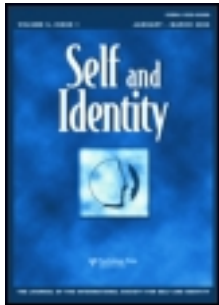


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Looking Towards the Past or the Future Self: How Regulatory Focus Affects Temporal Comparisons and Subsequent Motivation

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Temporal selves are a rich source of potential comparison standards, yet little is known about the preference for specific temporal selves. We examine whether regulatory focus influences to what extent people compare themselves to future or past selves. Promotion-focused individuals, who focus on positive outcomes, were more likely to compare themselves to their future selves (Study 1), specifically while appraising themselves in a domain in which the future self was seen as superior to the current self (Study 2). However, prevention-focused individuals, who focus on negative outcomes, did not orient themselves towards their past, inferior, selves. Supporting a cognitive fit hypothesis, individuals in a promotion-mindset were more motivated to improve when comparing with their future (vs. past) self (Study 3).

Keywords: Temporal comparisons; Regulatory focus; Self; Time.

People strive to improve over time (Taylor, Neter, & Wayment, 1995). To determine how much and where to improve, they need to evaluate their current standing. One way to gain knowledge about one's current traits and abilities is by drawing comparisons with relevant standards. These standards may be other people (Festinger, 1954) or the self (Albert, 1977). When the chosen standard of comparison is the self, individuals might evaluate themselves against the backdrop of what they used to be like, or they might compare themselves to the person they expect (or hope) to become one day (Albert, 1977; Wilson & Ross, 2000). We examine factors that affect people's tendency to focus more or less on the past or on the future self as relevant comparison. We propose that the preference for standards during temporal comparison may depend on people's modes of goal pursuit (Higgins, 1997). In particular, we hypothesize that people might be particularly likely to focus on the future self when striving for gains and success, i.e., when they have a promotion focus on their mind, and to focus on the past self when being in a prevention mindset. Furthermore, we hypothesize that for people with a promotion mindset a focus on the future self should be more motivating than a focus on the past self and vice versa for people with a prevention mindset.

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Temporal Comparisons

In the course of understanding and evaluating the self, people rely on comparisons. One prominent source of self-knowledge is comparisons to other people (Festinger, 1954). People even establish routines to think about specific others while evaluating the self (Mussweiler & Rüter, 2003; Rüter & Mussweiler, 2005). Comparisons with such routine standards are especially efficient (Corcoran & Mussweiler, 2009), which might in part be due to the easily accessible and elaborate knowledge of such a frequently used standard. However, the person whom people know best is the self. Therefore it is not surprising that temporal comparisons are relatively frequent (Affleck & Tennen, 1991; Albert, 1977; Wayment, Taylor, & Taylor, 1995; Wilson & Ross, 2000). The tendency to use temporal comparisons when both temporal and social comparison information are available is higher when people evaluate themselves than when they evaluate others (Zell & Alicke, 2009), and when people focus on self-enhancement rather than self-evaluation (Wilson & Ross, 2000). Thus, temporal comparisons seem to be at least as relevant and influential as social comparisons. But while the body of research on social comparison standards is large and well-mapped (Biernat & Eidelman, 2007; Suls & Wheeler, 2000), temporal comparisons are less well understood (Redersdorff & Guimond, 2006; Zell & Alicke, 2009).

A starting point to understand the intricacies of temporal comparisons might be to more closely examine the temporal direction (past vs. future) of spontaneous temporal comparisons. Research on temporal comparisons from a developmental or educational perspective has primarily focused on comparisons with past selves (e.g., Butler, 2000; Ross & Wilson, 2002; Ruble & Frey, 1991; Suls & Mullen, 1982; Wilson & Ross, 2001), but comparisons with future selves also shape peoples' self-evaluation and motivation (e.g., Hanko, Crusius, & Mussweiler, 2010; Wilson, Buehler, Lawford, Schmidt, & Yong, 2012). Thinking about positive possible selves can benefit the self in the here and now (Markus & Nurius, 1986; Oyserman, Bybee, & Terry, 2006; Ruvolo & Markus, 1992). The direction of temporal comparison might be important, because people generally perceive themselves as improving over time (Busseri, Choma, & Sadava, 2012; Kanten & Teigen, 2008; Ross & Wilson, 2002; Ryff, 1991; Wilson & Ross, 2001). Thus, comparing with past selves often translates into a downward comparison, and comparing with future selves often translates into an upward comparison. For example, students rated their past self as significantly more often as "worse" and the future self was rated significantly more often as "better" than the current self on a number of self-relevant traits (Wilson & Ross, 2000). The present research examined factors that determine whether people look toward the past or the future to make sense of the present self. In particular, we examined regulatory focus orientation as one contributing factor.

Regulatory Focus

According to regulatory focus theory (see Higgins, 1997; Molden, Lee, & Higgins, 2008; Scholer & Higgins, 2011, for overviews), people can adopt two different modes of goal pursuit. A promotion goal focus produces sensitivity to the presence or absence of positive outcomes. In other words, people in a promotion mindset are on the lookout for gains or opportunities. A prevention goal focus, on the other hand, produces sensitivity to the presence or absence of negative outcomes. For example, in one study (Higgins & Tykocinski, 1992) participants read a paragraph about days in the life of a hypothetical student that described the presence or absence of positive (e.g., winning money) as well as negative (i.e., stressful classes) outcomes. Afterwards, promotion-focused participants recalled more positive outcomes whereas prevention-focused participants recalled more negative outcomes. Regulatory goal focus also has implications for subsequent

motivation. When the incentives “fit” with the prevailing regulatory focus, participants tend to perform better (Keller & Bless, 2006; Shah, Higgins, & Friedman, 1998).

