

Implicit theories and motivational focus: Desired future versus present reality

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Abstract People's beliefs concerning their abilities differ. Incremental theorists believe their abilities (e.g., intelligence) are malleable; entity theorists believe their abilities are fixed (Dweck in *Mindset: the new psychology of success*. Random House, New York, 2007). On the basis that incremental theorists should emphasize improving their abilities for the future, whereas entity theorists should emphasize demonstrating their abilities in the present reality, we predicted that, when thinking about their wishes, compared to entity theorists, incremental theorists focus more toward the desired future than the present reality. We assessed participants' motivational focus using a paradigm that differentiated how much they chose to imagine the desired future versus the present reality regarding an important wish (Kappes et al. in *Emotion* 11: 1206–1222, 2011). We found the predicted effect by manipulating (Study 1) and measuring implicit theories (Study 2), in the academic (Study 1) and in the sport domain (Study 2).

Keywords Entity theory · Incremental theory · Future · Reality · Self-regulatory thought · Motivational focus

Introduction

People think differently about the nature of their ability and the way they do so impacts the way they pursue their goals. People with an incremental theory—believing in the malleability of their abilities—are primarily concerned with learning and expanding their abilities. This aim is accomplished by pursuing “learning” goals geared at *improving* one's abilities. On the other hand, people with an entity theory—believing in the stability of their abilities—are primarily concerned with documenting their abilities. This aim is accomplished by pursuing “performance” goals geared at *proving* one's abilities (social-cognitive model of achievement motivation; Dweck 2007; Dweck and Leggett 1988). Previous research primarily investigated the impact of the two implicit theories (incremental vs. entity) on various aspects of goal pursuit, particularly in achievement situations (e.g., effort, performance, attributions, intrinsic motivation, and coping with setbacks, among others). Here, we explore whether the two theories also affect people's motivational focus, that is, whether people consider the desired future versus the present reality when thinking about an important wish.

Because incremental theorists are primarily concerned with developing their abilities for the future (i.e., harboring a growth mindset) whereas entity theorists are primarily concerned with demonstrating their abilities in the present reality (i.e., harboring a fixed mindset), compared to entity theorists, incremental theorists should focus more toward the desired future than the present reality. To assess motivational focus toward the future versus reality, we used a paradigm by Kappes et al. (2011) developed in the context of fantasy realization theory (Oettingen 2000, 2012). The paradigm allows differentiating to what extent participants choose to mentally elaborate the desired future

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versus present reality when asked to think about an important wish.

The social-cognitive model of achievement motivation

As mentioned above, a multitude of studies explored the effects of the two implicit theories on various aspects of goal pursuit. Whereas an incremental theory is generally seen as adaptive, an entity theory is often seen as maladaptive (for summaries, see Dweck 1986; Molden and Dweck 2006). For instance, in several longitudinal studies, students with an incremental (vs. entity) theory reported increased (vs. decreased) self-esteem over time (Robins and Pals 2002) and had better grades (Blackwell et al. 2007; Cury et al. 2006). Incremental (vs. entity) theorists were also more willing to take remedial action (e.g., enlisting for a remedial English course; Hong et al. 1999; taking an academic tutorial, Nussbaum and Dweck 2008) if their performance was unsatisfactory.

Regarding the mechanisms by which the two theories achieve their effects on goal pursuit in the achievement domain, research indicates that people with an incremental (vs. entity) theory used deeper study strategies (e.g., they searched for underlying principles), planned more, and showed greater persistence as well as higher intrinsic motivation (Cury et al. 2006; Mueller and Dweck 1998). Incremental (vs. entity) theorists also coped more effectively with set-backs: They attributed failures more to flexible causes (low effort) and less to stable causes (low ability; Hong et al. 1999) and responded to failure with more vigorous and effective strategies (increased effort) and less defensive (self-handicapping) strategies (Blackwell et al. 2007). Finally, neuropsychological evidence as indicated by event-related potentials indicated that incremental theorists paid attention to ability-related and to learning-related feedback whereas entity theorists paid attention to ability-related feedback only (Dweck et al. 2004).

In sum, the impact of the two implicit theories on goal pursuit has been examined by manipulating (Rattan and Dweck 2010) and measuring (Dweck 2007) the implicit theories, in both field (Blackwell et al. 2007) and lab studies (Nussbaum and Dweck 2008), with short- and long-term effects (Blackwell et al. 2007), and in various domains (e.g., school, Blackwell et al. 2007; sport, Spray et al. 2006; personality, Erdley et al. 1997). Moreover, studies measured the effects of implicit theories using different kinds of dependent variables: attention (ERP-responses to feedback; Dweck et al. 2004), cognition (e.g., attributions, Hong et al. 1999), affect (e.g., feeling distressed, Robins and Pals 2002), and behavior (e.g., taking remedial action, Nussbaum and Dweck 2008; math performance, Blackwell et al. 2007, decision making; Murphy and Dweck 2010). However, it is less clear whether the implicit theories also

influence people's motivational focus, that is, whether people consider and elaborate on the desired future versus the present reality when thinking about their wishes and concerns.

