Emotional Processes in Development and Dynamics of Individual Time Perspective

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Introduction

The link between time perspective (TP) and emotional experience is now well established. How we typically see the past, present, and future appears to shape our immediate moods, general sense of well-being, and even vulnerability to emotional disorder (chapter "Time Perspectives and Subjective Well-being: A Dual Pathway Framework" by Cunningham et al., this volume; Zimbardo and Boyd 2008; Zimbardo et al. 2012). For example, habitually seeing the past in a negative light may color immediate emotional experience. Indeed, Aristotle emphasized an overwhelming interdependence between attitudes toward time and emotions. In *The Art of Rhetoric*, he defined emotion as a kind of pain or discomfort which is related to an upcoming danger. He argued that distant events do not arouse anxiety – we are all aware of our mortality, but death only terrifies when it seems near in time. A similar view comes from modern work; the sense of an imminent, "looming" danger may be central to neurotic anxiety (Riskind and Williams 2006).

According to cognitive theory, emotional responses are shaped by appraisal processes (Scherer 2001), which, in turn, are influenced by stable self-beliefs maintained in long-term memory (Wells and Matthews 2006). For example, a student who encodes himself/herself as perpetually failing on tests will tend to appraise an upcoming test as threatening, based on the self-belief. Personality traits, including habitual TP, are associated with stable self-beliefs. Thus, negative beliefs about the past, a salient feature of TP, are likely to bias appraisal in the here and now, generating negative mood (Boniwell et al. 2010).

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However, there is more to emotional experience than the immediate appraisal of isolated events. The flow of emotional experience itself exists in time as a dynamic process (Lazarus 1999). Emotion change is driven not just by changing external events but by internal self-regulative processes. We may make short-term "on-line" adjustments to the processes generating emotion in response to a discrete event, such as suppressing emotions we would prefer not to display to others (Gross and Thompson 2007). Over longer time periods we reflect on our emotions and develop new regulative strategies. For example, the student who comes to realize that his/her anxiety reaction to a simple test was disproportionate may make a point of self-reassurance prior to the next test.

In this chapter, we will build on research on TP, emotion, and well-being to address the possible role of TP in emotion regulation. For example, depression often involves a focus on the past, in ruminating on past, self-referent causes of emotional distress (Nolen-Hoeksema 1991): e.g., "I have always been a loser." Negative views of the past are likely to encourage such ruminations. Conversely, positive TPs may lead to more constructive reflections that promote positive emotions. There may be a link between a positive past perspective and "emotional intelligence" (EI), a trait referring to a variety of emotional competencies that promote understanding of emotion (Matthews et al. 2002; Mayer et al. 2000). These competencies may include abilities to use past emotional experiences constructively in regulating immediate mood.

This chapter is structured as follows. First, we will outline a conceptual model of TP, emotion, and emotion regulation. Second, we will elaborate on Zimbardo and Boyd's (1999, 2008) multiple dimensions of TP and their relevance to emotional processes. Third, we will explore the possible role of TP in promoting effective emotion regulation, as an element of emotional intelligence (EI), and how dysfunctional or "unbalanced" TP may contribute to vulnerability to emotional disorder. We will conclude with a summary of the role of TP in emotion regulation and its wider significance for understanding individual differences in the explicit and implicit processes that mediate between TP and emotional experience.

Conceptualizing Time Perspective and Emotion

Individuals differ in their habitual TP (Zimbardo and Boyd 2008). While momentary time orientation depends on a variety of factors, people show consistent tendencies toward dwelling on the past, living in the present moment, or anticipating the future. As an element of personality, Zimbardo and Boyd (1999, 2008) see TP as being shaped primarily by social and cultural influences, although biologically based temperamental influences may also play a role.

Studies of personality development suggest how sociocultural factors may shape TP. McAdams (2001) emphasizes the importance of the "life story" for personality. Each person builds an evolving narrative that gives meaning to life; such narratives necessarily require interpretation of past events and future projections. In terms of

social cognitive theories of personality stability (Matthews et al. 2000; Robinson and Sedikides 2009), personal perspectives on time are incorporated into the self-schema (or schemas) that shapes experience and governs action. For example, people who suffered abuse as a child might see those events as central to who they are as adults. Thorne and Nam (2009) describe some relevant developmental processes in the construction of personal narratives, including how the person makes sense of difficult or negative past life events. Mothers instruct children on the causes of their emotions, how the emotion should be expressed, and how emotions may be resolved (depending on culture, social class, and gender). Similarly, development of emotional aspect of TPs may be partially influenced by attachment patterns, with secure attachment facilitating Past Positive, Present Hedonistic, and Future perspectives and low attachment predicting Past Negative TP (Laghi et al. 2009).

