

Implicit Theories of Opportunity: When Opportunity Fails to Knock, Keep Waiting, or Start Cultivating?

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We live in a time of disappearing professions, pandemic-related upheaval, and growing social inequality. While recognizing that good opportunities are unequally distributed in society (an injustice that requires rectification), can *beliefs* about the nature and workings of opportunities help people see the door to their goals as more open than closed, and can these beliefs influence the likelihood of goal attainment? Seven studies ($N = 1,031$) examined people’s beliefs about whether or not opportunities can be changed (growth vs. fixed theory of opportunity). In Studies 1a–4, participants responded to scenarios about competent people (or themselves) with challenging, long-term aspirations. When opportunities were available, both theories predicted high expectations for success and a preference for active strategies to pursue the goal, like being persistent. By contrast, when opportunities seemed unavailable, a stronger fixed theory predicted lower expectations for success and a preference for passive strategies, like simply waiting. We also established the implicit theories’ causal role and demonstrated processes explaining how a growth theory leads to higher anticipated success. The final two studies examined unemployed people. In Study 5, those with a stronger growth theory chose to engage more in a task about cultivating new opportunities for employment. Study 6 showed that those with a stronger growth theory were more likely to report securing employment 5 months later, even when controlling for motivation-relevant variables, education, and socioeconomic status. They also engaged in more active job-search strategies. These studies offer a novel perspective on when, how, and why people initiate and maintain goal pursuit.

Keywords: achievement, goal pursuit, implicit theories, motivation, opportunities

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The world is changing rapidly and dramatically. A report from McKinsey & Company (Manyika et al., 2017) suggested that the rise of automation and artificial intelligence could reduce the global paid workforce by half, greatly decreasing or eliminating many common occupations like freight trucker (Taddonio, 2019), cook (Dean, 2020), bookkeeper (Monga, 2015), construction worker (Murphy, 2017), and even knowledge-based occupations like market research analyst (Molla, 2019). Employment opportunities have changed even more in the wake of the COVID-19 pandemic (International Labor Organization, 2020) to further affect the livelihood of people across

the globe. Such changes have left people understandably concerned about their job prospects (Lund et al., 2021; Pew Research Center, 2017). We acknowledge that opportunities are not distributed equally among people; some groups have more doors open to them than others due to societal inequalities—a structural injustice that must be rectified. Nonetheless, a tendency to actively cultivate new opportunities may be more critical than ever. That is, when opportunities *could* exist for someone, do they believe that those opportunities can be cultivated?

Whether the goal is to secure a particular job, get a good education, win a desired promotion, discover a cure for cancer,

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The data reported in this article are available at <https://osf.io/32by7>. No analysis code was generated for this research. Materials for Studies 1a–4 and Study 6 are provided in the Supplemental Materials and/or fully described in the main text. Study 5 was preregistered and materials are available at <https://osf.io/vqxzn>. Select “Wiki” for details and “Files” for materials. Analytic methods are all described in the main text and Supplemental Analyses.

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or establish a nonprofit organization, people may hold different beliefs about *opportunities*—defined as favorable circumstances that make goal progress seem possible, or as a starting point from which someone can begin to work toward their goal. Thus, opportunities are critical facilitators of goal pursuit, and without opportunities, achievement would be unlikely. In this context, some people may view their opportunities as relatively set or determined (be they many or few, good or poor), whereas others may view them as circumstances that can be changed; for example, by seeking out opportunities that already exist or creating new ones that do not. This is the crux of this new construct and our distinction between fixed and growth theories of opportunity. A *fixed theory of opportunity* refers to the belief that one's opportunities are relatively unchangeable, whereas a *growth theory of opportunity* refers to the belief that opportunities are changeable.

These types of implicit theories, or mindsets, are beliefs people hold about themselves or the world that help them construct meaning—suggesting what goals to pursue, how to pursue those goals, what to expect, and how to interpret their experiences (Molden & Dweck, 2006). Most research on fixed and growth theories has focused on beliefs about personal attributes, such as abilities and intelligence (Butler, 2000; see Dweck, 2006; O'Keefe, 2013), interests (O'Keefe et al., 2018; O'Keefe, Horberg, et al., 2021), personality (Erdley & Dweck, 1993; Yeager et al., 2013), shyness (Beer, 2002), empathy (Schumann et al., 2014), and willpower (Job et al., 2010).

An important contribution of this work is that implicit theories can shape people's interpretations of challenges, failures, and setbacks, which can then determine how they respond. For example, whereas a person with a growth theory of intelligence may view poor exam performance as a signal to work harder or develop better strategies, someone with a fixed theory of intelligence may instead interpret it as a sign of low intelligence (e.g., Yeager & Dweck, 2012). In an illustrative study, undergraduates were induced to temporarily hold either a growth theory or a fixed theory of intelligence (Hong et al., 1999). Subsequently, participants completed a difficult set of test questions and received feedback that their performance was either satisfactory or unsatisfactory. Relative to the growth-theory condition, those in the fixed-theory condition who received unsatisfactory feedback tended to attribute their poor performance to low ability rather than low effort. Moreover, they were consequently less likely to complete a tutorial about how to improve their performance during a free period. Thus, beliefs about the fixed versus developed nature of intelligence influenced how people responded to perceived intellectual hurdles.

Similarly, someone with a fixed theory of interest—who believes that interests are not developed but rather are inherent and relatively unchangeable—tends to view experiences of difficulty while engaging with a newfound interest as evidence that the activity is not a “true” interest after all. By contrast, someone with a growth theory of interest believes interests can be cultivated, and accepts difficulty as a natural part of interest development (O'Keefe et al., 2018). For example, in one study, participants were induced to hold either a fixed or growth theory of interest and then watched an exciting and accessible video on the role of black holes in the origin of the universe. This sparked their interest in those topics. Next, they read a technical and challenging academic article about black holes. After reading the article, those induced to hold a fixed theory tended to lose interest in the topics relative to those induced to hold a growth theory, who maintained their interest. Thus, implicit theories can

shape people's expectations and their reactions to challenges to their newfound interests.

Unlike previous research on implicit theories, theories of opportunity do not focus on beliefs about internal attributes like intelligence, interest, personality, shyness, empathy, or willpower, but instead on beliefs about external prerequisites for goal pursuit—opportunities. Although some research has examined people's beliefs about the external world (e.g., Chiu et al., 1997; Kneer et al., 2003), such investigations are relatively rare in the implicit theory literature and warrant more attention. Nevertheless, like other implicit theories, we propose that implicit theories of opportunity work by influencing the meaning people construct from states of the world, most notably the meaning people ascribe to the availability of relevant opportunities to achieve their goals. These meaning systems have important implications for the initiation of goal-directed behaviors that can put people on a trajectory toward goal attainment.

When relevant opportunities are readily available, we should not see much difference between those with a fixed or growth theory of opportunity because the path toward success has already been opened. Therefore, those with either belief may have relatively high expectancies for success and may adopt active strategies, like working hard toward their goal, that reflect their sense of agency.

But when relevant opportunities are not clearly available, a different pattern should emerge. Someone with a growth theory should still be proactive, using active strategies and maintaining relatively high expectations for success since they believe that opportunities are changeable, and therefore, new ones can be cultivated. By contrast, when someone with a fixed theory—even with the same background, qualifications, and facing the same situation—perceives that relevant opportunities are unavailable, this should be seen as a relatively unchangeable circumstance. Consequently, they may now be more likely to adopt goal strategies that are more passive, such as hoping for a big break. They may even abandon their goal altogether.

Therefore, just like fixed and growth theories in other domains (such as intelligence), theories of opportunity are proposed to be antecedents of the control people perceive themselves to have. In the case of theories of intelligence (see Dweck, 2006; O'Keefe, 2013), people perceive themselves as more or less able to cultivate the abilities needed to succeed; in the case of theories of opportunity, people see themselves as more or less able to cultivate the opportunities they need to pursue their goals. As such, theories of opportunity dovetail with other motivational frameworks that distinguish between active and passive strategies, such as research on primary and secondary control, which illuminates how people may, at different times, invest time and effort into actively pursuing their goals (primary control) or passively supporting their goals through self-regulation of thoughts and emotions (secondary control), such as thinking about positive outcomes of goal attainment and staying hopeful (e.g., Heckhausen et al., 2010, 2019). Work on “goal focus” highlights how, when thinking about their goals, people may actively plan the means through which they will attain their goal (process focus) or they may take the more passive approach of focusing on the desired end result (outcome focus; Freund & Hennecke, 2012). Studies suggest that a process focus tends to be more adaptive than an outcome focus, by leading to greater persistence and success at various goals like weight loss and test performance (Freund & Hennecke, 2012, 2015). With regard to theories of opportunity, people should prefer active strategies if they view opportunities for successful goal pursuit as changeable, but prefer passive strategies

(like staying hopeful or waiting for opportunities to fall in their lap), if they believe opportunities are relatively fixed.

Likewise, the theories of opportunity construct adds to the literatures on perceived behavioral control (e.g., Ajzen, 1991; Terry & O'Leary, 1995), locus of control (Rotter, 1966), and self-efficacy (Bandura, 1997), by illuminating how people diverge in their perceptions of control and self-efficacy when opportunities to achieve their goal are unavailable.

Theory and research on goal pursuit has often focused on processes that help explain persistence. Theories of opportunity makes a contribution to the perhaps less often studied issue of goal initiation. Indeed, without good opportunities, many goals cannot be acted upon in the first place; therefore, within a fixed theory of opportunity, processes related to goal striving may not even be activated. Take, for example, two people with the same ambitions, background, and drive, who both believe they can develop their abilities in the relevant domain. However, if they differ in their belief about whether opportunities can be changed, and therefore whether they can cultivate the opportunities needed, one may initiate goal pursuit and the other may not.

More broadly, individual differences such as grit ("perseverance and passion for long-term goals"; Duckworth et al., 2007, p. 1087), conscientiousness, and optimism have been linked to achievement strivings or goal attainment (e.g., Duckworth et al., 2007; Duckworth & Quinn, 2009; Litt et al., 1992; McCrae & Costa, 2008; Scheier et al., 1989). However, even people high on each of these potentially beneficial qualities may feel hamstrung if they view opportunities as fixed and do not think they can obtain the opportunities needed to initiate the process.

Across the current studies, we sought to empirically demonstrate the novel contribution of theories of opportunity to the goal initiation and pursuit literatures. In doing so, we controlled for theories of ability (Study 1b), theories of intelligence (Study 6), optimism (Studies 4 and 6), conscientiousness (Studies 5 and 6), grit, and a general belief in a just world (Study 6), along with various relevant demographic variables, such as subjective socioeconomic status (SES; Studies 2–6) and education level (Studies 5 and 6). Should theories of opportunity predict our dependent measures above and beyond these variables, it would suggest that our construct is both theoretically and functionally novel.

Although theories of opportunity address the matter of goal initiation, they also have implications for long-term pursuits, but in a different way than other constructs related to goal striving. One must first have an opportunity to embark on a longer term pursuit. But even a good opportunity can lead to a dead end, or it may take one only so far before another opportunity is needed. Therefore, maintaining a growth theory of opportunity throughout one's pursuit may lead not only to opening doors in the shorter term, but may also facilitate longer term goal attainment.

Overview of Research

The current research examined how implicit theories of opportunity influence the active and passive strategies people endorse when they do or do not have ready access to good opportunities for pursuing challenging, long-term goals. Furthermore, we examined people's expected or actual success in achieving those goals. We began by conducting five correlational and experimental scenario studies (Studies 1a–4). This approach was advantageous for testing

foundational hypotheses because it enabled us to examine the theorized processes across a variety of situations while maintaining high experimental control, as we could manipulate the absence or presence of opportunities while holding other factors (e.g., competence, motivation) constant. Participants read passages that portrayed someone (Studies 1a–2), or that asked them to imagine themselves (Studies 3 and 4), with an ambitious aspiration for which they either had opportunities or lacked them. Participants then rated the strategies they felt would be most effective in pursuing the goal (Studies 1a and 2), rated their expectancy for success (Studies 1b–4), and wrote their own ideas for how the goal could be achieved (Study 4). In one study, we induced theories of opportunity to test their causal role in these processes (Study 4).

In the final two studies, we examined whether theories of opportunity apply to a critical real-world goal: employment. In Study 5, we recruited unemployed people and examined whether their theory of opportunity predicted a behavioral tendency to cultivate opportunities that could lead to employment. In Study 6, we recruited unemployed people in need of a job that provided steady income and examined whether their theory of opportunity predicted their active employment goal strategies (e.g., persistence, hard work) and job search behaviors (e.g., submitting applications, searching job postings), and most critically, whether they had secured employment 5 months later. With these studies, we took the first step in examining the theoretical and practical utility of implicit theories of opportunity. All studies, aside from Study 5, were conducted before the COVID-19 pandemic, and the studies were approved by the Stanford University or NUS Institutional Review Board. Sample size calculations were conducted in G*Power (Faul et al., 2007) using procedures for null-hypothesis significance testing.

Transparency and Openness

For all studies, we report how we determined our sample size, all data exclusions (if any), all manipulations, all measures pertaining to hypotheses, and we follow JARS (Kazak, 2018). All data are available at <https://osf.io/32by7>. Data were analyzed using SPSS (Version 27; central analyses), Mplus (Version 8.4; confirmatory factor analyses in Supplemental Analyses), and MedCalc (Version 20.114; internal meta-analysis). Analysis code was not generated for this research. The design and analysis of Study 5 were preregistered at <https://osf.io/vqxzn>. Select "Wiki" for details and "Files" for materials. Studies 1a–4 and Study 6 were not preregistered. All studies addressing this theoretical proposal are reported in the main article or in the Supplemental Analyses (and mentioned in the main article). Data were not analyzed until final samples were collected.

Power and Sample Sizes

As described in the studies below, sample size calculations generally assumed medium effect sizes based on the effects obtained in early studies. Potentially, this assumption could yield smaller sample sizes than might have been warranted (even when our final samples exceeded the minimum determined by our calculations; we report sensitivity analyses for all studies). This is particularly relevant to studies of the interaction between theories of opportunity and opportunity condition. Although power and sample size calculations for interactions may be computed like any other effect in a linear regression model, a presumed medium effect could

underestimate the sample size because interaction effects tend to be less powerful than linear effects (Perugini et al., 2018). Therefore, we performed an internal meta-analysis of those interaction studies, as internal meta-analyses can more precisely pinpoint the true effect size and provide greater confidence in the reliability of the result than an individual study, particularly if studies had smaller sample sizes (Goh et al., 2016).

Study 1a

We began our investigation by examining whether theories of opportunity, measured as an individual difference, predict the strategies participants endorse in response to reading about people who just missed out on a key opportunity. Every day, many people miss out on what might have seemed like opportunities of a lifetime—for example, their chance to enter a profession that is difficult to break into, or to enter it at a particularly high level. If one's opportunities are thought to be fixed, then that door may never open again. Active strategies may seem unlikely to bear fruit if one believes that opportunities are not changeable, and therefore new ones cannot be cultivated. By contrast, passive strategies, such as waiting or hoping for new opportunities to come along, may seem like a reasonable alternative. Moreover, the goal could now seem out of reach and perhaps be abandoned altogether. By contrast, if new opportunities are thought to be changeable, then missing out, while still very disappointing, can be seen as a setback that can be remedied by cultivating new opportunities. Therefore, active strategies may be seen as relatively more useful. We, therefore, hypothesized that a stronger fixed theory would be associated with the endorsement of passive strategies and goal abandonment, whereas a stronger growth theory would predict endorsement of active goal strategies.

Method

Participants

We requested and received 100 people (47% female) from Mechanical Turk (MTurk) who were 21 years or older. Because this was our first study and we did not have a strong basis for predicting an effect size, we reasoned that this would be sufficient for our planned correlational analyses, which would require a minimum of 85 based on a conventional medium effect size of $r = 0.30$, with $1 - \beta = 0.80$ and $\alpha = 0.05$. We exceeded the minimum here and in the subsequent studies, given that we were testing a novel construct and because of the chance of data loss if exclusions became necessary or participants dropped out (which was not the case in the present study). We reasoned that opening recruitment to 100 participants would provide an acceptable buffer and be in keeping with sample sizes of other implicit-theory studies (e.g., Bullard et al., 2019; Park & Kim, 2015; Schumann et al., 2014; Sevincer et al., 2014).¹ A sensitivity analysis showed that the final sample size had 80% power to detect an effect size of $r = .28$. Participants were paid a small sum. Their mean age was 32.30 ($SD = 10.62$) and the sample comprised 66% Caucasian, 18% Asian, 8% African American, and 8% Hispanic or Latinx. No participants were excluded from the analyses.

