

### Time Perspective and Correlates of Wellbeing

Drake, Lisa; Duncan, Elaine; Sutherland, Fi; Abernethy, Clare; Henry, Colette

Postprint / Postprint

Zeitschriftenartikel / journal article

Zur Verfügung gestellt in Kooperation mit / provided in cooperation with:

[www.peerproject.eu](http://www.peerproject.eu)

#### Empfohlene Zitierung / Suggested Citation:

Drake, L., Duncan, E., Sutherland, F., Abernethy, C., & Henry, C. (2008). Time Perspective and Correlates of Wellbeing. *Time & Society*, 17(1), 47-61. <https://doi.org/10.1177/0961463X07086304>

#### Nutzungsbedingungen:

Dieser Text wird unter dem "PEER Licence Agreement zur Verfügung" gestellt. Nähere Auskünfte zum PEER-Projekt finden Sie hier: <http://www.peerproject.eu> Gewährt wird ein nicht exklusives, nicht übertragbares, persönliches und beschränktes Recht auf Nutzung dieses Dokuments. Dieses Dokument ist ausschließlich für den persönlichen, nicht-kommerziellen Gebrauch bestimmt. Auf sämtlichen Kopien dieses Dokuments müssen alle Urheberrechtshinweise und sonstigen Hinweise auf gesetzlichen Schutz beibehalten werden. Sie dürfen dieses Dokument nicht in irgendeiner Weise abändern, noch dürfen Sie dieses Dokument für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, aufführen, vertreiben oder anderweitig nutzen.

Mit der Verwendung dieses Dokuments erkennen Sie die Nutzungsbedingungen an.

**gesis**  
Leibniz-Institut  
für Sozialwissenschaften

#### Terms of use:

This document is made available under the "PEER Licence Agreement". For more information regarding the PEER-project see: <http://www.peerproject.eu> This document is solely intended for your personal, non-commercial use. All of the copies of this documents must retain all copyright information and other information regarding legal protection. You are not allowed to alter this document in any way, to copy it for public or commercial purposes, to exhibit the document in public, to perform, distribute or otherwise use the document in public.

By using this particular document, you accept the above-stated conditions of use.

Mitglied der  
  
Leibniz-Gemeinschaft

# **Time Perspective and Correlates of Wellbeing**

**Lisa Drake, Elaine Duncan, Fi Sutherland,  
Clare Abernethy and Colette Henry**

---

**ABSTRACT.** This study investigated correlates of five time perspectives (TPs) and the Balanced Time Perspective (BTP) construct proposed by Zimbardo and colleagues. Two hundred and sixty Scottish participants completed the Zimbardo Time Perspective Inventory (ZTPI: Zimbardo and Boyd, 1999), Subjective Happiness Scale (Lyubomirsky and Lepper, 1999) and Mindful Attention Awareness Scale (Brown and Ryan, 2003). The most prevalent TP profile was moderate to high scores on all five TPs of the ZTPI. BTP participants were significantly happier and more mindful. Happiness and mindfulness were positively correlated but a future TP did not correlate with subjective happiness. **KEY WORDS** • Balanced Time Perspective • happiness • mindfulness • temporal frames • time perspective

## **Introduction**

Time is not just a physical phenomenon but open to psychological interpretation (James, 1890/1950). Indeed, Suddendorf and Corballis (1997) noted that the monitoring of time underpinned cognitive functioning. Thus learning to deal with time, at both a subjective and objective level, is vital. Since time does not exist independently of the person and is in fact a psychological construct, then it is one that the person continually identifies with and refines (Block, 1990). Gonzalez and Zimbardo (1985) believed that the way in which we seek to

separate and apportion, or encircle chunks of time is a powerful and pervasive characteristic of the human experience.

As the interest in studying time has increased so too has the terminology researchers use to describe its various facets. This hasn't necessarily led to confusion but some blurring of concepts and constructs related to the study of time do exist (Wallace and Rabin, 1960; Hoornaert, 1973; Hulbert and Lens, 1988; Nuttin, 1985). Time attitude, time perspective, temporal orientation, and time perception are often synonymous with each other and interchangeable (Hulbert and Lens, 1988). Other terms such as sense of time, subjective experience and temporal experience all point to the notion that individuals are aware of the passing of time and may crudely divide time into frames or periods. While time attitude is the affective response (positive or negative) towards past, present or future time frames (Nuttin, 1985) time orientation is concerned with determining which of these time frames an individual tends to favour (De Volder, 1979). Nuttin (1985) defines time perception as judging the passage of time itself but sees time perspective as a complex construct of four sub-factors, namely extension, structuralization, and realism that can be applied to both past and future perspectives (see Nuttin, 1985 for more detail on factors).