In sum, people in a prevention mindset should look for and be motivated by negative outcomes to avoid whereas people in a promotion mindset should look for and be motivated by positive outcomes to pursue. Along this line of reasoning, regulatory focus has been linked to *social* comparison. Promotion-focused individuals were most inspired by role models who highlight the desired state whereas prevention-focused individuals were most motivated by role models highlighting the state to be avoided (Lockwood, Jordan, & Kunda, 2002). For example, in one study students read about a fellow student who had either achieved a number of academic accomplishments (positive role model) or failed at a number of academic challenges (negative role model). Students primed with a promotion goal focus reported more academic motivation when reading about the positive than about the negative role model. In contrast, students primed with a prevention goal focus reported more academic motivation when reading about the negative than about the positive role model. In addition, when asked to recall a role model that had inspired them in the past, promotion-focused participants recalled more positive than negative role models. In contrast, prevention-focused individuals were more likely to name negative role models that had inspired them to guard against similarly negative outcomes than positive role models. In the present research, we examined whether regulatory focus is similarly linked with spontaneously adopted *temporal* self comparisons.

The Present Research

We proposed that regulatory focus would be systematically linked to temporal comparison focus. We expected that promotion-focused individuals would be especially likely to adopt a future self comparison. Focusing on a future self should generally be equivalent to a temporal *upward* comparison with an improved, more positive self. Given that promotion-focused individuals orient towards gains and positive outcomes, these people might focus more on this “better” future self, to look for information on what positive, hoped-for selves to pursue (similar to social comparisons; Lockwood et al., 2002). In contrast, prevention-focused individuals should be more oriented towards negative selves that highlight strategies to avoid negative outcomes. Past selves might represent such relatively negative selves and thus constitute a *downward* comparison standard. In sum, in the present research we examined whether people accommodate their temporal comparisons to their personal modes of goal pursuit by looking into the future or the past.

Study 1

In the first study, we examined the link between regulatory focus and the direction of temporal comparisons that is spontaneously adopted. We asked participants to describe themselves, and asked them to rate their temporal comparison focus during this task. We expected that promotion-focused individuals would be more likely to spontaneously orient themselves towards future comparisons than prevention-focused individuals, whereas a focus on the past might be more likely occur for prevention-focused individuals.

Method

Participants

One hundred six adults participated in this study. Sixteen participants were excluded because they did not complete one of the two relevant measures (the self-regulatory focus

measure or the self-description task). The final sample included 46 female and 44 male participants of an average age of 36.14 years ($SD = 12.62$). Participants were recruited online through the website Mechanical Turk (Buhrmester, Kwang, & Gosling, 2011), the sample was restricted to participants from the USA.

Procedure

First, participants completed a Regulatory Focus Scale (Higgins et al., 2001). This 11-item scale assesses regulatory focus mindset with a promotion focus (Cronbach's alpha = .70) and a prevention focus subscale (Cronbach's alpha = .83). Next, participants were instructed to think about who they are and to briefly describe themselves, using instructions adapted from Wilson and Ross (2000, p. 930). They were told to:

Write a description of yourself in your own words, using whatever information you feel is useful. You could describe yourself in comparison to other people, or compared to what you were like in the past, or what you expect to be like in the future. Feel free to use or disregard any of these suggestions, and please include any other information that is important to know to get a clear picture of what you are like as a person.

This open-ended description was intended primarily to ensure that participants thought about their personal sense of self and turned out to be rather short ($M_{\text{words}} = 69.03$, $SD = 57.72$). We contend that this thought listing only contained a fraction of the many thoughts that were triggered by the question. Next, participants rated their temporal comparison focus during their reflection upon the self (the self-description) on scales from *Not at all* (1) to *Very much* (7). Participants rated the extent to which they had thought about "what you were like in the past" (past comparison focus), and "what you will be like in the future" (future comparison focus). For the sake of completeness, they also rated how much they had thought about "another person and what he/she is like compared to me" and "what other people are like generally" as indicators for a social comparison focus. However, this focus was of no theoretical interest for us and because no effects with regulatory focus emerged, we report no further analyses of social comparison focus.

Results

First, we examined participants' overall comparison focus.¹ Participants reported focusing about as much on past comparisons as on future comparisons (see Table 1).

Next, we examined whether regulatory focus predicted participants' preferred comparison focus. In multiple regression analyses we regressed both of the temporal comparison foci on promotion focus and prevention focus (see Table 2). As expected, only promotion focus was linked to an increase in future comparison focus, $t(87) = 2.34$,

TABLE 1 Means of Participants' Temporal Comparison Focus (Studies 1 and 2)

	Past comparison	Future comparison
<i>Study 1</i>		
General self-description	3.70 _a (2.06)	3.83 _a (1.93)
<i>Study 2</i>		
Social skills self-description (improving domain)	3.93 _a (1.90)	3.47 _a (1.88)
Athletic ability self-description (stable domain)	3.67 _a (1.96)	3.52 _a (1.98)

Notes: Scales from 1 (*Not at all*) to 7 (*Very much*). Standard deviations in parentheses. Within each row, means with the same subscripts do not differ significantly from each other ($p > .10$).