Procedure

Online, participants first completed the implicit theories of opportunity scale followed by instructions for the tasks to follow.

Afterward, all participants read three scenarios about protagonists who missed out on a key opportunity. In all scenarios, the characters were skilled, had ambitious aspirations, and were highly motivated to succeed. After reading each scenario, participants rated their level of agreement with several strategies the protagonists could use in response to the challenges they faced.² Finally, participants completed several demographic questions. The study took a median of 12.28 min to complete.

Measures and Materials

Implicit Theories of Opportunity Scale. This scale measured the endorsement of whether opportunities are changeable, and it was developed based on extant scales that measure fixed and growth theories in other domains (e.g., Dweck, 1999). Like other validated implicit theory scales, it consisted of three items (e.g., Chiu et al., 1997; Dweck et al., 1995; Yeager et al., 2019). The items reflected two important aspects of opportunities and their efficacy for eventual goal attainment: quality and quantity. The items were: "You have a certain number of good opportunities in your life and you can't do much to change that," "You may be a person with many good opportunities; you may be a person with few and you can't do much to change that," and "In your life, you can't really do much to change the number of good opportunities you have" (1 = *Strongly disagree*, 6 = *Strongly agree*). The statements were phrased from a fixed-theory perspective in order to prevent uniformly high endorsement of potentially more appealing positively framed items depicting the growth theory. Such phrasing is common for this reason (see Dweck, 1999). Moreover, because "can change" and "cannot change" are opposites, weaker endorsement of one theory reflects stronger endorsement of the other theory (see Dweck, 1999). All items were then reverse scored so that higher scores reflected a stronger growth theory ($\alpha = 0.91$).

Goal Strategies. For each scenario, participants rated their level of agreement with 10 strategies that the protagonist could use after the missed opportunity (1 = *Strongly disagree*, 6 = *Strongly agree*). These fell into three predetermined categories: *active goal strategies* ("Keep trying" and "Keep working hard"), *passive goal strategies* ("Just hope for a big break," "Wait for the right opportunities to present themselves," "Just hope to be in the right place at the right time," "Just hope for some good luck," "Just hope that the universe aligns with his/her wishes," and "Keep faith that it is his/her destiny to succeed"), and *goal abandonment* ("Pursue a more realistic goal" and "Give up"). A higher number of passive items were constructed to capture the various ways in which people might think about how their goals could potentially be attained without active engagement.

Scenario Materials. As noted above, the three scenarios depicted highly capable individuals who missed out on a key

¹ For similar reasons, we also posted 100 study slots in each of Studies 1a–3, whose calculations had yielded similar sample size requirements. For several studies in this report, we received slightly fewer or slightly more than requested. This may happen when, for example, participants submit an MTurk assignment without completing the study (leading to fewer) or when they completed the study but did not submit the MTurk assignment (leading to extra).

² Participants read and rated three additional pilot scenarios that were similar in structure and content, except the protagonist lacked financial resources. Results were similar (see [Supplemental Materials and Supplemental Analyses](#)).

opportunity (see [Supplemental Materials](#) for all scenarios). For example, one scenario was about a talented violinist whose aspiration was to join a prestigious symphony. On her way to a once-in-a-lifetime audition, her flight was canceled due to inclement weather and she missed the opportunity. The other two scenarios involved an experienced actor who missed an important audition due to illness, and an unhoused man who was offered a job in finance only to later learn that the person who hired him had been laid off.

Results

Across the three scenarios, means were calculated for active, passive, and goal abandonment endorsement. Descriptive statistics and correlations are presented in [Table 1](#). We also examined skewness and kurtosis of the goal strategy variables and found that the active strategies variable (but not passive or abandon) was highly negatively skewed (-1.69) and leptokurtic (3.70), falling outside of the acceptable range of $+1$ to -1 ([Blanca et al., 2013](#); [Tabachnick & Fidell, 2013](#)). Therefore, for active strategies, we additionally report the Spearman rank correlation (r_s), which does not assume a normal distribution, providing a better test ([Bishara & Hittner, 2015](#)).

As predicted, participants with a stronger growth theory more strongly endorsed active goal strategies, $r(98) = 0.30, p = .002$, $r_s(98) = 0.38, p < .001$, whereas those with a stronger fixed theory more strongly endorsed passive strategies, $r(98) = -0.27, p = .008$, and goal abandonment, $r(98) = -0.59, p < .001$.

Discussion

Overall, participants strongly endorsed active strategies, moderately endorsed passive strategies, and generally did not endorse goal abandonment. However, as predicted, the more strongly participants believed opportunities are changeable, the more they endorsed the idea that active strategies, such as being diligent and persistent, would be useful. By contrast, more of a fixed theory predicted stronger endorsement of passive strategies, such as hoping for a big break, or abandoning the aspiration entirely. This was true even though the protagonists were described as highly capable and motivated.

Study 1b

In Study 1a, we found that a stronger growth theory (as compared to a fixed theory) predicted that people would more strongly favor active strategies (as compared to passive strategies and goal abandonment) after just missing a key opportunity.

Would it follow that, because of the belief that opportunities are changeable and that active strategies are endorsed more strongly, people holding a growth theory would also have a higher expectancy for success relative to those endorsing more of a fixed theory after an opportunity is missed? Furthermore, when people receive (vs. just miss) a key opportunity, would those with a stronger fixed theory now view active strategies as instrumental to success, like those with a growth theory? If so, it would show that when an opportunity is readily available, those with more of a fixed theory would pursue their aspiration just as avidly and with equally high expectancies.

Participants read about competent individuals with ambitious, long-term aspirations who either received or just missed a key opportunity (randomly assigned). After reading each scenario, they rated how successful they thought the protagonist would be if they were to work hard—an active strategy—toward the goal. We hypothesized that when key opportunities were received (vs. just missed), both theories of opportunity would predict similarly high endorsement of the idea that hard work will lead to success. But when opportunities were just missed, and thus need to be cultivated, expectancies should be diminished for those with more of a fixed theory as compared to more of a growth theory.

Finally, we tested whether implicit theories of ability would provide an alternative explanation for our results.

Method

Participants

The key results of Study 1a showed moderate or large associations between theory of opportunity and outcome ratings (mean of $r_s = 0.39$). Therefore, in testing a model with three predictors (two main effects and an interaction between theories of opportunity and opportunity condition), we predicted a conventional medium effect size of $f^2 = 0.15$, with $1 - \beta = 0.80$ and $\alpha = 0.05$, which yielded a minimum sample size of 76. We posted 100 open slots to a community college subject pool, ultimately recruiting 96 community college undergraduates (82% female) who participated in exchange for course credit and were at least 18 years old ($M_{\text{age}} = 27.30, SD_{\text{age}} = 10.55$). A sensitivity analysis showed that, for individual predictors in the model, this final sample size had 80% power to detect effects of $f^2 = .08$. Participants comprised 36.2% Asians, 33% Caucasians, 20.8% Hispanics or Latinx, 4.3% African Americans, 4.3% Pacific Islanders, and 1.1% Native Americans. No participants were omitted from the analysis.

Table 1

Study 1a Means, Standard Deviations, Internal Consistency Reliability Coefficients, and Pearson Correlation Coefficients for Theories of Opportunity and the Three Goal Strategies

Variable	<i>M</i>	<i>SD</i>	α	1	2	3	4
1. Theory of opportunity	4.09	1.23	0.91	—			
2. Active goal strategy	5.28	0.93	0.95	0.30**	—		
3. Passive goal strategy	4.10	1.06	0.91	-0.27**	0.29**	—	
4. Goal abandonment	2.45	1.22	0.81	-0.59***	-0.74***	-0.00	—

Note. *M* = mean; *SD* = standard deviation; α , Cronbach's α coefficient.

** $p < .01$. *** $p < .001$.

Procedure

Online, participants first completed a revised version of the implicit theories of opportunity scale (see Measures), and then the implicit theories of ability scale, which was included for use as a covariate and to help mask the purpose of the study. Afterward, participants were randomly assigned to one of two conditions. In one condition, they read four scenarios with protagonists who received a key opportunity that would open a door to a challenging, long-term goal (received-opportunity condition); in the other condition, the protagonists just missed out on a key opportunity (missed-opportunity condition) for that same goal. After each scenario, they rated the protagonist’s likelihood of success if they were to work very hard (i.e., if the protagonist were to use an active strategy). After the four scenarios, they completed basic demographics. The median time spent on the study was 10.23 min.

Measures and Materials

Implicit Theories of Opportunity Scale. We revised the scale slightly to reflect our theoretical construct more clearly. Rather than referring to a “certain number” of opportunities, we instead referred to a more abstract quantity (i.e., many or not so many) to better reflect how people are likely to think about opportunities. The scale consisted of three items (1 = *Strongly disagree*, 6 = *Strongly agree*): “You may be a person with many good opportunities; you may be a person with few. You can’t do much to change that,” “You may or may not be a person who has many good opportunities and there isn’t much you can do to change that,” and “You might be a person who has many good opportunities or you might not be. You can’t do much to change that.” The items were reverse scored so that higher scores referred to a stronger growth theory ($M = 4.35$, $SD = 1.17$; $\alpha = 0.94$). This revised scale showed good discriminant validity from other implicit-theory and motivation-related scales (see “Validation of Theory-of-Opportunity Scale” in [Supplemental Analyses](#)).

Implicit Theories of Ability Scale. The scale assessed the degree to which people view abilities as fixed or malleable. It was adapted from the implicit theories of intelligence scale (Dweck, 1999) to assess the perceived malleability of general ability rather than purely intellectual ability. Doing so made the scale more relevant to the spectrum of abilities of the protagonists described in the scenarios. Including it as a covariate allowed us to examine the role of theories of opportunity above and beyond fixed and growth beliefs about abilities.

The scale comprised four items, for example, “You have a certain amount of ability, and you can’t really do much to change it” (1 = *Strongly disagree*, 6 = *Strongly agree*). As with the theories of opportunity questions, they were phrased from a fixed-theory perspective, as is commonly done with implicit theories scales, in order to prevent overly high agreement with the more socially desirable or appealing positively framed items. All items were reverse coded so that higher scores reflected a growth theory of ability ($M = 4.76$, $SD = 0.86$; $\alpha = 0.89$). The scale positively correlated with theories of opportunity, $r(94) = 0.37$, $p < .001$.

Scenario Materials. Participants read four scenarios about people who were high in ability and eager to achieve an ambitious, long-term aspiration. In the received-opportunity condition, the protagonists received a key opportunity that would facilitate their pursuit. In the missed-opportunity condition, they just missed out on

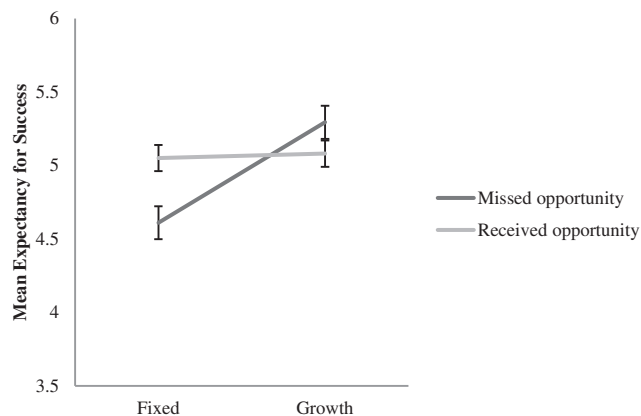
the same opportunity. For example, in one scenario, the protagonist was an excellent runner who aspired to join the national track team. In the received-opportunity condition, a renowned coach offered to train her; in the missed-opportunity condition, the coach expressed equal enthusiasm about training her, but could not take on additional athletes. The other three scenarios concerned protagonists in the technology, restaurant, and fashion industries who either received or missed a key opportunity to be trained or mentored by a successful and influential person in their respective field. Across conditions, the protagonists’ level of ability was held constant so that their missed opportunity could not be attributed to their competence (see [Supplemental Materials](#), for scenarios).

Expectancies for Success. After reading each scenario, participants rated the protagonist’s likelihood of success if they were to work very hard (1 = *Extremely unlikely*, 6 = *Extremely likely*). For example, participants were asked “If Amy were to work *very hard*, how likely do you think it is that she will accomplish her goal of making the national team?” “Very hard” was emphasized to highlight the use of an active strategy. One item for each scenario assessed expectancy for success—our primary outcome—and a mean was calculated across the four scenarios ($M = 5.02$, $SD = 0.71$; $\alpha = 0.85$). This composite reflected an overall measure of participants’ belief that hard work would yield success across the different situations presented in the scenarios.

Results

We found the expected interaction between theories of opportunity and opportunity condition, $B = -0.16$, $t(92) = -2.54$, $p = .013$, 95% confidence interval (CI) $[-0.279, -0.034]$ (see [Figure 1](#)). Examining the conditional effects, in the received-opportunity condition, as predicted, theories of opportunity were unrelated to expectancies for success, $B = 0.01$, $t(92) = 0.17$, $p = .863$, 95% CI $[-0.137, 0.164]$. Thus, when receiving a key opportunity, all participants had relatively high expectancies for the protagonists’ success, who planned to work hard toward their goal. By contrast, in the missed-opportunity condition, theory of opportunity significantly predicted expectancies

Figure 1
Study 1b Interaction Between Theories of Opportunity and Opportunity Condition



Note. Fixed and growth theories are plotted at one standard deviation below and above the mean, respectively. Error bars represent standard errors.

of success, $B = 0.33$, $t(92) = 3.34$, $p = .001$, 95% CI [0.133, 0.520]. As illustrated in Figure 1, those holding more of a fixed theory (at -1 SD) reported that future success was less likely, even with hard work, than did those holding more of a growth theory (at $+1$ SD). Furthermore, as one might expect, those holding a fixed theory reported a higher likelihood of success for the protagonist in the received-opportunity condition than in the missed-opportunity condition, $B = 0.26$, $t(92) = 2.54$, $p = .013$, 95% CI [0.057, 0.464]. Interestingly, however, there was no difference in expectancies for success between the two opportunity conditions for those holding a growth theory, $B = -0.11$, $t(92) = -1.08$, $p = .284$, 95% CI [-0.302, 0.090]. They expected success to the same degree for someone who missed an initial opportunity and someone who received that opportunity.

The analysis also revealed a main effect such that a stronger fixed theory predicted overall lower expectancies for success, $B = 0.17$, $t(92) = 2.75$, $p = .007$, 95% CI [0.047, 0.293]. There was no main effect for opportunity condition, $B = 0.08$, $t(92) = 1.10$, $p = .272$, 95% CI [-0.062, 0.216].

Finally, the predicted interaction held, $B = -0.14$, $t(90) = -2.11$, $p = .038$, 95% CI [-0.281, -0.008], when controlling for implicit theories of ability and its interaction with condition. The main effect of theories of ability was not significant, $B = 0.00$, $t(90) = 0.05$, $p = .961$, 95% CI [-0.172, 0.181], nor was the interaction $B = -0.04$, $t(90) = -0.43$, $p = .666$, 95% CI [-0.215, 0.138], thus ruling out the construct as an alternative explanation. With covariates, the main effect of theories of opportunity remained significant, $B = 0.16$, $t(90) = 2.40$, $p = .019$, 95% CI [0.028, 0.301], and the main effect of opportunity condition remained nonsignificant, $B = 0.08$, $t(90) = 1.07$, $p = .285$, 95% CI [-0.065, 0.217].

Discussion

When a key opportunity was received, fixed and growth theories equally predicted that hard work would likely lead to success. By contrast, when a key opportunity was just missed, a stronger fixed theory was associated with the belief that future success was less likely, despite hard work. For those with more of a fixed theory, presumably even hard work could not overcome their perception that new opportunities cannot be cultivated. Interestingly, however, whether the protagonist received or missed an opportunity did not seem to matter for participants with more of a growth theory, presumably because they believed other opportunities could be cultivated over the long-term, opening alternative pathways to goal attainment.