Motivational focus: Future versus reality

To assess the extent to which participants in elaborating their wishes focus toward the future versus reality, we used a paradigm originally developed by Kappes et al. (2011). On the basis of fantasy realization theory (Oettingen 2000, 2012), the paradigm distinguishes between four self-regulatory thought modes that people may use to regulate their goal pursuits: Two of the four thought modes pertain more to the future (mental contrasting and indulging), the other two pertain more to the reality (dwelling and reverse contrasting).

The paradigm starts with participants naming an important wish from a specific domain (e.g., improving math grade, getting better in basketball). Next, they indicate their expectations of realizing their wish and the incentive value of their wish. Thereafter, they list four aspects of the future they associate with having realized their wish (e.g., feeling proud, win more games) and four aspects of the present reality that stands in the way of realizing the wish (e.g., getting distracted, having no time to practice). Participants then choose four out of the eight listed aspects to subsequently elaborate on.

As a first, straightforward indicator of motivational focus toward the future versus reality, we simply counted the number of future versus reality aspects participants chose to elaborate on. However, to explore the relevance of our prediction for self-regulatory thought as specified in the fantasy realization theory framework we also analyzed people's motivational focus by differentiating between the four thought modes following Kappes et al. (2011). The two desired future-focused thought modes (mental contrasting and indulging) were coded if participants either chose two future aspects and two reality aspects, starting with a future aspect (mental contrasting), or if they predominately chose future aspects (three out of the four aspects; indulging). The two present reality-focused thought modes were coded either if participants predominantly chose reality aspects (dwelling) or if they chose two future aspects and two reality aspects, starting with a reality aspect (reverse contrasting).

Fantasy realization theory

We distinguished participants' self-regulatory thought as described by fantasy realization theory (Oettingen 2000, summary by Oettingen 2012). Fantasy realization theory specifies how different forms of thinking about the future

and about the reality affect goal pursuit. Specifically, the theory distinguishes four thought modes that people may use when thinking about an important wish (e.g., improve math skills). In mental contrasting, people elaborate first on the desired future they associate with having realized their wish (e.g., earn better grades) followed by the present reality that stands in the way of realizing the wish (e.g., getting easily distracted). In indulging, people elaborate on the desired future only; in dwelling the elaborate on the present reality only, and in reverse contrasting they elaborate on the reality first, followed by the future.

Of the four thought modes only mental contrasting is an effective self-regulatory strategy as it leads to selective (i.e., expectancy-dependent) goal pursuit, that is, people vigorously pursue goals for which they have high expectations of success and disengage from goals for which they have low expectations. Such selective goal pursuit helps people to invest their limited resources (e.g., effort, time) in feasible rather than unfeasible goal pursuits. Merely elaborating the future (indulging), the reality (dwelling), or the reality followed by the future (reverse contrasting) leads to indiscriminate (i.e., expectancy-independent) goal pursuit. A multitude of experimental studies support the effects of the different thought modes on goal pursuit (e.g., Kappes et al. 2012b; Oettingen et al. 2009, 2012; Oettingen 2012). Because mental contrasting more than the other three thought modes leads to effective behavior change it has been taught as a self-regulation strategy in various life domains (Gollwitzer et al. 2011; Johannessen et al. 2012; Oettingen et al. 2010). In investigating the effect of implicit theories on the self-regulatory thought modes we explored how two well-established motivational theories, the social-cognitive model of achievement motivation (Dweck 2007) and fantasy realization theory (Oettingen 2000) relate to each other.

The present research

We suspected that people's implicit theories about their abilities influence their motivational focus toward the desired future versus present reality. Incremental theorists believe in the development of abilities and are concerned with learning and expanding their abilities for the future. They see the future as something that can be changed and improved. Therefore, the desired future should be particularly salient to them (Husman and Lens 1999). Entity theorists on the other hand believe in the stability of abilities and should be concerned with performing and demonstrating their current abilities in the here and now. They see abilities as something that cannot be changed and improved in the future.

For example, students with an incremental theory of their math ability set more goals directed toward improving

their future ability (e.g., "I want to learn as much as possible"), whereas those with an entity theory set more goals directed toward demonstrating their present ability (e.g., "It is important to me to do better than the other students"; Cury et al. 2006; Robins and Pals 2002). Moreover, children with an incremental theory of intelligence preferred tasks geared at expanding their future intelligence ("Hard, new, and different so I could try to learn from them"), whereas those with an entity theory preferred tasks geared at avoiding negative evaluation of their present intelligence ("Fun and easy to do, so I wouldn't have to worry about mistakes"; Dweck and Leggett 1988). Furthermore, incremental theorists responded to a failure experience by choosing to examine the work of students who had performed better than they had, to adapt these students' strategies for their future performance, entity theorists in contrast choose to examine the work of students who had performed worse than they had, to immediately repair their threatened self-esteem (Nussbaum and Dweck 2008). Finally, incremental theorist showed greater persistence in pursuing long-term goals than entity theorists (Molden and Dweck 2006).

