe in what way?-----

15. Do you smoke (please tick):

No: Yes:

If yes then:

Has your smoking pattern changed in the last few years?

No: Yes:

If yes then briefly describe in what way?-----

16. How much time do you feel you have left in this world?: Years----- Months-----

17. What strategies are you using to estimate this and describe briefly?-----

19 How has your belief about time left in this world affected what is important to you in life?

PART II:

In this section you will be asked a number of general questions regarding your beliefs about the future.

In order to indicate your agreement with the items, please use the following scale:

1 Strongly Disagree	2	3	4	5 Strongly Agree
----------------------------------	----------	----------	----------	-------------------------------

1. Many opportunities await me in the future.	
2. I expect that I will set many new goals in the future.	
3. My future is filled with possibilities.	
4. Most of my life lies ahead of me.	
5. My future seems infinite to me.	
6. I could do anything I want in the future.	
7. There is plenty of time left in my life to make plans.	
8. I have the sense that time is running out.	
9. There are only limited possibilities in my future.	
10. As I get older, I begin to experience time as limited.	

**PART III:
Administering the vignettes**

Instructions for participants: “Now we are going to do something different. In this section I ’m going to tell you few short stories about an imaginary person called.....(Say “**John**” if participant is male, say “**Gill**” if the participant is female). I would like you to imagine yourself in the same situation as John/ Gill.

Please listen to each story carefully. At the end of each story I’m going to ask you to rate what you think each story is about. There is no right or wrong answer. I am only interested in your opinion”.

Do you have any questions for me before we start? (*Researcher will record any questions or comments*): -----

Let’s begin. (*Gender specific vignettes will be administered and responses recorded on a separate response sheet*).

PART IV

Debriefing of participants: “Thank you for taking part in this research. This study is aiming to look at how our goals change in life as we get older or see time as being more limited”.

1. Do you have any questions (*Researcher will record any questions or comments*):-----

2. Do you have any comments that you would like to make (*Researcher will record any comments*):-----

ONCE AGAIN THANK YOU FOR TAKING PART

**APPENDIX 6: QUESTIONS ASKED OF TRAINEE CLINICAL
PSYCHOLOGISTS**

**APPENDIX 6.1: QUESTIONS ASKED OF TRAINEE CLINICAL
PSYCHOLOGISTS AND THEIR ANSWERS**

Questions asked of Five Trainee Clinical Psychologists: (1) what do you think is good about this research method and study. **(2)-** What do you think can be improved on in this research, method and study? **(3)** Any other comments? **(4)** Have you found the examples helpful?

	PART 1: Demographic	PART 2: FTPS & Q3 Re: examples	PART 3 Vignettes	PART 3 Debriefing
T-001 J/K Age 28 (F)	<p>(Q1) *This covers all the main areas. *I understood and felt happy answering them.</p> <p>(Q2) * I have no suggestion on this. I think it is fine as it is. I don't think you want to introduce any more questions".</p>	<p>(Q1) *Its good that it is a standardised measure and has been used in previous research.</p> <p>(Q2) * Giving an example and checking participants understating will improve validity and reliability, especially for OAs, or anyone who may not have had experience of filling similar scales.</p>	<p>(Q1) *length is good *content is good * Sentences are a good size for comprehension. *all stories seem like an equal length. *Its perfectly ambiguous for me to introduce my bias. * I think the stories do correlate with present and future goals motivation and with <u>emotion</u> and <u>knowledge</u> goals motivations. * it was read out at a good pace, it helped that you were clear in your pronunciations.</p> <p>(Q2) * Some spelling mistakes need to be corrected. * I think you need to make it more clear with an example. For instance, "in this example I asked a person how much they recently enjoyed their most recent outing. This is where they placed the cross. If I were to ask you the same question where would you place the cross. This will let you check their understanding. * I found it bit confusing without the example.</p> <p>(Q3) * I enjoyed the stories and they held my interest. * I was looking forward to the next story. * I was able to relate to something in each story. * Things can be improved by including clear examples and ensuring they, [participants] do a practice run.</p>	<p>(Q1) *I like the questions at the end. I felt it allowed me the space to ask questions and contribute on my terms. *I like that they are open-ended.</p> <p>(Q2) * I couldn't say. I think it is fine as it is.</p>