Finally, implicit theories of ability were ruled out as an alternative explanation for our results, providing initial evidence that theories of opportunity is a unique and theoretically meaningful implicit theory.

Study 2

Thus far, we have examined the strategies those with a fixed and growth theory endorse when a key opportunity is missed (or received). We have also seen what happens to their expectancies for success under those conditions. Here, and in the remaining studies, to show the robustness of the phenomenon, we examined our hypotheses with regard to another common source of opportunity (or its absence). We examined opportunities related to the capital one has (see Bourdieu, 1979/2013) that can afford progress toward one's goals. A prime example is economic capital, or

financial resources. People with greater financial resources typically have better opportunities, and more of them. By contrast, those lacking these resources may chronically be less likely to have access to good opportunities. Finding similar results to those in Studies 1a and 1b would demonstrate that our effects generalize beyond situations where one key opportunity is simply received or missed.

Thus, the present study was designed to conceptually replicate Study 1a by examining our findings regarding the endorsement of goal strategies when financial resources are low. Importantly, we also extended Study 1a by examining whether goal strategies mediate the relation between theories of opportunity and expectancies for success. Participants read scenarios about protagonists who had limited financial resources, but were highly motivated and had ambitious, long-term aspirations. After each scenario, participants reported the extent to which they felt various strategies would be useful in pursuing their aspiration, and then their expectancy for the protagonist's future success. We hypothesized that, because a stronger growth theory predicts stronger endorsement of active strategies (as compared to passive strategies and goal abandonment), even when lacking good opportunities, those strategies should, in turn, predict a relatively higher expectancy for success. Furthermore, we expected that controlling for participants' SES would not provide an alternative explanation for our results.

Method

Participants

Based on the previous studies, we expected medium effect sizes for the associations among theories of opportunity, goals strategies, and expectancies for success. Using Fritz and Mackinnon's (2007) recommendations for testing medium-sized indirect effects at $1 - \beta = 0.80$ and $\alpha = 0.05$, 71 was the minimum sample size required to test our mediation hypotheses using a bias-corrected bootstrap method. One-hundred-one people (51% female) from MTurk who were at least 18 years old participated in exchange for a small payment. A sensitivity analysis showed that the final sample had 80% power to detect pathways of $r = .27$. Their mean age was 35.95 ($SD = 12.54$), and they comprised 78.2% Caucasians, 8.9% African Americans, 7.9% Asians, and 5.0% Hispanics or Latinx. No participants were omitted from the analyses.

Procedure

Online, participants first completed the implicit theories of opportunity scale and then read four scenarios about people who were low in financial resources, yet competent, highly motivated, and had an ambitious, long-term aspiration. After reading each scenario, participants rated their level of agreement with various strategies for pursuing (or not pursuing) the goal described. Then, they rated their expectancies for the protagonists' future success. The session took a median of 11.48 min.

Measures and Materials

See Table 2, for means, standard deviations, reliabilities, and correlations for all variables.

Implicit Theories of Opportunity Scale. Same as Study 1b.

Goal Strategies. Same as in Study 1a; however, the item "Keep faith that it is his/her destiny to succeed" was not included because it

Table 2
Study 2 Means, Standard Deviations, Internal Consistency Reliability Coefficients, and Pearson Correlation Coefficients

Variable	M	SD	α	1	2	3	4	5	6
1. Theory of opportunity	4.01	1.11	0.91	—					
2. Active goal strategy	5.55	0.70	0.94	0.34***	—				
3. Passive goal strategy	3.44	1.05	0.91	-0.23*	-0.10	—			
4. Goal abandonment	1.84	0.81	0.73	-0.35***	-0.67***	0.24*	—		
5. Expectancy for success	4.68	0.77	0.77	0.24*	0.49***	-0.24*	-0.31***	—	
6. Subjective SES	2.36	0.90	—	0.09	-0.21*	-0.07	0.07	-0.12	—

Note. SES = socioeconomic status; α = Cronbach’s alpha coefficient.
 * $p < .05$. *** $p < .001$.

was the only item to reduce reliability among the passive strategy items in Study 1a. Furthermore, the notion of destiny only tangentially relates to the theory-of-opportunity construct. As before, we calculated mean composites for active strategies, passive strategies, and goal abandonment.

Scenario Materials. Participants read four scenarios about people with low financial resources who were competent and motivated and had an ambitious, long-term aspiration. For example, one scenario described a teenager from a low-income household whose family owned and operated a struggling laundromat. Through his initiative, diligence, and ingenuity, he learned the laundromat trade and increased business. His long-term goal was to grow the laundromat into a state-wide chain. The other three scenarios were similar in content and structure, and all involved stories of people who aspired to open a new business, including a clothing boutique, real estate agency, and hair salon (see [Supplemental Materials](#) for scenarios).

Expectancies for Success. For each scenario, participants rated their expectancy for the protagonist’s success (1 = *Extremely unlikely*, 6 = *Extremely likely*). For example, one question asked “How likely do you think it is that Michael will someday successfully expand his family’s business into a state-wide chain?” A composite was created by averaging the ratings across all four scenarios.

Subjective SES. Participants reported their subjective SES (1 = *Lower class*, 5 = *Upper class*). It was unrelated to theories of opportunity, $r(99) = .09$, $p = .382$.

Results

We first tested how theories of opportunity related to the goal strategies and expectancies for success. Then, we examined the mediating role of goal strategies in explaining the link between theories of opportunity and expectancies for success.

Correlations Between Theories of Opportunity and Goal Strategies and Expectancies for Success

Active strategies and goal abandonment (but not passive strategies) showed excessive skew (-1.92 for active strategies, 1.61 for goal abandonment) and leptokurtosis (3.41 for active strategies, 3.46 for goal abandonment). We therefore additionally present Spearman rank correlations for these variables.

Consistent with Study 1a (and a pilot reported in the [Supplemental Analyses](#)), a stronger growth theory was associated with stronger endorsement of active strategies, $r(99) = 0.34$, $p = .001$, $r_s(99) = .32$,

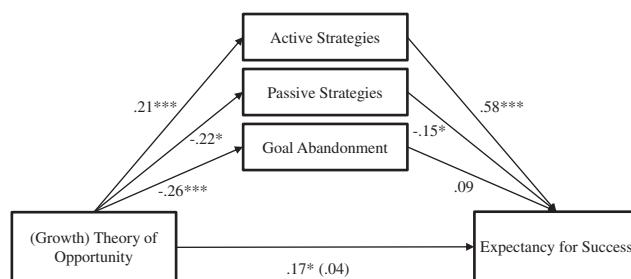
$p = .001$, and higher expectancies for success, $r(99) = 0.24$, $p = .014$. More of a fixed theory was associated with stronger endorsement of passive strategies, $r(99) = -0.23$, $p = .023$, and goal abandonment $r(99) = -0.35$, $p < .001$, $r_s(99) = -.35$, $p < .001$; see [Table 2](#).

Mediating Role of Goal Strategies

Does endorsement of these goal strategies mediate the relation between theories of opportunity and expectancies for success? It did for active strategies. We conducted a parallel mediation analysis to examine the mediating roles of the three goal strategies in the relation between theories of opportunity and expectancies for success. As recommended by [Preacher and Hayes \(2004, 2008\)](#), we conducted a bootstrapping procedure to examine the total, direct, and indirect effects of a model containing theories of opportunity (predictor), expectancies for success (outcome) and endorsement of the three goal strategies (mediators). The analysis was implemented with the PROCESS macro for SPSS ([Hayes, 2017](#)) using 5,000 bootstrap samples (see [Figure 2](#)).

Active strategies emerged as a unique mediator of the link between theories of opportunity and expectancies for success, whereas passive strategies and goal abandonment did not. A stronger growth theory predicted greater endorsement of active strategies, $B = 0.21$, $t(99) = 3.59$, $p < .001$, 95% CI [0.096, 0.332], which, in turn, predicted higher expectancies for success (while controlling for

Figure 2
Mediation Model in Study 2



Note. The model simultaneously tested the mediating roles of three strategies for coping with goal difficulty in the relation between theories of opportunity and expectancy for success. The indirect effect was significant only for active strategies. Unstandardized coefficients are indicated in the pathways.
 * $p < .05$. *** $p < .001$.

theories of opportunity, passive strategies, and goal abandonment), $B = 0.58$, $t(96) = -4.40$, $p < .001$, 95% CI [0.317, 0.837]. The test of the indirect effect was significant, yielding a 95% bias-corrected CI that did not include zero 95% CI [0.039, 0.211]. Because the direct effect was not significant, $B = .04$, $t(96) = .600$, $p = .550$, 95% CI [-.0918, .1713], this suggested full mediation.

A stronger fixed theory predicted stronger endorsement of passive strategies, $B = -0.22$, $t(99) = -2.31$, $p = .023$, 95% CI [-0.401, -0.031], and stronger endorsement of passive strategies (while controlling for theories of opportunity, goal abandonment, and active strategies) significantly predicted lower expectancies for success, $B = -0.15$, $t(96) = -2.23$, $p = .028$, 95% CI [-0.281, -0.016]. Although each link was significant (see Figure 2), the test of the indirect effect of theories of opportunity on expectancies for success via passive strategies did not reach significance, 95% CI [-0.0001, 0.090].

A stronger fixed theory also predicted stronger endorsement of the idea that the protagonists should abandon the goal, $B = -0.26$, $t(99) = -3.71$, $p < .001$, 95% CI [-0.394, -0.120], but endorsement of goal abandonment (while controlling for theory of opportunity, and passive and active strategies) did not predict expectancies for success, $B = 0.09$, $t(96) = 0.83$, $p = .411$, 95% CI [-0.133, 0.322]. Thus, the test of the indirect effect was not significant, 95% CI [-0.082, 0.073] (although lower goal abandonment did emerge as a significant mediator when passive and active strategies were excluded from the model).

All effects reported above remained significant when controlling for subjective SES.

Discussion

In deciding what strategies would be most useful to people with low financial resources, yet who are competent and highly motivated, participants with more of a growth theory tended to endorse active strategies more strongly (rather than passive strategies and goal abandonment) relative to people holding more of a fixed theory. In turn, higher active strategies mediated the relation between a stronger growth theory and higher expectancies for success. By contrast, although a stronger fixed theory predicted lower expectancies for success, as well as stronger endorsement of passive strategies and goal abandonment, the effect on expectancies was not mediated by the goal strategies. Due to the cross-sectional nature of this study, these mediation results should be interpreted with caution. We examine mediation again in Study 4 and Study 6.

Study 3

Study 3 replicated and extended the previous studies in two ways. First, Study 3 extended Studies 1a–2 by asking participants to imagine themselves in the scenarios rather than imagining hypothetical others. If our hypothesized patterns emerge once again, it would suggest that, importantly, theories of opportunity extend to people's judgements about themselves—a step toward understanding how theories of opportunity might predict people's behavior and goal outcomes.

Second, Study 2 solely assessed situations in which financial resources were low. In Study 3, we manipulated the level of financial resources to examine whether we would observe the same hypothesized patterns found in Study 1b where key opportunities were

received or missed. If replicated, it would provide additional support for our model, in which a stronger fixed theory would predict relatively lower expectancies for success specifically when opportunities are not available but not when they are available.

Method

Participants

Given that we observed a medium effect size in Study 1b, which had a similar design, a minimum required sample size was 76 to test the interaction of theories of opportunity and financial-resources condition based on $f^2 = 0.15$, $1 - \beta = 0.80$, and $\alpha = 0.05$. One-hundred-four people (52% female) from MTurk who were at least 18 years old participated in exchange for a small payment. A sensitivity analysis showed that, for each predictor in the model, the final sample had 80% power to detect effects of $f^2 = .08$. The mean age was 35.86 ($SD = 11.55$) and they comprised 76.0% Caucasians, 9.6% African Americans, 9.6% Hispanics or Latinx, and 4.8% Asians. No participants were omitted from the analyses.

Procedure

Participants first completed the theories of opportunity scale and then reported their level of knowledge about, and experience with, starting a business. Knowledge and experience were assessed for use as a covariate because each of the scenarios in the study pertained to starting a business. Including it before the main tasks also served to mask the purpose of the study. Then, participants read three passages in which they were asked to imagine themselves in different scenarios, having ambitious, long-term aspirations to start a business. Half were randomly assigned to read scenarios in which they were financially lacking (low-financial-resources condition); the other half read scenarios in which they were financially comfortable, but not wealthy (moderate-financial-resources condition). A moderate amount was chosen for the latter condition because it represented a threshold of wealth that would make opportunities available without being excessive. After reading each scenario, participants rated their own expectancy for success. Finally, they provided demographics, which included an assessment of subjective SES. This was used as a covariate to show that participants' SES did not influence their responses, nor did it influence their theory-of-opportunity endorsement. The study was conducted online and took a median of 10.94 min.

Measures and Materials

Implicit Theories of Opportunities Scale. Same as Study 1b ($M = 3.91$, $SD = 1.07$; $\alpha = 0.94$).

Business Experience. On a 4-point scale anchored at 1 (*None*) and 4 (*A lot*), participants rated two questions: "How much knowledge do you have about starting a business?" and "How much experience do you have with starting a business?" A composite was created from the mean of the two items ($M = 2.08$, $SD = 0.85$; $\alpha = 0.86$). The composite was unrelated to theories of opportunity, $r(102) = -0.12$, $p = .209$.

Expectancies for Success. After each scenario, participants rated their expectancies for success. For example, "In this scenario, how likely do you think it is that you will someday successfully expand your family's business into a state-wide

chain?" (1 = *Extremely unlikely*, 6 = *Extremely likely*; $M = 3.86$, $SD = 1.01$; $\alpha = 0.70$).

Subjective Socioeconomic Status. A single item assessed subjective SES (Adler et al., 2000) by asking participants to indicate their socioeconomic situation on a 10-rung ladder, the top of which represented "people who are the best off—those with the most money, the most education, and the most respected jobs," and the bottom of which represented "people who are the worst off—with the least money, least education, and the least respected jobs or no job." Participants responded with a number between 1 (*Bottom rung*) and 10 (*Top rung*; $M = 4.59$, $SD = 1.54$). Subjective SES was, again, unrelated to theories of opportunity, $r(102) = 0.06$, $p = .568$.

Scenario Materials. Participants read three scenarios that described their financial situation and their aspiration. Unlike scenarios in the previous studies, these did not suggest anything about motivation or competence. Furthermore, they were asked to imagine themselves in the scenario rather than make judgements about someone else. These changes were made so that participants would apply their own experiences and self-beliefs to the scenarios rather than making judgements about other people. In one scenario, for example, participants imagined themselves as a teenager who worked at their parents' laundromat and wanted to expand the family business into a state-wide chain. In the low-financial-resources condition, the family was described as struggling financially, whereas in the moderate-financial-resources condition, they were described as financially comfortable. The other scenarios were structured similarly, asking participants to imagine that they wanted to start a major outdoor recreation company, in one, and a high-end restaurant in the other (see [Supplemental Materials](#), for scenarios).