In sum, because incremental more than entity theorists are concerned with growing in the future, the desired future should be more accessible and come more quickly and easily to their mind. Accordingly, when given the choice to elaborate on the desired future versus the present reality, incremental theorists should elaborate more on the future (vs. reality) and engage in more future-focused self-regulatory thought (mental contrasting and indulging vs. dwelling and reverse contrasting) than entity theorists. In addition, incremental theorists should think in a lopsided way, that is, they should elaborate more on the future than on the reality, while entity theorists should think in an evenhanded way, that is, they should not differ in the extent to which they elaborate the future and reality.

We conducted two studies: In Study 1, we manipulated participants' implicit theories of intelligence and in Study 2, we measured their implicit theories of sport ability. After manipulating (Study 1) or measuring (Study 2) the theories we assessed participants' motivational focus toward the desired future versus present reality using the same paradigm as Kappes et al. (2011), Participants named their most important current wish related to academic achievement (Study 1) or sport achievement, respectively (Study 2). Thereafter, they listed four aspects of the future they associated with having realized their wish and four aspects of their present reality that stands in the way of realizing their wish. We then asked participants to spontaneously choose four of the eight named aspects and to elaborate on each of them.

Study 1: Manipulating implicit theories in the academic domain

Methods

Participants and design

One hundred students from a large German University (79 female, 20 male, 1 unidentified; $M_{age} = 25.11$ years, $SD = 6.81$) participated. The study was advertised as two separate paper and pencil studies. The first study would be about the understanding of research articles and the second about academic wishes. Students were recruited through on campus advertisement. They were run in groups of up to three people and received course credit. We randomly assigned them to one of the two conditions (incremental vs. entity).

Manipulation of implicit theories of intelligence

In the first part, we manipulated an incremental or an entity theory by having students read either passages providing evidence that intelligence is largely due to environmental factors and can be drastically changed (incremental condition), or having them read passages providing evidence that intelligence is largely due to genetic factors and can only be minimally changed (entity condition; Hong et al. 1999; Nussbaum and Dweck 2008). The articles were illustrated such that they resembled a *Psychology Today* article (Hong et al. 1999). For example, participants read the following text:

Knowles spent the last decade tracing identical twins who were raised apart. According to his results, up to 88 % of a person's intelligence is due to...

In the *incremental condition*, the text continued:

...environmental factors. In an extreme case, a young girl adopted by a college professor and his wife had an IQ of 138. The genetically identical twin was raised by the real mother, who was a prostitute. This girl had an IQ of 85.

In the *entity condition* the text continued:

...genetic factors. About 10 % of intelligence seems to be determined during the first three years of life. This means that intelligence may be increased or decreased by only about 2 % during most of person's life.

Manipulation checks

First, to make sure that the students paid attention to the article they answered a short comprehension quiz consisting

of three multiple-choice questions on their understanding of the articles adopted from Nussbaum and Dweck (2008).

Second, to check whether the articles successfully induced the implicit theories students answered a three-item questionnaire (Dweck 1999, 2007; the German version: Spinath and Stiensmeier-Pelster 2001). To highlight that we were interested in students' personal view about intelligence rather than whether they could correctly reproduce the content of the article, students read: "The following questions were designed to assess your view about the nature of intelligence. There are no right and wrong answers. We are interested in your personal opinion." Students indicated their agreement with each item (e.g. "You have a certain amount of intelligence and you can't really do much to change it") on a 6-point scale ranging from 1 (*strongly agree*) to 6 (*strongly disagree*). Because internal consistency was high (Cronbach's $\alpha = .89$), we combined the three items to one index of implicit theories. Higher scores indicated a stronger agreement to an incremental theory. After students completed the questionnaire, we told them that the first study was finished and the second would follow. In the supposedly second study we assessed the dependent variable, students' motivational focus toward the future versus reality.

Measuring motivational focus: Desired future versus present reality

We used the paradigm by Kappes et al. (2011). Students first named their most important academic wish (they named, e.g., *finding an internship*, *finishing my master thesis*). Thereafter, we measured students' expectations of successfully realizing their wish and the incentive value of realizing their wish. Expectations of success (i.e., the judged likelihood of wish fulfillment) and incentive value (i.e., the subjective attractiveness of wish fulfillment) are the two key determinants of people committing to and realizing a specific wish (expectancy \times value models of motivation; Atkinson 1957; Bandura 1997). Thus, it is important, to verify that the implicit theories affected motivational focus over and above expectations and incentive value. In addition, we assumed that the predicted effects will be observed for both people who entertain high and low expectations of success and with high and low incentive value. We measured expectations by asking: "How likely do you think it is that you will realize your wish?" and incentive value by asking: "How important is it to you to realize your wish?", respectively. We used 7-point scales ranging from 1 (*not at all*) to 7 (*very*). The subjective importance of realizing a wish indicates the incentive value of the wish (Klinger 1977).