The present article does not disagree with these definitions but chooses to focus on how Zimbardo and colleagues define and operationalize TP. That is that TP is 'the manner in which individuals, and cultures, partition the flow of human experience into distinct temporal categories of past, present and future' (Zimbardo et al., 1997: 1008). Zimbardo and colleagues also sought to investigate these past, present and future time frames more thoroughly by developing a scale to measure TP, namely the Zimbardo Time Perspective Inventory (ZTPI). Here the past, present and future temporal frames are subdivided into five sub-scales. These are, firstly, the Past Negative (PN) temporal frame. This reflects a pessimistic attitude towards the past and possibly the experience of traumatic life events. Secondly, the Past Positive (PP), which is marked by a more sentimental and positive view of one's past. Thirdly, Present Hedonistic (PH), associated with the desire for spontaneous pleasure with slight regard to risk or concern for future consequences. Then there is the Present Fatalistic (PF) frame which is defined as a lack of hope for the future and belief that uncontrollable forces determine one's fate. The fifth and final dimension, the Future (F), is characterized by reward dependence that occurs as a result of achieving specific long-term goals.

### **Time Perspective and Wellbeing Research**

Research thus far suggests that particular temporal frames have implications for various aspects of wellbeing. For example, PN has been correlated with

depression, anxiety and low self-esteem, and it has been demonstrated that PN individuals have fewer close friends (Zimbardo and Boyd, 1999), gamble more (Wassarman, 2002) and are more likely to be in alcohol and drug programmes (Klingeman, 2001) than those in other TP groups. Findings from Lyubomirsky and Nolen-Hoeksema (1995) and Nolen-Hoeksema and Morrow (1993) confirm this. In contrast, high PP scores are related to high levels of self-esteem and happiness (Zimbardo and Boyd, 1999), agreeableness and energy (Goldberg and Maslach, 1996) and indicative of the use of social support networks (Holman and Zimbardo, 1999, cited in Zimbardo and Boyd, 1999). Present oriented (PH and PF) individuals are less influenced by safe sex practices (Rothspan and Read, 1996) and tend to engage in risky driving (Zimbardo et al., 1997), alcohol and drug misuse (Strathman et al., 1994; Keough et al., 1999) and suffer chronic homelessness (Epel et al., 1999). However, moderate scores for the PH factor, which have been positively correlated with novelty and sensation seeking, can be beneficial for the individual provided they have some concept of future consequences (Zimbardo and Boyd, 1999).

The Future sub-scale has been associated with less psychopathy (Wallace, 1956, cited in Zimbardo and Boyd, 1999), and positively correlated with participation in a cancer-screening programme (Guarino et al., 1999). It is therefore regarded as the more constructive time perspective in terms of engaging in positive health behaviours. According to Kazakina (1999, cited in Zimbardo and Boyd, 1999), individuals with a more future-oriented outlook are more optimistic and anticipate positive outcomes. This can, in itself, perpetuate more positive functioning and can lead to higher levels of academic achievement (Zimbardo and Boyd, 1999), elevated levels of participation in research studies (Harber et al., 2003), success in prison training programmes (Chubick et al., 1999) and more adaptive coping strategies for obtaining shelter when homeless (Epel et al., 1999). It has, however, been suggested that an overemphasis on future goals compromises spontaneity resulting in poor ability to 'switch off' and enjoy the present (Boniwell and Zimbardo, 2003). Similarly an overemphasis, or a temporal bias, towards a present orientation is associated with negative emotions, such as anger, anxiety and depression (Wills et al., 2001), alcohol use, smoking and illegal drug use (Keough et al., 1999; Wills et al., 2001) and engaging in risky sexual practises (Rothspan and Read, 1996). Despite some findings suggesting that a focus on the present is associated with subjective wellbeing and general happiness (Csikszentmihalyi, 1992; Keough, et al., 1999) it seems that seeking immediate gratification, while disregarding the consequences of actions, is typical of a predisposition to a present temporal bias.

To facilitate wellbeing Boniwell and Zimbardo (2004) propose that one should strive to achieve what they call a Balanced Time Perspective (BTP). This is characterized, statistically, as moderate to high scores for the PP, PH, and F