Results

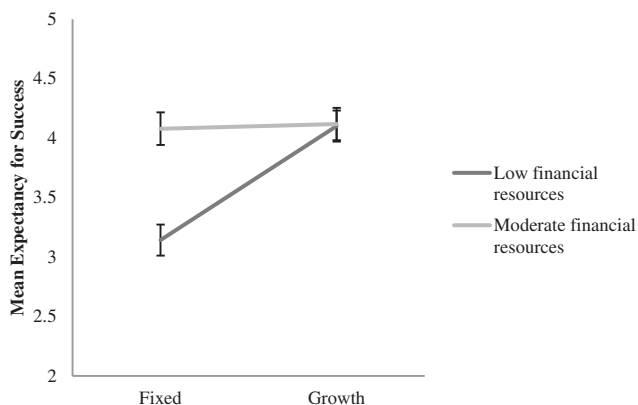
Expectancies for Success

We tested the interaction between theories of opportunity and financial-resources condition in predicting expectancies for success, which replicated our pattern of results from Study 1b, $B = -0.21$, $t(100) = -2.51$, $p = .014$, 95% CI [-0.384, -0.045] (see [Figure 3](#)). In the low-financial-resources condition, theory of opportunity predicted expectancies of success, $B = 0.45$, $t(100) = 3.78$, $p < .001$, 95% CI [0.213, 0.681], such that those holding more of a fixed theory reported lower expectancies for success than those holding more of a growth theory. Theory of opportunity was unrelated to expectancies of success, however, in the moderate-financial-resources condition, $B = 0.02$, $t(100) = 0.15$, $p = .883$, 95% CI [-0.227, 0.263]. Furthermore, those holding more of a fixed theory (at -1 SD) reported lower expectancies for success in the low-financial-resources condition compared to the moderate-financial-resources condition, $B = 0.47$, $t(100) = 3.63$, $p < .001$, 95% CI [0.212, 0.725], whereas, similar to Study 1b, there was no difference between financial-resource conditions for those holding more of a growth theory (at +1 SD), $B = 0.01$, $t(100) = 0.06$, $p = .949$, 95% CI [-0.249, 0.265].

We also found main effects such that a stronger growth theory predicted an overall higher expectancy for success, $B = 0.23$, $t(100) = 2.72$, $p = .008$, 95% CI [0.063, 0.402], and such that those in the moderate-financial-resources condition predicted an overall higher expectancy for success than those in the low-financial resources condition, $B = 0.24$, $t(100) = 2.61$, $p = .010$, 95% CI [0.057, 0.419].

Figure 3

Study 3 Interaction Between Theories of Opportunity and Financial-Resources Condition in Predicting Expectancies for Success



Note. Fixed and growth theories are plotted at one standard deviation below and above the mean, respectively. Error bars represent standard errors.

The predicted interaction remained significant, $B = -0.20$, $t(98) = -2.31$, $p = .023$, 95% CI [-0.369, -0.028], when controlling for business experience, $B = 0.12$, $t(98) = 1.02$, $p = .308$, 95% CI [-0.108, 0.338], and subjective SES, $B = 0.10$, $t(98) = 1.59$, $p = .116$, 95% CI [-0.024, 0.215]. Because neither covariate predicted expectancies for success, as shown, the covariates do not provide an alternative explanation for our results. The main effects for theories of opportunity, $B = 0.24$, $t(98) = 2.76$, $p = .007$, 95% CI [0.066, 0.406], and financial-resources condition, $B = 0.21$, $t(98) = 2.31$, $p = .023$, 95% CI [0.030, 0.392], also remained significant.

Discussion

We found that implicit theories of opportunity operate similarly across different sources of opportunities and when making judgements about others and the self. Again, we found that those holding a stronger growth theory reported similarly high expectancies for success regardless of whether they were said to have low-or moderate-financial resources. Our expectancy question asked about eventual success, so it is possible that those with more of a growth theory in the low-financial-resources condition recognized that they would encounter difficult setbacks, but felt that success was still likely given that, in the long-term, new opportunities could be cultivated.

Study 4

In this study, we sought to replicate and extend Study 3 in two important ways. First, we induced theories of opportunity rather than measuring them to establish their causal role. Second, in addition to asking participants to rate their subjective expectancies for success after imagining scenarios in which they either had opportunities or did not, as was done in Study 3, participants were also asked to generate their own ideas for how to best pursue their goals. We expected that their written ideas would reflect whether they had a propensity to cultivate opportunities and how they might do so, and whether their goals could be achieved.

Therefore, we hypothesized that their written ideas, rated by independent coders for their likelihood of success, would yield a similar interaction pattern as participants' self-reported expectancies for success. Moreover, we expected that their written responses would reflect various degrees of cultivation-related content (e.g., being more active, generating plans, etc.) that would mediate this causal relation. If confirmed, it would suggest that the relatively high expectancies reported by those with a growth theory may reflect, at least in part, their propensity to cultivate viable opportunities that enable their goal pursuit.

Method

Participants

We used a novel method of inducing theories of opportunity that we anticipated would be subtle. Therefore, we expected a smaller effect size than in the previous studies in which implicit theories were measured. We calculated that a minimum sample size of 259 would be required to test the 2×2 model based on $f = 0.175$, $1 - \beta = 0.80$, and $\alpha = 0.05$, to which we deliberately added 10% (26) in case of data loss, for a total of 285. Ultimately, 283 people (55% female) completed the study. A sensitivity analysis showed that the final sample had the 80% power to detect an effect of $f = .17$. They were 18 or older ($M = 36.36$; $SD = 12.96$) and comprised 78.4% Caucasians, 6.7% African Americans, 6.4% Asians, 6.0% Hispanics or Latinx, 1.8% Native Americans, and 0.4% Pacific Islanders.

Procedure

The procedure was similar to the one used in Study 3 with a few exceptions. Participants first reported their level of business experience and then theories of opportunity were induced rather than measured. For the induction, participants were randomly assigned to receive a biased questionnaire that included highly agreeable statements espousing either a fixed theory or a growth theory (see below). Participants then completed a manipulation check, along with two items assessing their optimism and current mood. The latter two variables were assessed because we predicted, a priori, that they could be affected by the induction. Agreeing with statements that obtaining the opportunities one wants is not always possible (in the fixed-theory condition) might make participants relatively less optimistic and induce a more negative mood. To test the influence of theories of opportunity above and beyond these variables, we assessed them for use as potential covariates in our main analyses. An added benefit of presenting these questionnaires before the main task was that it helped mask the purpose of the study by emphasizing variables unrelated to our hypotheses. After reading each scenario, participants rated their expectancy for success, and then provided their own ideas for how to achieve the goals in a free-response format. The entire session took a median of 13.2 min.

Measures and Implicit-Theory-of-Opportunity Induction

Business Experience. Same two items as Study 3 ($M = 2.18$, $SD = 0.85$).

Implicit-Theory-of-Opportunity Induction. We adapted our induction, a biased questionnaire, from the one created by Job et al. (2010). The induction appears similar to the theory-of-opportunity scale used in our other studies, but only the induction, by design,

biases people toward the different theories. To that end, participants completed an 8-item questionnaire designed to produce high agreement with either a fixed theory or a growth theory (1 = *Strongly disagree*, 6 = *Strongly agree*). Those in the fixed-theory condition rated their level of agreement with such easy-to-agree-with statements such as "The good opportunities you have in life—be they few or many—is something you won't always be able to change" and "You can't always change how many good opportunities you have in life" ($M = 4.16$, $SD = 0.83$). In the growth-theory condition, participants rated their level of agreement with statements such as "The good opportunities you have in life—be they few or many—is something you might be able to change" and "It's possible that you can change how many good opportunities you have in life" ($M = 4.79$, $SD = 0.77$).

Manipulation Check. To avoid using similar language as our manipulation, our check assessed a closely related idea: the perceived difficulty of changing one's opportunities. For example, a fixed theory should make people feel that changing their opportunities is relatively more difficult. Participants rated "Overall, how easy or difficult do you think it is to change the opportunities you have in life?" (1 = *Very easy*, 6 = *Very difficult*; $M = 4.08$, $SD = 0.90$).

Optimism. Participants rated "To what extent do you agree or disagree with the following statement?: I am an optimistic person." (1 = *Strongly disagree*, 6 = *Strongly agree*; $M = 4.47$, $SD = 1.12$).

Current Mood. Participants rated "Overall, how negative or positive is your mood right now?" (1 = *Extremely negative*, 7 = *Extremely positive*; $M = 5.27$, $SD = 1.21$).

Expectancies for Success. Same as Study 3. A mean score was calculated across the three scenarios ($M = 4.05$, $SD = 0.94$; $\alpha = 0.64$).

Judges' Ratings of the Likelihood That Participants' Ideas Would Lead to Success and of Cultivation-Related Content. After each scenario, participants were asked to provide their own ideas for how they could achieve the given goal. For example, one question asked, "Given this scenario, take a moment to think about expanding your family business into a state-wide chain. What could you do to accomplish this goal? Below, list as many ideas as possible in bullet point format."

For these assessments, two independent judges, who were blind to hypotheses and experimental conditions, rated responses for our primary outcome, (a) the likelihood that the ideas would lead to success. They also coded for content that reflected, or could contribute to, the cultivation of good opportunities: (b) the number of ideas listed, (c) the relevance of the ideas to the goal, (d) the degree of personal agency demonstrated, (e) the degree to which the ideas resembled a plan of action, and (f) the concreteness (vs. abstractness) of the ideas. Each of the cultivation-related content codes (b–f) might help explain how and why people are ultimately more successful in their goal pursuit. Thus, we examined whether—when financial resources are not readily available—people with a growth theory would write more cultivation-related content, and whether that would explain their higher expectancies for success at the stated goals.

Judges were carefully trained before coding the data on their own. To this end, a detailed coding rubric was developed. In lab meetings, several scenario responses were chosen at random and each was discussed as a group using the rubric. Once there was sufficient agreement about how each scenario response should be rated, judges independently coded a subset of responses (~10% of participants).

Interrater reliability was then calculated for each outcome. Our goal was to reach an intraclass correlation coefficient (ICC) of .80 or larger for each code in each of the three scenarios. For outcomes with a reliability below “good” (ICC < .80), we held further group discussions, revised the rubric to increase precision, and the judges then rated a different subset of responses. This process was repeated until the interrater reliability for each outcome was good or better than good (ICC \geq .80). For codes pertaining to the number of ideas generated and the degree of personal agency demonstrated, only one iteration of the rubric was needed (i.e., good reliability was reached on the first iteration). For the degree of relevance of the ideas to the goal, two iterations of the rubric were necessary; for the degree to which the ideas resembled a plan of action, three iterations were necessary; for likelihood of success and the concreteness (vs. abstractness) of the ideas, four iterations were necessary.

Once good reliability was achieved, judges coded the entire set of responses, which included one code per scenario for each of the six outcomes (i.e., overall likelihood of success plus the individual cultivation-related content codes), yielding 18 codes per participant. Below, for each outcome, we describe the final coding criteria developed for the rubric and we report the final interrater reliabilities.

Likelihood of Success (Primary Judged Outcome). For the rating of (a) likelihood of success, we wanted to examine whether judges would rate the responses of participants in the growth-theory (vs. fixed-theory) condition as more likely to lead to the successful cultivation of opportunities and outcomes, particularly when generating ideas for the low-financial-resource scenarios. This would be interesting since participants were randomly assigned to condition, meaning that those in the fixed-theory condition would be no less *able* to generate good strategies—so differences would be purely a result of the theory induction. In addition, if the two theory groups did not differ when the scenarios suggested there were sufficient financial resources, this would further support the causal impact of the theories on the generation of active, high-quality strategies in the face of limited opportunities.

Judges coded the likelihood that participants’ responses would lead to a path toward success (1 = *Very unlikely to succeed*, 5 = *Very likely to succeed*). They made one overall code for each of the three scenarios. To optimize precision in their coding, judges were trained to judge and consider each of the following: the extent to which each response to a scenario included active (vs. passive) strategies, reflected concrete (vs. abstract) ideas, and whether it resembled a plan of action (vs. a list of loosely connected ideas).

For example, a full response to a scenario that was rated as unlikely to succeed was “It may be possible with a loan, but I probably wouldn’t pursue it.” One that was rated as highly likely to succeed detailed a long-term, eight-step plan by which the participant would save money, build capital, gradually open additional locations, solicit investors, create an advertising strategy, conduct market research, and so on. Ratings were averaged across the three scenarios and then across the two judges ($M = 2.71$, $SD = 0.55$; $\alpha = .72$), and interrater reliability was good (ICC = 0.84).

Cultivation-Related Content Codes. In this section, we detail the remaining five coded outcomes, which relate to processes involved in cultivating opportunities. As noted earlier, these included (b) the number of ideas generated, (c) the relevance of the ideas to the goal, (d) the personal agency demonstrated, (e) the

degree to which the ideas resembled a plan, and (f) the concreteness (vs. abstractness) of the ideas.

First, for the rating of number of ideas, judges reported the total number of ideas listed, regardless of the number of bullet points used (some bullet points contained more than one idea). Ratings were averaged across the three scenarios and then across the two judges ($M = 3.28$, $SD = 1.46$; $\alpha = .82$), and interrater reliability was excellent (ICC = 0.99).

For goal relevance, judges rated whether the ideas were directly (vs. indirectly) relevant to the target goal. They recorded a 0 (indirect) or 1 (direct) for each idea, which were summed for each scenario. For example, when writing about how they could start a new business, some participants reported that they could secure a bank loan or investors (directly relevant), whereas others reported they could get a business degree (indirectly relevant). Ratings were averaged across the three scenarios and then across the two judges ($M = 2.29$, $SD = 1.27$; $\alpha = .81$), and interrater reliability was excellent (ICC = 0.91).

For evidence of personal agency, judges rated the degree to which each idea was internally (as opposed to externally) driven. They recorded a 0 (more external) or 1 (more internal) for each idea, which were summed for each scenario. For example, some participants reported actively engaging in activities such as learning about the local market and consulting business experts (more internally driven), whereas others hoped or waited for something fortuitous to happen, such as one participant who hoped to get on a reality show (more externally driven). Ratings were averaged across the three scenarios and then across the two judges ($M = 3.08$, $SD = 1.53$; $\alpha = .81$), and interrater reliability was excellent (ICC = 0.98).

For the degree to which the idea resembled a plan of action, judges rated the extent to which the set of ideas appeared more like wishful thinking versus a plan (1 = *very much like a wish*, 5 = *very much like a plan*). For example, some participants listed several unconnected ideas related to starting a business (more of a wish), while others, as mentioned above, detailed a specific, step-by-step plan in which they started small and worked their way up to the goal over time (more of a plan). Ratings were averaged across the three scenarios and then across the two judges ($M = 3.15$, $SD = 0.62$; $\alpha = .72$), and interrater reliability was good (ICC = 0.88).

For the degree of concreteness of the ideas, judges rated the extent to which the complete list of ideas were abstract (high-level, general, or nonspecific) or concrete (low-level, specific; 1 = *very abstract*, 4 = *very concrete*). For example, some participants reported general ideas to save money or go to school (more abstract) while others were highly specific about how they would save money and how it would be used to start a business (more concrete). Ratings were averaged across the three scenarios and then across the two judges ($M = 3.00$, $SD = 0.46$; $\alpha = .65$), and interrater reliability was good (ICC = 0.86).

Subjective Socioeconomic Status. Same as Study 3 ($M = 4.82$, $SD = 1.63$).

Scenario Materials. Same as Study 3.

Results

Manipulation Check and Preliminary Analyses

Confirming the success of our induction procedure, participants in the fixed-theory condition reported that it was more difficult to

change the opportunities they have in life ($M = 4.21$, $SD = 0.78$) than those in the growth-theory condition ($M = 3.96$, $SD = 1.00$), $t(281) = 2.38$, $p = .018$, $d = 0.28$.

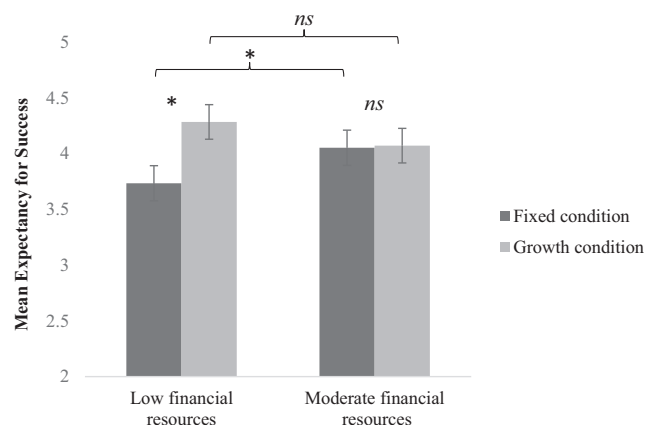
Furthermore, because the induction was meant to elicit high agreement with the scale items, we examined mean responses compared to the midpoint of the scale (3.5). Ratings in both the fixed-theory condition ($M = 4.16$, $SD = 0.83$), $t(136) = 9.34$, $p < .001$, $d = 0.80$, and growth-theory condition ($M = 4.79$, $SD = 0.77$), $t(145) = 20.21$, $p < .001$, $d = 1.67$, were significantly above the midpoint, suggesting agreement with the statements in both conditions, as intended.