Generating and elaborating aspects Students then listed four future aspects they associated with having realized their wish (they named, e.g., *gaining experience, being proud*), and four reality aspects that stood in the way of realizing their wish (they named, e.g., *the job interviews do not go well, feeling tired*) in counterbalanced order, that is, half of the students listed four future aspects first, the other half listed four reality aspects first. In measuring students' aspect choice and order of elaboration, we gave them the following instruction:

Please write down one of your named aspects. Think about this aspect and depict the respective events or experiences in your thoughts as intensively as possible. Choose the aspect that first comes into your mind. Let the mental images pass by in your thoughts and do not hesitate to give your fantasies free reign. Take as much time and space as you need to describe the scenario. If you need more space to write, please use the back of the page.

After elaborating on the first aspect, students again received the instructions above. Instead of “one of your named aspects”, the instruction now read “another of your named aspects”. Altogether, each student elaborated on four of the eight listed aspects.

Scoring To assess motivational focus we first counted the number of future versus reality aspects each student chose to elaborate on. Second, we differentiated students' self-regulatory thought according to the number and order of the aspects they chose to elaborate on using the same identification procedure as Kappes et al. (2011): We classified those students as focusing on the future who chose two future aspects and two reality aspects and began with a future aspect (mental contrasting) and those students who predominantly chose future aspects (i.e., three or four future aspects; indulging). On the other hand, we classified those students as focusing on the reality who predominantly chose reality aspects (i.e., three or four reality aspects; dwelling) and those who chose two future aspects and two reality aspects, but began with a reality aspect (reverse contrasting). Finally, students indicated their gender, age, and major of study. They were fully debriefed.

Results

Manipulation checks

Ninety-two students (92 %) answered all three items from the comprehension quiz correctly. To enclose only students who paid attention to the article, we excluded the eight students (six were from the entity condition and two from the incremental condition) who did not answer the three

comprehensive questions correctly from the following analyses. We found the same pattern of results however, whether or not these eight students were included or excluded.

To test if students' reading of the articles successfully manipulated their implicit theories, we asked them to answer the three items of the implicit theory questionnaire (Dweck 1999, 2007). Students in the incremental condition ($M = 4.65$, $SD = 0.95$) showed higher scores, indicating stronger agreement to an incremental theory, than those in the entity condition ($M = 3.11$, $SD = 0.86$), $t(90) = 8.03$, $p < .001$. Thus, the manipulation was successful.

Descriptive analyses

Mean expectations and mean incentive value of the wish were above the midpoint of the 7-point scales (expectations: $M = 5.63$, $SD = 0.95$; incentive: $M = 6.38$, $SD = 0.78$). Thus, students had relatively high expectations for a wish that was highly important to them. Expectations and incentive value did not correlate significantly, $r = .03$, $p = .76$. Students in the incremental and entity condition did not differ in expectations, incentive value, gender, and age, p s $> .44$.

Order effects

We did not observe any difference between the two counterbalanced orders of aspect listing (future aspects first vs. reality aspects first) in the number of future versus reality aspects, $t(90) = .58$, $p = .56$, and in the choice of self-regulatory thought (future focused vs. reality focused), $\chi^2(1) = 1.52$, $p = .22$. Thus, we collapsed across order of aspect listing in the following analyses.

Motivational focus

Number of future versus reality aspects Because we asked each student to choose exactly four aspects, the number of future versus reality aspects is inversely related. As predicted, when comparing motivational focus *between* conditions, theory condition predicted number of future (vs. reality) aspects, $\beta = .33$, $t(90) = 1.94$, $p = .056$, $d = .41$. Students in the incremental condition elaborated more future aspects ($M = 2.37$; $SD = .80$; i.e., and fewer reality aspects) than those in the entity condition. Moreover, also as predicted, when comparing motivational focus *within* conditions, students in the incremental condition elaborated more future aspects ($M = 2.37$; $SD = .80$) than reality aspects ($M = 1.63$; $SD = .80$), $t(45) = 3.14$, $p = .003$, $d = .93$. Students in the entity condition in contrast elaborated a similar number of future ($M = 2.04$; $SD = .82$) and reality aspects ($M = 1.96$; $SD = .82$), $t(45) = .36$, $p = .72$.

Table 1 Frequency of all four thought modes per condition in Study 1

Condition	n	Self-regulatory thought			
		Mental contrasting	Indulging	Dwelling	Reverse contrasting
Incremental	46	16	19	4	7
Entity	46	10	10	8	18

Future- versus reality-focused self-regulatory thought

First, we conducted Chi square analyses to assure that implicit theories did not differentially predict the two future-focused thought modes, mental contrasting versus indulging, and the two reality-focused thought modes, reverse contrasting versus dwelling. We did not observe an effect of implicit theories on mental contrasting versus indulging, $\chi^2(1) = 0.09$, $p = .76$, and reverse contrasting versus dwelling, $\chi^2(1) = 0.11$, $p = .74$.