factors and relatively low scores for the PN and PF factors. It is operationally defined as the ability to hold past present and future time perspectives concurrently but importantly to be able to move between each perspective and to use the most appropriate one in a given situation. Zimbardo and Boyd (1999) go as far as to suggest that a BTP is central to optimal functioning. By that they mean that the individual will reap psychological benefits if they are able to 'work hard when there is a mission to be accomplished, but play hard when the work is done' (Zimbardo, 2002: 62). By achieving a BTP an individual's actions are shaped by a consideration of all three temporal zones (Zimbardo and Boyd, 1999; Boniwell and Zimbardo, 2003, 2004) as opposed to the limiting ability of a dispositional bias towards one particular time frame. Accordingly, Boniwell and Zimbardo (2004) propose that individuals with a BTP will be happier than those who do not have a BTP. However, most TP research has yet to establish this. Most of the research has focused on specific temporal frames using varied TP measurements rather than focusing on the BTP construct. For example, Kazakina (1999, cited in Zimbardo and Boyd, 1999) found positive correlations between a present orientation and positive affect and between a past positive orientation and life satisfaction. There is also evidence of positive relationships between present orientation and general happiness (Kammann and Flett, 1983), life satisfaction (Diener et al., 1985) and optimism (Lennings, 2000). Similarly, Zaleski et al. (2001) showed that a future perspective was positively associated with subjective wellbeing. However, a future orientation is positively correlated with higher socio-economic status, which is only weakly related to wellbeing (Diener, 2000). Assessing subjective wellbeing has been done in many ways (e.g. Diener, 1997; Peterson, 2000) and there are numerous constructs that relate to subjective wellbeing. For the purposes of the present study we chose to focus on a global, subjective assessment of happiness. Thus the present study used the Subjective Happiness Scale (Lyubomirsky & Lepper, 1999). This simply asks people to evaluate how happy or unhappy they are and does not involve cognitive evaluations of the quality of, or satisfaction with, life (Lyubomirsky, 2001).

The notion that a BTP allows the individual to be more fully engaged in any given situation corresponds with an aspect of consciousness called mindfulness. Mindfulness, according to Hanh (1976) facilitates conscious awareness of the reality of the present. Brown and Ryan (2003) investigated mindfulness as an individual differences attribute by adopting the Mindfulness Attention Awareness Scale (MAAS). The study demonstrated significant positive correlations between mindfulness and self-esteem, optimism, life satisfaction, and wellbeing, and negative correlations with neuroticism, anxiety and depression.

## Aims of the Present Study

Thus the aims of the present study were first, to operationalize the five TPs of the ZTPI and establish what relationship there is between these five temporal frames and subjective happiness. It is important that the measurement of happiness chosen for this study is asking for a simple judgement of how happy or unhappy participants feel which is in contrast to other studies that have used more global judgements of life satisfaction. Second, the BTP construct will also be operationalized to establish what relationship, if any, having a BTP has with subjective happiness scores. Third, to investigate to what extent mindfulness relates to each of the TPs and the BTP construct. Since mindfulness is synonymous with conscious absorption in the present then positive correlations between particular TPs and the BTP should be evident. Thus the study will seek to validate assumptions of the TP theory and the BTP construct as viewed by Zimbardo and colleagues.

On the basis of findings from previous research several hypotheses were proposed. First, that those participants with a BTP profile would be more mindful and happier than those not achieving a BTP profile (scores spread across the other five temporal factors of the ZTPI). Second, that PP and F would be positively correlated with mindfulness, while PN and PF orientations would be negatively correlated with mindfulness. Further, given that high scores on the PH scale are associated with risky activities and thrill seeking (Boniwell and Zimbardo, 2004), which would be considered unmindful behaviour, it was predicted that there would be a negative correlation between PH and mindfulness. It was also hypothesized that PP, PH and F would be positively related to subjective happiness, but that PN and PF would be negatively related to happiness. Finally, based on Brown and Ryan's (2003) findings it was predicted that mindfulness and subjective happiness would be positively correlated.

## Method

### Design

A correlational questionnaire-based design was used. The dependent variables were participants' scores on the ZTPI, comprising five sub-scales; past negative (PN), present hedonistic (PH), future (F), past positive (PP) and present fatalistic (PF), the MAAS and subjective happiness scores.

### Participants

Two hundred and sixty participants, 170 male and 90 female, ranging in age from 16 to 83, completed the study. Participants were recruited via the adoption

of opportunity and snowball sampling methodology and consisted of students at the Glasgow Caledonian University (UK), family, friends and associates of the research team. The sample was thus drawn from a wider age range and living circumstances than an exclusively university-based sample.

## Materials

The questionnaire consisted of demographic items ascertaining age and gender and the following inventories.

*Zimbardo Time Perspective Inventory* (ZTPI: Zimbardo and Boyd, 1999): this is a 56-item self-report instrument, with five sub-scales as described previously, which measures participants' time-related attitudes and behaviour by asking them to rate, on a Likert scale, how true each statement is of them (1 being 'very untrue' and 5 being 'very true'). The scale was developed from case studies, surveys and factor analysis and has shown reliability, validity and ease of administration (Zimbardo and Boyd, 1999).

*Subjective Happiness Scale* (SHS: Lyubomirsky and Lepper, 1999): this is a four-item self-report scale used to measure global subjective happiness. Two items require participants to produce absolute measures of happiness with regard to their own rating and that relative to peers. A further two questions ask participants to rate to what extent descriptions of unhappy and happy people are typical of them. All items are measured on a 7-point Likert scale and an average score is taken across the four scores, with the fourth item being reverse-coded. Higher scores reflect higher levels of subjective happiness.