Identifying dispositional TPs with the narrative self-schema leaves open whether TP is a cognitive or emotional construct. Should past TPs be identified with a set of propositions about the past or the vivid reexperiencing of past feeling states (cf., Strack et al. 1985)? Standard cognitive theories of emotion, such as appraisal theory (Scherer 2001), see cognitive evaluation processes as the primary causal influence on emotional experience, with subjective experience as a by-product of appraisal. Lennings (1996) defines TP as "a cognitive operation that implies both an emotional reaction to imagined time zones (such as future, present or past) and a preference for locating action in some temporal zone" (p. 72). TP might influence specific appraisal processes such as top-down reinstatement (Clore and Ortony 2000), which refers to assessment of a situation by matching it to previous experiences (schematically encoded). That is, the emotional meaning of an event is derived by matching stimulus features of the current event to a corresponding prototype in memory. Typically, top-down reinstatement allows fast recognition of the personal significance of an event based on prior experience. However, it can elicit inappropriate emotions; Clore and Ortony (2000) cite the case of a Vietnam veteran for whom the lush foliage of a hothouse reinstated the fear of jungle warfare. Individual differences in TP might reflect either content factors – availability of relevant positive and negative prototype events – or process factors like ease of accessing prototypes. By contrast, cognitive analyses of emotion may miss the point by reducing emotions to cold rationalizations: cognitive processes and emotions may reflect separate neural or psychological systems (Zajonc 1984). Recent work on EI has followed Pascal's dictum that "The heart has reasons that reason cannot know." Perhaps TP relates not to schema-driven analyses, but to the emotion system driving insistent past recollections, the thrills of pleasure in the here and now, and the vivid experience of anticipated emotion. There are significant theoretical objections to assigning cognition and emotion to separate systems (Lazarus 1999; Matthews et al. 2002), and top-down reinstatement can generate vivid emotions through unconscious cognitive processing (Clore and Ortony 2000). However, the relationship between TP and immediate emotional experience should not be neglected, given that several TP dimensions have an emotional valence. Gruber et al. (2012) even describe Zimbardo Time Perspective Inventory (ZTPI) as an indicator of *emotional* TP.

Time Perspectives and Emotional Processes

Zimbardo and Boyd (1999) realized that people differ in characteristic TP, just as we might say colloquially that someone lives for the moment or is buried in the past. In this sense, TP is defined as "…the often non-conscious personal attitude that each of us holds towards time and the process whereby the continual flow of existence is bundled into time categories that help to give order, coherence, and meaning to our lives" (Zimbardo and Boyd 2008, p. 51). They identified five separate dimensions of TP. Identification and measurement of these dimensions via the Zimbardo Time Perspective Inventory (ZTPI) has been crucial for research on TP and emotion. The dimensions are as follows:

- *Past negative (PN)*: A generally negative, aversive view of the past, which may generate painful memories. It may develop through exposure of actual unpleasant or even traumatic events, through negative reconstruction of neutral or benign events, or via both processes.
- *Past positive (PP)*: A warm, sentimental attitude toward the past that may produce pleasant reminiscences. As with PN, it may reflect memories of actual events or positive reevaluation of neutral or negative events.
- *Present hedonistic (PH)*: A hedonistic attitude toward life, with high impulsivity and little concern for future consequences of one's actions. On the one hand, PH is associated with energy and *joie de vivre*; on the other with risk-taking and irresponsibility.
- *Present fatalistic (PF)*: Beliefs that the path of life is determined by chance rather than personal striving, so that there is little point in planning for the future. PF combines external locus of control (Peterson 1991) with apathy and resignation to the whims of fate.
- *Future (F)*: A general orientation toward planning for the future, with behavior dominated by striving for future goals and rewards. It reflects a conscientious but perhaps rather puritanical disposition.

Although Zimbardo and Boyd (1999) emphasized the social-cultural basis for TP, it is likely that biologically based temperamental factors also play a role (Stolarski et al. 2013a). Such factors include positive emotionality, negative emotionality, and effortful control (Rothbart et al. 2009). A fairly large-scale FFM study (Zhang and Howell 2011) confirmed that neuroticism (negative emotionality) correlated especially with higher PN and to a lesser degree with PF and low PH. Correlates of extraversion (positive emotionality) included higher PP and PH and lower PN, whereas conscientiousness (effortful control) was substantially correlated with F and to a lesser extent with lower PN and PF. Various traits associated with impulsivity and risk-taking also correlate with higher PH and lower F (Zimbardo and Boyd 1999).