We also examined whether participants' optimism and mood were influenced by the induction. Those in the fixed-theory condition ($M = 4.29$, $SD = 1.21$) reported less optimism than those in the growth-theory condition ($M = 4.64$, $SD = 1.01$), $t(281) = -2.61$, $p = .010$, $d = 0.31$. Similarly, those in the fixed-theory condition ($M = 5.12$, $SD = 1.17$) reported a relatively less positive mood than those in the growth-theory condition ($M = 5.40$, $SD = 1.24$), $t(281) = -2.00$, $p = .046$, $d = 0.23$. Therefore, both variables were used as covariates in the main analyses to rule out these alternative explanations.

Participants' Expectancies for Success

Replicating and extending Study 3, we found the predicted interaction between theory-of-opportunity condition and financial-resources condition, $F(1, 279) = 5.77$, $p = .017$, $\eta_p^2 = 0.02$ (Figure 4). When finances were lacking (low-financial-resources condition), participants induced to hold a growth theory reported higher expectancies for success than those in the fixed-theory condition, $B = 0.28$, $t(279) = -3.49$, $p < .001$, 95% CI [0.120, 0.430]. There was no difference between implicit-theory conditions in the moderate-financial-resources condition, however, $B = 0.01$, $t(279) = 0.12$, $p = .904$, 95% CI [-0.143, 0.162]. Moreover, those induced with a fixed theory reported higher expectancies for success in the moderate-financial-resources condition compared to the low-financial-resources condition, $B = 0.16$, $t(279) = 2.00$, $p = .046$,

Figure 4
Study 4 Interaction Between Theory-of-Opportunity Condition and Financial-Resources Condition in Predicting Participants' Own Expectancy for Success



Note. Error bars represent standard errors.
* $p < .05$.

95% CI [0.003, 0.316], whereas there was no difference for those in the growth-theory condition, $B = -0.11$, $t(279) = -1.38$, $p = .167$, 95% CI [-0.258, 0.045].

Furthermore, there was a main effect, such that those in the growth-theory condition reported higher expectancies for success than those in the fixed-theory condition, $F(1, 279) = 6.61$, $p = .011$, $\eta_p^2 = 0.02$. There was no difference between financial-resources conditions, $F(1, 279) = 0.23$, $p = .632$, $\eta_p^2 < 0.01$.

The key interaction remained significant, $F(1, 275) = 5.02$, $p = .026$, $\eta_p^2 = 0.02$, when controlling for business experience, optimism, current mood, and SES. The analysis showed that although more business experience, $F(1, 275) = 5.02$, $p = .026$, $\eta_p^2 = 0.02$, a more positive mood, $F(1, 275) = 4.44$, $p = .036$, $\eta_p^2 = 0.02$, and higher SES, $F(1, 275) = 7.45$, $p = .007$, $\eta_p^2 = 0.03$, all predicted stronger expectancies for success, theories of opportunity still explained unique variance depending on the financial resources available. Optimism was nonsignificant, $F(1, 275) = 1.09$, $p = .297$, $\eta_p^2 < 0.01$.

Additionally, there was a marginally significant main effect such that the growth-theory condition led to higher expectancies for success, $F(1, 275) = 3.41$, $p = .066$, $\eta_p^2 = 0.01$, whereas the main effect for financial-resources condition remained nonsignificant, $F(1, 275) = 0.23$, $p = .635$, $\eta_p^2 < 0.01$.

Judges' Ratings of the Likelihood That Participants' Ideas Would Lead to Success and Cultivation-Related Content

The coders identified 16 participants (5.65%) who either did not provide written responses to the prompts or did not follow directions on this free-response task, rendering their responses uncodable. Therefore, they were not included in analyses of this task. These participants do not appear to have been problematic in the analyses reported above, however, because the pattern of results for self-reported expectancies for success remained the same and significant when excluding them.

Results for the coded outcomes can be found in Table 3 and Figure 5. Results for all models were virtually identical when controlling for optimism, mood, business experience, and SES. To avoid redundancy, and for brevity, we do not report those results.

We first examined our primary coded outcome, likelihood of success. As noted above, the judges rated participants' overall responses for each of the scenarios and a mean composite was calculated across the three ratings. As a more objective measure of potential success than participants' self-reported expectancies (which could have had a positive self-bias), did these ratings more strongly suggest that participants' ideas would lead to better goal attainment? They did. The predicted interaction between theory-of-opportunity condition and financial-resource condition in predicting judges' rated likelihood of success was significant (see Figure 5a), yielding the same pattern found for participants' self-reported expectancies for success. In the low-financial-resources condition, participants induced to hold a growth theory were judged to have generated ideas that were more likely to open a path toward success than those in the fixed-theory condition. In the moderate-financial-resources condition, there was no difference between the theory-of-opportunity conditions, however. Moreover, those in the fixed-theory condition were judged as more likely to succeed in the moderate-financial-resources condition compared to

Table 3

Study 4 Interaction Between Theory-of-Opportunity and Financial-Resources Condition in Predicting Judgments of Participant-Generated Ideas

Outcome variable	Main effects and interaction	Conditional effects	B	t	p	95% confidence interval	
						LL	UL
Judged likelihood of success	Financial resources		0.01	0.39	.696	-0.053	0.080
	Theory of opportunity		0.03	0.90	.371	-0.036	0.097
	Theory × Financial Resources		-0.09	2.54	.012	-0.152	-0.019
		Effect of theory of opportunity in low-financial-resources condition	0.12	2.41	.017	0.021	0.210
		Effect of theory of opportunity in moderate-financial-resources condition	-0.06	1.17	.242	-0.148	0.038
		Effect of financial resources in fixed-theory condition	0.10	2.04	.043	0.003	0.194
		Effect of financial resources in growth-theory condition	-0.07	1.55	.123	-0.165	0.020
Number of ideas to pursue goals	Financial resources		-0.01	0.06	.950	-0.179	0.168
	Theory of opportunity		0.19	2.21	.028	0.021	0.367
	Theory × Financial Resources		-0.27	3.04	.003	-0.440	-0.094
		Effect of theory of opportunity in low-financial-resources condition	0.46	3.68	<.001	0.215	0.708
		Effect of theory of opportunity in moderate-financial-resources condition	-0.07	0.59	.554	-0.316	-0.316
		Effect of financial resources in fixed-theory condition	0.26	2.07	.040	0.013	0.511
		Effect of financial resources in growth-theory condition	-0.27	2.24	.026	-0.513	-0.033
Judged direct relevance to goals	Financial resources		0.03	0.36	.715	-0.124	0.180
	Theory of opportunity		0.08	1.10	.273	-0.067	0.237
	Theory × Financial Resources		-0.22	2.81	.005	-0.369	-0.065
		Effect of theory of opportunity in low-financial-resources condition	0.30	2.74	.007	0.085	0.519
		Effect of theory of opportunity in moderate-financial-resources condition	-0.13	1.22	.223	-0.346	0.081
		Effect of financial resources in fixed-theory condition	0.25	2.21	.028	0.027	0.465
		Effect of financial resources in growth-theory condition	-0.19	1.76	.079	-0.400	0.022
Judged personal agency	Financial resources		-0.03	0.38	.706	-0.216	0.146
	Theory of opportunity		0.24	2.57	.011	0.055	0.418
	Theory × Financial Resources		-0.26	2.81	.005	-0.440	-0.078
		Effect of theory of opportunity in low-financial-resources condition	0.50	3.77	<.001	0.237	0.754
		Effect of theory of opportunity in moderate-financial-resources condition	-0.02	0.18	.861	-0.277	0.231
		Effect of financial resources in fixed-theory condition	0.22	1.69	.092	-0.037	0.485
		Effect of financial resources in growth-theory condition	-0.29	2.30	.022	-0.546	-0.042
Judged response as more of a plan	Financial resources		-0.02	0.63	.528	-0.099	0.051
	Theory of opportunity		0.04	1.17	.243	-0.030	0.119
	Theory × Financial Resources		-0.09	2.28	.024	-0.161	-0.012

(table continues)

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Table 3 (continued)

Outcome variable	Main effects and interaction	Conditional effects	<i>B</i>	<i>t</i>	<i>p</i>	95% confidence interval	
						LL	UL
		Effect of theory of opportunity in low-financial-resources condition	0.13	2.42	.016	0.024	0.237
		Effect of theory of opportunity in moderate-financial-resources condition	-0.04	0.79	.430	-0.147	0.063
		Effect of financial resources in fixed-theory condition	0.06	1.14	.254	-0.045	0.170
		Effect of financial resources in growth-theory condition	-0.11	2.09	.037	-0.214	-0.007

Note. LL = lower limit; UL = upper limit. Theory-of-opportunity condition was coded as growth-theory = 1, fixed-theory = -1. Financial-resources condition was coded as low = -1, moderate = 1. Results are virtually identical when covariates are included in the models.

the low-financial-resources condition, whereas, once again, there was no difference for those in the growth-theory condition. The main effects were not significant for theory-of-opportunity condition or financial-resources condition.

We now turn to the cultivation-related content codes. The Theory-of-Opportunity Condition \times Financial-Resources Condition interaction was significant for all models (Figure 5b–e). However, because the omnibus model for the concreteness outcome was not significant, we do not interpret or discuss that outcome further.

For the remaining outcomes, each interaction showed the predicted pattern. In the low-financial-resources condition, participants induced with a growth theory (vs. fixed theory) generated more ideas, their ideas were more directly relevant to the goals, they demonstrated higher personal agency, and their ideas resembled more of a plan. By contrast, and as predicted, there was no difference between theory-of-opportunity conditions in the moderate-resources condition for any of these outcomes. Additionally, there were two main effects such that a stronger growth theory predicted more ideas generated and greater personal agency.

Interestingly, among those in the growth-theory condition, we also found a conditional effect of financial-resource condition on all outcomes. When financial resources were low, as compared to moderate, participants in the growth-theory condition generated more ideas, which were (marginally) more directly relevant to the goals, demonstrated more personal agency, and formed ideas that resembled more of a plan. These results are consistent with our theorizing: people with a growth theory may understand that, if one is to succeed at a goal when opportunities are not readily available, one must do even more to cultivate new opportunities than when opportunities are readily available.

Moderated Mediation via Cultivation-Related Content

Did the judged cultivation-related content mediate the relation between The Theory-of-Opportunity Condition \times Financial-Resources Condition interaction on anticipated success? As described below, they did. We conducted moderated mediations for each outcome using the PROCESS macro for SPSS (Model 8; Hayes, 2017) using 5,000 bootstrap samples. Our analyses were conducted on the self-reported expectancy-of-success outcome

because analyzing the objectively coded outcomes as mediators of participants' self-assessments was more rigorous (i.e., because they involved different methods, reducing common method variance, compared to when analyzing the judged likelihood-of-success outcome). That said, nearly identical results were yielded when examining the judged likelihood-of-success outcome. Results are also nearly identical when controlling for optimism, mood, business experience, and SES. Below, we summarize the results of our analyses, but for brevity, we report details of the analyses in the Supplemental Analyses (see Supplemental Figures SA2a–d).

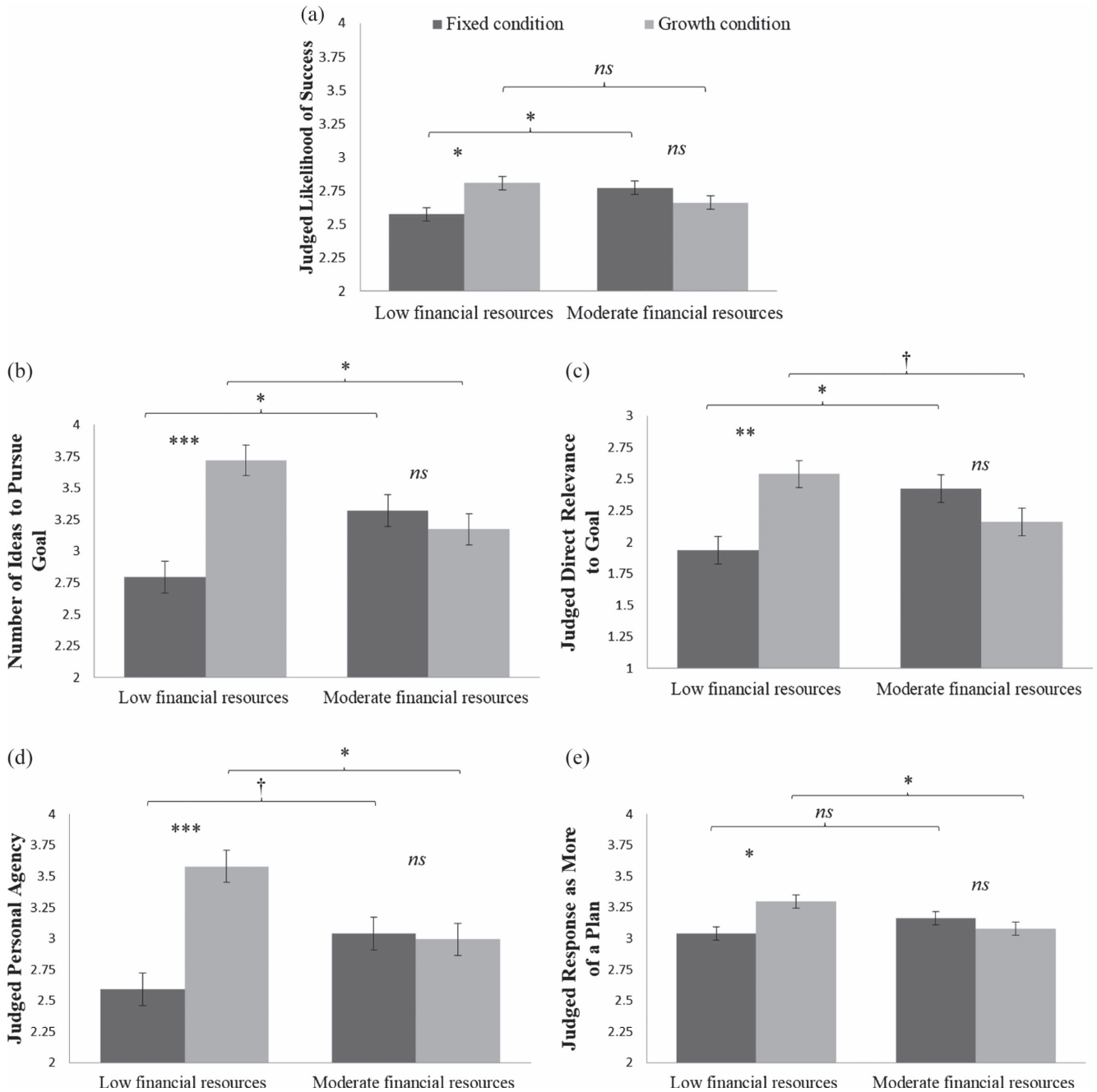
Results showed that those in the growth-theory (vs. fixed-theory) condition generated more ideas, their ideas were more directly relevant to the goals, they demonstrated higher personal agency, and their ideas resembled more of a plan. In turn, these outcomes predicted higher self-reported expectancies for success when financial resources were low (vs. moderate). For each model, the index of the moderated mediation did not include zero, indicating a significant indirect effect. Thus, as expected, stronger tendencies to cultivate opportunities helped explain why a growth theory caused higher anticipated success when financial resources were low (vs. moderate).