TABLE 2 Unstandardized Regression Coefficients when Regressing each Temporal Comparison Focus on Regulatory Foci (Study 1) or Regulatory Foci and Domain (Study 2)

	Past comparison	Future comparison
<i>Study 1</i>		
Constant	6.15**	1.24
Promotion focus	-0.07	0.12*
Prevention focus	-0.06	-0.01
<i>Study 2</i>		
Constant	3.86**	3.63**
Promotion focus	0.00	0.09
Prevention focus	-0.04	-0.05
Domain	0.28	-0.15
Promotion × Domain	0.18	0.19*
Prevention × Domain	-0.08	-0.22*

Note: ** $p < .01$; * $p < .05$.

$p = .02$, whereas prevention focus was unrelated, $t(87) = -0.13$, $p = .90$. Surprisingly, there was no link between prevention focus and past comparison focus, $t(87) = -1.14$, $p = .26$. Likewise, promotion focus was unrelated to past comparison focus, $t(87) = -1.14$, $p = .26$.

Discussion

This initial study showed that participants' regulatory focus mindset partially predicts their temporal comparison orientation. Greater promotion focus was linked to more future comparison focus. However, we did not find that people with a greater prevention focus orient themselves toward their past selves. It might be that people's mode of goal pursuit primarily modulates future relevant information because goals are located in the future. Past selves are by definition less likely to be realized in the future than future selves. Thus, even though past selves are likely to constitute downward comparison standards, they might be perceived as less relevant for future goal pursuit, even for prevention-focused individuals. However, we remained cautious in interpreting the null effect in this single study and examined whether this effect replicated in the next study.

We argued that promotion focus is linked to a future orientation in self-comparisons because the future self is likely to be an upward comparison. However, there might be an alternative explanation for the link between promotion focus and future comparison focus: Promotion-focused individuals might in general show a stronger orientation toward the future. People tend to spatially represent time along a horizontal axis, with the future being represented more towards the right (Lakens, Semin, & Garrido, 2011), and approach-motivated individuals (a tendency akin to promotion focus) tend to focus more on the right than avoidance-motivated individuals (Roskes, Sligte, Shalvi, & De Dreu, 2011). Thus, promotion-focused individuals might focus on the future simply because the future is represented to their virtual "right" and not because of an expected improvement of the self over time. We designed Study 2 to rule out this alternative explanation and to strengthen our argument that promotion-focused individuals have a stronger tendency for comparison with a future self because the future provides an upward comparison standard. Furthermore, we again tested whether prevention focus leads to more comparisons with a past self.

Study 2

Overall, people tend to expect to improve over time (Busseri et al., 2012; Ryff, 1991; Wilson & Ross, 2001). However, perceived improvement over time may be relatively steep or shallow depending on the domain in which people evaluate themselves. In most domains the future self might indeed be perceived as an improved, more positive self toward which promotion-focused individuals orient themselves. But in some domains, the future might not hold such a “better” self to pursue. In the second study, we take this consideration into account. We again examined the link between regulatory focus and the spontaneously adopted direction of temporal comparisons. However, we also examined whether the link between promotion focus and future comparison focus would be stronger if participants described themselves in a domain in which they expected relatively steep self-improvement and weaker if they described themselves in a domain in which they expected relatively shallow self-improvement. In addition, picking a domain with a steep improvement over time should increase the chance of detecting a link between prevention focus and past comparison, because in this domain the past self appears to be a clear downward standard.

In a pilot study, we identified two domains that differed in average perceived improvement over time. One hundred twenty-eight participants² ($M_{\text{age}} = 36.23$ years, $SD = 12.23$) recruited from Mechanical Turk rated themselves on each of five domains (social skills, organizational skills, financial ability, athletic ability, and curiosity for life) in terms of how well they were doing 10 years ago, 5 years ago, 1 year ago, now, 1 year in the future, 5 years in the future, and 10 years in the future on scales ranging from *Poor* (1) to *Excellent* (10). We computed an individual regression coefficient across the seven time points for each individual participant, computing a personal perceived trajectory over time (see Lorch & Myers, 1990). Based on this analysis we picked two domains: Social skills as a domain with a relatively steep trajectory indicated by a mean regression coefficient that was positive and significantly different from zero ($M = 0.15$, $SD = 0.18$), $t(126) = 9.67$, $p < .001$, and athletic abilities as a domain with no or shallow self-improvement ($M = 0.03$, $SD = 0.21$), $t(126) = 1.75$, $p = .08$. The mean trajectories of these two domains were significantly different from each other, $t(126) = 6.273$, $p < .001$.³

In the main study, we then varied whether participants thought of a steeply improving domain (social skills) or a relatively stable domain (athletic ability) when describing their own abilities. We expected that the link between regulatory focus and future comparison focus would be stronger when participants described themselves in terms of social skills than in terms of athletic ability, because the future self appears to be an upward standard only in the social skills domain. If promotion-focused individuals simply focused more on the future because of a cognitive tendency to focus on the right and regardless of the relative standing of the future self to the current self, the type of domain would not influence the link between promotion focus and temporal comparison focus.

Finally, this study also included an initial test of the consequences of temporal comparison. Research on *social* comparisons supports a “cognitive fit” hypothesis indicating that the fit between regulatory focus and a comparison focus can have consequences for motivations to pursue a goal. Specifically, promotion-focused individuals are more motivated by upward social comparisons (i.e., positive role models) and prevention-focused individuals are motivated more by downward comparisons (Lockwood et al., 2002; Lockwood, Sadler, Fyman, & Tuck, 2004). We proposed that cognitive fit between regulatory focus and *temporal* comparison focus should also affect motivation. Because people in a promotion mindset are primarily motivated by thoughts of positive, desired outcomes (a “better” self), a comparison with the future self should

motivate them more than a comparison with the past self. The opposite would be expected for people in a prevention mindset. However, in Study 1 we did not find a preference of prevention-focused individuals to compare with their past self—a prerequisite for the “fit effect”—and therefore the predictions for the effect of adopted temporal comparisons for prevention-focused individuals are less clear.