*Mindfulness Attention Awareness Scale* (MAAS: Brown and Ryan, 2003): this is a 15-item scale that assesses individual differences in the frequency of mindfulness states by asking participants to rate how frequently or infrequently each experience happens to them. It also utilizes a Likert scale where 1 represents 'almost always' through to 6 which represents 'almost never'.

## Procedure

A pilot study ensured that the questionnaires were feasible and easy to follow. The battery of questionnaires were then distributed using opportunity sampling and snowballing techniques. Written instructions informed participants that it would take approximately 10–15 minutes to complete. Participants were given a 14-day period within which to complete and return the battery of questionnaires to a secure central point. Confidentiality was guaranteed. No payment or any other incentive was offered.

## Results

Results pertaining to the number of participants holding a BTP profile will be given first. These individuals were then tested against those with non-BTP profiles (the other five temporal frames) in terms of subjective happiness and mindfulness. A further analysis will concentrate on correlations between subjective happiness, mindfulness and the five temporal frames themselves.

### How many participants achieved a BTP?

To calculate this, low, moderate and high TP scores were obtained by dividing TP scores for each of the five factors as close as possible to the 33rd and 66th percentiles, resulting in three groups. Applying Zimbardo's theory that low scores on PN and PF, moderate to high on PP, F and PH constitute a BTP, we could calculate that only 13 participants (10 females and 3 males) achieved a BTP.

### BTP and subjective happiness

Table 1 shows means and standard deviations for SHS scores across two levels of TP profile. Group 1 ( $n = 247$ ) represents those participants who did not have a BTP profile. Group 2 ( $n = 13$ ) represents those who did. As can be seen from Table 1 the group with a BTP profile scored significantly higher on the SHS than those with other TP profiles ( $t = 5.04$ ,  $df = 12$ ,  $p = .0001$ ). Thus the hypothesis that happiness scores would differ significantly between those with a BTP profile and those without was supported.

**TABLE 1**  
Descriptive statistics for SHS and MAAS scores across two levels of TP profile

		<i>N</i>	mean	standard deviation
Happiness	Group 1*	247	4.03	.772
	Group 2**	13	4.41	.521
Mindfulness	Group 1	247	4.91	1.05
	Group 2	13	5.52	0.44

\* Participants who did not have BTP.

\*\* Participants with a BTP.

### BTP and mindfulness

Table 1 also shows the means and standard deviations for MAAS scores across the same two levels of TP profile as above. As can be seen from Table 1 the



group with the BTP profile did indeed score significantly higher on mindfulness than those with other TP profiles ( $t = 2.63$ ,  $df = 12$ ,  $p = .011$ ). Thus the hypothesis that mindfulness scores would differ significantly between those with a BTP profile and those without was supported.

### **The five temporal frames and their relationship to subjective happiness**

The correlation matrix (Table 2, next page) shows there was no significant relationship between the F and PF time perspectives and subjective happiness (F,  $r = -.074$ ; PF,  $r = -.097$ ). However, PH and PP were significantly correlated with happiness. For PH and PP, the relationship was positive (PH,  $r = .155$ ,  $p < 0.01$ ; PP,  $r = .214$ ,  $p < 0.001$ ). The PN factor was negatively correlated with happiness ( $r = -.416$ ,  $p < .001$ ). As this result accounted for 17 per cent of the variance, there was a relatively strong tendency for individuals with a pessimistic view of the past to score low on the happiness scale.

### **The five temporal frames and mindfulness**

The five temporal frames (PN, PH, F, PP and PF) were correlated with mindfulness. Table 2 shows there were no significant correlations between F and mindfulness ( $r = .027$ ). However, PP, PN, PH and PF related significantly to mindfulness. For PP, the relationship was positive ( $R = .125$ ,  $p < 0.5$ ), accounting for 2 per cent of the variance and indicating a weak tendency for those with a high PP score to be more mindful. For PN, the relationship was negative ( $r = -.492$ ,  $p < 0.001$ ), accounting for 24 per cent of the variance, indicating that those who score high in PN have a moderate tendency to be less mindful. For PF and PH, the relationship was also negative (PF,  $r = -.23$ ,  $p < 0.001$ ; PH,  $r = -.116$ ,  $p < 0.05$ ), accounting for 5 and 1 per cent of the variance respectively and indicating that there is a weak tendency for those with high PF and PH scores to be low in mindfulness.