As predicted, when comparing future- versus reality-focused self-regulatory thought *between* conditions, more students in the incremental condition chose future-focused (76 %) and fewer chose reality-focused self-regulatory thought (24 %) than in the entity condition (44 and 56 %, respectively), $\chi^2(1) = 4.09$, $p = .04$ and, $\chi^2(1) = 6.08$, $p = .01$ (Table 1). Moreover, also as predicted, when comparing choice of self-regulatory thought *within* conditions, in the incremental condition more students chose future-focused (76 %) than reality-focused self-regulatory thought (24 %), $\chi^2(1) = 12.52$, $p < .001$. In the entity condition, a similar percentage of students chose future-focused (44 %) and reality-focused self-regulatory thought (56 %), $\chi^2(1) = 0.78$, $p = .38$.¹

Adjusting for expectations and incentive value To investigate whether implicit theories predict motivational focus after adjusting for expectations and incentive value, we repeated the above between-condition analyses for the number of future versus reality aspects and for the chosen

thought modes entering expectations and incentive as predictors into the regression equations. Implicit theory condition predicted the number of future (vs. reality) aspects, $\beta = .21$, $t(88) = 1.98$, $p = .05$, and the chosen self-regulatory thought, $\chi^2(1) = 10.17$, $p = .001$, over and above expectations and incentive. Neither expectations nor incentive value predicted the number of future versus reality aspects nor did they predict self-regulatory thought, all $ps > .38$. Finally, in a second step, we added all three two-way interactions (Condition \times Expectations, Condition \times Incentive, and Expectations \times Incentive) and the three-way interaction (Condition \times Expectations \times Incentive) into both regression equations. We did not observe any interaction effect with expectations or incentive value regardless of whether the dependent variables was number of chosen aspects or self-regulatory thought, $ps > .23$.

Discussion

Students who were led to adopt an incremental theory of their intelligence—the view that that their intelligence is changeable—focused more on the desired future and less on the present reality of an important academic wish. That is, they choose to elaborate more future-related (vs. reality-related) aspects and engaged in more future-focused (vs. reality-focused) self-regulatory thought than those who were led to adopt an entity theory. In addition, whereas incremental theorists focused more on the desired future than on the present reality, entity theorists focused on the future versus the reality to a similar extent. Apparently, believing that one's abilities can be improved makes the desired future state more salient to people than believing that one's abilities cannot be changed.

Study 2 addressed limitations of Study 1. In Study 1, we manipulated the implicit theories. To examine whether our findings extend to people's existing theories, in Study 2, we measured the theories by questionnaire. Moreover, implicit theories can be manipulated or measured in different achievement domains. In Study 1, we manipulated the theories of intelligence in the academic achievement domain. To investigate whether our results hold true for an achievement domain other than the academic domain, in Study 2, we measured implicit theories in the sport achievement domain. In addition, to shorten the procedure of assessing motivational focus and because in Study 1 the pattern of results did not change when we limited our analysis only to the first two aspects participants chose, in Study 2, participants had to elaborate just two instead of four aspects. Finally, to examine whether our findings extend to a different cultural context and to a different sample than a student sample, we conducted Study 2 in the U.S. using a sample of adult internet users.

¹ In the paradigm by Kappes et al. (2011) employed here, students were asked to choose four out of eight named aspects. The four thought modes (mental contrasting, indulging, dwelling, and reverse contrasting) were identified on the basis of the four chosen aspects. However, one could also identify the thought modes on the basis of only the first two chosen aspects. In this case, participants who chose one future aspect followed by a reality aspect would be identified as mental contrasting, those who chose two future aspects as indulging, those who chose two reality aspects as dwelling, and those who chose one reality aspect followed by a future aspect as reverse contrasting. When we analyzed the data in this way the pattern did not change: More students in the incremental (vs. entity) condition tended to choose future-focused self-regulatory thought $\chi^2(1) = 3.07$, $p = .08$ and fewer chose reality-focused self-regulatory thought $\chi^2(1) = 4.57$, $p = .03$.

Study 2: Measuring implicit theories in the sport domain

Methods

Participants and design

One hundred internet users from the U.S. (68 female, 28 male, 4 unidentified; $M_{age} = 28.00$ years, $SD = 8.05$) participated. The study was advertised as a study on wishes in the sport domain on Amazon MTurk. To be eligible for participation persons had to play a sport. To verify that participants played a sport, we asked: “What kind of sport are you playing?” All participants reported playing at least one sport. They received \$.80 for participating. The study used a correlational design.