Method

Participants

One hundred twenty adults participated in this study. The sample included 50 female and 67 male participants and three participants who did not identify their gender with an average age of 34.62 years ($SD = 12.57$). Participants were recruited online through the website Mechanical Turk, the sample was restricted to participants from the USA.

Procedure

First, participants completed a Regulatory Focus Scale (Higgins et al., 2001) as in Study 1 (promotion focus Cronbach's $\alpha = .77$; prevention focus Cronbach's $\alpha = .87$). Next, participants were randomly assigned to think about and to describe themselves in one of two domains. Participants in the social skills condition and the athletic ability condition [in brackets] read these instructions adapted from Wilson and Ross (2000, p. 930).

Write a description of your general social abilities [your general fitness] in your own words, using whatever information you feel is useful. You may want to describe how empathetic, sociable, or relaxed you are [how athletic, strong or enduring you are] and you might want to mention any particular skills and characteristics. You could describe yourself in comparison to other people, or compared to what you were like in the past, or what you expect to be like in the future.

Again, participants wrote relatively short descriptions in both the athletic ability condition ($M_{\text{words}} = 61.50$, $SD = 33.65$) and in the social skills condition ($M_{\text{words}} = 74.02$, $SD = 46.58$). We regarded these descriptions as only a sample of the entire thoughts that went through participants' heads and proceeded to ask participants to report on these internal thoughts. Therefore, participants rated their temporal comparison focus during the self-description on scales from *Not at all* (1) to *Very much* (7). Participants rated the extent to which they had thought about “what you were like in the past” (past comparison focus), and “what you will be like in the future” (future comparison focus). As in Study 1, we also included two items to assess the social comparison focus for the sake of completeness. Finally, at the end of the survey, after other questions, we included two exploratory items to examine participants' motivation to “work towards being more fit, strong, or enduring” (athletic ability) as well as “work towards being more sociable, empathetic, or relaxed” (social skills), on scales ranging from *Not at all true* (1) to *Very true* (7).

Results

Rated comparison focus

First, we examined participants' overall comparison focus. In both conditions, participants reported focusing about as much on past comparisons as on future comparisons (see Table 1).

TABLE 3 Unstandardized Regression Coefficients when Regressing Future Comparison Focus on Regulatory Foci by Domain (Study 2)

	Social skills	Athletic ability
Constant	2.19	2.92*
Promotion focus	0.19*	-0.01
Prevention focus	-0.17**	0.05

Note: ** $p < .01$; * $p < .05$.

Next, we examined whether regulatory focus predicted participants' preferred comparison focus depending on the domain of the self-description (social skills vs. athletic ability). In multiple regression analyses (Hayes, 2012) we regressed both of the temporal comparison foci on centered promotion focus, centered prevention focus, domain (dummy coded with 0 = athletic ability and 1 = social skills), and the interactions between regulatory focus and domain (see Table 2). When regressing past comparison focus on these predictors, no main effect or interaction reached significance, $t_s < 1.81$, $p_s > .07$. When regressing future comparison focus on these predictors, both the Promotion \times Domain interaction and the Prevention \times Domain interaction reached significance, $t(104) = 2.02$, $p < .05$ and $t(104) = -2.49$, $p = .01$, respectively. These interactions indicate that regulatory focus predicts future comparison focus differently depending on domain.

To further explore the interaction effects, we regressed future comparison focus on promotion focus and prevention focus in each domain separately. As expected, for participants who described themselves on their social skills, promotion focus was linked to an increase in future comparison focus, $t(51) = 2.66$, $p = .01$, and prevention focus was linked to a decrease in future comparison focus, $t(51) = -2.72$, $p = .01$ (see Table 3 for regression coefficients). For participants who described themselves on their athletic ability, neither promotion focus, $t(53) = -0.08$, $p = .94$, nor prevention focus, $t(53) = 0.86$, $p = .39$, was linked to future comparison focus.⁴

Motivation to improve

To test whether the tendency of promotion-focused individuals to compare with their future self also leads to more motivation to improve their abilities (i.e., a "cognitive fit" effect) we regressed motivation to improve in the target domain (social skills or athletic ability) on promotion focus, future comparison focus, and the interaction term. All predictors were centered before analyses. In the social skills (improving) domain condition, the Promotion Focus \times Future Comparison Focus interaction marginally predicted motivation to improve in the target domain, $B = 0.06$, $t(51) = 1.90$, $p = .06$. Participants high in promotion focus who compared themselves to a greater extent to their future self were somewhat more motivated to improve their social skills than those focusing less on the future self (see Figure 1). The promotion and future focus main effects were not significant, $B_s < 0.09$, $p_s > .46$. In contrast, in the athletic (stable) domain condition, the Promotion Focus \times Future Comparison Focus interaction did not predict motivation to improve, $B = -0.00$, $t(54) = -0.19$, $p = .85$. The promotion and future focus main effects were marginally significant, $B = 0.07$, $p = .07$, and $B = 0.17$, $p = .08$, respectively (see Figure 1).

Discussion

As expected, participants' temporal comparison was linked to their prevailing regulatory focus mindset: promotion-focused participants focused more on their future self.