<p>T-002 Z/H Age 27 (F)</p>	<p>(Q1) * it includes most of the things. * I felt comfortable answering the questions. (Q2) * I see no problems with it, but you may want to discuss with supervisor.</p>	<p>(Q1) *it's nice and simple and easy to understand. (Q2) * It could do with a small example, because it took me a while to get my head around it.</p>	<p>(Q1) * I like the stories *they are everyday type of events so I found it very easy to relate to. *I think older people will relate to most of them, for example, using technology for the 1st time. * It's good that first and last sentences are descriptive. They help to orientate the listener. * I think they do capture the present, future and emotion Vs knowledge goals. * They are ambiguous enough for me to interpret what I think they are about. * They don't feel leading in any way. * it was on a good pace. (Q2) * Some spelling mistakes need to be corrected. * I think you should give examples and make sure people have a practice run to orientate them to the FTFS scales and the VAS dimensions * I (Q3) * I liked the stories. * They felt coherent and natural. * I liked that gentle reading style. *they were long enough for me not try to keep a track of, this line is present & this line is future. I got lost in the story. This was very good. * I think it's a clever methodology because you have used Cognitive research methodology to capture biases. * I think you need to check peoples understanding of examples and do a practice run, especially with VAS</p>	<p>(Q1) *I think it's good to have these questions. * they feel containing, especially at the end and when you have been thinking about how much time you've got left" (Q2) *I think its fine, don't have any suggestions for improvement</p>
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<p>T003 E/P Non- E 27 AGE</p>	<p>(Q1) * I think its good * I found it easy to answer all the questions. * I felt I knew what to expect.</p> <p>(Q2) * I would not add anything further. * I was not sure what do meant by screening? Maybe you might want to use another, simpler word</p>	<p>(Q1) * I like the layout; it was easy to focus on one thing at a time.</p> <p>(Q2) * I think its fine.</p> <p>(Q3) * the examples were helpful</p>	<p>(Q1) *the stories are a good size and they hold your interest. * I found it easy to think of myself in these situations. * It is good that you read them out at a gentle pace because it freed me up to imagine my self in the stories.</p> <p>(Q2) * I think it might be better to just call it story 1, story 2, etc., because the title created a bit of a bias for me. Like, I thought story about <i>gardening</i> was about the future goals because gardening is about planning in the future and buying a present is more about the present goals. I think not having the titles will be more effective in allowing peoples' bias to project in the story.</p> <p>* don't you put the cross; get the participant to do this. * You may want to make small changes to the format of the vignette response sheets- give instructions straight after the example.</p> <p>(Q3) * The stories were convincing and not too long. * They had a good flow to them. * The stories felt natural and easy to understand. * They seem to capture present vs. future and emotions vs, knowledge goals.</p>	<p>(Q1) * I think its good to have these questions. I felt able to ask and make comments about anything that may have bothered me. * It is good that you explain a little bit about the study.</p> <p>(Q2) * I think its fine; I wouldn't add anything to this.</p>
<p>T004 A/E</p>		<p>(Q1) * I found it helpful to have a visual prompt.</p>	<p>(Q1) *the stories did not feel like they wanted to be in the middle. You wanted to put them in one end or the other.</p>	<p>(Q1) * I felt I was listened to, and that I was making an important contribution.</p>