## **Discussion**

The present study operationalized the five temporal frames of the ZTPI and established what relationship there was between these and self-reported subjective happiness. Moreover, the relationship between a BTP and subjective happiness scores was investigated and compared to the five non-BTP temporal frames or time perspectives. In addition, the extent to which mindfulness related to each of the temporal frames and the BTP construct was clarified. It was proposed that individuals with a BTP would be happier and more mindful than those with other profiles. The results did indeed show that 13 individuals matched the

**TABLE 2**  
**Correlation matrix for five time perspective factors, mindfulness and subjective happiness**

	Mindfulness	Happiness
PN	-.492***	-.416***
PH	-.116*	-.155**
F	.027	-.074
PP	.125*	.214***
PF	-.230***	-.097
Mindfulness	1.000	.330***

\* Correlation is significant at the 0.05 level (1-tailed).

\*\* Correlation is significant at the 0.01 level (1-tailed).

\*\*\* Correlation is significant at the 0.0001 level (1-tailed).

criteria for a BTP. Analysis of the BTP group compared to those with other profiles showed that those with a BTP had significantly higher mean scores for subjective happiness and mindfulness than individuals with other TP profiles. However, this study found that the most prevalent temporal frame profile constituted individuals with moderate to high scores in all five of the frames ( $n = 43$ ). These individuals set themselves apart from the BTP group by having moderate to high scores in the risk factors of past negative and present fatalistic.

An analysis of the five temporal frames in relation to happiness and mindfulness was also carried out. It was hypothesized that the PH- and PP-subjective happiness relationship would be positive and that the PN-subjective happiness correlation be negative. These hypotheses were indeed confirmed and allow us to state that the happier participants were those more likely to hold positive as opposed to negative attitudes towards their past, be more spontaneous and live more in the moment.

Rather surprisingly the F factor was not significantly correlated with subjective happiness. A future orientation is apparently linked to positive functioning (Kazakina, 1999), participation in health screening (Guarino et al., 1999) and less psychopathy (Wallace, 1956). It follows then that this would link to higher levels of subjective happiness. However, it has to be acknowledged that there is some degree of ambiguity in research findings between time perspectives and wellbeing. Despite the links with higher optimism (Zimbardo and Ryan, 1999), self-efficacy, and more adaptive coping strategies (Epel et al., 1999) one should temper these findings by bearing in mind that Boniwell and Zimbardo (2003) have suggested that an emphasis on achieving future goals may compromise the level of enjoyment in present activities and the importance of family values at the root of our own past. The present authors propose that an

emphasis on future goals not only pulls people away from absorption in present reality but could also create more anxiety and hurriedness. It is also the case that one should take into account how future-oriented people would feel if goals and plans are thwarted by current obstacles. Further investigations of the phenomenology of the future orientation is warranted.

It was expected that the PF sub-scale would be negatively correlated with subjective happiness. It is not surprising that this aspect has been supported since PF is said to be the most destructive factor as it has been associated with higher levels of aggression, anxiety and depression (Zimbardo and Boyd, 1999). A fatalistic frame of the present does not however preclude concern for future consequences. For example, in relation to health-promoting behaviour Hamilton et al. (2003) found that a present orientation was not negatively correlated to such behaviour.

It is our belief that this is the first study to test mindfulness in relation to time perspective. It was hypothesized that if mindfulness represents awareness and the keeping of conscious thoughts in the present then one would expect that those high on mindfulness are first, happier and second, possess particular time perspectives relevant to the mindfulness state. It may be that these people, thanks to the mindfulness state, possess more ability to balance work, leisure and family demands and may be more likely to possess a BTP profile. Thus it was hypothesized that mindfulness scores would differ significantly across those with a BTP profile and those without. Indeed the results showed that the BTP group participants did score significantly higher on mindfulness than those with other TP profiles. As predicted, certain temporal frames were related to MAAS scores. As predicted the PP-MAAS correlation was positive, while the PN-, PH- and PF-MAAS relationships were negative. However, the association between the future temporal frame and MAAS scores though positive was not significant. Overall we can say that those who were more mindful tended to have a more favourable perception of the past and towards life in general. Examining relationships between the ZTPI and MAAS and finding that PP-MAAS correlations were in the predicted direction offers some validation for PP factor of the ZTPI itself.

### **Limitations and Future Considerations**

It has to be acknowledged that the correlational nature of the research design precludes even the slightest speculation on causal connections or underlying mechanisms between a BTP, the other temporal frames, and wellbeing. However, the fact that those with a BTP showed higher levels of aspects of wellbeing supports basic tenets of the BTP construct. This study, we believe, is the first to attempt a BTP profile analysis and as such presents evidence in support

of the Zimbardo and Boyd's (1999) BTP theory. However, these findings should be regarded as preliminary. A replication study seeking to capture more individuals with a BTP profile would be a prudent next step. Since ethics stipulated that anonymity be afforded each participant in the present study, in depth interviews with those with a BTP were not possible. We therefore suggest that future studies consider case study analyses of those found to have a BTP. This would allow extension of the theory and operationalization of it within a practical setting.