Measuring implicit theories of sports ability

We measured implicit theories of sports ability using the same three-item questionnaire that we used as a manipulation check in Study 1, adapted to a sport context (Dweck 2007; e.g., “You have a certain level of ability in sport and you can’t really do much to change it”). As in Study 1, we combined the three items to one index of implicit theories (Cronbach’s $\alpha = .82$). The higher participants’ score the more they agreed with an incremental theory and the less with an entity theory of their sports ability.

Measuring motivational focus: Desired future versus present reality

We used the same paradigm as in Study 1, adapted to the sports domain. Participants first named their most important sport-related wish (they named e.g., *longer duration*, *running a faster time*). We measured expectations and incentive value via the same items and response scales as in Study 1.

Generating and elaborating aspects Next, participants listed two future aspects they associated with having realized their wish (they named, e.g., *better lung capacity*, *getting fit*) and two reality aspects that stood in the way of realizing their wish (they named, e.g., *being lazy*, *lack of energy*). As in Study 1, we counterbalanced the order in which participants listed the aspects. To measure participants’ choice of aspects and order of elaboration, we gave them the same instructions as in Study 1. Participants elaborated upon two of the four listed aspects in total.

Scoring aspects As in Study 1, we counted the number of future versus reality aspects each participant elaborated on. Moreover, we differentiated future- versus

reality-focused self-regulatory thought according to the number and order of the aspects participants chose to elaborate: We classified participants as focusing on the future if they chose one future aspect and one reality aspect and began with a future aspect (mental contrasting) or if they chose two future aspects (indulging). We classified participants as focusing on the reality if they chose one future aspect and one reality aspect, but began with a reality aspect (reverse contrasting) and if they chose two reality aspects (dwelling). Finally, participants indicated their gender, age, and major of study. They were then fully debriefed.

Results

Descriptive analyses

Mean expectations and incentive value were above the midpoint of the 7-point scales (expectations: $M = 5.86$, $SD = 1.09$; incentive: $M = 6.00$, $SD = 1.09$). Thus, as in Study 1, participants had relatively high expectations for a wish that was very important to them. Expectations and incentive correlated positively, $r = .54$, $p < .001$. Mean implicit theory index was at 3.77 ($SD = 1.15$) of the 7-point scale. Implicit theory index did not correlate with expectations, incentive value, or age, r s between $-.12$ and $-.06$, p s $> .24$. Finally, men and women did not differ in their implicit theories, $t(94) = .26$, $p = .80$.

Order effects

As in Study 1, we did not observe any difference between the two counterbalanced orders of aspect listing (future aspects first vs. reality aspects first) in the number of future versus reality aspects, $t(98) = .62$, $p = .54$, and in the choice of self-regulatory thought (future focused vs. reality focused), $\chi^2(1) = .82$, $p = .37$. Thus, we collapsed across order of aspect listing in the following analyses.

Motivational focus

Number of future versus reality aspects First, to investigate motivational focus *between* incremental and entity theorists, we regressed the number of future (vs. reality) aspects on participants’ continuous implicit theory index. Implicit theory index predicted the number of future (vs. reality) aspects, $\beta = .21$, $t(98) = 2.12$, $p = .04$. The more participants adhered to an incremental theory, the more future (vs. reality) aspects they chose to elaborate on.

Second, we investigated the number of future versus reality aspects *within* incremental and entity theorists. Following Erdley et al. (1997), we classified participants into

incremental and entity theorists by means of a mean-split on participants' implicit theory index. Incremental theorists ($n = 51$) were participants with a score greater than 3.77 and entity theorists ($n = 49$) were those with a score less than 3.77. Incremental theorists tended to elaborate more future aspects ($M = 1.20$; $SD = .72$) than reality aspects ($M = .80$; $SD = .72$), $t(51) = 1.94$, $p = .058$, $d = .56$. In entity theorists, in contrast, the number of future ($M = .88$; $SD = .70$) and reality aspects ($M = 1.12$; $SD = .70$), did not differ, $t(48) = 1.23$, $p = .22$.

Future- versus reality-focused self-regulatory thought As in Study 1, implicit theories did not differentially predict the two future-focused thought modes (mental contrasting vs. indulging), $\chi^2(1) = .04$, $p = .85$, and the two reality-focused thought modes (reverse contrasting vs. dwelling), $\chi^2(1) = .39$, $p = .53$.

To investigate self-regulatory thought *between* incremental and entity theorists, we conducted a binary logistic regression analysis with self-regulatory thought (future focused vs. reality focused) as dependent variable and the continuous implicit theory index as predictor. Implicit theory index predicted self-regulatory thought, $\chi^2(1) = 9.39$, $p = .002$. The more participants' adhered to an incremental (vs. entity) theory, the more they chose future-focused (mental contrasting and indulging) rather than reality-focused self-regulatory thought (dwelling and reverse contrasting).

When comparing self-regulatory thought *within* implicit theories, incremental theorists chose more future-focused (68.6 %) than reality-focused self-regulatory thought (31.3 %), $\chi^2(1) = 7.08$, $p = .008$. In entity theorists, the percentage of chosen future-focused (38.8 %) versus reality-focused thought (61.2 %) did not differ, $\chi^2(1) = 2.50$, $p = .12$ (Table 2).