		<p>(Q2) * I think the 1st example could be improved to make it clearer.</p> <p>(Q3) * The 2nd examples were very good; they allowed you to understand what you were being asked of.</p>	<p>* having you read was good. Particularly having a consistent pause after each sentence. * if you had not included the last sentence as being descriptive than I was likely to go with the goal indicated by the last sentence.</p> <p>(Q2) *no comments.</p> <p>(Q3) *I think the stories for the two domains being tested actually work. * But you need to improve the example- Re: VAS.</p>	<p>* I had a better sense of the study.</p> <p>(Q2) It's good.</p>
<p>T005 A/S Non- E</p>	<p>(Q1) * it covers most. * I felt happy answering the questions.</p> <p>(Q2) *I think it would be better obviously to prepare the person Re: Q 16- "how much time left in life"</p>	<p>(Q1) *I found it helpful to have a visual scale helpful and easy to use.</p> <p>(Q2) I think the 1st example could be improved to make it clearer.</p> <p>(Q3) * The examples are very good and easy to understand. I think 1st example could be better.</p>	<p>(Q1) *the stories are interesting and feel like everyday situations. * They are a good length. * They held my attention.</p> <p>(Q2) *Re 4- buying a TV. I found it hard to relate to this, may be putting in a bigger item like a car would be better Re 5- buying a TV.</p> <p>(Q3) * I enjoyed the stories they were easy to understand. * Very easy and stress free to take part. * it felt natural and you did not feel like you were being tested * I would suggest that you make it clear before administering the demographic questionnaire that "I will be asking you how much time you have left". This will not be such a surprise when a participant comes to .when asking the question <i>how much time do you think you have left in life?</i></p>	<p>(Q1) *</p> <p>(Q2)</p>

Participants name and S. No.	The least relevant vignettes	Any other comments
J/K P-001	4- Buying a TV. 9-Starting an evening class.	4=I chose these because I thought they were the least interesting. There was no other reason. 9: just not as interesting as other stories.
Z/H P-002	5- Cooking a meal 7- Installing	5= I thought that was not as strong as the others. 7= I thought perhaps this was the least likely task undertaken by an OA. Maybe that is just my assumption.
E/P P-003	5- cooking a meal 8- visit to the Dr	5= I thought this was the least relevant 8= other stories address the two domains [emotional vs knowledge] much better.
A/E P-004	4= Buying a TV 10= going to the library	4= I thought this was the least relevant compared with others. 10= this story did not hold my interest compared with others.
A/S P-005	5= Cooking a meal 8= visit to Dr	5= I think this has more emphasis on the present given the main situation is cooking the meal. context 8= I think the goals are not knowledge but emotion, because you are trying to feel better.

**APPENDIX 6.2: CHANGES MADE IN RESPONSE TO THE TRAINEE PILOT
DATA**

List of changes made in response to the Trainee Pilot Data

From the Trainee Pilot data (Trainee Clinical Psychologist Participants)

No	Changes made From	Changes made To	Rational for the changes made
1. Procedure: Protocol		Re: Use of scale on FTP. Examples were introduced only when satisfied the participant understands the concept the researcher proceeds.	Some trainees found it confusing to rate their responses on the FTP. Some trainees recommended a practice run.
2. Questionnaire	<i>None were suggested</i>		
3. Vignettes			
A present vs. future oriented goals	Story 5: <i>Cooking a meal for a friend</i>	reported as least favourite story by 3 out of 5 trainee clinical psychologists.	Note was taken.
Emotion vs. Knowledge	Story 8: <i>Visit to the doctor</i>	No consensus emerged in responses.	Note was taken.
4. Vignette Response Sheet (VAS)	The name of all stories i.e. "A story about gardening"	This was replaced with title Story 1 to Story 8 respectively.	Trainees reported that having the name of the stories was priming their response and influencing their recall of the story.
	The cross placed in the example part of vignette response sheet.	Remove the cross at in the example part of vignette response sheet.	It was recommended that researcher gives the example & rates the example (e.g. enjoying last outing) & then invites the participants to do the same. This would ensure that participants understood the rating system and hence would yield more accurate data.

From the Pilot participants data (Adult and older adult participants)

No	Changes made From	Changes made To	Rational for the changes
1. Consent Form	Postcode, area code	This was removed.	Some participant objected to providing this detail.