The PP-subjective happiness correlation was the highest positive result of all the time perspectives and subjective happiness scores. These findings are in line with previous research on the happiness and time perspective (Kammann and Flett, 1983; Lennings, 2000; Boniwell and Zimbardo, 2004). That a positive relationship was found is accepted but it is only a relationship and in no way constitutes a causal explanation nor indicates underlying mechanisms. In addition the present study did not take into account participants' past positive and/or negative life events. Thus we have no understanding of context that may have contributed to decisions made by participants when they were completing the questionnaires. Future research should attempt to ascertain exposure to past negative and positive life events as mediators. Better still would be an appreciation of coping mechanisms in those with a PP profile alongside a personality measure. Individual difference data such as this can inform theory and possibly interventions aimed at altering temporal frames to maximise positive functioning and wellbeing.

It is important to point out that results here could be influenced by the measurement of happiness chosen. Equivocal results may be produced because different surveys adopt different interpretations of the subjective wellbeing construct. The adoption of the SHS scale in this study was a deliberate attempt to use a global measure that measured simply how happy or unhappy people perceived themselves to be. Since measures of wellbeing assess either cognitive or the emotional components of the construct, the present authors argue that simplification was needed here. Notwithstanding this, it would be interesting to probe the emotional components with respect to time perspective more purposefully. For example, studies could perhaps use such measures as the Positive and Negative Affect Scale (PANAS: Watson et al., 1988) and/or adopt the Emotion Diary (Oatley and Duncan, 1994; Duncan and Grazzani-Gavazzi, 2004) or Experience Sampling Methodologies. Such strategies would place scores on time perspective scales in context. These would be most appropriate in a study that aimed to investigate possible changes in the five factors across time.

The extent to which these results are generalizable must be treated with caution even though steps were taken to widen recruitment beyond the student population and to use a wide age range. We did not feel that there were sufficient numbers in particular age categories to be able to take a look at developmental

changes in time perspectives. This would be an important next step for future research. Some consideration should also be given to the cultural context within which this investigation took place. In this Scottish sample it was found that a substantial number presented scores that indicated the predominance of past negative and present fatalistic outlooks. The intriguing question is whether this is serendipitous or a part of the character of Scottish culture? Indeed, to what extent other cultures either share this profile or have their own unique profile is worthy of investigation. Since some research has indicated cultural variation with regards to time and time perspective (Spangler and Petrovich, 1978; Sagie et al., 1996; Brislan and Kim, 2003) we may have to accept that results here may not be generalizable. However, research on time perspective itself is not yet extensive enough to begin to suggest that certain individuals and/or cultures 'own' a particular global temporal bias.

This research offers preliminary data on the BTP profile and the five temporal frames of the ZTPI. There is much yet that can be done to elucidate the BTP profile itself and whether a temporal bias that compromises wellbeing would be amenable to change, given appropriate interventions. Perhaps interventions that facilitate the reflective, self-awareness skills inherent in mindfulness are a first step in this process.

## Note

Thanks go to Lisa Drake, Fi Sutherland, Claire Abernethy and Collette Henry who collated data as part of a larger project to fulfil degree requirements. Thanks again go to Lisa Drake and Fi Sutherland for revisions of this manuscript. Thanks must also go to Dr Alan Tuohy for help in the statistical analysis.

## References

- Block, R. A. (1990) *Cognitive Models of Psychological Time*. Hillsdale, NJ: Erlbaum.
- Boniwell, I. and Zimbardo, P. G. (2003) 'Time to Find the Right Balance', *The Psychologist* 16: 129–31.
- Boniwell, I. and Zimbardo, P. G. (2004) 'Balancing One's Time Perspective in Pursuit of Optimal Functioning', in P. A. Linley and S. Joseph (eds) *Positive Psychology in Practice*, pp. 165–78. Hoboken, NJ: Wiley.
- Brislan, R. W. and Kim, E. S. (2003) 'Cultural Diversity in Peoples' Understanding and Uses of Time', *Applied Psychology: An International Review* 52: 363–82.
- Brown, K. W. and Ryan, R. M. (2003) 'The Benefits of Being Present: Mindfulness and Its Role in Psychological Wellbeing', *Journal of Personality and Social Psychology* 84(4): 822–48.
- Chubick, J. D., Rider, C. Y., Owen S. M. and Witherspoon, B. M. (1999) 'Time Perspective of Female Prisoners Related to Success in a Training Programme',

*Perceptual and Motor Skills* 88(2): 648–50.