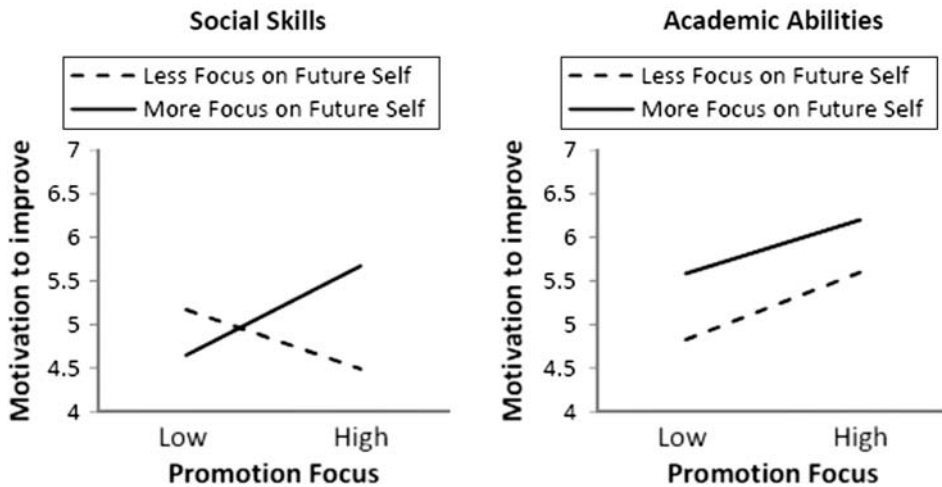


FIGURE 1 Fit effect of regulatory focus and temporal comparison focus on motivation to improve social skills or athletic ability (Study 2).

However, this link was only present in a domain in which people perceive improvement over time (social skills), and was not present in a domain that people perceive as rather stable (athletic ability). This finding supports the reasoning that promotion-focused individuals orient themselves towards the future self because this temporal self provides a positive outcome, an upwards temporal comparison.

On the same grounds, one might expect prevention focus to be linked to focus on the past self because this self tends to be perceived as less positive than the current self and therefore represents an outcome to be avoided. However in this study as well as in Study 1, prevention focus was unrelated to past comparison focus. Given this converging evidence, it might indeed be that prevention-focused individuals do not show a preference for temporal self comparisons as do promotion-focused individuals. One reason for this might be a perceived irrelevance of past selves compared to future selves for future goal pursuit. Past selves, that were left behind and from which one moved on, might be perceived as having less of an impact on the present (Van Boven & Ashworth, 2007), than future selves that are yet to happen. Therefore, even prevention-focused individuals, who are on the lookout for potential losses, might not feel the need to guard against such undesirable but overcome pasts. Another possibility is that this null effect is an artifact of our measures. However, the variance in our variables did not differ between past and future comparison focus (Table 1) and in follow-up analyses we found that the variance in regulatory focus orientations was similar as well. The null effect is therefore unlikely to be produced by a restriction in range. In addition, prevention focus was significantly related to temporal comparison variables in a way that was not predicted but is consistent with our model: In the social skills domain, prevention focus was negatively related to future comparison focus. This might suggest that a strong sensitivity for negative outcomes during goal pursuit might not be enough to turn temporal comparisons toward the past, but it might decrease a tendency to look toward a rosier future because it is unlikely that a rosy future provides the kind of information these people seek.

Taken together, these results indicate that even though regulatory focus does influence people's orientation during temporal comparisons, this link might predominantly exist for promotion focus and less so for prevention focus. In line with our reasoning, the preference of promotion-focused individuals for future self comparisons is limited to domains in

which the self is perceived as improving over time, a necessary condition for the underlying assumption that the future self is more positive (and upward comparison) than the present self.

One alternative explanation for the stronger link between future focus and promotion focus in the social skills condition compared to the athletic ability condition may be that participants regarded this domain as more important and personally relevant. People might be more motivated to tailor their comparison activities to those that work best for their regulatory motivation system in personally relevant domains than in less relevant domains. To examine this question we conducted a separate pilot test with an additional 52 Mechanical Turk workers in which we asked participants first to describe themselves in one of the two domains (the instructions were identical to Study 2) and subsequently to rate the importance and the personal relevance of the respective abilities with two items each (e.g., “How important is your general fitness to you?”; “How personally relevant is it to you to be empathetic, sociable, or relaxed?”) on 7-point scales. The two domains did not significantly differ in importance (Athletic abilities: $M = 4.71$, $SD = 1.28$; Social skills: $M = 5.21$, $SD = 1.65$), $t(50) = 1.22$, $p = .23$, or personal relevance (Athletic abilities: $M = 4.61$, $SD = 1.46$; Social skills: $M = 5.19$, $SD = 1.79$), $t(50) = 1.29$, $p = .20$, providing some evidence against this alternative explanation.

Finally, this study also showed preliminary evidence of a possible “cognitive fit” effect increasing motivation. Positive future selves can lift up current self-appraisal (Wilson & Ross, 2001), and can inspire motivation to work towards an improved future self (Oyserman, Bybee, Terry, & Hart-Johnson, 2004; Peetz, Wilson, & Strahan, 2009). This study showed preliminary evidence that future selves are particularly motivating when this temporal comparison focus is combined with a promotion goal orientation.

Study 3

In the next study, we aimed to test the cognitive fit effect of regulatory focus and temporal orientation more directly. We manipulated regulatory focus and temporal comparison focus in a 2×2 between-participants design. We randomly assigned participants to take a promotion or a prevention mindset, using a word puzzle task as a priming manipulation (Wan, Hong, & Sternthal, 2009). Then, we randomly assigned participants to focus on either the past self or the future self in a general self-appraisal, as in Study 1. We hypothesized that participants with a primed promotion focus would report more self-improvement motivation if they were in the future focus condition than in the past focus condition. For participants with a primed prevention focus the predictions were less clear, given that the past studies had shown no temporal preference for this group of people. Neither past nor future orientation appeared to be a natural cognitive fit for prevention-focused individuals. Therefore, we expected no difference in motivation for participants with a primed prevention focus depending on the direction of the temporal comparison during the general self-appraisal.