No	Changes made From	Changes made To	Rational for the changes made
2. Measures & Tools	GDS-30	GDS-15	In the interests of reducing time taken in the questionnaire interview.
3. Procedure: Protocol	Time taken for screening measures 20 minutes.	Time taken was changed to 15 minutes.	This was the average time taken for completing the screening measures e.g. MMSE to GDS-15.
4. Participant Info. Sheet		Some language was simplified as suggested by CHSS chair.	
		Section added Re: What will happen to study results. Who has reviewed this research. What if there is a problem.	Contact details of Professor Dave Peck in addition to the changes noted in order to meet LREC research standards.
5. Questionnaire (Q)			
	Q 6 Re: living arrangements	Option of living in supported accommodation was added.	This was an important category not considered in the initial questionnaire.
	Q 9 Re: Health problems	Category multiple health problem was added.	Number of participants reported more than one health problems.
	Q 14 Re: Alcohol use.	Open ended question was replaced with 3 categories of use.	This was done to obtain categorical data.
	Q 15 Re: Cigarette use.	Open ended question was replaced with 3 categories of use.	This was done to obtain categorical data.
	Q 16 Re: Estimate of time left.	Years and months estimate was changed to years estimate only.	Many participants were not filling in the months category.
	Q 9 Re: If time left has affected what is important in life	Open ended question was replaced with 3 categories of use.	This was done to obtain categorical data.
6. Vignettes	5 X 2=10 vignettes	4 X 2=8 vignettes	Participants reported that 10 vignettes were time intensive and they found it difficult to sustain attention over the course.
A present vs.	Story 5: <i>Cooking</i>	This was not	This was rated as the least

future oriented goals	<i>a meal for a friend</i>	included in the main study.	favourite by 6 out of 10 participants.
Emotion vs. Knowledge	Story 8: <i>Visit to the doctor</i>	This was not included in the main study.	This was rated as the least favourite by 4 out of 10 participants.
7. Vignette response sheet (VAS)	Re: Instruction in scoring the stories.	The word through the line was introduced.	Many participants were placing the cross on top of the line, difficult to determine where it intersected as intended. This was an important change in order to maintain validity.

**APPENDIX 6.3: TABLES SHOWING VIGNETTES LEAST FAVOURED BY
THE PARTICIPANTS**

**Table showing Present vs. Future vignettes least favoured by participants in the pilot study.
Ranging from Story one (S1) to Story ten (S10).**

Pilot participants No	PRESENT VS. FUTURE GOAL ORIENTED VIGNETTES					KNOWLEDGE VS. EMOTIONAL GOAL ORIENTED VIGNETTES				
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
1				X				X		
2					X				X	
3					X			X		
4					X		X			
5					X					X
6				X			X			
7					X			X		
8				X		X				
9					X			X		
10				X			X			
Total	0	0	0	3	6	1	3	4	1	1

Note: S = Story

Sample Profile:

The mean Age= XY (S.Dxx)

Males = Y

Females= X

White=

Non-white=

The above table shows that, of the vignettes relating to Present vs. Future goals, story five (*cooking a meal for a friend*) was least favoured by participants (60%). From the vignettes relating to Knowledge vs. Emotion goals, there did not appear to be as clear an agreement, however, story eight (*visit to the Doctor*) was reported with the highest frequency, as being the least favoured story (40%). Hence story five (S5) and story eight (S8) were not included in the main study.

**APPENDIX 7: RESEARCH PROTOCOL AND SCREENING
INSTRUMENTS**

APPENDIX 7.1: PROTOCOL SHEET



Standard Researcher Protocol Sheet:

PART 1: Administration of MMSE & GDS-15:

The researcher says "Thank you for agreeing to take part in this study, before we start the actual study we will need to ask some questions to see if you meet the criteria. It should take no longer than 15 Mins and after we have completed these questionnaires we can discuss the results".