- Csikszentmihalyi, M. (1992) *The Psychology of Happiness*. London: Rider.
- De Volder, M. (1979) 'Time Orientation: A Review', *Psychologica Belgica* 19: 61–79.
- Diener, E. (1997) 'Recent Findings on Subjective Well-being', *Indian Journal of Clinical Psychology*. Available at: <http://www.psych.uiuc.edu/~ediener/hotopic/paper1.html>
- Diener, E. (2000) 'Subjective Wellbeing: The Science of Happiness and a Proposal for a National Index', *American Psychologist* 55: 56–67.
- Diener, E., Emmons, R. A., Larsen, R. J. and Griffin, S. (1985) 'The Satisfaction with Life Scale', *Journal of Personality* 49: 71–5.
- Duncan, E., and Grazzani-Gavazzi, I. (2004) 'Positive Emotional Experiences in Scottish and Italian Young Adults: A Diary Study', *Journal of Happiness Studies* 5: 359–84.
- Epel, E. S., Bandura A. and Zimbardo, P. G. (1999) 'Escaping Homelessness: The Influence of the Self-efficacy and Time Perspective on Coping with Homelessness', *Journal of Applied Social Psychology* 29: 575–96.
- Goldberg, J. and Maslach, C. (1996) 'Understanding Time: Connections between the Past and Future'. Paper presented at the annual conference of the Western Psychological Association, San Jose, CA.
- Gonzalez A. and Zimbardo, P. G. (1985) 'Time in Perspective: A *Psychology Today* Survey Report', *Psychology Today* (May): 21–6.
- Guarino, A., De Pascalis, V. and Di Chiacchio, C. (1999) *Breast Cancer Prevention, Time Perspective, and Trait Anxiety*. Unpublished manuscript, University of Rome.
- Hamilton, J. M., Kives, K. D., Micevski, V. and Grace, S. L. (2003) 'Time Perspective and Health-promoting Behaviour in a Cardiac Rehabilitation Population', *Behavioural Medicine* 28(4): 132–9.
- Hanh, T. N. (1976) *Miracle of Mindfulness*. Boston, MA: Beacon.
- Harber, K. A., Zimbardo, P. G. and Boyd, J. N. (2003) 'Participant Self-selection Biases as a Function of Individual Differences in Time Perspective', *Basic and Applied Social Psychology* 25: 255–64.
- Hoornaert, J. (1973) 'Time Perspective: Theoretical and Methodological Considerations', *Psychologica Belgica* 13: 27–56.
- Hulbert, R. J. and Lens, W. (1988) 'Time and Self-identity in Later Life', *International Journal of Aging and Human Development* 27: 293–303.
- James, W. (1890/1950) *The Principles of Psychology* (Vol. 1). New York: St Martin's Press.
- Kammann, R. and Flett, R. (1983) 'Affectometer 2: A Scale to Measure Current Level of General Happiness', *Australian Journal of Psychology* 35: 259–65.
- Kazakina, E. (1999) *Time Perspective of Older Adults: Relationships to Attachment Style, Psychological Well-Being and Psychological Distress*. Unpublished doctoral dissertation, Columbia University
- Keough, K. A., Zimbardo, P. G. and Boyd, J. N. (1999) 'Who's Smoking, Drinking and Using Drugs? Time Perspective as a Predictor of Substance Use', *Basic and Applied Psychology* 21(2): 149–64.
- Klingeman, H. (2001) 'The Time Game: Temporal Activity on Emotional Well-being Among Older Australian Women: Cross-sectional and Longitudinal Analysis', *Time & Society* 10(2–3): 303–28.
- Lennings, C. J. (2000) 'Optimism, Satisfaction, and Time Perspective in the Elderly', *International Journal of Aging and Human Development* 51: 168–81.
- Lyubomirsky, S. (2001) 'Why Are Some People Happier Than Others? The Role of Cog-