Method

Participants

We recruited 113 Canadian undergraduate students of age of consent. The sample included 88 female and 25 male participants ($M_{\text{age}} = 20.16$ years, $SD = 2.52$). Participants were compensated with partial course credit for their participation.

Procedure

Participants were randomly assigned to the promotion focus or prevention focus condition. All worked on a word puzzle task comprised of 20 words which included 8 neutral filler words and either 12 promotion words (e.g., strive, pursue, ambition) or 12 prevention words (e.g., avoid, avert, setback). These words were previously used to prime regulatory focus mindset (Lockwood et al., 2002). Next, participants were asked to describe themselves in their own words, but they were additionally instructed to adopt a specific temporal comparison focus during this self-appraisal. Participants who were randomly assigned to take a future focus [past focus in brackets] were instructed:

... please write a description of yourself in your own words, focusing on yourself as you are in comparison with your future self [your past self]. That is, what skills and characteristics do you have now and which do you expect to have in the future [which did you have in the past]?

Participants then completed two items that assessed their general motivation to self-improve (“In general, I am motivated to improve myself,” “I am motivated to work on becoming a better person”), followed by items that assessed their motivation to improve in three specific domains: social skills, organizational skills, and financial skills (“I am motivated to improve my social/organizational/financial skills”). These items were combined in a 5-item motivation index (Cronbach’s $\alpha = .70$). As indicator that the proposed cognitive fit effects might not only shape motivation but also goal-oriented behavior, we assessed four specific behavioral intentions in each of the three domains (e.g., for the social skills domain: “I intend to work on being a better listener,” “I intend to work on being less anxious about socializing”), which were combined in a 12-item behavioral intention scale (Cronbach’s $\alpha = .88$). All items were assessed on scales ranging from *Disagree completely* (1) to *Agree completely* (7).

Results

Motivation

To test our hypothesis that a cognitive fit between regulatory focus and temporal comparison focus increases motivation, we conducted a 2 (Regulatory Focus: promotion vs. prevention) \times 2 (Temporal Comparison Focus: past focus vs. future focus) analysis of variance (ANOVA) with the motivation index as dependent variable. As expected, the interaction term was significant, $F(1, 109) = 4.89, p = .03$ (see Figure 2 for depiction of means). When participants were primed with a promotion focus, participants were more motivated in the future focus condition ($M = 4.93, SD = 0.59$) than in the past focus condition ($M = 4.35, SD = 0.88$), $t(53) = 2.83, p = .01$. In contrast, when participants were primed with a prevention focus, the future focus condition ($M = 4.75, SD = 1.05$) and past focus condition ($M = 4.93, SD = 1.06$) did not differ significantly, $t(56) = -0.67, p = .50$. There were no significant main effects of Regulatory Focus, $F(1, 109) = 1.32, p = .25$, and Temporal Comparison Focus, $F(1, 109) = 1.31, p = .26$.

Behavioral intentions

Next, we examined whether specific behavioral intentions to improve are indirectly affected by the cognitive fit between promotion focus and future comparison focus through motivation. A bootstrapping analysis with 2,000 samples (Preacher & Hayes, 2004) suggested that the true indirect effect on behavioral intentions was estimated to lie

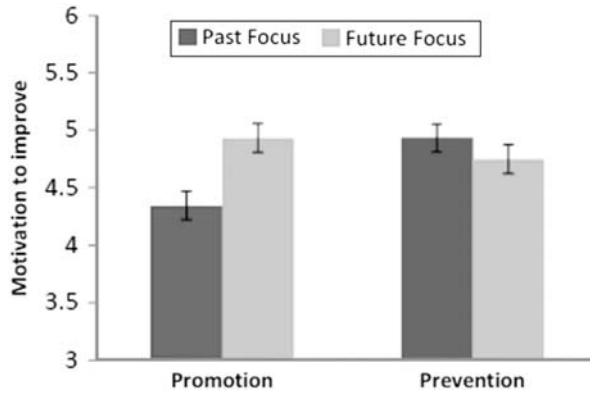


FIGURE 2 Means (and standard errors) of motivation to improve by regulatory focus, Promotion vs. Prevention, and temporal comparison focus, Past focus vs. Future focus (Study 3).

between 0.13 and 1.35, with 95% confidence. Because the confidence interval does not include zero, we conclude that the real indirect effect was significant at $p < .05$. See Figure 3 for a depiction of the path coefficients.⁵

Discussion

This study demonstrated the potential consequences of differences in temporal comparison focus—at least for people on the lookout for gains or opportunities. Participants who were induced to be temporarily more promotion-focused were more motivated to improve their abilities and to work towards a better self if they were lead to think about their future self than about their past self. In turn, higher motivation of promotion-focused participants in the future focus condition was linked to greater endorsement of concrete, specific behavioral improvement intentions. Personal improvement often requires the implementations of new behavior or a change in existing behavior. Behavioral intentions are strong predictors of behavior (Ajzen & Fishbein, 2005) and this indirect effect suggests that the consequences of differences in temporal comparison focus do not stop on a motivational level.