"Are you ready to start"? "Okay let's begin".

Inclusion criteria met

Participant is offered a brief explanation of MMSE and GDS (i.e. what they screen for before proceeding).

Demographic questionnaire:

PART 2: The researcher says "In this section I am going to ask you some general questions about your background. Please listen to each question carefully and select the answers that best describe you. Okay let's begin".

Continue over to next page

inclusion criteria NOT Met (i.e. score of <23 on MMSE or > 4 on GDS

Participant is offered a fuller explanation of MMSE and GDS-15 (i.e. what they screen for) and advised to seek a referral to their GP for fuller assessment(s)

The researcher provides his own contact details should the participants or their G.P. wish to contact the researcher for further discussion. The interview is terminated **only after** full discussion of participants concerns and agreed action.

Part 3: Administering the Future Time Perceptive (FTP) scale:

The researcher says “In this section I’m going to ask you a number of general questions regarding your beliefs about the future. Using this scale (The researcher presents the scale and checks understanding of participants with example (s)), can you please choose a number which shows how much agree or disagree with a statement I will read out. Lets try an example. if I were to ask you to rate how much you enjoyed your meal yesterday, and stated that “I enjoyed my dinner yesterday”. Then using this scale [researcher points to the scale] where would you rate your agreement or disagreement with this statement

Only when satisfied that participants know how to use the scale does the researcher proceed.



Part 4: Administering the Vignettes:

The researcher says: “Now we are going to do something different. In this section I’m going to tell you few short stories about an imaginary person (say [“John”] if participant is male, say [“Gill”] if participant is female). I would like you to imagine yourself in the same situations as John/Gill. Please listen to each story carefully. At the end of each story I am going to ask you to rate what you think each story is about. There is no right or wrong answer I am only interested in your opinions”.

Example: “let’s try an example, if I asked you how much you enjoyed your most recent outing” The researcher points to the line. “Where would you place the cross through the line?”

The researcher only proceeds when satisfied that the participant has understood the use of VAS.

Stories 1-4: The researcher says: ““using this line [researcher points to the line] can you show only using one cross anywhere through the line how much of this story you think this story is about [Johns/Jill’s] Present or Future goals?”.

Stories 1-4: The researcher says: This time you are asked to rate something different. “Using this line [researcher points to the line] can you show only using one cross anywhere through the line how much of this story you think this story is about [Johns/Jill’s] Knowledge or Emotional goals?”



Continue over to next page

Part 5: Debriefing of participants:

The researcher says: “Thank you for taking part in this research. In this study I am aiming to look at how our goals in life change as we get older or see time left in life as being more limited”

The researcher invites questions and comments as noted in Part IV of the questionnaire.

The researcher says “Once again thank you for taking part and if you would like to see a summary of what I find, then you can reach me using the contact details on the information sheet you will find this at the end of part 1”

APPENDIX 7.2: GERIATRIC DEPRESSION SCALE (GDS-15)

For Researcher use only

Serial no: -----

Group 1: **Group 2:**

GDS (Short Form)

Choose the best answer for how you have felt over the past week:

1. Are you basically satisfied with your life? YES / NO
2. Have you dropped many of your activities and interests? YES / NO
3. Do you feel that your life is empty? YES / NO
4. Do you often get bored? YES / NO
5. Are you in good spirits most of the time? YES / NO
6. Are you afraid that something bad is going to happen to you? YES / NO
7. Do you feel happy most of the time? YES / NO
8. Do you often feel helpless? YES / NO
9. Do you prefer to stay at home, rather than going out and doing new things? YES / NO
10. Do you feel you have more problems with memory than most? YES / NO
11. Do you think it is wonderful to be alive now? YES / NO
12. Do you feel pretty worthless the way you are now? YES / NO
13. Do you feel full of energy? YES / NO
14. Do you feel that your situation is hopeless? YES / NO
15. Do you think that most people are better off than you are? YES / NO

Scoring for GDS-15: Score 1 point for every “yes” in questions 2, 3, 4, 6, 8, 9, 10, 12, 14, 15. Score 1 point for every “no” in questions , 5, 7, 11, 13

A total score greater than 4 suggests the need to see a doctor. If you have any concerns about your response, call the doctor for further testing. There is a good reason to seek medical help. There are many effective ways to treat depression in older adults.