However, there is more to TP than temperament. Zhang and Howell (2011) showed that the ZTPI scales explained substantial variance in well-being over and above the FFM: PP, PN, and PH were all independently significant predictors in a

regression analysis. Indeed, when analyzed separately, the ZTPI explained more variance in well-being (33.5 %) than the FFM (24.2 %). Furthermore, relationships between personality and emotion reflect not only temperament but also individual differences in appraisal and coping (Matthews et al. 2006, 2009), as well as mood regulation processes (Lischetzke and Eid 2006). Different aspects of TP may be variously associated with vivid, immediate emotional experiences (or recollection of past experiences) or with a more "pallid" and distanced analysis of emotive events (Strack et al. 1985). The ZTPI dimensions that predict well-being most strongly (PP, PN, PH) may connect with vivid experience, whereas PF and F may be related more to strategic regulation of emotion. For example, the person high in F may be motivated to prevent negative experiences through careful planning and anticipation of threat.

Thus, understanding the emotional correlates of TP requires attention to underlying mechanisms and processes, which may be of various kinds. With this principle in mind, we will next outline research findings on the five ZPTI dimensions.

Past Time Perspectives

Past experiences are often considered as the basis of our identity, and influential movements in psychology ranging from psychoanalysis to behaviorism have emphasized the importance of early learning for personality development, albeit from very different theoretical standpoints. However, memories of the past are constructed at encoding and reconstructed at retrieval and so are not exact copies of the actual experience. Reconstructions of the past can be positive or negative, whatever the nature of the event. Zimbardo (in Zimbardo and Boyd 2008, pp. 71–73) recalls a grim experience as a 5-year-old, being quarantined with whooping cough and double pneumonia in a hospital ward filled with suffering and dying children. He describes how he transformed this experience by reframing it positively, as one in which he learned strategies for self-reliance and enduring hardship. Zimbardo and Boyd (2008) claim that one's subjective attitude toward past experiences is more important than the objective nature of life experiences.

Past TPs influence present emotional functioning, but it is important to distinguish PN and PP factors. Intuition might suggest that positive and negative past TPs should be opposed traits. In fact, factor analysis revealed two independent, only weakly correlated factors (e.g., Zimbardo and Boyd (1999) report a correlation of −.26). Some people may have strongly valenced past TPs, others may not develop any strong orientations to the past, whereas still others reveal emotionally ambivalent attitude toward past, scoring high on both past dimensions. Similarly, positive and negative affects represent separate psychological systems, which may sometimes be co-activated (Watson 2000).

Past TPs consequently reveal relationships with subjective well-being (chapter "Time Perspectives and Subjective Well-being: A Dual Pathway Framework" by Cunningham, et al., this volume). Relationships of TPs with various measures of

life satisfaction reflect their emotional valence: PN is negatively related to well-being (usually at −.40 to −.50 level), while PP reveals opposite correlations (slightly weaker: .30 to .40). PN is the strongest correlate of well-being across all the studies, and it may be implicated in traumatic stress also (Holman and Silver 1998).

Stolarski et al. (2013b) have shown that the pattern of results is similar for currently experienced mood. In their study, PN was positively related to tension and negatively to energy and hedonic tone. Opposite relationships were obtained for PP. Moreover, past TPs proved significantly related to recalled mood, when mood was assessed on two separate days. PN was associated with higher recalled tension and lower energy and hedonic tone. However, in this case, recall was accurate rather than produced by a bias in memory. By contrast, individuals higher in PP tended to report higher levels of energy than they actually experienced, suggesting a reconstructive bias.

Studies of autobiographical memory may illuminate the role of TP in emotion. Courage and Howe (2010) point out that autobiographical memories are closely related to the "cognitive self" that begins to emerge at around 2 years old, as an organized, "objectified" set of self-beliefs. The cognitive self interacts dynamically with autobiographical memory in that the current self-concept (or "working self") reconstructs past memories and the past reconstructs the self (Conway and Pleydell-Price 2000). Broadly, stronger past TPs might signal the dominance of the latter process, i.e., retrieval of past autobiographical memory powerfully shapes the person's sense of who they are currently. Theories of autobiographical memory (e.g., Conway and Pleydell-Price 2000; Conway et al. 2004) are elaborate and beyond the scope of this chapter. For example, both autobiographical memory and the conceptual self encode multiple types of information, memory retrieval may be explicit or implicit, and emotion may enhance or block retrieval in different circumstances. We will merely pick out some features of autobiographical memory relevant to TP, at the cost of considerably simplifying the models to which we refer.