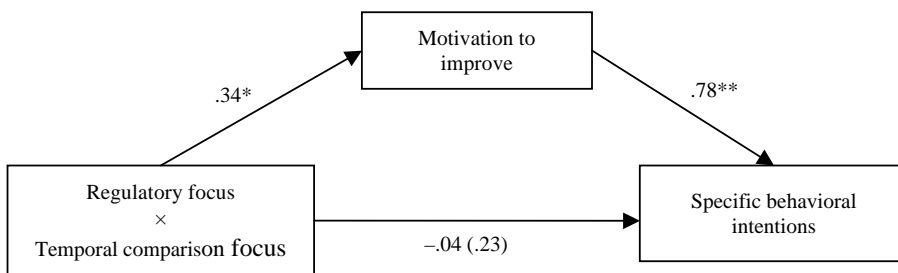


FIGURE 3 Interaction term of regulatory focus and temporal comparison predicts motivation (controlling for regulatory focus and temporal comparison focus condition main effects), which in turn predicts specific intentions to improve social skills, financial ability, and organizational skills (Study 2). ** $p < .01$; * $p < .05$.

Participants who were induced temporarily to be more prevention-focused did not report different motivation or different behavioral intentions to improve depending on their temporal comparison focus. This effect might be explained by the finding of the previous two studies, which did not find a prevalent temporal orientation for prevention-focused individuals: without a preferred temporal focus we likely did not induce cognitive fit by asking participants to focus on a specific temporal focus.

Note that there was no difference in motivation to improve for promotion-focused individuals who thought about their future selves compared to prevention-focused individuals who thought about their future selves. If one considers the prevention-focused participant's motivation as baseline, this finding might suggest that motivation was not increased under cognitive fit (promotion and future focus) but decreased under cognitive misfit (promotion and past focus). However, it is possible that the motivation of the prevention-focused participants was elevated regardless of temporal comparison orientation for some reason. Thus, we cannot unequivocally identify the direction of the cognitive fit effect based on the current data, but the results clearly indicate that temporal comparison focus matters for participants who are temporarily in a promotion focus.

Altogether, this study shows evidence for a parallel cognitive fit effect of regulatory focus and temporal comparison to that demonstrated for regulatory focus and social comparison (cf. Lockwood et al., 2002)—albeit limited to promotion focus.

General Discussion

The main goal of this research was to shed light on comparison processes with the temporal self. In particular, we set out to identify when people spontaneously compare themselves more with the self they will become in the future and when they compare themselves more with the self they used to be. One crucial difference between the future and the past self is their standing relative to the present self. People generally expect to improve over time (Ryff, 1991; Wilson & Ross, 2001) and therefore tend to perceive their future self as an upward standard (e.g., Busseri et al., 2009, 2012). People with a promotion focus, who focus on gains and strive for positive outcomes, should therefore be drawn to and profit more from comparisons with their future, supposedly better, self. Study 1 showed that strongly promotion-focused individuals were more likely to spontaneously engage in a future oriented temporal comparison focus than less promotion-focused individuals during a general self-description. In Study 2, promotion focus was related to future comparison focus in a domain where the future self is seen as generally superior to the current self but this link was not present in a domain where the future self is seen as generally the same as the current self. Finally, Study 3 demonstrated a cognitive fit effect of regulatory focus mindset and temporal orientation: People in a promotion-oriented mindset were more motivated after looking towards a (more positive) future self than after thinking about the past.

People's belief in improvement over time also entails that one's past self generally constitutes a downward comparison—a version of the self that is inferior and worse off than the present self. Because people with a prevention focus should be drawn to making comparisons with less positive versions of themselves, such a regulatory focus might lead to a past orientation. However, none of the studies showed any evidence that prevention-focused individuals were more likely to focus on the past. Neither after thinking of a general self-description, nor after a description of themselves in an upwards trending or a stable domain, did prevention-focused individuals show a preference for past temporal comparisons. Furthermore, in Study 3 we did not find a change in prevention-focused

individuals' motivation depending on the temporal comparison focus. Thus, in contrast to promotion focus, there seems to be no cognitive fit effect of prevention focus and temporal orientation. In fact, over all three studies we found only one significant effect of prevention focus: While appraising themselves in an improving domain (Study 2) strongly prevention-focused individuals were less likely to spontaneously engage in a future oriented temporal comparison. Even though finding stronger effects for promotion focus than for prevention focus is not unusual (Lockwood, 2002; Roskes et al., 2011), we asked ourselves what might explain these unexpected results.

One possibility might be that past selves are not as self-relevant as future selves. As prevention-focused individuals aim to regulate their goals by focusing on negative outcomes they can guard against, past selves might provide an appropriate focus in that they are a downward comparisons, yet they might not be sufficiently probable and imposing enough to be perceived as a comparison standard that one has to guard against (therefore being less motivating than other negative yet self-relevant standards; see Lockwood, 2002). This reduced self-relevance might be due to two factors. First, people might perceive a greater distance between themselves and their past than between themselves and their future, because people perceive personal past events as less evocative and vivid than personal future events (van Boven & Ashworth, 2007). Especially if the past is negative—and people generally perceive their past as more negative than their future (e.g., Busseri et al., 2009, 2012), people feel subjectively distant to this self (Ross & Wilson, 2002). Second, past selves are accompanied by a unique set of circumstances and it seems unlikely that precisely these circumstances will happen again in the future. Thus, past selves might not pose a potential threat for the future and even prevention-focused individuals might focus only on negative past selves if they judge them likely to occur again (Lockwood, 2002).