- nitive and Motivational Processes in Well-being', *American Psychologist* 55: 56–7.
- Lyubomirsky, S. and Lepper, H. S. (1999) 'A Measure of Subjective Happiness: Preliminary Reliability and Construct Validation', *Social Indicators Research* 46: 137–55.
- Lyubomirsky, S. and Nolen-Hoeksema, S. (1995) 'Effects of Self-focused Rumination on Negative Thinking and Interpersonal Problem Solving', *Journal of Personality and Social Psychology* 69: 176–90.
- Oatley, K. and Duncan, E. (1994) 'The Experience of Emotion in Everyday Life. Brief Report', *Cognition and Emotion* 8(4): 369–81.
- Nolen-Hoeksema, S. and Morrow, J. (1993) 'Effects of Rumination and Distraction on Naturally Occurring Depressed Mood', *Cognition and Emotion* 7: 561–70.
- Nuttin, J. (with the collaboration of W. Lens) (1985) *Future Time Perspective and Motivation: Theory and Research Method*. Hillsdale, NJ: Erlbaum.
- Peterson, C. (2000) 'The Future of Optimism', *American Psychologist* 55: 44–55.
- Rothspan, S. and Read, S. J. (1996) 'Present versus Future Time Perspective and HIV Risk among Heterosexual College Students', *Health Psychology* 15(2): 131–4.
- Sagie, A., Elizur, D. and Yamauchi, H. (1996) 'The Structure and Strength of Achievement Motivation: A Cross-cultural Comparison', *Journal of Organizational Behaviour* 17: 431–44.
- Spangler, M. and Petrovich, O. (1978) 'Future Time Perspective and Feeling and Tone: A Study in the Perception of the Days by Yugoslav and American Students', *Journal of Social Psychology* 105: 189–93.
- Stratham, A., Gleicher, F., Boninger, D. S. and Edwards, C. S. (1994) 'The Consideration of Future Consequences: Weighing Immediate and Distant Outcomes of Behaviour', *Journal of Personality and Abnormal Psychology* 66: 742–52.
- Suddendorf, T. and Corballis, M. C. (1997) *Mental Time Travel and the Evolution of the Human Mind*. New York: Basic Books.
- Wallace, M. (1956) 'Future Time Perspectives in Schizophrenia', in K.A. Keough, P.G. Zimbardo and J.N. Boyd (1999) 'Who's Smoking, Drinking and Using Drugs? Time Perspectives as a Predictor of Substance Abuse', *Basic and Applied Social Psychology* 21: 149–64.
- Wallace, M. and Rabin, A. I. (1960) 'Temporal Experience', *Psychological Bulletin* 57: 213–36.
- Wassarman, H. S. (2002) 'The Role of Expectancies and Time Perspectives in Gambling Behaviour', *Dissertation Abstracts International: Section B: The Sciences and Engineering* 62(8-B): 3818.
- Watson, D., Clark, L. A. and Tellegen, A. (1988) 'Development and Validation of Brief Measures Positive and Negative Affect: The PANAS Scales', *Journal of Personality and Social Psychology* 54: 1063–70.
- Wills, T. A., Sandy, J. M. and Yaeger, A. M. (2001) 'Time Perspective and Early-onset Substance Use: A Model Based on Stress Coping Theory', *Psychology of Addictive Behaviours* 15(2): 118–25.
- Zaleski, Z., Cycon, A. and Kurc, A. (2001) 'Future Time Perspective and Subjective Well-being in Adolescent Samples', in P. Schmuck and K. M. Sheldon (eds) *Life Goals and Well-being: Towards a Positive Psychology of Human Striving*. Ashland, OH: Hogrefe & Huber.
- Zimbardo, P. G. (2002) 'Just Think About It: Time to Take out Time', *Psychology Today* 35: 62.

- Zimbardo, P. G. and Boyd, J. N. (1999) 'Putting Time in Perspective: A Valid, Reliable Individual-difference Metric', *Journal of Personality and Social Psychology* 77: 1271–88.
- Zimbardo, P. G., Keough, K. A. and Boyd, J. N. (1997) 'Present Time Perspective as a Predictor of Risky Driving', *Personality and Individual Differences* 23: 1007–23.

ELAINE DUNCAN is a Lecturer in the Division of Psychology, Glasgow Caledonian University, Scotland. Her research interests are emotional health and wellbeing, efficacy of written disclosure in the processing of life events, trauma and illness, positive psychology and cross-cultural psychology. Her research has an international as well as local focus with collaborators in countries such as Italy and Nepal. She is the Principal Consultant Psychologist to the Centre for Confidence and Wellbeing, Glasgow. The remit of this Centre is to transform Scottish culture so that it supports more positive attitudes, confidence, individuality, creativity and innovation, recognition of success, and well-being. She was designated a Chartered Sport and Exercise Psychology by the Division of Sport and Exercise Psychology of the British Psychological Society. She actively promotes the benefits of and adherence to physical activity. She is a member of the Scottish Sport Psychology Support Group, the European Network of Positive Psychologists amongst others. ADDRESS: Glasgow Caledonian University, Division of Psychology, Cowcaddens Road, Glasgow, G4 0BA. [e-mail: edu@gcal.ac.uk]

LISA DRAKE graduated from Glasgow Caledonian University in July 2005 with a 1st Class BSc (Hons) degree in Psychology and was presented with the university award for the 'Best Performing Student at Honours Level' and the 'British Psychological Society Undergraduate Award for Best Performing Student'. At the time this research was carried out she was an undergraduate psychology student and the study was conducted as a group project for part of the university course requirements. Lisa has also completed research for her 4th year thesis entitled 'Time Perspective, Physical Activity and Subjective Happiness'. This paper was presented at the 3rd European Conference on Positive Psychology in July 2006 and will be published in a book of selected papers from the conference. Lisa is currently employed as an Assistant Educational Psychologist within West Dunbartonshire Council's Psychological Service and is involved in various educational research and development initiatives that inform evidence-based policy and practice.