Source: Sheikh, J.I., and Yesavage, J.A. (1986). Geriatric Depression Scale (GDS): Recent evidence and development of a shorter version. *Clinical Gerontologist* 5(1-2): 165-173.

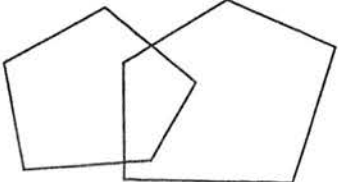
APPENDIX 7.3: MINI MENTAL STATE EXAMINATION (MMSE)

MINI MENTAL STATE EXAMINATION (MMSE)

For Researcher use only

Serial no: _____

Group 1: Group 2:

ONE POINT FOR EACH ANSWER	DATE			
ORIENTATION				
Year Month Day Date Time	___/___/___	___/___/___	___/___/___	___/___/___
Country Town District Hospital Ward	___/___/___	___/___/___	___/___/___	___/___/___
REGISTRATION				
Examiner names 3 objects (eg apple, table, penny) Patient asked to repeat (1 point for each correct). THEN patient to learn the 3 names repeating until correct.	___/3	___/3	___/3	___/3
ATTENTION AND CALCULATION				
Subtract 7 from 100, then repeat from result. Continue 5 times: 100 93 86 79 65 Alternative: spell "WORLD" backwards - dlrow.	___/5	___/5	___/5	___/5
RECALL				
Ask for names of 3 objects learned earlier.	___/3	___/3	___/3	___/3
LANGUAGE				
Name a pencil and watch.	___/2	___/2	___/2	___/2
Repeat "No ifs, ands, or buts".	___/1	___/1	___/1	___/1
Give a 3 stage command. Score 1 for each stage. Eg. "Place index finger of right hand on your nose and then on your left ear".	___/3	___/3	___/3	___/3
Ask patient to read and obey a written command on a piece of paper stating "Close your eyes".	___/1	___/1	___/1	___/1
Ask the patient to write a sentence. Score if it is sensible and has a subject and a verb.	___/1	___/1	___/1	___/1
COPYING				
Ask the patient to copy a pair of intersecting pentagons:				
	___/1	___/1	___/1	___/1
TOTAL	___/30	___/30	___/30	___/30

APPENDIX 7.4: ENLARGED COPY OF (FTP) LIKERT SCALE

In order to indicate your agreement with the items, please use the following scale

1	2	3	4	5
Strongly Disagree				Strongly Agree

APPENDIX 7.5: VIGNETTES ADMINISTERED

STORIES ABOUT JOHN

(FOR MALE PARTICIPANTS)

STORIES 1 - 4: PRESENT VS FUTURE ORIENTED GOALS:

1- A story about gardening.

John has a small but a beautiful garden. Recently he has been working very hard to get the balance of foliage and shrubbery just as he wants. He is planning to make some changes later in the year. At the moment he is preparing the flower bed to plant some tulips. He's also thinking about leaving space for a small vegetable patch for the next year. Today he was talking to his neighbour, Mr Smith who also thinks that this is a good idea. John is concerned that if his arthritis continues to get worse then it may be harder for him to look after his garden in the future. John has lived in his house for more than 20 years.

2- A holiday with a friend

John has a friend called Mark whom he has known since his childhood. Next year they plan to go on a holiday together to Spain. John knows that if he goes on this holiday then he will not have enough money to replace his worn-out sofa. A part of him is really looking forward to this trip and visiting all the interesting tourist sights. He has already started to learn some helpful Spanish phrases. He is hoping that they will be useful if he decides to go on this holiday. On a recent shopping trip John noticed a sofa for sale which he really likes and would be perfect for his living room. It is a very comfortable brown leather sofa.