Instead of choosing to look primarily towards the past, individuals with a sensitivity to potential losses and negative outcomes might select different types of comparison standards to maximize the extent to which these motivate them. They might think of negative future comparison, such as undesirable and feared future selves (Markus & Nurius, 1986). As we only measured the general orientation (focus on the future vs. past) but did not differentiate between feared versus desired selves in the past and future, we could not test this hypothesis in the present studies. Indeed, the results of Study 2 provide some evidence that the valence of future selves are important for prevention-focused individuals, because they were less likely to look towards the future if it appears to be clearly positive (in the social skills domain). It might be that the same people would actually turn toward the future, if this possible self would appear to be clearly threatening. Future research might examine the spontaneously selected comparison standards of prevention-focused individuals more closely.

Future Directions

In the present studies, we focused on the direction of temporal comparison. Adding other factors to establish a more fine-grained map of comparisons with the self could be a valuable endeavor for future research. Promotion focus might not be linked to all kinds of future comparisons in the same way. For example, temporal distance may also play an important role. As temporal distance to a goal decreases, promotion-oriented people increase their striving towards the goal (Förster, Higgins, & Idson, 1998). At the same time, goals are less characterized by promotion focus concerns if they are close by compared to further away (Pennington & Roese, 2003). Another important factor might be type of the possible future self: Do people with a promotion mindset think about their *ideal*

or their *ought* future self (Higgins, 1987)? The relationship between promotion focus and future *ideal* self comparison might be more pronounced than the relationship between promotion focus and future *ought* self comparison.

In addition, it would be valuable to tease apart the quality of thoughts about the future self and to distinguish between upward and downward future comparisons. We argue that future comparisons are typically upward comparisons, as people tend to perceive self-improvement over time (e.g., Busseri et al., 2009). Nonetheless, there might be individual differences (and domain differences, as in Study 2) that determine just how positive and favorable one's future selves are. A considerable body of literature has shown that focusing on upwards future comparisons can motivate regardless of regulatory focus orientation: favorable future selves might act as goals that direct action towards self-improvement (Markus & Nurius, 1986; Oyserman et al., 2006; Ruvolo & Markus, 1992). It is conceivable that promotion-focused individuals not only focus more on the future but are also more likely to imagine favorable selves than prevention-focused individuals—and are therefore more likely to reap the benefits of these types of possible selves (Oyserman et al., 2006, 2004).

Finally, the underlying motivation for temporal comparisons might attenuate or strengthen the link between regulatory focus and temporal comparison focus. People might engage more or less in comparisons with their past or future selves to self-evaluate, self-enhance, or to spur self-improvement. If self-improvement motivation is the main concern, promotion-focused individuals might be particularly likely to look towards future selves as roadmaps to the positive selves they hope to achieve than when other motivations are prevalent.

Conclusions

The self provides a very rich and easily available resource of potential comparison standards. Similar to the manifold options of comparisons with other people, there are many different versions of the self through time that could be the backdrop against which the self is appraised. Which of these many temporal selves is chosen as comparison standard depends at least in part on people's current regulatory goal orientation. In addition, temporal comparison orientation has important consequences for motivation: Thoughts of a specific temporal self appear to motivate best when it fits with people's current regulatory strategy. Situational factors that affect regulatory strategies might thus not only influence which temporal self is chosen as self-comparison but also how motivating this temporal self can be.

Notes

1. Our primary dependent variables are the self-rated foci and not the content of the self-descriptions. However, coding of the thought listing content revealed that participants who mentioned a temporal comparison in their description also self-reported a higher focus on the respective temporal self both in Study 1 [Those who mentioned a past comparison in their description rated their thought focus on past selves higher ($M = 5.08$) than those who did not ($M = 3.15$), $t(61.62) = 5.03, p < .001$. Those who mentioned a future comparison in their description rated their thought focus on future selves marginally higher ($M = 4.44$) than those who did not ($M = 3.68$), $t(37.61) = 1.89, p = .066$.] and Study 2 [Those who mentioned a past comparison in their description rated their thought focus on past selves higher ($M = 5.21$) than those who did not ($M = 3.10$), $t(87.47) = 6.90, p < .001$. Those

- who mentioned a future comparison in their description rated their thought focus on future selves higher ($M = 5.00$) than those who did not ($M = 3.25$), $t(31.92) = 4.65$, $p < .001$].
2. The sample of the pilot study includes the participants of Study 1 ($n = 90$) plus 38 participants of another study on general self-appraisal. In both cases, the pilot questions were asked at the end of the main study.
 3. Age and the individual regression coefficient are significantly negatively correlated in both the social skill domain and the athletic ability domain. However, including age as covariate in a repeated-measurement ANOVA with Domain (social skills vs. athletic ability) as within-participant factor and regression coefficient as dependent variable indicates no significant interaction between age and Domain ($F < 1$) and the main effect of Domain remains significant, $F(1, 125) = 5.07$, $p = .03$. Regardless of age, participants expected a more positive development of their social skills than of their athletic ability over time.
 4. Including age as covariate in these regression analyses did not alter the results. Promotion and prevention focus remain significant predictors of future comparison focus in the social skill domain, but not in the athletic ability domain.
 5. The direct effect of the interaction term (Regulatory Focus \times Temporal Comparison Focus) on behavioral intentions did not reach significance. Notably, however, t -tests showed that when in a promotion-oriented mindset, participants reported stronger intentions in the future focus condition ($M = 5.19$, $SD = 0.70$) than in the past focus condition ($M = 4.69$, $SD = 1.04$), $t(53) = 2.03$, $p = .05$. In contrast, when in a prevention-oriented mindset, participants reported equally strong intentions to improve in the future condition ($M = 5.18$, $SD = 1.33$) and the past condition ($M = 5.30$, $SD = 1.21$), $t(56) = -0.36$, $p = .72$.

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