Adjusting for expectations and incentive value Performing analogous analyses as in Study 1, we found that adjusting for expectations and incentive value did not change the pattern of results: Implicit theory index just missed to be significant in predicting the number of future versus reality aspects, $\beta = .21$, $t(92) = 1.84$, $p = .07$, but significantly predicted self-regulatory thought, $\chi^2(1) = 8.36$, $p = .004$. Incentive value but not expectations predicted the number of future versus reality aspects, $\beta = -.16$, $t(92) = 2.03$, $p < .05$, and $\beta = .06$, $t(92) = .80$, $p = .42$, respectively. Given that in Study 1 incentive value did not predict the number of future versus reality aspects and that in Study 2 neither expectations nor incentive predicted self-regulatory thought, $ps < .60$, this may be a spurious finding. Finally, as in Study 1, we did not observe any interaction effects with expectations or incentive on the number of future versus reality aspects or self-regulatory thought, $ps > .30$.

Discussion

As in Study 1, the more participants adhered to an incremental (vs. entity) theory, the more they focused on the future (vs. reality). That is, they elaborated more future-related aspects, and they engaged in more future-focused self-regulatory thought. Moreover, incremental theorists focused more on the future relative to the reality. Entity theorists in contrast focused on the future and reality to a similar extent. Study 2 thus replicated the findings of Study 1 in the domain of sports achievement and measuring rather than manipulating implicit theories. Furthermore, we revised the paradigm to assess students' self-regulatory thought by letting them choose and elaborate on two instead of four aspects and still replicated the results of Study 1. This finding is reassuring, as the new paradigm allows a more specific and faster way of self-regulatory thought identification.

General discussion

When given the opportunity to elaborate either future-focused or reality-focused aspects of an important wish, incremental theorists, emphasizing improving their abilities for the future, elaborated more future and fewer reality aspects than entity theorists. Accordingly, they also chose more future-focused (mental contrasting and indulging) and fewer reality-focused (dwelling and reverse contrasting) self-regulatory thought. Overall, incremental theorists focused more on the future than the reality (lopsided). Entity theorists in contrast focused on the future versus the reality to a similar extent (evenhanded). The pattern held true when implicit theories were both measured (Study 1) and manipulated (Study 2), in the academic (Study 1) and in the sport achievement domain (Study 2), when self-regulatory thought was identified by having participants elaborate on four (Study 1) or only two (Study 2) aspects, with German (Study 1) and American (Study 2) participants, and with students coming in the lab (Study 1) as well as with adult internet users (Study 2).

Moreover, implicit theories predicted motivational focus above and beyond people's expectations of successfully realizing their wish and the incentive value of their wish.

Table 2 Frequency of all four thought modes per group in Study 2

Group	n	Self-regulatory thought			
		Mental contrasting	Indulging	Dwelling	Reverse contrasting
Incremental	51	16	19	9	7
Entity	49	10	9	15	15

This finding suggests that the pattern cannot be explained by variations in expectations or incentive value – two key factors in predicting cognitions related to motivation and the self-regulation of goal pursuit (summaries by Oettingen 2012; Oettingen et al. 2013). Of importance also our findings held true for participants with low and high expectations as well as for participants with low and high incentive value. Because expectations are strongly influenced by past success and failure (Bandura 1997) they may indicate people's performance history. Thus our results seem to hold for people with more versus less successful past performance.

Implications for the social cognitive model of achievement motivation

Implicit theories affect cognitions relevant for goal pursuit in achievement situations. For example, incremental (vs. entity) theorists attributed past failures more to a lack of effort and less to a lack of ability (Hong et al. 1999). Rather than focusing on cognitions about past events, our research goes beyond existing studies by investigating how implicit theories affect cognitions about the desired future and the present reality. Specifically, our findings suggest that cognitions about the desired future are particularly salient (i.e., accessible) to incremental theorists. Therefore, incremental theorists might more readily see opportunities to learn and to expand their abilities as well as to find ways of realizing the desired future. Future research may use primed lexical decision tasks to investigate whether the desired future is indeed more accessible to incremental (vs. entity) theorists.

Moreover, an entity theory of ability can be further differentiated into a theory of ability as stable to external forces (e.g., situational changes such as a different school teacher) versus stable to internal forces (e.g., effort; Pommerantz and Saxon 2001). A theory of ability as stable to external (vs. internal) forces was associated with more beneficial motivational consequences (e.g., better performance, greater preference for challenge, and self-enhancing attributions). Future research could investigate whether a theory of ability as stable to external (vs. internal) forces may differentially affect motivational focus.