Discussion

Our results replicated and extended Study 3 (as well as a study similar to Study 4, reported in the Supplemental Analyses, for brevity, which similarly controlled for business experience and subjective SES). In the present study, theories of opportunity emerged as a causal factor in predicting participants' self-reported expectancies for success, and judges' assessment of how likely the ideas participants generated would lead to success, as a function of whether or not financial resources were available. Judges' ratings also showed that a growth (vs. fixed) theory led participants to generate more ideas, ideas that were more directly relevant to the goals, demonstrate more personal agency, and to generate ideas that resembled more of a plan when opportunities were not readily available (as compared to when they were available). Moreover, these cultivation-related content codes helped explain (i.e., mediated) why a growth theory led to higher anticipated success, whether self-reported or objectively judged. Therefore, a growth theory may cause people to put more thought into the process by which

Figure 5

Study 4 Interaction Between Theory-of-Opportunity and Financial-Resources Condition in Predicting Judgments of Participant-Generated Ideas



Note. Error bars represent standard errors. Legend in (a) applies to (b)–(e). Scales for each outcome are as follows: (a) 1 = very unlikely to succeed, 5 = very likely to succeed; (b) mean number of ideas across scenarios, (c) mean number of ideas across scenarios that were directly relevant to the goal; (d) mean number of ideas across scenarios that showed personal agency; (e) 1 = very much like a wish, 5 = very much like a plan.

† $p < .10$. * $p < .05$. ** $p < .01$. *** $p < .001$.

opportunities can be cultivated and how they can bring their aspirations to fruition.

These causal results suggest that a growth theory does not simply increase confidence in one’s possibility for success when

opportunities are lacking—which may seem like unfounded optimism—but leads people to more effectively consider how to cultivate opportunities and act on them. Furthermore, as noted above, because theories of opportunity were induced and people were

randomly assigned to condition, our results suggest that the less effective plans generated by people in the fixed-theory condition did not occur because the participants were less *capable* of cultivating opportunities and turning them into effective plans.

Study 5

Thus far, we have investigated hypothetical scenarios and have shown that, whether measured or induced, theories of opportunity predict the goal strategies people endorse, how they would cultivate opportunities, and their potential success for challenging, long-term goals. But does a stronger growth theory predict actual engagement in the cultivation of opportunities? As a step toward answering this question in Study 5, we examined unemployed people who were currently pursuing an important real-world goal—securing steady employment—and examined whether they would choose to engage in an activity about cultivating new opportunities for their goal. Specifically, we presented them with a free-choice paradigm, which included two possible writing activities. One prompted them to write about how they could cultivate new opportunities toward their employment goal. The other prompted them to explore how they could set more realistic expectations for their employment goal (i.e., a goal strategy unrelated to cultivating new opportunities). As preregistered, we predicted that those with a stronger growth theory would be more likely to choose the option that reflected the cultivation of opportunities toward their goal rather than tempering their goal expectations.

Method

Our method, materials, recruitment procedure, hypotheses, and analyses were preregistered (<https://osf.io/vqxnz>). Select “Wiki” for details and “Files” for materials.

Participants and Recruitment Procedure

Our previous studies tended to show medium-sized correlations between a stronger growth theory of opportunity and endorsement of active goal strategies (around $r = .30$). However, because the present study involved a behavioral rather than a self-report assessment, a smaller effect size was expected. A sample size calculation based on $1 - \beta = 0.80$ and $\alpha = 0.05$ showed that $N = 150$ was required to detect a point-biserial correlation of $r = .20$. As stated in the preregistration, this calculation was based on a one-tailed test because our hypothesis was directional; however, we report two-tailed analyses here for consistency with the prior studies.

We contracted Qualtrics Panels (www.qualtrics.com/au/research-services) to recruit unemployed participants in the United States. We requested 159 participants and received an additional 20 participants during the soft launch phase (i.e., test round) of data collection. Before conducting analyses, we identified 15 participants who either wrote gibberish or gave no response to the writing task, had missing data on key variables, or spent less than 3 min on the study. As part of their service, Qualtrics replaced these cases with new participants for a total sample of 179 (123 females, 39 males, 17 undisclosed; age: $M = 38.77$, $SD = 11.05$). A sensitivity analysis showed that this sample size had 80% power to detect two-tailed effect of $r = .21$

($r = .18$ for one-tailed). They comprised 69.8% White or Caucasian, 12.3% Black or African American, 8.4% Hispanic or Latinx, 3.9% Other, 3.4% American Indian and Alaskan Native, and 2.2% Asian or Asian American.

We recruited people who were unemployed and seeking employment due to financial necessity. In other words, their financial resources were low. Potential participants completed a brief prescreen survey to help ensure that they were, in fact, unemployed—and not by choice or due to the nature of their occupation, such as seasonal or freelance employment—and in need of income. They reported their age and indicated their current employment status from a list of seven choices: “employed full-time,” “employed part-time,” “employed casually or on-call or short-term contract,” “employed seasonally,” “self-employed,” “retired,” or “unemployed.” People under 21-years old or who selected any choice other than “unemployed” were excluded.

Additionally, potential participants were asked: “Are you currently in need of employment for financial reasons?,” “Do you have a disability that limits your ability to work or get a job?,” and “Do you receive any type of funding that fully covers your living expenses.” If they reported Yes, No, and No, respectively, they automatically proceeded to the study. Otherwise, their participation was terminated. Those who participated were paid a small sum by Qualtrics.

Procedure

Eligible participants immediately proceeded to the online study. They first completed the theory-of-opportunity and Ten-Item Personality Inventory (TIPI; Gosling et al., 2003) scales, along with filler questions. The TIPI and filler questions were added to help mask the purpose of the study. Also, the TIPI included an assessment of conscientiousness that we used as a covariate, given that it has been shown to benefit goal pursuit (e.g., McCrae & Costa, 2008), which may provide an alternative explanation for our results.

Next, participants engaged in a free-choice writing task. Participants’ choice was our central outcome. On the next screen after making their choice, participants wrote their response to the prompt; however, as preregistered, their written responses were only examined to ensure that they were completed as instructed. They were not analyzed because they were not comparable across writing prompts and because the task was not randomly assigned. Finally, participants completed a captcha to identify automatized responders (i.e., bots), and several demographic items, including gender, ethnicity, subjective SES, and education level.

Measures

Implicit Theories of Opportunity. Same as Studies 1b–3 ($M = 3.89$, $SD = 1.14$).

Conscientiousness. The TIPI (Gosling et al., 2003) assessed the Big 5 dimensions of personality. Participants were presented with pairs of related traits, two pairs assessing each of the Big 5 dimensions, and asked to rate the extent to which the pair applied to themselves (1 = *Strongly disagree*, 7 = *Strongly agree*). Our dimension of interest was conscientiousness—a personality trait related to orderliness, responsibility, and dependability (John &

Srivastava, 1999)—given its positive relation to achievement and career strivings (e.g., Ivicevic & Brackett, 2014; McCrae & Costa, 2008; Roberts & Robins, 2000). Conscientiousness was assessed with two paired items: “Dependable, self-disciplined” and “Disorganized, careless.” We reverse scored the latter item and calculated a mean ($M = 5.14$, $SD = 1.33$). Conscientiousness was not correlated with theories of opportunity, $r(177) = 0.03$, $p = .683$.

Free-Choice Task. In the task instructions, participants were told that we were interested in several topics regarding employment so they would have their choice of which task to complete. They were further informed that both tasks would take about the same amount of time to lessen the potential that one task would be perceived as more effortful than the other. Participants then read two writing task prompts and selected the one they wished to complete. One prompt reflected the cultivation of new opportunities: “Write about how you can search for or create new possibilities for gaining employment that are not currently available to you.” The word “opportunities” was intentionally not used to prevent participants from making a connection between this task and the theory-of-opportunity scale. This option was chosen by 39.7% of participants. The second writing prompt, by contrast, did not reflect the cultivation of new opportunities: “Write about ways in which you can set realistic expectations for securing your next job.” Thus, this prompt still engaged participants to discuss their employment goal but entailed a different, nonactive strategy of scaling back expectations (akin to the goal abandonment item of “pursue a more realistic goal” from our previous studies). This option was chosen by 60.3% of participants. The order in which prompts were presented was counterbalanced across participants.

Demographics. Age, gender (1 = male, 0 = female), and education level (1 = bachelor’s degree, 0 = no bachelor’s degree; 138 yes, 26 no, 15 undisclosed) were assessed. Subjective SES was assessed in the same way as described in Study 3 ($M = 4.33$, $SD = 2.52$). Theory of opportunity was not correlated with any of these variables ($ps > .226$).

Results

In line with our preregistered prediction, a stronger growth theory predicted a higher likelihood of selecting the prompt that involved cultivating new opportunities, $r(177) = 0.17$, $p = .027$. A logistic regression indicated that this likelihood increased by 36% for every unit increase toward a growth theory, $B = 0.30$, Wald = 4.82, $p = .028$, odds ratio = 1.36.

The effect of theory of opportunity on choice remained significant, $B = 0.32$, Wald = 4.45, $p = .035$, odds ratio = 1.38, when controlling for the order in which the prompts were presented, $B = 0.70$, Wald = 3.90, $p = .048$, odds ratio = 2.01, conscientiousness, $B = 0.67$, Wald = 0.25, $p = .618$, odds ratio = 1.07, subjective SES, $B = 0.12$, Wald = 3.05, $p = .081$, odds ratio = 1.13, gender, $B = -0.12$, Wald = 0.09, $p = .770$, odds ratio = 0.88, age, $B = 0.00$, Wald = 0.00, $p = .993$, odds ratio = 1.00, and education level, $B = 0.96$, Wald = 3.33, $p = .068$, odds ratio = 2.60. ($N = 160$ for this analysis due to missing data on some covariates.)

Discussion

Among unemployed people in need of steady employment for financial reasons, those with a stronger growth theory were more likely

to choose to write about how they could cultivate opportunities that could lead to employment as compared to writing about setting more realistic employment expectations. This result remained when controlling for the order in which the prompts were presented, conscientiousness, SES, gender, age, and education level. Put another way, those with a stronger fixed theory, who in previous studies were more likely to endorse the strategy of “pursue a more realistic goal,” were less likely to choose the prompt about cultivating opportunities.

This result extends Studies 1a–4, first, because it is behavioral—participants freely chose to elaborate on one of the two writing prompts—and, second, because it concerned participants’ real-world goal rather than a hypothetical scenario. Thus, Study 5 illustrated one expression of theories of opportunity in people’s real, long-term goals. In Study 6, we build on these findings by tracking a new sample of unemployed participants to determine whether theories of opportunity predict greater future success at achieving their employment goals.

Study 6

Results have been consistent across our studies: Theories of opportunity, whether measured or induced, predict the goal strategies people endorse or choose to engage in, and their expectancies for success. But do theories of opportunity predict important real-world outcomes? Do those with a growth theory merely view their goals through rose-tinted glasses, anticipating eventual success, or are they *actually* more likely to succeed than those with a fixed theory? In the present study, we again recruited unemployed people who needed a job that would provide a steady source of income. We then examined whether their theory of opportunity predicted their employment status 5 months later, our primary outcome.

We also examined the role of theories of opportunity in strategic thinking and behavior in the pursuit of employment, and we generated several different measures to this end, including (a) participants’ endorsement of active employment goal strategies, (b) how quickly they began their job search after job loss, and (c) the number and frequency of job search behaviors they used. In our previous studies, more of a growth theory predicted stronger endorsement of active strategies even when lacking good opportunities (Studies 1a–2) and led people to form more effective plans for cultivating opportunities (Study 4). Therefore, we hypothesized that unemployed participants with a stronger growth theory would also endorse and use strategic thinking and behaviors related to their job search.

Importantly, we also assessed multiple individual difference and demographic variables that could potentially provide alternative explanations for our primary outcome. These included variables potentially related to motivation, goal striving, and achievement: conscientiousness, optimism, general belief in a just world, theories of intelligence, grit, subjective SES, age, gender, and level of education. If our analyses show that those with a stronger growth theory of opportunity were more likely to secure employment, even while controlling for these constructs, it would lend stronger support to the hypothesis that theories of opportunity explain variance that is unexplained by motivation-relevant and demographic variables that do not speak directly to the changeability of opportunities—thereby, further establishing it as a unique and potentially important construct with theoretical and practical relevance.

Method

Participants and Recruitment Procedure

Participants were recruited from MTurk using the same detailed prescreening procedure described in Study 5 to identify unemployed people in need of income. MTurk was ideal given that we sought to sample an unemployed population, and many of those people would likely use MTurk to earn income between jobs. Furthermore, it provided the ability to reach our target population throughout the United States, and ensured that they had basic employable skills, such as verbal and computer literacy.

In determining our sample size, there was no basis on which to predict an odds ratio for theories of opportunity predicting employment status. Therefore, we based our estimated effect size on the correlation between theories of opportunity and expectancy for success when financial resources were portrayed as low in Study 2 ($r = 0.24$), which was most relevant to the present study. This resulted in a minimum required sample of 133 (with $1 - \beta = 0.80$ and $\alpha = 0.05$). The present study investigated real-world outcomes, however, rather than the hypothetical outcomes in Study 2. Therefore, we intended to oversample in case the effect size for actual success in securing employment was smaller.

We concluded recruitment after 1 month, at which point 414 people had passed the prescreen and participated in the Time 1 survey. We chose this stopping point because we anticipated an attrition rate of approximately 50% for our time span (Daly & Natarajan, 2015), and therefore this initial sample would allow us to reach or exceed the 133 required for the Time 2 survey. Time 1 participants were paid a small sum and were told that they would earn an additional \$5.00 if and when they participated in the Time 2 survey.

One-hundred-seventy-six (42.5%) of those who completed the Time 1 survey participated in the Time 2 survey and were paid accordingly (see Attrition Analyses below). However, eight of them indicated that, since the Time 1 survey, they developed a disability that limited their ability to work or find employment (one of our exclusion criteria; see above). This left 168 participants (52% female, $M_{\text{age}} = 35.4$ years) for analyses. A sensitivity analysis showed that this sample had the power to detect effects of $r = .21$. They comprised 71.4% White or Caucasian, 13.1% Black or African American, 11.3% Asian or Asian American, 7.1% Hispanic or Latinx, 1.2% American Indian and Alaskan Native, and 0.6% other. The sample also comprised people from at least 22 employment industries as evidenced by the industry of their last job. The most common industries were "sales and related" (14.9%), "business and financial" (8.9%), and "computer and mathematical operations" (8.3%; see Supplemental Analyses Table 1, for further details).

Procedure

After passing the prescreen, participants immediately began the Time 1 survey. Along with the Time 2 survey, they were designed to test multiple correlates of theories of opportunity, only some of which were centrally relevant to the current research. These comprised most of the Time 1 survey and only two measures from the Time 2 survey (the Time 2 survey primarily focused on separate hypotheses related to resiliency during successful vs. unsuccessful job searches; see Supplemental Materials, for full surveys and Supplemental Analyses, for results of the Time 2 survey that are not reported here). Specifically, consistent with the studies reported above, we focused on

securing employment (the goal) and strategic thinking and behavior (the goal strategies) as a function of participants' theory of opportunity. The surveys also included various individual difference assessments and questions about participants' employment search. The Time 1 survey took a median of 12.7 min to complete.

Each participant was sent a Time 2 survey invitation 5 months after the date on which they submitted their Time 1 survey. When needed, a reminder email was sent several days later. Email invitations and reminders were sent anonymously through MTurk; per MTurk policy, no email address or identifying information was collected. We waited 5 months between Time 1 and Time 2 based on labor statistics indicating that there would be sufficient variability in employment status at that time (Bureau of Labor Statistics, 2017), allowing us to assess differences in employment status as a function of participants' theory of opportunity. Afterward, participants completed several individual difference assessments. The Time 2 survey took a median of 8.0 min to complete.

Measures in Time 1 Survey

Means, standard deviations, and scale reliabilities for all variables described below are presented in Table 4. Zero-order and partial correlations can be found in Supplemental Analyses Table 2. Across all measures, higher scores represent stronger endorsement of the construct or longer amounts of time. For the implicit theories measured, higher scores refer to a stronger growth theory.

Measures of Strategic Thinking and Behavior in Participants' Employment Search.

Endorsement of Active Goal Strategies for Employment. To test the hypothesis that participants with a stronger growth theory would more strongly endorse active goal strategies during their job search (as compared to passive strategies or goal abandonment), we assessed goal strategies similarly to Study 2. The instructions, however, were changed to read "Imagine that a month from now you are still unemployed. Please indicate your level of agreement with what you would probably do." Some language was also changed for the active items to reflect the goal of securing employment (i.e., "Keep working hard to find employment" and "Keep trying hard to find employment"). The two goal abandonment items were also changed. In previous studies, participants had been imagining an ambitious goal that could be abandoned without real consequences. In the present study, however, participants were unlikely to consider their employment goal as something they could abandon, given their need for income. Therefore, we asked similar questions that instead assessed their willingness to temper their expectations (e.g., "Pursue a more realistic employment goal" and "Settle for less ideal employment"). Passive items were unchanged (e.g., "Just hope for a big break," "Wait for the right opportunities to present themselves").