3-Birthday present for grandchildren

John has a 17 year old granddaughter called Malisa. Since retiring he is enjoying spending more time with his granddaughter. In the future, he also wants to spend more time with his older grandson called James, who is 19 years of age. This week it is both Malisa's and James's Birthdays. John thinks it may be a good idea to make a small investment on their behalf for their future. However, instead of this, James has asked for an expensive mountain bike and Malisa wants spending money for her first trip abroad with her friends. John has been offered a great investment opportunity which he knows will yield an excellent return for his grandchildren. John loves both of her grandchildren very much.

4- Buying a TV.

John lives in a two bedroom bungalow. John intends to buy a new TV in the sales, in about six month's time. He likes watching soaps and programmes on the

discovery channel. He would like a TV that is easy to use and also has all the modern features. There is nothing wrong with the TV that he has at the moment, apart from the screen being a bit small. He hopes to take one of his friends along with him in order to help him decide on which TV to purchase. He has already started to collect information about various TV models and sale offers in the shops. John has always liked new gadgets.

STORIES 5 - 8: EMOTION Vs KNOWLEDGE ORIENTED GOALS:

5- Using the internet for the first time

John has number of close relatives living in Australia. His grandson has suggested that if he learns to use the internet then John can keep in touch with his relatives for very little cost. John was very happy when he found a beginners computing course at his local community centre for older adults. He thought this could be an opportunity to learn a new skill and to meet new people. He feels apprehensive but also very excited about starting this course. On his first day on the course they learned about the internet and John sent an email for the first time. John felt very proud of his achievement because he had not done anything like this before. Luckily, the community centre is only a five-minute walk from his house.

6- Installing the new TV

John has bought a new wide screen TV and a satellite box. He is very happy with his new purchase and keen to get it installed. He needs to read the information booklets and follow the instructions carefully to ensure that it all goes smoothly. He is keeping himself motivated by imagining how good he will feel when the TV is fully installed. The information booklets are helpful but very wordy and the installation is not as simple as he first thought. He is very pleased to see his granddaughter who has come over to help, because she is very good with technology. John perseveres with reading the information leaflets so that he learns all of the features of his new TV. Later on that day John plans to go to the theatre with his granddaughter.

7- Starting an evening class.

John has always liked painting since his school days. Now that he is retired he feels he has more time to develop new hobbies that he can enjoy. Recently he has been learning and reading more about how to start and develop watercolour paintings. This has made him feel more confident and relaxed about his ability to take up this hobby. He would also like to learn more about using other materials

and techniques so he can get the most from his evening class. He feels very pleased with his decision to enrol on this programme. Monet is his favourite artist and John is keen to find out more about the techniques Monet used in his paintings. Next week John is planning to visit his local art gallery with his friend Mark.

8- Going to the Library.

It takes John half an hour on the bus to get to the library. John is trying to broaden his reading to include books in areas that he has not read before. He is finding this challenging but enjoyable. Recently he has taken out books on politics and DIY. John's wife Marjorie would like to spend more time together as a couple doing things they both enjoy, such as visiting historic buildings. John has found the book on DIY very helpful in putting up the shelves at home. John enjoys doing practical things at home. His friends often compliment him on this ability.

STORIES ABOUT GILL (FOR FEMALE PARTICIPANTS)

STORIES 1 - 4: PRESENT VS FUTURE ORIENTED GOALS:

1- A story about gardening.

Gill has a small but a beautiful garden. Recently she has been working very hard to get the balance of foliage and shrubbery just as she wants. She is planning to make some changes later in the year. At the moment she is preparing the flower bed to plant some tulips. She's also thinking about leaving space for a small vegetable patch for the next year. Today she was talking to her neighbour Mr Smith, who also thinks that this is a good idea. Gill is concerned that if her arthritis continues to get worse then it may be harder for her to look after her garden in the future. Gill has lived in her house for more than 20 years.