Finally, research investigated the impact of the implicit theories on self-regulatory thought in various domains. For example, incremental (vs. entity) theorists engaged in less evaluative processing of information about other persons (Hong et al. 1997), engaged in less avoidant coping when experiencing set-backs in dieting (Burnette 2010), endorsed fewer defensive strategies (upward rather than downward comparison) when experiencing threat to their self-esteem (Nussbaum and Dweck 2008), and more strongly rejected vengeance to regulate their emotions after peer conflicts

(Yeager et al. 2011). We go beyond these findings by showing that implicit theories also affect self-regulatory thought regarding people's goal pursuit: Incremental (vs. entity) theorists used more future-focused and less reality-focused self-regulatory thought. Apparently, incremental theorists take the future more than the reality as the starting point for mentally elaborating potential goal pursuits, whereas entity theorists take the future and reality to a similar extent.

Implications for fantasy realization theory

Taking the future as the starting point for elaborating one's wishes provides the opportunity for behavior change: Elaborating the future first, followed by reality, as in mental contrasting, induces expectancy-dependent goal pursuit. Elaborating only the future as in indulging does not promote expectancy-dependent goal pursuit by itself, but is a prerequisite for mental contrasting which in turn leads to expectancy-dependent goal pursuit. Elaborating the reality first as in dwelling and reverse contrasting in contrast does not provide the opportunity for expectancy-dependent goal pursuit, as the future cannot function as an anchor to which the reality can be contrasted. Thus, starting mental elaborations with the future should be associated more with behavior change than starting with the reality. Recent research indicates that people switch from indulging in the future to mental contrasting the future with reality, when the demand to regulate their goal-pursuit is high, for instance, when they anticipate that they will have to engage in goal-relevant action in the near future (Sevincer and Oettingen 2013).

We measured self-regulatory thought applying the paradigm from Kappes et al. (2011). In three studies by Kappes et al. (2011) the baseline use of the two future-focused thought modes (mental contrasting and indulging) ranged between 53 and 70 % of participants. In Study 1 of the present work, in the incremental condition 76 % of participants used the future-focused thought modes compared to 43 % in the entity condition. This pattern suggests that holding an incremental theory may increase future-focused self-regulatory thought whereas holding an entity theory may decrease it.

Finally, entity (vs. incremental) theorists in general are less successful in coping with setbacks. Incremental theorists use setbacks as information that more effort needs to be invested and feel defiant (Molden and Dweck 2006). Entity theorists on the other hand show avoidance behavior (Hong et al. 1999), negative affect (Robins and Pals 2002), and decreased performance (Dweck 1999) when confronted with setbacks. A series of studies indicated that mental contrasting as opposed to indulging and dwelling improves people's responses to setbacks in the form of negative feedback according to expectations of success (Kappes et al. 2012a). In

these studies mental contrasting promoted the processing of negative feedback, as indicated by a better recall for statements containing negative feedback (Study 1). The enhanced processing of negative feedback in turn fuelled goal pursuit as indicated by enhanced formation of plans (Study 2). Moreover, mental contrasting shielded participants' self-reported competence and facilitated beneficial attributions for the negative feedback (i.e., attributions to unstable, specific, and external causes as well as to lack of effort; Study 3). Given the findings of Kappes et al. (2012b) and the present findings that entity theorists are reluctant to use mental contrasting (and indulging) it seems to be especially important to teach entity theorists how to employ mental contrasting so that they will improve coping with set-backs in their goal pursuits.

Because motivational orientations or implicit theories may also influence the effectiveness of self-regulatory thought (e.g., Lockwood et al. 2002) future research should investigate whether incremental and entity theorists benefit to a similar extent from mental contrasting, that is, whether mental contrasting leads to expectancy-dependent goal pursuits in incremental and entity theorists alike. For example, incremental theorist who mental contrast may interpret their thoughts about the present reality as valuable information on how to attain the desired future. This may trigger a necessity to act which may activate expectations of success. On the other hand, entity theorists who mental contrast may interpret their thoughts about the present reality as shortcomings and failures, triggering avoidance, thus preventing a necessity to act and activation of expectations. Therefore, mental contrasting might be more effective in producing selective goal pursuits for incremental than for entity theorists.

Implications for research on motivational focus

Future research may investigate other person and context variables that may influence motivational focus. According to regulatory focus theory (Higgins 1998), people with a promotion focus are more concerned with change (i.e., improving their current state) whereas those with a prevention focus are more concerned with maintenance (i.e., not worsen their current state; see also Leonardelli and Lakin 2009). Further studies may explore whether a promotion focus makes people focus more on the future whereas a prevention focus makes them focus more on the reality.

Conclusion

People with an incremental theory of ability focused more toward the future (vs. reality) than those with an entity theory when thinking about an important wish. Apparently incremental more than entity theorists take the future as the

starting point of their wish fulfillment and goal pursuit. The findings extend research on implicit theories by showing that people's beliefs about the malleability or stability of ability influence motivational focus when people are given the opportunity to think about their wishes; they extend research on goal pursuit by showing that people's choice of self-regulatory thought depends on their implicit theories about their ability.

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