Days Until Employment Search Began. To test the hypothesis that participants with a stronger growth theory would more quickly deploy active strategies in their job search, thereby cultivating opportunities that could lead to employment, we examined how quickly they began their job search. Therefore, participants reported the date of their last day of work at their previous job and the date they began searching for a new job. To create a variable indicating the number of days they waited before searching for a new job, we subtracted the former from the latter.

Table 4
Study 6 Means, Standard Deviations, and Reliability Coefficients

Variable	<i>M</i> (<i>SD</i>)	α	Variable	<i>M</i> (<i>SD</i>)	α	Variable	<i>M</i> (<i>SD</i>)	α
1. Theory of opportunity	3.82 (1.22)	.93	8. Days unemployed at Time 1	451 (705)	—	15. Age	35.37 (10.62)	—
2. Active employment goal strategy endorsement	5.11 (1.06)	.92	9. Conscientiousness	5.50 (1.28)	.73	16. Gender (1 = men, 0 = women)	.48 (.50)	—
3. Passive employment goal strategy endorsement	3.88 (1.23)	.87	10. Optimism	3.13 (1.01)	.90	17. Bachelor's degree (1 = yes, 0 = no)	.51 (.50)	—
4. Tempering of employment goal expectations	4.29 (1.09)	.62	11. Theory of intelligence	4.08 (1.40)	.96	18. Steady employment (Time 2; 1 = yes, 0 = no)	.49 (.50)	—
5. Days until employment search began	213 (609)	—	12. General belief in a just world	4.08 (1.13)	.82	19. Theory of opportunity (Time 2)	3.86 (1.19)	.91
6. Total different job search behaviors used	6.51 (2.19)	—	13. Grit	3.51 (.62)	.82			
7. Frequency of all job search behaviors used (<i>z</i> score)	.02 (.57)	—	14. Subjective SES	4.32 (1.80)	—			

Note. SES = socioeconomic status. Variables are from Time 1 unless otherwise specified.

Job Search Behaviors. To test the hypothesis that participants with a stronger growth theory would engage in goal strategies that were more active in their job search, we adapted and expanded upon job search assessments developed by Wanberg (1997). We assessed the *number* (i.e., diversity) of different job search behaviors participants engaged in, and the *frequency* with which they did so, as indicators of their active efforts to secure employment. To examine their specific job search behaviors, participants were asked whether or not they had engaged in the following behaviors in their job search since becoming unemployed: (a) “Used an online job board, job search engine, or general search engine (e.g., CareerBuilder, Craigslist, Monster.com, Google),” (b) “Read classified ads in print (e.g., newspaper, magazines),” (c) “Attended a career fair,” (d) “Visited a career center or employment agency (either in-person or online),” (e) “Used a social networking website (e.g., LinkedIn, Facebook, Twitter, etc.),” (f) “Asked family or friends about possible job leads,” (g) “Asked previous employers or work colleagues about possible job leads,” (h) “Read books or articles about getting or changing jobs,” (i) “Submitted applications or resumes to potential employers,” (j) “Directly contacted potential employers via telephone, email, etc.,” (k) “Tried to learn more about the place(s) where you are applying for work,” and (l) “Created or updated your resume.” They were also given the opportunity to type up to three additional behaviors they had used that were not presented in the list, an option seldom used.

Before analyzing the data, we collapsed (a) and (b) into a single category because they were correlated and represented the same behavior of searching job postings, $r(66) = .31, p = .009$. We also collapsed (c) and (d) into a category because they were correlated and represented the same behavior of using official career services, $r(20) = .53, p = .012$. We summed the total number of different behaviors they reported, including any additional behaviors they reported, as an overall indicator of the diversity of job search behaviors used. A maximum of 13 was possible (10 job search categories, plus up to three additional write-in behaviors).

For each job search behavior they indicated having used, they were also asked to report their best estimate of how many times they had used it since their last day of employment. We calculated a composite across all of their ratings to reflect the frequency with

which they engaged job search behaviors as a whole. Because some participants reported having used certain behaviors far more frequently than other participants, we omitted values over 3 *SD* above the mean for each behavior before calculating a composite (e.g., one participant reported searching job ads 2,030 times, and another reported having contacted 100 potential employers). Furthermore, because some behaviors were used far more frequently on average than others, we first standardized values within each category before calculating a mean of the nine *z*-scored strategies. This was done because, although people tended to, for example, search job listings far more often than they read books or articles about securing employment, the former behavior can be effectively done quickly and easily, whereas the latter can take more time and effort, yet yield meaningful insights. (Write-in search behaviors were not included in this composite because they were not consistent across participants.) This composite variable was used to examine the relation between theories of opportunity and the frequency with which people engaged in job search behaviors overall.

Length of Unemployment at Time 1. We calculated the number of days participants had been unemployed by subtracting the date of their last day of work at their previous job from the date on which they took the Time 1 survey. This was used as a covariate in analyses where it was theoretically related to the dependent variable, specifically analyses pertaining to employment status and the number and frequency of job search behaviors participants used. Doing so statistically controlled for variation in the amount of time participants had been unemployed at Time 1.

Conscientiousness. Same as Study 5.

Implicit Theories of Opportunity. Same as Studies 1b–3 and 5.

Optimism. Optimism has been linked to relatively adaptive responses to major setbacks (e.g., Litt et al., 1992; Scheier et al., 1989), which can be critical for employment goals. Given that people with a stronger growth theory of opportunity may be more likely to be optimistic about their future, we assessed the construct as a covariate to test whether theories of opportunity would predict employment status above and beyond their global level of optimism. To this end, participants completed the Revised Life Orientation Test (Scheier et al., 1994) without filler items. They rated six items (1 = *I disagree a lot*, 5 = *I agree a lot*), for example, “I’m always

optimistic about my future,” and “If something can go wrong for me, it will.” After reverse-coding the negatively phrased items, we calculated a mean composite.

Implicit Theories of Intelligence. Participants completed the four-item Theories of Intelligence Scale (Dweck, 1999). They rated their level of agreement with statements such as “You have a certain amount of intelligence, and you can’t really do much to change it” (1 = *Strongly disagree*, 6 = *Strongly agree*). Given that a growth theory of intelligence has been found to predict resilience and higher achievement (e.g., Blackwell et al., 2007; see Dweck, 2006; O’Keefe, 2013), we examined their implicit theory of intelligence as a covariate to test whether theories of opportunity would predict employment status above and beyond people’s beliefs about the malleability of intelligence.

General Belief in a Just World. We assessed the extent to which people believe the world is just (Lerner & Miller, 1978), using the six-item General Belief in a Just World Scale (Dalbert, 1999). Participants rated statements such as “I believe that, by and large, people get what they deserve” (1 = *Strongly disagree*, 7 = *Strongly agree*). Because people’s beliefs about the general fairness of the world likely relate to their beliefs about their perceived employment opportunities, we assessed this variable to test whether theories of opportunity would predict employment status above and beyond their general belief in a just world.

Grit. Grit has been linked to increased performance and achievement (Duckworth et al., 2007), suggesting that it may relate to success at securing employment. Therefore, we assessed this variable to test whether theories of opportunity would predict employment status above and beyond participants’ level of grit. Participants completed the eight-item Grit Scale (Duckworth & Quinn, 2009), rating items such as “I finish whatever I begin” and “I often set a goal but later choose to pursue a different one” (1 = *Very much like me*, 5 = *Not like me at all*). After reverse-scoring the relevant items, a mean was calculated.

Demographics. Age, gender, and education level were assessed. Subjective SES was assessed in the same manner described in Study 3. As in the prior studies, SES was unrelated to theory-of-opportunity scores, $r(166) = 0.08$, $p = .310$.

Measures for Time 2 Survey

Employment Status. To test our primary hypothesis that participants with a stronger growth theory would be more likely to secure steady employment, we assessed their employment status 5 months after the initial survey. Because we used self-report, which can potentially lead to biased or inaccurate reporting, we designed our measure to reduce this possibility. Given that bias is more likely when measures leave room for interpretation (e.g., Bernard, 2011; Davies, 2020), we designed the assessment to be highly precise, leaving little-to-no room for interpretation about the definition of one’s employment status. Specifically, participants indicated yes ($n = 82$) or no ($n = 86$; coded 1 and 0, respectively) to the question “Do you currently hold steady employment, or have an official offer for steady employment? (Steady employment refers to a job for which you receive a steady source of income.)” We focused on steady employment because, even if it was not always full-time, it represented a meaningful advancement over being unemployed at Time 1.

Similar self-report assessments of employment status have been used in past reemployment research (e.g., Wanberg et al., 1996, 1999, 2020). As those authors argued, social desirability bias is less likely to play a role if surveys are anonymous (like ours). Finally, to further encourage accurate reports, we emphasized at the beginning of the survey that “there are no right or wrong answers—we are simply interested in learning about your experiences. Please answer as accurately and honestly as you can.” Instructions like this help increase response accuracy (MacKenzie & Podsakoff, 2012).

Implicit Theories of Opportunity. Same as the Time 1 survey.

Results

In the analyses reported below, small differences in degrees of freedom are attributable to missing data on the variables in question.

Attrition Analyses

Comparing those who participated in the Time 2 survey with those who did not, there were significant differences on only three demographic or individual difference variables. Moreover, as we report below, controlling for these three variables in the analyses did not change our results. First, those who participated in the Time 2 survey were older ($M = 35.37$, $SD = 10.62$) than those who did not ($M = 32.46$, $SD = 9.86$), $t(404) = 2.84$, $p = .005$, $d = 0.28$. Second, among those who participated in the Time 2 survey, 51% had a bachelor’s degree or higher, whereas 39% of those who did not participate had a bachelor’s degree, $\chi^2(1, N = 389) = 5.97$, $p = .015$. Third, those who participated in the Time 2 survey reported a weaker growth theory of intelligence ($M = 4.08$, $SD = 1.40$) than those who did not ($M = 4.38$, $SD = 1.36$), $t(404) = 2.13$, $p = .033$, $d = 0.22$. Furthermore, and importantly, there was no difference in participants’ theory of opportunity, $t(404) = 0.88$, $p = .381$, $d = 0.09$.

Predicting Employment Status 5 Months Later

Using logistic regression for our primary analysis, and as hypothesized, a stronger growth theory of opportunity predicted a stronger likelihood of securing employment 5 months after the Time 1 survey, $B = 0.33$, Wald = 6.12, $p = .013$, odds ratio = 1.39. For every unit increase in theory-of-opportunity score (i.e., toward a stronger growth theory), the likelihood of employment increased by 39%.

The effect remained significant ($.005 \leq ps \leq .044$) when individually controlling for the duration of unemployment at Time 1, conscientiousness, optimism, general belief in a just world, theory of intelligence, grit, subjective SES, age, gender, and level of education (see Table 5, for results of each model). Three of these covariates significantly predicted employment with theory of opportunity included in the model: fewer days unemployed at Time 1, $p = .011$; believing the world is more just, $p < .001$, and greater optimism, $p = .024$. Therefore, although these three emerged as predictors as well, theories of opportunity predicted employment above and beyond each covariate.

We tested covariates individually, in part, to avoid multicollinearity due to the relatedness among several variables, but primarily because our interest was in demonstrating that our construct predicted unique variance as compared to existing constructs, which it did. Nevertheless, we also found that theory of opportunity predicted Time 2 employment while controlling for all 10 covariates, $B = 0.46$,

Table 5
Study 6 Logistic Regression Results for Models That Tested the Relation Between Theories of Opportunity (Time 1) and Employment Status (Time 2) While Individually Controlling for Theoretically Relevant Individual Difference and Demographic Variables

Model	Variable	B	SE	Wald	p value	Odds ratio
1.	Theory of opportunity	0.286	0.136	4.451	.035	1.331
	Days unemployed at Time 1	-0.001	0.000	6.480	.011	0.999
2.	Theory of opportunity	0.304	0.134	5.124	.024	1.355
	Conscientiousness	0.143	0.125	1.295	.255	1.153
3.	Theory of opportunity	0.275	0.136	4.072	.044	1.317
	Optimism	0.373	0.165	5.109	.024	1.452
4.	Theory of opportunity	0.387	0.146	7.067	.008	1.473
	General belief in a just world	0.719	0.172	17.541	<.001	2.052
5.	Theory of opportunity	0.429	0.153	7.852	.005	1.536
	Theory of intelligence	-0.183	0.132	1.934	.164	0.833
6.	Theory of opportunity	0.292	0.137	4.551	.033	1.339
	Grit	0.280	0.264	1.120	.290	1.323
7.	Theory of opportunity	0.318	0.134	5.656	.017	1.374
	Subjective SES	0.128	0.089	2.041	.153	1.136
8.	Theory of opportunity	0.324	0.135	5.746	.017	1.383
	Age	-0.027	0.015	3.017	.082	0.974
9.	Theory of opportunity	0.328	0.133	6.097	.014	1.388
	Gender (0 = female, 1 = male)	-0.017	0.315	0.003	.958	0.983
10.	Theory of opportunity	0.314	0.135	5.432	.020	1.369
	Bachelor's degree (0 = No, 1 = Yes)	-0.140	0.321	0.191	.662	0.869

Note. SES = socioeconomic status; SE = standard error.

Wald = 5.79, $p = .016$, odds ratio = 1.58 (Supplemental Analyses Table 3). In this model, the covariates that also predicted employment were the number of days unemployed at Time 1, $p = .006$, theory of intelligence, $p = .039$, and belief in a just world, $p < .001$.

Strategic Thinking and Behavior in Participants' Employment Search

To examine whether those with a stronger growth theory had engaged in greater strategic thinking and behavior during their job search, we examined three indicators: (a) their endorsement of active employment goal strategies, (b) how quickly they began their job search after job loss, and (c) the number and frequency of job search behaviors they used.

Predicting Active Employment Goal Strategy Endorsement.

As reported in Supplemental Analyses Table 2, and consistent with Studies 1a and 2, a stronger growth theory of opportunity was associated with a stronger endorsement of active employment goal strategies (e.g., "Keep working hard to find employment"), $r(166) = 0.20$, $p = .009$, $r_s(166) = 0.18$, $p = .020$.³ Also consistent with our previous studies, a stronger fixed theory was associated with passive goal strategies, $r(166) = -0.19$, $p = .016$ (e.g., "Just hope for a big break"). Theories of opportunity did not predict endorsement of the idea that they should temper their expectations for what their next job will be (e.g., "Settle for less ideal employment"), $r(166) = 0.04$, $p = .612$. This latter result may be because, regardless of their implicit theory, participants were likely more concerned about securing any suitable employment than about securing their ideal employment. In support of this idea, participants tended to agree that their expectations would need to be tempered if they remained unemployed in the future.

Predicting How Quickly Participants Began Their Job Search. As shown in Supplemental Analyses Table 2, those with

a stronger growth theory of opportunity reported having taken less time to begin their job search after job loss, $r(166) = -0.18$, $p = .017$, indicating that they more quickly took active measures to secure employment.

Predicting the Number and Frequency of Strategic Job Search Behaviors.

With regard to the strategic job search behaviors participants engaged in, we first examined the total number of different behaviors used. A stronger growth theory was associated with having engaged in a greater variety of job search behaviors overall, $B = 0.18$, $t(166) = 2.40$, $p = .017$. Theories of opportunity remained significant, $B = 0.17$, $t(164) = 2.23$, $p = .027$, when controlling for the time participants were unemployed at Time 1, $B = -0.07$, $t(164) = -0.96$, $p = .339$.

We then examined the frequency with which the strategic job search behaviors were used since participants had become unemployed. Analyzing the mean composite of standardized frequency scores described above, a stronger growth theory of opportunity predicted overall greater frequency of engaging in job search behaviors, $B = 0.17$, $t(166) = 2.27$, $p = .025$. Theories of opportunity remained significant, $B = 0.20$, $t(164) = 2.60$, $p = .010$, when controlling for the time participants were unemployed at Time 1, $B = 0.18$, $t(164) = 2.32$, $p = .022$.