According to Conway et al. (2004), there is a fundamental tension between two functions of memory, "adaptive correspondence" and "self-coherence." The former refers to the need to keep accurate records of sensory experience in order to accomplish the action sequences necessary for goal attainment. Even relatively simple goals like boiling an egg required detailed, veridical episodic memory. Self-coherence refers to the need to maintain a consistent, conceptually rich, and comprehensible understanding of oneself, a function that may require neglect or reconstruction of those personal experiences that do not fit the schema.

TP may intrude at several points of the processing supporting adaptive correspondence and self-coherence. The working self functions in part by accessing relevant memories of plans for goal attainment from a knowledge base associated with current goals (Conway and Pleydell-Price 2000). These include what Conway et al. (2004) call self-defining memories, i.e., those of personally important goal transitions (most simply, success or failure). Significant goal transitions are typically accompanied by appropriate emotion. Especially salient memories may constitute turning points in life (Pillemer et al. 1996); perhaps Zimbardo's memory of the quarantine ward is of this kind. A strong past TP might be associated with the

availability or accessibility of self-defining memories or with limitations in the capacity of the working self to generate novel solutions to familiar challenges. The near independence of PN and PP (Zhang and Howell 2011) suggests separate representations of positive and negative memories. Conway et al. (2004) argue that retrieval of emotionally intense memories may disrupt the balance between adaptive correspondence and self-coherence functions, producing a merging of present and remembered experience. Individuals with strong past TPs (perhaps PN especially) may be especially vulnerable to such disruptive effects.

Self-coherence – i.e., developing continuity in sense of self – is a key function of autobiographical memory (Olivares 2012). Processes such as self-verification and uncertainty reduction build and maintain self-continuity, but may distort veridical recall (Conway et al. 2004). Indeed, depressed individuals may preferentially recall negative information about the self in order to maintain a coherent self-schema (Swann 1997). A strong past TP may be associated with stronger motivations of this kind, with potentially damaging consequences in the case of PN. Conversely, PP might be associated with greater self-enhancement motives. Zimbardo and Boyd (2008) also cite evidence that PP is related to higher family involvement, consonant with the social bonding function of autobiographical memory (Olivares 2012). Grounding the self in positive memories of the family may promote well-being.

Present Time Perspectives

It is tempting, but ultimately misleading, to define a present TP as an absence of past or future orientation. We might see the present-oriented person as stimulus-driven and prone to neglect both the self-defining memories described in the last section and efforts at future planning. Such a definition captures the impulsivity characteristic of present TP (Zimbardo and Boyd 1999, 2008) but has other shortcomings. Impulsive behaviors may still be influenced by self-regulation and (conscious or unconscious) beliefs about the appropriateness of the impulsive act (Matthews et al. 2000, 2002). Seemingly spontaneous emotion may also be a consequence of memories of the past or projecting the future. In addition, the two present dimensions of the ZTPI, PH and PF, are systematically related to past orientation. In Zhang and Howell's (2011) large data set, PH correlated at .22 with PP, and PF correlated at .48 with PN. Both present-oriented dimensions showed modest negative correlations with F, supporting the idea that an absence of future planning contributes to present TPs.

Zimbardo and Boyd (1999) described two present TPs, each of which is robustly emotionally loaded. In fact, PH and PF have some attributes in common. Zimbardo and Boyd (2008) see both TPs as being associated with emotional instability, aggression, depression, as well as behavioral expressions of present orientation such as risk-taking, novelty-seeking, and poor impulse control. Zimbardo and Boyd (2008) suggest that difficult socioeconomic circumstances, in which trying to plan for the future seems pointless, may contribute to present orientation (see chapter

"Precariousness as a Time Horizon: How Poverty and Social Insecurity Shape Individuals' Time Perspectives" by Fieulaine & Apostolidis, this volume).

In other respects, PH and PF are differentiated in relation to emotion. Present fatalistic TP corresponds to a helpless, hopeless attitude toward life and future (Zimbardo and Boyd 1999). It is related to negative emotions (Stolarski et al. 2013b), low self-esteem (Zimbardo and Boyd 1999), and decreased well-being (Boniwell et al. 2010; Zhang et al. 2013). This emotional profile may result from external locus of control and, in general, learned helplessness. It may seem paradoxical that PF relates to negative emotion, given that the fatalist expresses a sense of resignation and lack of concern about the future. PF may then represent a style of coping with emotional disturbance. Perhaps acceptance of one's unhappiness works to some degree in distancing the self from negative emotions, but the strategy seems generally ineffective.