2- A holiday with a friend

Gill has a friend called Mary whom she has known since her childhood. Next year they plan to go on a holiday together to Spain. Gill knows that if she goes on this holiday then she will not have enough money to replace her worn-out sofa. A part of her is really looking forward to this trip and visiting all the interesting tourist sights. She has already started to learn some helpful Spanish phrases. She is hoping that they will be useful if she decides to go on this holiday. On a recent shopping trip Gill noticed a sofa for sale which she really likes and would be perfect for her living room. It is a very comfortable brown leather sofa.

3-Birthday present for grandchildren

Gill has a 17 year old granddaughter called Malisa. Since retiring, she is enjoying spending more time with her granddaughter. In the future she also wants to spend more time with her older grandson called James, who is 19 years of age. This week it is both Malisa's and James's Birthday. She thinks it may be a good idea to make a small investment on their behalf for their future. However, instead of this, James has asked for an expensive mountain bike and Malisa wants spending money for her first trip abroad with her friends. Gill has been offered a great investment opportunity, which she knows will yield an excellent return for her grandchildren. Gill loves both of her grandchildren very much.

4- Buying a TV.

Gill lives in a two bedroom bungalow. Gill intends to buy a new TV in the sales, in about six month's time. She likes watching soaps and programmes on the discovery channel. She would like a TV that is easy to use and also has all the

modern features. There is nothing wrong with the TV that she has at the moment, apart from the screen being a bit small. She hopes to take one of her friends along with her, in order to help her decide on which TV to purchase. She has already started to collect information about various TV models and sale offers in the shops. Gill has always liked new gadgets.

STORIES 5 - 8: EMOTION Vs KNOWLEDGE ORIENTED GOALS:

5- Using the internet for the first time

Gill has number of close relatives living in Australia. Her grandson has suggested that if she learns to use the internet, then Gill can keep in touch with her relatives for very little cost. Gill was very happy when he found a beginners computing course at her local community centre for older adults. She thought this could be an opportunity to learn a new skill and to meet new people. She feels apprehensive but also very excited about starting this course. On her first day on the course they learned about the internet and Gill sent an email for the first time. Gill felt very proud of her achievement, because she had not done anything like this before. Luckily, the community centre is only a five-minute walk from her house.

6- Installing the new TV

Gill has bought a new wide screen TV and a satellite box. She is very happy with her new purchase and keen to get it installed. She needs to read the information booklets and follow the instructions carefully to ensure that it all goes smoothly. She is keeping herself motivated by imagining how good she will feel when the TV is fully installed. The information booklets are helpful but very wordy and the installation is not as simple as she first thought. She is very pleased to see her granddaughter who has come over to help because she is very good with technology. Gill perseveres with reading the information leaflets so that she learns all of the features of her new TV. Later on that day Gill plans to go to the theatre with her granddaughter.

7- Starting an evening class.

Gill has always liked painting since her school days. Now that she is retired she feels she has more time to develop new hobbies that she can enjoy. Recently she has been learning and reading more about how to start and develop watercolour paintings. This has made her feel more confident and relaxed about her ability to take up this hobby. She would also like to learn more about using other materials and techniques so she can get the most from her evening class. She feels very

pleased with her decision to enrol on this programme. Monet is her favourite artist and Gill is keen to find out more about the techniques Monet used in his paintings. Next week Gill is planning to visit her local art gallery with her friend Mark.

8- Going to the Library.

It takes Gill half an hour on the bus to get to the library. Gill is trying to broaden her reading to include books in areas that she has not read before. She is finding this challenging but enjoyable. Recently she has taken out books on politics and DIY. Gill's husband Bob would like them to spend more time together as a couple doing things they both enjoy, such as visiting historic buildings. Gill has found the book on DIY very helpful in putting up the shelves at home. Gill enjoys doing practical things at home. Her friends often compliment her on this ability.