Mediational Role of Strategic Thinking and Behavior in the Pursuit of Employment

By what processes did a stronger growth theory predict an increased likelihood of employment at Time 2? In this section, we first analyzed our three strategic thinking and behavioral

³ As in Study 1a, only active strategies showed excessive skewness (-1.45) and kurtosis (2.10). Therefore, we additionally present the Spearman rank correlation.

indicators as mediators (i.e., active goal strategy endorsement, quickness to begin job search, and job search behaviors) in three separate mediation models.

Although two of these indicators—active strategy endorsement and job search behaviors—were significantly predicted by Time 1 theory of opportunity, they did not predict Time 2 employment status (see [Supplemental Analyses Table 2](#) for correlations). Therefore, they were not significant mediators. However, quickness to begin the job search was predicted by Time 1 theory of opportunity and itself predicted steady employment. Therefore, we tested whether those with a stronger growth theory secured employment, in part, because they were quicker to begin their job search after job loss—evidence of engaging in active strategies. The analysis was implemented with the PROCESS macro (Model 4) using 5,000 bias-corrected bootstrap samples (PROCESS does not generate a total effect for dichotomous outcomes).

A stronger growth theory predicted less time in between participants' last day of work and when they began their job search, $B = -91.52$, $t(166) = -2.40$, $p = .017$, 95% CI $[-166.7100, -16.3217]$, and this shorter time predicted a higher likelihood of employment (marginally), $B = -0.001$, $Z = -1.65$, $p = .099$, 95% CI $[-0.0015, 0.0001]$ (while controlling for theories of opportunity). The indirect effect was significant, 95% CI $[0.0020, 0.3041]$, along with the direct effect, $B = 0.29$, $Z = 2.13$, $p = .033$, 95% CI $[0.0234, 0.5488]$, suggesting partial mediation (see [Figure 6](#)). Although the b link was marginally significant, the indirect effect can still be significant because it is determined by the product of the a and b paths (Hayes, 2017). This mediation suggests that those with a stronger growth theory were more likely to be employed 5 months later, in part, because they were proactive in their job search after job loss.

Discussion

A stronger growth theory of opportunity predicted a greater likelihood that unemployed people would report having secured steady employment with a reliable source of income 5 months after the initial survey. This effect remained significant when controlling for a variety of motivation-relevant and demographic variables, further suggesting that theories of opportunity explain unique

variance in the achievement of a critical, real-life goal and further establishing it as a unique and useful construct.

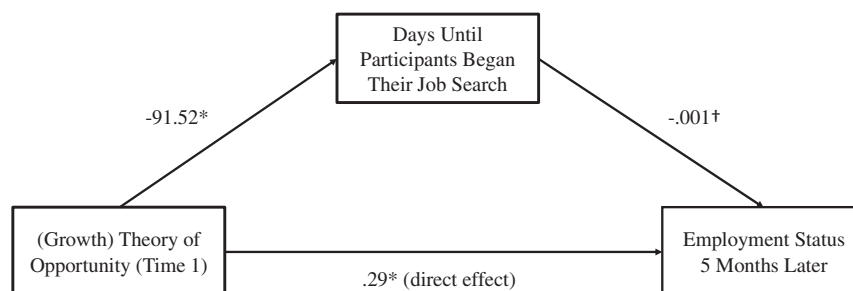
Our mediation analysis also suggested that proactive behavior may help explain why people with a stronger growth theory were more likely to secure employment, namely how quickly people began their search for a new job. It may be that people with a stronger growth theory more readily saw that potential employment opportunities could be cultivated, and then took the necessary actions. By contrast, specific job search behaviors did not emerge as mediators. In the context of our study, given all of the influences involved in securing employment, and in a wide variety of industries, we were pleased to find a mediating effect for any of our measures. However, in terms of specific job search strategies, it might be the strategic coordination of these behaviors toward the cultivation of opportunities—not whether they were individually used—that predicts success. This is an interesting question for future research.

There are seemingly endless psychological, social, and circumstantial variables involved in securing a job; yet, it is compelling that through all of this noise, theories of opportunity still predicted employment.

Internal Meta-Analysis of the Main Effect of Theory of Opportunity and Its Interaction With Opportunity Condition

In several studies, we found that a stronger growth theory was associated with higher expectancies of success in conditions where opportunities or resources for goal pursuit were not available (i.e., opportunities-not-available condition), but there was no association in conditions where opportunities or resources for goal pursuit were readily available (i.e., opportunities-available condition). However, the sample sizes of those individual studies were relatively small, which could lead to less precise estimates of effect sizes. Therefore, we conducted an internal meta-analysis of the three studies ($N = 308$) that tested the interaction between measured theory of opportunity and opportunity condition on expectancies of success (Study 1b, Study 3, and the conceptual replication of Study 4 reported in the [Supplemental Analyses](#)).

Figure 6
Model Testing the Mediating Role of How Quickly Unemployed People Began Searching for a New Job in the Relation Between Theories of Opportunity and Their Employment Status 5 Months Later (Study 6)



Note. Unstandardized coefficients are indicated in the pathways. The indirect effect was significant 95% CI $[0.0020, 0.3041]$. PROCESS does not generate a total effect for dichotomous outcomes.

† $p < .10$. * $p < .05$.

Following approaches described in Borenstein et al. (2021) and Goh et al. (2016), we calculated the correlation of theory of opportunity with expectancies of success across opportunity conditions in each study to meta-analyze the main effect of theory of opportunity. To meta-analyze the interaction of theory of opportunity with condition, we calculated the correlation within each opportunity condition. See Supplemental Analyses Table 4, for correlations and other effects used in the meta-analysis.

Meta-analyses were performed in MedCalc Version 20.114, using random effects because assessments were not identical across studies. First, we calculated the average mean effect size of theory of opportunity on expectancies for success. Effects were transformed for the meta-analysis using Fisher's z and then converted back to Pearson r s for ease of interpretation. The average mean effect was $M r = .26, p < .001, 95\% \text{ CI } [.147, .359]$, and Cochran's Q test showed no evidence of heterogeneity across studies, $Q_{(2)} = 0.69, p = .708$. This suggests that overall, the correlation between theory of opportunity and expectancies of success was slightly below a medium effect size (Cohen, 1988).

To meta-analyze the interaction effect, we first tested the difference in correlations between opportunity conditions for each study and then converted the resulting z statistics to Cohen's d s (Rosenthal & DiMatteo, 2001; see Itzchakov et al., 2018, for a similar approach). We meta-analyzed the Cohen's d of the interaction, finding a mean $d = 0.45, 95\% \text{ CI } [.222, .675], p < .001$ with no evidence of heterogeneity across studies, $Q_{(2)} = 0.24, p = .887$. More specifically, meta-analyses within each opportunity condition showed that the average correlation between a stronger growth theory of opportunity and expectancies for success in the opportunities-available condition was not significant, $M r = .06, p = .453, 95\% \text{ CI } [-.099, .220]$, whereas the average correlation in the opportunities-not-available condition was medium-to-large, $M r = .47, p < .001, 95\% \text{ CI } [.336, .590]$.

These results support the hypothesis that, when opportunities to achieve goals are available, people with fixed and growth theories of opportunity expect equal levels of success, but when opportunities are not available, a stronger growth theory is associated with greater expected success than a stronger fixed theory.

General Discussion

Many people will face diminished opportunities during their lifetime, whether due to structural inequalities, the pandemic, automation, artificial intelligence, or otherwise. In the face of these obstacles, it is important to ask: What contributes to the likelihood that people will try to cultivate opportunities toward important and challenging long-term goals? Starting a small business, securing employment, or transitioning to a more fulfilling career typically requires cultivating key opportunities that help open a path toward success. Our research shows that beliefs about the nature and workings of opportunities can matter.

When opportunities are currently lacking, those with a growth theory of opportunity are more likely than those with a fixed theory to endorse active, rather than passive, means for pursuing a goal, and are less likely to feel they should give up, all reflecting their belief that opportunities are changeable and that new ones can be cultivated. In turn, they also feel that success is more likely. And as shown in Study 6, a growth theory of opportunity can predict the actual success of a critical real-life goal, as reported by individuals who were unemployed at the beginning of our study. Our results

were consistent across different sources of opportunities (key one-time opportunities and financial resources), demonstrating different ways they can emerge in the real world, thus capturing a wider variation of the phenomenon. Results were also consistent across participants (adults and college students with a diversity of ethnicities, ages, education, and SES), goals (e.g., athletic, entrepreneurial, employment), and participant recruitment methods (MTurk, college, and research panels).

With respect to power, rigor, and precision, because we mostly assumed medium effect sizes, individual study sample sizes were not large (although the total across studies was large). We therefore conducted an internal meta-analysis to more precisely pinpoint true effect sizes in the interaction studies, which were more at risk of being underpowered. We sought to maximize rigor and precision by developing a measure of theories of opportunity that showed high internal reliability as well as discriminant validity from well-established individual differences in other implicit theories, personality, and motivation. Moreover, we tested our hypotheses both with and without relevant covariates. Indeed, our results were not attributable to implicit theories in other domains, individual differences relating to goal striving, or potentially relevant demographics. We also included a careful manipulation check when we manipulated theories of opportunity in Study 4. Finally, we sought to understand process by systematically testing possible mediators (Studies 2, 4, and 6). In Study 4, for example, our coders were trained extensively and their reliability was monitored. In Study 6, we tested mediation of real-world goals across a 5-month interval.

Importantly, our research highlights the potentially inhibiting effects of a fixed theory of opportunity when opportunities are not apparent but might, in fact, be cultivated. We found that when opportunities appear readily available, a fixed theory does not seem to prevent endorsement of active strategies and high expectancies for success; however, when opportunities are not readily available, it can more readily lead people to feel helpless, believing that a reasonable way forward might be to keep waiting or to hope for the best. A fixed theory may also lead to goal disengagement without much consideration of other doors that could be opened toward the goal. Certainly, disengagement can be adaptive (Klinger, 1975; Shah & Kruglanski, 2008; Wrosch, Scheier, Carver, et al., 2003; Wrosch, Scheier, Miller, et al., 2003), such as when a pursuit comes at the cost of one's concurrent goals, relationships, well-being, or more tractable alternatives. However, for strongly valued goals that are central to one's needs or aspirations—and for which opportunities may well exist—disengagement can be detrimental.

Interestingly, in our studies (and another study reported in the Supplemental Analyses), we found that a growth theory led to equally high expectancies for success whether or not opportunities were readily available. On the surface, this result might seem counterintuitive (and perhaps unrealistic), but it may shed light on how people with a growth theory think about their pursuits. When opportunities are present, the path forward is clear. When opportunities are absent, however, it may prompt them to think about a step-by-step process that will incrementally lead toward opportunities. Although this process of cultivating an opportunity might be longer and more difficult than if the opportunity had been readily available, those steps may make the opportunity feel quite attainable. Indeed, we found that those holding a growth theory were more likely to freely generate effective, long-term plans involving the cultivation of opportunities (Study 4).

Accordingly, our research has implications for the pursuit of particularly complex goals that are difficult to initiate. Thus far, we have been speaking as though each goal requires one initial opportunity. However, some long-term goals may require cultivating multiple. When beginning a business, for example, one may need to cultivate a number of different opportunities, such as those that lead to securing loans, investors, merchandise, and customers. Moreover, when some opportunities take people only so far, new ones would need to be cultivated across the duration of the pursuit. This perspective may make a growth theory of opportunity even more important, not just for the initiation, but also for the maintenance and accomplishment of long-term goals.

Despite the consistency of our findings across different types of goals, opportunities, and methodologies, our research had several limitations. For example, our investigations of real-world goals (Studies 5 and 6) focused on employment. While careers and employment count among people's most important life goals, it remains to be seen how theories of opportunity might apply to other domains, such as goals for education, health, or relationships. Additionally, most of our assessments used self-report. We attempted to reduce self-report bias where possible—for instance, trained judges coded the likelihood of success of participants' ideas for goal pursuit in Study 4 and, in Study 6, we designed a highly precise assessment of employment status. However, future studies should corroborate and extend our findings with other behavioral outcomes or objective indicators of goal strategies and goal attainment.

Although grounded in the implicit-theory framework, our work speaks to multiple literatures. For example, our research shares a theoretical space with locus of control (Rotter, 1966) and attributional style (Abramson et al., 1978; Peterson et al., 1982). Broadly speaking, people with an external rather than internal locus view outcomes like goal attainment as outside of their control. People with an attributional style that explains events as caused by outside forces—or by inner factors perceived as unchangeable like one's level of ability—also feel less agency and control over their outcomes. Building on this, theories of opportunity can help explain the circumstances under which different people assume or relinquish a sense of control. For example, we saw in Study 4 that when people had sufficient financial resources to facilitate a goal, growth and fixed theories were judged to show equally high personal agency in their plans for goal pursuit. But when financial resources were lacking, a fixed theory reduced personal agency, relative to a growth theory. An important future extension of this work will be to understand how locus of control and attributions inform the goal-directed behaviors of those with a fixed or growth theory of opportunity over time, particularly as they navigate major obstacles and challenges.

Similarly, theories of opportunity may speak to attributions of intentionality in others—whether people view others' behavior as intentional and goal-directed (e.g., Malle & Knobe, 1997). In assuming that opportunities can be cultivated, those with a growth theory may therefore more readily perceive others' behaviors as intentional, driven by their pursuit of a goal or their desire to bring about a favorable opportunity. Finally, our findings may speak to the development of personality characteristics like the propensity to engage in “if-then planning” (Bieleke & Keller, 2021). People prone toward if-then planning naturally seek out or create situations in which they can work toward their goal. Our findings would suggest

that the implicit belief that opportunities are changeable rather than fixed may precede or support this disposition. Understanding the connections between theories of opportunity and other motivational constructs remains an important direction for future research.

Given the implications of our findings, in the future, people might benefit from carefully developed, researched, and contextualized interventions focused on promoting a growth theory of opportunity and providing instruction on how to effectively cultivate the opportunities they need—while recognizing that opportunities may not be as readily available to all and without placing blame on the individual if their attempts are unsuccessful. Given that many of today's employable skills will become obsolete due to automation and artificial intelligence, and given that unemployment is expected to increase as a result (Manyika et al., 2017), many people (e.g., the ageing workforce) may benefit from such interventions. Likewise, schools could teach students to view opportunities as cultivatable through self-reflective exercises that ask them to carefully consider how to seek out or create opportunities for goals they feel are currently relevant yet not readily accessible to them. Such assignments could better prepare them for life after schooling. Future research will need to consider how to deliver such interventions sensitively and effectively and how their impact can be assessed (see O'Keefe, Lee, et al., 2021).

Promoting a growth theory of opportunity should be done carefully, however, as theories of opportunity may influence how people judge the life circumstances of others. Someone with a growth, as compared to a fixed, theory may be more inclined to assume that anyone can become upwardly mobile, even those who are less privileged, without considering the social or circumstantial forces limiting their opportunities. After all, they judged success to be equally likely for the low-income versus moderate-income (i.e., well-resourced) individuals. Therefore, teaching a growth theory of opportunity should always be accompanied by the recognition of structural inequalities and, thus, recognition of the fact that cultivating new opportunities is much harder for some people than for others.

Importantly, our research does not suggest that a growth theory of opportunity can itself make anyone successful. It is merely part of the equation. There are real challenges people face—poverty, inequality of opportunity—that can make climbing the socioeconomic ladder profoundly difficult. Just as with theories of intelligence, there are limitations. Even with a growth theory of intelligence (Dweck, 2006)—the belief that intellectual abilities are improvable with effort, good strategies, and quality mentoring—students may be in educational contexts that are not inclusive, responsive to their needs, or supportive of their growth and learning (Yeager et al., 2022). Nonetheless, a growth theory of intelligence can contribute to improving intellectual abilities when the contexts allow or support it (see Yeager et al., 2019). Similarly, a growth theory of opportunity may contribute to helping people make incremental progress toward their most important goals, bettering what Weber (2009) referred to as their “life chances”—as long as the contexts they live in allow and support their cultivation of opportunities.

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