Present hedonism is a rather harder nut to crack if we seek for its emotional correlates or consequences. Present hedonists are energetic and impulsive sensation and novelty seekers (Zimbardo and Boyd 1999). They strive for intense pleasure and excitement, which leads them to such behaviors as risky driving (Zimbardo et al. 1997), substance use (Keough et al. 1999), or risky sexual behaviors (Henson et al. 2006). However, according to meta-analysis (Stolarski et al. 2012), PH explains less than 2.9 % of variance in well-being. Moreover, present hedonists are more prone to mania (Gruber et al. 2012); they are more aggressive and depressive and less emotionally stable and display lower impulse control. Zimbardo and Boyd (2008) summarize the typical emotions of hedonists by stating that they have more energy, but also greater depression and emotional instability (consistent with bipolar tendencies). By contrast, Stolarski et al. (2013b) found that individuals high in PH reported higher energy, but also lower tension and higher hedonic tone.

We have two comments on the seemingly contradictory findings. First, the snapshots of affective correlates of PH available from standard cross-sectional studies may not do justice to the role of the trait in the dynamics of emotion. Those in PH may enjoy hedonistic activities but also suffer an emotional "hangover" later on (and perhaps a literal hangover on occasion also). Similarly, the social context may be important. A hedonistic orientation may not be emotionally damaging for those living freewheeling, unstructured lives (including some university students), but may clash with adult career and family responsibilities.

Second, the emotional impact of hedonism may be moderated by other elements of TP. Stolarski and colleagues (2012) found that happiness is predicted by significant interactions between the present hedonistic and future-oriented TPs. Specifically, individuals with both present hedonistic and future-oriented TPs experienced the highest levels of well-being. Maximum happiness necessitates both an appreciation for pleasure seeking and an ability to delay gratification. Excessive focus on the future to the exclusion of the present may stifle spontaneous enjoyment of life.

Although not represented in the standard ZTPI, Zimbardo and Boyd (2008) draw attention to a third perspective, the present holistic perspective, which supports superior affective functioning. Consistent with Eastern philosophies, this perspective emphasizes the mindful awareness of the present, surrendering past preoccupations

and ceasing to worry about the future. Such an orientation may be a fruitful direction for future research, especially as Drake et al. (2008) found that both PH and PF were negatively associated with mindfulness.

Future Time Perspective(s)

Future TP is a fundamental dimension, momentous for personal development, creating the basis for delay of gratification processes (Husman and Lens 1999; Nuttin 1985). Future perspective allows people to overcome immediate hedonic drives and impulses and helps to give value to more distant but also more important goals. It may be a metacognitive process of emotional regulation that keeps hedonic striving on healthy and responsible tracks. In fact, F is only weakly related to higher well-being (Zhang et al. 2013), suggesting that its role in emotion may be more strategic than experiential. The aforementioned study of mood (Stolarski et al. 2013b) found that F is a dispositional predictor of energy, which reflects motivation to act, but it is not related to hedonic tone. The affective benefits of F may in part reflect more adaptive coping with stressors. The relationship between coping and TP has been rather neglected, which is surprising given that the contemporary transactional theory of stress (Lazarus 1999) emphasizes the temporally dynamic nature of stressful encounters. However, some conceptual and empirical links between coping and TP can be established.

A simple model of coping differentiates task-focused (or problem-focused), emotion-focused, and avoidant strategies (Endler and Parker 1990). Task-focused coping entails developing an organized plan of action to deal with the issue at hand, implying strategizing for the future. By contrast, emotion focus does not correspond to a clear TP – it could involve reflecting on both past and future – and avoidance seems geared toward preventing present discomfort. Although the effectiveness of the different coping strategies depends on the nature of the challenge faced by the person, task focus appears to be broadly the most successful strategy, especially when the person has some power to influence events (Endler and Parker 1990). F may be associated with greater – or more effective – use of task-focused coping, contributing to lower stress and higher well-being. Supporting this prediction, Epel et al. (1999) found that homeless individuals high in F were more likely than others to engage in proactive search for housing and to engage in task-focused activities like enrolling in school. A recent study using a Greek sample showed that high F was related to greater proactive coping, a construct similar to task focus (Anagnostopoulos and Griva 2012). High F may also protect against stress resulting from disease, given that this TP may relate to greater participation in preventive medical checkups such as breast cancer screening (D'Alessio et al. 2003; Zimbardo and Boyd 2008). Traits overlapping with F, especially conscientiousness, also seem to confer greater resilience to stress: task-focused coping mediates effects of conscientiousness on positive emotions (Matthews et al. 2006). High F may exert a similar influence on affective well-being.

Another perspective concerns the different types of coping that may be appropriate as an event unfolds in time (McGrath and Tschan 2004). These authors describe five temporal stages relevant to understanding coping with a disastrous event such as a flood: preventive coping (performed long before: e.g., building flood defenses), anticipatory coping (soon before: e.g., evacuation from a low-lying area), dynamic coping (present: e.g., climbing to the top of a flooded building), reactive coping (soon after: e.g., finding temporary accommodation), and residual coping (long after: e.g., renewing flood insurance). Future work on TP and coping might productively address temporal dynamics. We might expect Future TP to relate to preventive and anticipatory coping, present orientations to dynamic coping, and past orientations to residual coping.

A final issue is that Zimbardo and Boyd (1999), as well as other Future TP researchers (see Zaleski 1994), do not distinguish between positive and negative views of future, rather opposing it to present orientation. However, there are different points of view. Worrell and Mello (2007) first suggested a six-factor structure of TP, dividing future into two dimensions. A similar psychometric operationalization within the Zimbardo theory came from Carelli et al. (2011). The authors describe future negative dimension as related to concerns and anxiety, whereas future positive is expressed in hope and expectation. Both dimensions have a motivational character, but whereas in the former the motivation comes from fear of numerous threats, in the latter it results from strive to realize one's potential through taking advantage from forthcoming opportunities. These orientations are represented by two motives: approach and avoidance. Naturally, approach motives tend to be associated with positive emotions and avoidance motives with negative emotions, depending also on the specific motive involved (e.g., performance or mastery goals: Huang 2011).

Time Perspective and Competence in Emotion Regulation

We have seen how all five of the Zimbardo and Boyd (1999, 2008) TPs contribute to emotion regulation, although not necessarily adaptively. TPs may influence both vivid, emotionally charged regulative processes, such as retrieval of memories of life-changing events, and strategic regulative processes, such as coping with stress, whose effects on emotional experience may be indirect. Research also illustrates how emotion regulation may operate over varying timespans, from the immediate challenges posed by events to the person's lifelong personal narrative (McGrath and Tschan 2004; Thorne and Nam 2009). Indeed, older age may systematically change TP as the person adjusts, often adaptively, to shrinking future horizons (Carstensen et al. 1999).

Thus far, studies of TP have rarely connected directly with the emerging psychology of emotion regulation (e.g., Gross and Thompson 2007), which differentiates various specific strategies used by people to influence emotion (with more focus on shorter rather than longer timespans). Emotion regulation implies monitoring

of emotional state, providing a target for emotion regulation efforts, and deploying strategies to attain the target emotion. Both monitoring (i.e., self-appraisal) and strategy choice may be influenced by TP. Often such regulation is conscious and voluntary. However, habitual styles of emotion regulation may become proceduralized and thus somewhat automatic and inaccessible to consciousness, especially in the case of the dysfunctional strategies used by individuals with emotional disorders (Wells and Matthews 2006). We will consider the application of TP research to two focal issues in emotion regulation: emotional competency and emotional disorder.

As discussed above, well-being tends to correlate positively with PP and F and negatively with PN and PF, whereas PH is associated with diverse affective outcomes. Zimbardo and Boyd (1999) also emphasized the importance of a balanced TP. The differing challenges of life call for differing TPs, so that people will benefit from the capacity to shift perspective according to the current context. Even if PP and F are predominantly beneficial, it may sometimes be advantageous to recall past failures (PN) or to give up on an intractable problem (PF). An extreme bias toward any single TP may block access to other perspectives when they are in fact appropriate. A balanced TP thus represents the optimum configuration of the various TPs, broadly defined as low (but not zero) PN and PF, as well as moderate to high scores on PP, PH, and F (Zimbardo and Boyd 1999). Zhang et al. (2013) compared various metrics for estimating balanced TP from the ZTPI and confirmed that balance was positively associated with various facets of well-being.

If there is an optimum profile of TPs, it may contribute to some overall competence in emotion regulation. The new construct of EI (Matthews et al. 2002; Mayer et al. 2000) is broadly defined as an array of aptitudes, competencies, and skills in identifying, understanding, and managing emotion. The emotionally intelligent person should benefit both from competency in monitoring emotional state and in choosing regulative strategies for attaining a target emotion (Salovey et al. 1995). Indeed, Salovey et al.'s (1995) account of mood regulation strategies includes facets for both clarity of thinking about one's emotions and mood repair.

Stolarski et al. (2011) pointed out some conceptual similarities between TP and EI. As in accounts of TP, Salovey et al. (2002) distinguished experiential ("hot") and strategic ("cold") elements of EI. In their four-branch model of EI, emotion perception and assimilation of emotion into thought are considered experiential, and emotion understanding and management are strategic. Stolarski et al. collected data on the ZTPI (Zimbardo and Boyd 1999) and a test of EI developed for use with Polish samples. Their findings illustrate how TP and EI may be connected at both experiential and strategic levels.

Past TPs are often experiential (as they are based on our past experiences), but they remain under influence of cognitive interpretations and strategies for retrieval from memory. Hence, past TPs should be related to both forms of EI. Consistent with expectation, Stolarski et al. (2011) found that overall EI was positively associated with PP and negatively correlated with PN. Furthermore, the two past TPs correlated significantly with both experiential and strategic branches of EI. Turning to present TP, there was no association between PH and EI. PH might be expected to be positively related to experiential EI (i.e., more openness toward emotional

experiences) but negatively to strategic (i.e., poorer regulation), but these predictions were not confirmed. A sharper focus on mood regulation in rewarding and exciting contexts may be needed here. By contrast, PF was the strongest correlate of overall low EI (both strategic and experiential EI branches). Fatalism may encourage both impoverished emotional experience and poorer strategic regulation of emotion, perhaps reflecting an external locus of control.

High F was expected to confer the affective benefits of strategic regulation but proved to be unrelated to EI, possibly because Polish culture inclines toward negative conceptions of the future. The distinction between Future Negative and Future Positive TPs advocated by Carelli et al. (2011) may be worth developing in further studies. Stolarski et al. (2011) also found that a measure of balanced TP correlated at .31 with overall EI and correlated significantly with all four branches.

Stolarski et al.'s (2011) study confirms that TP may impinge on overall emotional competency, including both its experiential and strategic aspects. It remains an open question whether competency shapes TP or vice versa (or some more complex interaction). However, individual differences in mood regulation cannot be studied only from a dispositional perspective. Indeed, studies of EI have been criticized for neglecting the role of situational factors in emotional competence (Matthews et al. 2002). A next step for research is to examine how dimensions of TP influence emotion regulation within specific laboratory and real settings. Contextual factors such as the relevance of past experience, the availability of opportunistic rewards, and the predictability and controllability of future events may all moderate the impact of TP on mood-regulative processes.

Time Perspective and Dysfunctional Emotion Regulation

Certain TPs, especially PN and PF, tend to accompany reduced emotional competence, although that is not to say they are maladaptive in all circumstances. In this section, we consider the clinical perspective on dysfunctional TPs, drawing especially on recent studies of trauma, as well as other relevant emotional disorders.

Obviously, memories of the past are central to the stress ensuing from exposure to traumatic events and posttraumatic stress disorder (PTSD). Indeed, vividly reexperiencing the event (e.g., flashbacks) comprises one of the three core symptom clusters of the disorder (along with avoidance and hyperarousal symptoms). When memories of the trauma dominate current existence, the person may experience an especially malign form of Past Negative TP. Cognitive theories of trauma (e.g., Feeny and Foa 2006) are broadly consistent with this view. PTSD reflects difficulties in assimilating trauma memories into the person's preexisting schemas for the self and the world. Recovery from trauma requires the person to construct and organize a personal narrative that can be integrated into these broader schemas or, in Conway et al.'s (2004) terminology, repairing self-coherence.

TPs are potentially relevant both to the onset of PTSD, remembering that only some individuals exposed to trauma develop persistent clinically significant symptoms, and

to recovery. Naively, it might seem that high PN would increase vulnerability to PTSD, but this may not be the case. Feeny and Foa (2006) argue that it is actually rigidity of schematized beliefs that is the vulnerability factor, suggesting that the critical TP issue is whether high PP and PN imply rigid beliefs about the past, an issue that remains to be investigated. The issues for recovery may be somewhat different. Here, there is evidence that past TP may be a crucial factor in coping with trauma. Holman and Silver (1998) showed that when traumatized individuals become stuck in their prior traumatic experience, reported symptoms of trauma remain elevated long after the experience has passed. Moreover, their results suggest that people who are able to maintain a future orientation in the aftermath of trauma are less likely to experience elevated distress over time; an opposite pattern was observed for present orientation scores. In terms of cognitive theory (Feeny and Foa 2006), we may speculate that a future orientation facilitates the strategic restructuring of memory requisite for recovery, such as accommodating the memories of the event within a forward-looking personal narrative.

Time Perspective Therapy (Zimbardo et al. 2012; see also chapter "Time Perspective Therapy: Transforming Zimbardo's Temporal Theory Into Clinical Practice" by Sword et al., this volume) is a promising example of applying TP theory to facilitating recovery from PTSD. This therapeutic approach is based on the idea of balanced time perspective (see chapter "Assessing Temporal Harmony: The Issue of a Balanced Time Perspective" by Stolarski et al., this volume) and focuses on (1) reconstruction of the past toward its positive interpretation, (2) facilitation of the competence to enjoy present life pleasures, and, above all, (3) building one's future plans and goals constructively (the latter ability is severely impaired in PTSD syndrome). The therapy revealed an impressive effectiveness (Sword et al. 2014), showing that TP theory provides a useful framework for therapeutic interventions in emotional disorders.

Another relevant dynamic process is the perseverative negative self-referent thinking prevalent in many emotional disorders (Wells and Matthews 2006). This style of thinking is described as rumination when backward-looking (e.g., brooding on past failures) and worry when forward-looking (toward future threats). Rumination is seen as characteristic of depression and worry of Generalized Anxiety Disorder (GAD), although neither process is exclusive to these conditions. We might expect that PN would facilitate rumination and negative future orientation would encourage worry. In addition, a "looming" cognitive style in which future threats are seen as imminent has been implicated across the spectrum of anxiety disorders (Riskind and Williams 2005), representing a maladaptive Future TP. Many maladaptive forms of thinking represent metacognitions, i.e., beliefs about one's mental experiences and strategies for controlling thoughts and imagery (Wells and Matthews 2006). Linking TPs to dysfunctional metacognitions may be a fruitful avenue for future research. In a pilot study, Ledzińska (in preparation) showed that PN and PH time perspectives are positively related to maladaptive metacognitive beliefs (at .34 and .25 level, respectively) measured with MCQ-30 questionnaire. Perhaps excessive rumination on past failures represents beliefs that it is important to dwell on such memories; worry may in part be driven by beliefs that worrying

about the future is an effective strategy to forestall the feared event (Wells and Matthews 2006).

The clinical application of research on TP and emotional dynamics is new but promising. Certain aspects of TP may disrupt both accurate monitoring of mental state (e.g., overestimating the importance of an intrusive memory) and effective mood regulation (e.g., excessive worry about future dangers). Although beyond the scope of this chapter, we have described briefly how TP theory may provide a framework for therapeutic interventions in emotional disorders (Sword et al. 2014; Zimbardo et al. 2012).

Conclusion

Emotions unfold in time so it is no surprise that TPs may shape emotional experience and regulation. Dispositional TPs may be conceptualized as fairly stable, but not immutable, elements of personality shaped in childhood by socialization processes (and perhaps also influenced by temperament). The majority of research in this field has been directed toward establishing links between the different TPs identified by Zimbardo and Boyd (1999, 2008) and affective outcomes such as well-being (see chapter "Time Perspectives and Subjective Well-being: A Dual Pathway Framework" by Cunningham et al., this volume). We have seen that all five TPs are associated with characteristic patterns of emotional functioning, varying in whether they are experiential or strategic in nature. One task for the future is to map how TPs relate to specific emotions and feeling states. Basing on the nature of particular TPs, as well on the research on their correlates (e.g., Zimbardo and Boyd 1999; Carelli et al. 2011), we might suppose that anxiety and worry are the core of FN, whereas regret, sadness, and pain constitute PN. FP could be defined as hope, curiosity, and positive expectancy, whereas PP might consist of nostalgia, fond reminiscence, and tenderness. Finally, PF manifests in feeling of helplessness and passivity, while high levels of PH refers to specific pleasures such as lust and euphoria.

It is important too to determine the underlying processes that mediate the effects of TPs on emotion. The contemporary cognitive theory of emotions suggests plausible – though insufficiently tested – explanations for the impact of TPs, including biases in cognitive appraisal, in the interplay between current self-concept and autobiographical memory and the use of working memory to anticipate future outcomes. A comprehensive cognitive-psychological account of TPs should accommodate both strategic processes, which are often explicit and implicit processes which, though closed to introspection, may still generate vivid and even overwhelming emotional experiences.

A deeper understanding of the role of TPs in emotion regulation may have both theoretical and practical benefits. As EI researchers (e.g., Salovey et al. 2002) have stressed, emotional competency is important in numerous real-life contexts: forming intimate relationships, succeeding at work, and finding personal fulfillment. Understanding the role of TPs in effective management of the emotional challenges

of such central life goals may contribute to various branches of applied psychology. Conversely, dysfunctional styles of emotion regulation associated with maladaptive TPs may increase vulnerability to emotional disorder or slow recovery and response to therapy.

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